			IBM_TDB			
S225	174	S224 and (electronic or digital) adj (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:22
S227	11	S224 and (e-bill)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:23
S228	8566	(contactless or NFC or wireless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:15
S229	5	S228 and (electronic or digital) adj (statement)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:15
S230	887	(contactless or NFC or wireless or proximity) adj (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:17
S231	31	S230 and (electronic or digital) adj (bill$4 or invoic$4 or statement)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:18
S232	3518	(POS) and ((digital or electronic or e) adj (wallet or purse))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:23
S233	282	S232 and (electronic or digital) adj (bill$4 or invoic$4 or statement)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:23
S234	92	S233 and (contactless or NFC or wireless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2017/09/19 12:23

			EPO; JPO; DERWENT; IBM_TDB			
S235	25	(POS) near ((digital or electronic or e) adj (wallet or purse))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:25
S236	189	(merchant) near ((digital or electronic or e) adj (wallet or purse))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:53
S237	4	"20070131780"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/19 16:42
S238	15	("2007/0131780").URPN.	USPAT	OR	OFF	2017/09/19 16:43
S239	184	(nfc or emv or smartcard or contactless or proxmity or chip) near (payment or purchase or transaction) and ((electronic or e or digital) adj (bill$4 or invoic$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/19 17:33
S240	59	(nfc or emv or smartcard or contactless or proxmity or chip) near (payment or purchase or transaction) same ((electronic or e or digital) adj (bill$4 or invoic$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/19 17:34
S241	4	("2003023080").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 18:17
S242	2	("20040127256").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 18:20
S243	1	(mobile or portable) adj POS and ((contactless or nfc or proximity) adj (adapter))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 18:21

S244	294	("2004/0127256").URPN.	USPAT	OR	OFF	2017/09/19 18:22
S245	0	(10/625823).APP.	USPAT; USOCR	OR	OFF	2017/09/19 18:25
S246	95	POS near (purse or wallet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 07:00
S247	2	"20120290472"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 08:39
S248	1145	POS same (contactless or proximity or RFID) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 11:05
S249	44	S248 and (fund adj transfer$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 11:23
S250	76	S248 and ((merchant or vendor) near (purse or wallet))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 11:26
S251	67	S248 and ((merchant or vendor) adj (purse or wallet))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 11:26
S252	256	virtual adj POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 12:06
S253	14	S252 and (contactless or proximity or RFID) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 12:06

S254	7	S252 and (emv) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 12:37
S255	3	emv adj POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 12:38
S256	0	"201000274677"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 13:04
S257	3	"20100274677"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 13:04
S258	203	(contactless or proximity or RFID) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:08
S259	0	(NFC) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:08
S260	7	S258 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:08
S261	16	(NFC) near (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:08
S262	0	(smartcard) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2017/09/25 17:10

			DERWENT; IBM_TDB			
S263	0	S258 and (transaction or payment) adj terminal	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:12
S264	6563	((customer or client) adj side) and ((payment or transaction) adj process$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:07
S265	87	S264 and (electronic near (purse or wallet)) and NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:07
S266	34	(merchant-to-person)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:17
S267	3	(person-to-merchant) and (contactless or proximity or RFID) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:19
S268	0	(person-to-merchant) and (nfc) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:19
S269	23	(person-to-merchant) and (nfc)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:19
S270	618	(contactless or proximity or RFID) adj (payment or transaction) same (wallet or purse)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:22
S271	1	S270 and (security adj element)	US-PGPUB; USPAT; USOCR;	OR	OFF	2017/09/25 21:22

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S272	243	S270 and (secure adj element)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:22
S273	4	S272 and (electronic or digital or e) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:23
S274	0	S272 and (wireless or paperless or nfc) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:24
S275	5	(contactless or proximity or RFID or nfc) adj (payment or transaction) and (wireless or paperless or nfc) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:24
S276	78	(contactless or proximity or RFID or nfc) adj (payment or transaction) near request	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:25
S277	11	(person-to-merchant) and ((smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:27
S278	12	(person-to-merchant) and ((contactless or smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:27
S279	930	(person-to-person) and ((contactless or smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:27
S280	443	S279 and POS	US-PGPUB;	OR	OFF	2017/09/25

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			21:27
S281	121	S280 and (transmit$4 or send$4) adj (payment or transaction) near request	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:28
S282	15	(person-to-person) same ((contactless or smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:28
S283	82	S281 and (electronic near (purse or wallet))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:28
S284	41	S281 and mobile adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:28
S285	72	business-to-consumer and mobile adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:32
S286	12	S285 and ((contactless or smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:32
S287	5	card-to-card and (nfc or contactless or RFID or proximity or wireless) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:34
S288	7	card-to-card and (nfc or contactless or RFID or proximity or wireless) near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2017/09/25 21:34

			IBM_TDB			
S289	203	(contactless or proximity or RFID or nfc) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 22:06
S290	0	(card-to-card) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 22:06
S291	45	(card-to-card) same (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 22:06
S292	0	S289 and mobile adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 22:09
S293	148	(client-side) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:35
S294	1	S293 and (mobile adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:35
S295	0	S293 and (nfc adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:35
S296	212	(client adj side) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:35
S297	6	S296 and (mobile adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2017/10/04 23:36

			EPO; JPO; DERWENT; IBM_TDB			
S298	2	S296 and (nfc adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:36
S299	358	(closed-loop adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:37
S300	1	S299 and (nfc adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:37
S301	0	S300 and (mobile adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:37
S302	6	"20100114773"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 08:56
S303	459	(proximity or contactless or smartcard) adj POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 10:06
S304	91	S303 and (mobile adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 10:07
S305	535	(mobile or virtual) adj (wallet or purse) near (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 12:54
S306	339	S305 and POS	US-PGPUB; USPAT;	OR	OFF	2017/10/05 12:55

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S307	179	S306 and (secure adj element)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 12:57
S308	83	S307 and (smart adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 12:57
S309	4	"20140187153"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 13:12
S310	271	(smartcard) and (electronic or digital) adj (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:37
S311	53	(smartcard) with (electronic or digital) adj (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:38
S312	182	S310 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:38
S313	51	S311 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:39
S314	1265	(electronic or digital) adj (bill or invoice) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:40

S315	1267	(electronic or digital or virtual) adj (bill or invoice) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:40
S316	99209	nfc	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:41
S317	66	S315 and nfc	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:41
S318	90	S315 and (smartcard)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 21:04
S319	1372	(electronic or virtual or digital) adj (bill or invoice) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:06
S320	50	S319 and (wireless or contactless or nfc or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:12
S321	376	(electronic or virtual or digital) adj (check) and (nfc or wireless or contactless or proximity) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:16
S322	376	(electronic or virtual or digital) adj (check) and ((nfc or wireless or contactless or proximity) adj (transaction or payment))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:16
S323	207	S322 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2017/10/06 06:16

			DERWENT; IBM_TDB			
S324	79	S323 and (smartcard)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:16
S325	6	"20140143104"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/09 07:10
S326	3	"20100274677"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 08:38
S327	4	(("20090170559") or ("20120191612")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:46
S328	0	5748737/pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:48
S329	4	"5748737".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:48
S330	13595	(electronic or digital or virtual) adj (wallet or purse)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:49
S331	1082	S330 and (nfc or contactless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:49
S332	732	S331 and POS	US-PGPUB; USPAT; USOCR;	OR	OFF	2017/10/09 11:50

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S333	87	S332 and (electronic or digital or virtual) adj (bill or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:50
S334	25	(electronic or digital or virtual) adj (bill or invoic$4) adj (payment) and (nfc or contactless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:54
S335	0	(nfc or contactless or proximity) adj (bill or invoic$4) adj (payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/10 06:09
S336	139452	restaurant brands.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/10 13:01
S337	0	restaurantbrands.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/10 13:01
S338	7	"20140006205"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/06 08:50
S339	6	"20130138517"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/06 08:52
S340	18375	(electronic or digital) near (bill$4 or invoic$4 or check)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/06 09:19
S341	5793	POS near (payment or transaction)	US-PGPUB;	OR	OFF	2018/04/06

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			09:20
S342	533	S340 and S341	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/06 09:20
S343	405	S342 and 705/$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/06 09:20
S344	5	"20110066550"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/04/06 09:39

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S160	1647	705/21	USPAT	OR	ON	2015/03/26 16:56
S161	75	S160 and (electronic or digital) near (invoice or check)	USPAT	OR	ON	2015/03/26 16:57
S162	25	S161 and (smart or IC or RFID or EMV) adj card	USPAT	OR	ON	2015/03/26 16:57
S163	0	S162 and TSM	USPAT	OR	ON	2015/03/26 16:58
S164	16	S162 and S161 and provision$4	USPAT	OR	ON	2015/03/26 16:58
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S172	114	S171 and (smart or IC or RFID or EMV) adj card	USPAT	OR	ON	2015/03/26 16:59

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fiveIPoffices

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Application US201213468462

INPADOC family has approximately 3 simple families with 21 family members
Loaded: 1 simple family with 7 family members

Filter "Hide applicant citations": Off
Filter "Hide applications without citations": Off

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Applicant	XPnumber
BROADCOM CORP [US]	
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APPLE INC [US]
RACKWITZ KARSTEN [DE]

WAY SYSTEMS INC [US], et al

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Claims

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10-15

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Xiangzhen Xie et al
Title:	Trusted Service Management Process
Serial No.:	14/728,349
Filing Date:	06/02/2015
Confirmation:	5346
Examiner:	HAYLES, ASHFORD S
Group Art Unit:	3687
Docket No.:	RFID-085C1

January 13, 2018

Mail Stop: No-Fee Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Response to First OA

Dear Sir:

In response to Office Action dated 10/13/2017, the Applicant respectfully requests the Examiner to enter the following amendments before reconsidering the above-referenced application:

AMENDMENTS TO THE SPECIFICATION begin on page 2 of this Response.

AMENDMENTS TO THE CLAIMS are reflected in the listing of claims which begins on page 3 of this Response.

REMARKS/ARGUMENTS begin on page 9 of this Response.

AMENDMENTS TO THE SPECIFICATION

1. Please amend Paragraph [0007] as follows:

[0007] According to still another aspect of the present invention, a consumer uses his/her mobile device, per the data received therein, to settle the payment process with a payment network, where the payment network may be an existing payment infrastructure (e.g., money transfer or credit card/debit). A payment response is sent to the merchant once a payment is delivered to a ~~designed~~ designated account by the merchant.

2. Please amend Paragraph [0009] as follows:

[0009] According to still another aspect of the present invention, the mobile device used by the consumer is a near field communication (NFC) device and being part of a mobile payment ecosystem in which various parties ~~are~~ work with each other in order for the mobile payment ecosystem successful. Via a server (e.g., implemented as a manager) configured to provide what is referred to herein as Trusted Service Management (TSM), the secure element in the mobile device can be remotely personalized and various applications or modules can be downloaded, updated, managed or replaced after they are respectively provisioned via the Trusted Service Manager (i.e., the TSM server). One of the modules being installed in the POS machine or an NFC device used by the merchant is referred to as Smart Bill Payment. The module is configured to facilitate the communication between the merchant (its device) and the user (his/her mobile device) and the data exchange therebetween, where the mobile device being used by the user is installed with a corresponding application related to Smart Bill Payment.

AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 3-8, 10-12, 14-16, and 18-20 as follows:

1. (*Currently amended*) A method for mobile payment, the method comprising:

causing a mobile device to receive data wirelessly ~~an electronic invoice~~ from a point of sale (POS) device, the data including an electronic invoice and settlement information with a merchant associated with the POS device;

displaying the electronic invoice on a display of the mobile device to show an amount to be paid by a user of the mobile device, wherein the mobile device is ~~a near field communication device and~~ configured to execute an installed application therein to communicate with the POS device;

receiving an entry by the mobile device, the entry including an additional amount from the user;

calculating a total amount by adding the additional amount to the amount in the electronic invoice;

~~to~~ generating~~s~~ a payment request in response to the electronic invoice after the user has chosen a paying instrument, wherein the payment request includes the total amount and the settlement information;

displaying the electronic invoice on ~~a~~ the display ~~screen of the mobile device~~ for ~~a~~ the user to verify the payment request along with the chosen paying instrument;

~~processing~~ sending the payment request ~~in~~ from the mobile device to a payment gateway, wherein the payment gateway sends a message to the POS device that a monetary transaction per the payment request has been successfully completed with the POS device when an amount equivalent to the total amount is deducted from an account associated with the user; and

~~notifying the user~~receiving a confirmation in the mobile device that ~~a~~the monetary transaction per the payment request has been successfully completed with the POS device.

2. (*Original*) The method as recited in claim 1, wherein the POS device includes a contactless card loaded with the electronic invoice, and said causing a mobile device to receive an electronic invoice from a point of sale (POS) device comprises reading the contactless card to obtain the electronic invoice by the mobile device.

3. (*Currently amended*) The method as recited in claim 2, wherein the POS device includes a secure element that provides security and confidentiality required to support secure data communication between the POS device and the mobile device ~~a payment gateway~~.

4. (*Currently amended*) The method as recited in claim 1, wherein said displaying the electronic invoice on a display ~~screen~~ of the mobile device comprises:

   ~~causing~~ allowing the user to verify ~~an~~ the amount in the electronic invoice and make a change to the amount when needed;

   paying the total amount with ~~a~~ the chosen paying instrument, wherein the chosen paying instrument is selected from a group consisting of an electronic wallet already created in the mobile device, a traditional credit or debit card, and an electronic transfer.

5. (*Currently amended*) The method as recited in claim 1~~,~~ further comprising~~:~~ ~~wherein the POS device includes a contactless card loaded with the electronic invoice, and said causing a mobile device to receive an electronic invoice from a point of sale (POS) device comprises~~ causing the mobile device to execute an installed module upon detecting the POS device ~~a contactless card~~ in a near field of the mobile device, wherein the installed module executed ~~is configured to read off~~ to receive the data ~~pertaining to the electronic bill~~ from the POS device~~contactless card~~.

6. (*Currently amended*) The method as recited in claim 5, wherein the data further includes security information ~~of a registered user~~ about the merchant associated

with the POS device, the security information includes an account and bank information of the registered merchant~~user~~, an identifier of the secure element in the contactless card or the POS device.

7. (*Currently amended*) The method as recited in claim 6, wherein said ~~processing~~ sending the payment request from~~in~~ the mobile device to a payment gateway comprises:

transporting the payment request over a secured channel to ~~a~~ the payment gateway, where~~in~~ the payment gateway is configured to perform the monetary transaction per the payment request by deducting an amount from an account owned by the user and generates an electronic notification ~~to be sent~~ for sending to ~~the registered user associated with~~ the POS device.

8. (*Currently amended*) The method as recited in claim 7, wherein said displaying the electronic invoice on ~~a~~ the display ~~screen~~ of the mobile device comprises:

~~causing~~ allowing the user to ~~verify an~~ modify the total amount in the electronic invoice ~~and make a change to the amount~~ when needed;

paying the total amount with an electronic payment provided by an installed module in the mobile device, wherein the installed module in the mobile device is configured to generate ~~a~~ the payment request including the data pertaining to the electronic invoice to ~~a~~ the payment gateway for processing.

9. (*Original*) The method as recited in claim 8, wherein data exchange between the mobile device and the payment gateway is conducted in a secured channel established in accordance with the security information in the data pertaining to the electronic invoice.

10. (*Currently amended*) The method as recited in claim 9, wherein the mobile device includes a secure element ~~that~~ providing~~es~~ security and confidentiality required to support secure data communication between the mobile device and the payment gateway.

11. (*Currently amended*) The method as recited in claim 9, wherein said notifying the user in the mobile device that ~~a~~then monetary transaction per the payment request has been successfully completed with the POS device comprising:
sending a notification of successful payment to the merchant ~~registered user~~ of the POS device.

12. (*Currently amended*) A method for mobile payment, the method comprising:
generating an electronic invoice in a point of sale (POS) device;
transporting the electronic invoice to a mobile device by causing the mobile device to read off data pertaining to the electronic invoice from the POS device, wherein the data further includes settlement information with a merchant associated with the POS device, the mobile device ~~is a near field communication device and configured to~~ executes an installed application therein to communicate with the POS device to generate a payment request in response to the electronic invoice, the payment request being sent to a payment gateway includes a total amount combining an additional amount added by a user of the mobile device and an amount expressed in the electronic invoice; and
receiving a message in the POS device ~~notification~~ from ~~a~~ the payment gateway that the electronic invoice has been settled but for the total amount more than the amount expressed in the electronic invoice, wherein the payment gateway is configured to send the message directly to the POS device when an amount equivalent to the total amount is deducted from an account associated with the ~~a~~ user of the mobile devices ~~verifies the electronic invoice displayed on the mobile device and authorizes a payment to the electronic invoice~~.

13. (*Original*) The method as recited in claim 12, wherein the POS device includes a contactless card loaded with the electronic invoice, and the mobile device reads off a contactless card in a near field of the mobile device to obtain the data pertaining to the electronic invoice from the POS device.

14. (*Currently amended*) The method as recited in claim 13, wherein the POS device includes a secure element ~~that~~ providinges security and confidentiality required to support secure data communication between the POS device and the mobile devicepayment gateway.

15. (*Currently amended*) The method as recited in claim 14, wherein the data includes security information of ~~a registered user~~the merchant associated with the POS device, the security information includes an account and bank information ~~of the registered user~~, an identifier of the secure element in the contactless card or the POS device.

16. (*Currently amended*) The method as recited in claim 15, wherein the message received in the POS device ~~registered user receives a notification~~shows how much has been received from the user of the mobile device ~~that the electronic invoice has been settled via the mobile device~~.

17. (*Original*) The method as recited in claim 12, wherein data exchange between the mobile device and the payment gateway is conducted in a secured channel established in accordance with the security information in the data pertaining to the electronic invoice.

18. (*Currently amended*) A system for mobile payment, the system comprising:

a point of sale (POS) device provided to generate an electronic invoice upon receiving an entry, wherein data including the electronic invoice is sent to a mobile device when the POS device is presented near the mobile device, the mobile device is executing a module configured to read the data and display an amount expressed in the electronic invoice; and wherein

~~a contactless card loaded with the electronic invoice, wherein the contactless card is placed in a near field of a mobile device configured to execute an installed application therein to read off data communicate with the POS device~~

~~to generate a payment request in response to the electronic invoice, wherein~~ the POS device receives an electronic notification from a payment gateway that the electronic invoice has been settled for a total amount including an additional amount and the amount expressed in the electronic invoice, the additional amount is added by the used, after ~~a~~ the user of the mobile devices verifies the electronic invoice displayed on the mobile device and authorizes a payment to the electronic invoice, the mobile device is configured to generate a payment request to be sent to ~~establish a secure communication session with~~ the payment gateway to proceed with ~~the~~ a payment according to the payment request ~~to the electronic invoice~~.

19. (*Currently amended*) The system as recited in claim 18, wherein ~~the installed application is configured to cause the mobile device to transport the data to the payment gateway, the data includes security information of a registered user associated with the POS device, the security information~~ the data from the POS device includes an account and bank information of the ~~registered user~~merchant of the POS device ~~, an identifier of the secure element in the contactless card or the POS device~~.

20. (*Currently amended*) The system as recited in claim 19, wherein the payment gateway acts to deduct an amount equivalent to the total amount from an account associated with the user of the mobile devices and generates the electronic notification for the POS device ~~the mobile device includes a secure element that provides security and confidentiality required to support secure data communication between the mobile device and the payment gateway~~.

REMARKS

Claims 1 - 20 were submitted for examination. In the Office Action dated 10/13/2017, Claim(s) 1and12 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Mullen et al. (US 2012/029472, hereinafter "Mullen"), Claims 2, 4, 5, 7-9, 11-13, 16-18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Mullen in view of Dryer et al. (US 2012/0290376, hereinafter "Dryer"), and Claims 3, 6, 10, 14, 15 and 19-20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Mullen in view of Dryer further in view of Florek et al. (US 2011/0112968).

The Applicant appreciates the Examiner for providing detailed comments in the Office Action. In the foregoing amendments, Claims 1, 3-8, 10-12, 14-16, and 18-20 have been amended. No new matters have been introduced. Reconsideration of pending claims is respectfully requested.

Claim Rejections - 35 USC § 102

On Page 3, Section 4, of this Office Action, Claim(s) 1 and 12 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Mullen. The Applicant respectfully traverses the rejections of Claims 1 and 12 under 35 USC 102, assuming the foregoing amendments have been entered. A cited prior art reference anticipates a claimed invention under 35 USC 102 only if every element of the claimed invention is identically shown in the single reference, arranged as they are in the claim. MPEP 2131; in re Bond, 910 F.2d 831, 832, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990). Each and every limitation of the claimed invention is significant and must be found in the single cited prior reference. In re Donohue, 766 F2.d 531, 534, 266 USPQ 619, 621 (Feb. Cir. 1985). As set forth more fully below, Mullen neither discloses nor suggests each and every element of the claimed invention.

As amended, Claim 1 now recites:

causing a mobile device to receive data wirelessly from a point of sale (POS) device, the data including an electronic invoice and settlement information with a merchant associated with the POS device;
displaying the electronic invoice on a display of the mobile device to show an amount to be paid by a user of the mobile device, wherein the mobile device is configured to execute an installed application therein to communicate with the POS device;
receiving an entry by the mobile device, the entry including an additional amount from the user;
calculating a total amount by adding the additional amount to the amount in the electronic invoice;
generating a payment request in response to the electronic invoice after the user has chosen a paying instrument, wherein the payment request includes the total amount and the settlement information;
displaying the electronic invoice on the display for the user to verify the payment request along with the chosen paying instrument;
sending the payment request from the mobile device to a payment gateway, wherein the payment gateway sends a message to the POS device that a monetary transaction per the payment request has been successfully completed with the POS device when an amount equivalent to the total amount is deducted from an account associated with the user; and
receiving a confirmation in the mobile device that the monetary transaction per the payment request has been successfully completed with the POS device.

(*emphasis added*)

As shown in FIG. 1A of the instant application, one of the key features is, instead of talking back to the POS device 106 (or 108) after the POS device sends an invoice to the mobile device 110, the mobile device sends a payment request to the payment network 104 that is authorized to process the payment request (assuming there is a valid account associated with the user of the POS device 106 (or 108) after the POS device sends an invoice to the mobile). Again instead of receiving a payment response from the mobile device, the POS device receives a confirmation from the payment network that the payment has been made to the payment request originated by the mobile device. In summary, the mobile device 110 (a.k.a., a customer's device) does NOT talk back to the POS device 106 upon receiving the invoice. To view all entities graphically in one perspective, they communicate in circular one-way fashion as shown in FIG. 1A. Further, the mobile device allows the user to modify the charge expressed in the invoice by including an

additional amount (e.g., a tip). As a result, a merchant with the POS device receives more than what is charged in the invoice.

In contrast, Mullen teaches a mobile device used as a point-of-sale terminal and a payment card as paying instrument to communicate payment information with the mobile device. An application in the mobile device is remotely activated to allow the mobile device to accept payment information directly from the payment card. In view of the instant application, the mobile device in Mullen may be viewed as the POS device 106 while the payment card is the mobile device 110. However, the mobile device in Mullen does not send an electronic invoice to the payment card but only accepts information about the payment card. Mullen is also silent about the payment card "*generating a payment request* " for the payment gateway, as there is no need to do so in Mullen. As shown in FIG. 2, Mullen explicitly states "Mobile device 202 may, for example, complete a purchase transaction by first obtaining required payment information from contactless device 204 and then communicating such payment information to network entities (e.g., payment server 216 and/or issuer 220)". In other words, it is the mobile device 202 (corresponding to the POS device 106 in the instant application) that communicates with the payment network, teaching away from "*sending the payment request from the mobile device to a payment gateway, wherein the payment gateway sends a message to the POS device ...*" (note the mobile device in Mullen means the POS device). Further, Mullen does not allow a buyer to modify the charge displayed on the mobile device (the POS device 106) by adding an additional amount. Accordingly, the Applicant submits Claim 1 as amended shall be allowable over Mullen. Reconsideration of Claims 1-11 is kindly requested.

Claim 12 has been amended similarly to Claim 1. Without repeating the same, the Applicant wishes to rely upon the above arguments/reasons supporting Claim 1 to support Claim 12 and submits Mullen neither teaches nor suggests "*the payment request being sent to a gateway...*" and " *receiving a message in the POS device from the payment gateway that the electronic invoice has been settled but for the total amount more than the amount expressed in the electronic invoice*". Accordingly,

the Applicant submits Claim 12 as amended shall be allowable over Mullen. Reconsideration of Claims 12-17 is kindly requested.

Claim 18 has been also amended similarly to Claim 1. Without repeating the same, the Applicant wishes to rely upon the above arguments/reasons supporting Claim 1 to support Claim 18 and submits Mullen neither teaches nor suggests "*the POS device receives an electronic notification from a payment gateway that the electronic invoice has been settled for a total amount including an additional amount and the amount expressed in the electronic invoice, the additional amount is added by the used*". Accordingly, the Applicant submits Claim 18 as amended shall be also allowable over Mullen. Reconsideration of Claims 18-20 is kindly requested.

Claim Rejections - 35 USC § 103

Claims 2, 4, 5, 7-9, 11-13, 16-18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Mullen in view of Dryer and Claims 3, 6, 10, 14, 15 and 19-20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Mullen in view of Dryer further in view of Florek.

Dryer states "A near field communication connection is established between a mobile communication device of a consumer that serves as a mobile wallet and an electronic payment device of a merchant. Authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant" (*see* Abstract). Dryer explicitly restricts the communication between two devices, vastly departing from Claim 1 as amended in the instant application. The Applicant submits the modification of Mullen with Dryer would not cure the deficiency in Mullen as expressed above. Accordingly, Claims 2, 4, 5, 7-9, 11-13, 16-18 as amended shall be allowable over Mullen and Dryer. Reconsideration of Claims 2, 4, 5, 7-9, 11-13, 16-18 in view of Claim 1 as amended is kindly requested.

Florek shows in FIG. 2 and FIG. 5 that a mobile device is used to conduct a payment with a merchant, where the mobile devices installs a payment instrument (e.g., in a removable memory card). However, Florek is also silent about "generating

a payment request'' for a payment gateway for settlement and sending a message to the POS device. The Applicant submits the modification of Mullen and Dryer with Florek would not cure the deficiency in Mullen as expressed above. Accordingly, Claims 2, 4, 5, 7-9, 11-13, 16-18 as amended shall be allowable over Mullen and Dryer. Reconsideration of Claims 3, 6, 10, 14, 15 and 19-20 in view of Claim 1 as amended is kindly requested.

The patentability of the independent claims has been argued specifically as set forth above and thus Applicant will not take this opportunity to argue further the merits of the rejection with regard to each dependent claim. However, Applicant does not concede that the dependent claims are not independently patentable and reserves the right to argue the patentability of the dependent claims at a later date if necessary.

In view of the above amendments and remark, the Applicant believes that Claims 1-20 shall be in condition for allowance over the cited references. Early and favorable action is being respectfully solicited.

If there are any issues remaining which the Examiner believes could be resolved through either a Supplementary Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at (408)777-8873.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to "Commissioner of Patents and Trademarks, Washington, DC 20231", January 16, 2018. e-filed.

Name: Joe Zheng

Signature: / joe zheng /

Respectfully submitted;

/ joe zheng /

Joe Zheng
Reg.: No. 39,450

Electronic Acknowledgement Receipt	
EFS ID:	31517931
Application Number:	14728349
International Application Number:	
Confirmation Number:	5346
Title of Invention:	Method and apparatus for mobile payments
First Named Inventor/Applicant Name:	Xiangzhen Xie
Customer Number:	26797
Filer:	Joe Zheng
Filer Authorized By:	
Attorney Docket Number:	RFID-085C1
Receipt Date:	16-JAN-2018
Filing Date:	02-JUN-2015
Time Stamp:	19:28:37
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	ResponseTo1stOA.pdf	166612 964d4638d52ba77f1e2b965be17aaf5370495030	no	13
Warnings:					

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Total Files Size (in bytes):	166612

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/728,349	Filing Date 06/02/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 01/16/2018	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $50 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $230 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Courtesy Reminder for
Application Serial No: 14/728,349

Attorney Docket No: RFID-085C1
Customer Number: 26797
Date of Electronic Notification: 10/13/2017

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/728,349	Xie et al.
	Examiner	Art Unit
	ASHFORD S HAYLES	3687

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/21/2017								
	1	✓								
	2	✓								
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	17	✓								
	18	✓								
	19	✓								
	20	✓								

Notice of References Cited	Application/Control No. 14/728,349	Applicant(s)/Patent Under Reexamination Xie et al.	
	Examiner ASHFORD S HAYLES	Art Unit 3687	Page 1 of 6

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*	B	US-20100211504-A1	08-2010	Aabye; Christian	G06Q20/10	705/44
*	C	US-20130171929-A1	07-2013	ADAMS; NEIL PATRICK	H04W4/008	455/41.1
*	D	US-20120078792-A1	03-2012	Bacastow; Steven V.	G06Q20/3223	705/44
*	E	US-20130144731-A1	06-2013	Baldwin; Christopher F.	G06Q20/20	705/17
*	F	US-20130060618-A1	03-2013	Barton; Loren	G06Q20/3223	705/14.23
*	G	US-20110087610-A1	04-2011	Batada; Asif	G06F21/72	705/318
*	H	US-20090164330-A1	06-2009	Bishop; Fred A.	G06Q20/02	705/19
*	I	US-20090289106-A1	11-2009	Bishop; Fred	G06Q20/02	235/379
*	J	US-20130054413-A1	02-2013	Brendell; Brian	G06Q20/3276	705/26.41
*	K	US-20120304255-A1	11-2012	Carnes; Daniel Wilson	H04L9/3234	726/3
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NON-PATENT DOCUMENTS

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	U	MasterCard International Incorporated, Partnering for performance with e-business solutions, Pg.8
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U.S. PATENT DOCUMENTS

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*	C	US-20140095382-A1	04-2014	Desai; Mehul	G06Q20/322	705/41
*	D	US-20130246258-A1	09-2013	Dessert; Robert	G06Q20/40	705/41
*	E	US-20120290376-A1	11-2012	Dryer; Trevor D.	G06Q20/3278	705/14.23
*	F	US-20120239566-A1	09-2012	Everett; David	G06Q20/10	705/41
*	G	US-20130203345-A1	08-2013	Fisher; Michelle	H04B11/00	455/41.1
*	H	US-20110112968-A1	05-2011	FLOREK; Miroslav	G06Q20/20	705/50
*	I	US-20100274726-A1	10-2010	Florek; Miroslav	G06Q20/20	705/72
*	J	US-20100274677-A1	10-2010	Florek; Miroslav	G06Q20/10	705/16
*	K	US-20040127256-A1	07-2004	Goldthwaite, Scott	G06K7/0004	455/558
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*	M	US-20130140360-A1	06-2013	GRAYLIN; WILL W.	G06Q20/322	235/380

FOREIGN PATENT DOCUMENTS

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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20070131780-A1	06-2007	Ho; Chun-Hsin	G06K19/07	235/492
*	B	US-20120143702-A1	06-2012	Ho; Yu-Ping	G06Q20/10	705/16
*	C	US-20120072309-A1	03-2012	Hultberg; Stefan	G06Q20/32	705/26.41
*	D	US-8341083-B1	12-2012	Jain; Deepak	G06K19/07739	705/41
*	E	US-20130024383-A1	01-2013	Kannappan; Sasikumar	G06Q20/40	705/71
*	F	US-20110251952-A1	10-2011	Kelly; Mary L.	G06Q20/102	705/40
*	G	US-20130124349-A1	05-2013	Khan; Mohammad	G06Q20/36	705/21
*	H	US-20120116963-A1	05-2012	Klein; Charmaine	G06Q20/102	705/40
*	I	US-20130173736-A1	07-2013	KRZEMINSKI; Marek	H04W12/10	709/213
*	J	US-20140012751-A1	01-2014	Kuhn; Stephen	G06Q20/36	705/41
*	K	US-20130221092-A1	08-2013	Kushevsky; Mikhail	G06Q20/3672	235/379
*	L	US-20130226812-A1	08-2013	Landrok; Mads	G06Q20/32	705/67
*	M	US-20130132219-A1	05-2013	Liberty; Michael A.	G06Q20/202	705/21

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20130151400-A1	06-2013	Makhotin; Oleg	G06Q20/3227	705/39
*	B	US-20130160134-A1	06-2013	MARCOVECCHIO; Vincenzo Kazimierz	G06Q20/3563	726/26
*	C	US-20130198086-A1	08-2013	Mardikar; Upendra	G06Q20/1085	705/71
*	D	US-20090307140-A1	12-2009	Mardikar; Upendra	G06Q20/1085	705/71
*	E	US-20110042456-A1	02-2011	Masaryk; Michal	G06Q20/20	235/380
*	F	US-20110155800-A1	06-2011	Mastrangelo; Edward L.F.	G06Q20/352	235/379
*	G	US-20130346305-A1	12-2013	Mendes; Rui	G06Q20/351	705/41
*	H	US-20130218766-A1	08-2013	Mueller; Michael	G06Q20/32	705/42
*	I	US-20110180610-A1	07-2011	Narendra; Siva G.	G06K19/0701	235/492
*	J	US-20120178433-A1	07-2012	Narendra; Siva G.	G06K19/06187	455/420
*	K	US-20080093467-A1	04-2008	Narendra; Siva G.	G06Q20/341	235/492
*	L	US-20120118952-A1	05-2012	Norair; John Peter	G06K7/0008	235/380
*	M	US-20130138959-A1	05-2013	PELLY; Nicholas Julian	H04L9/083	713/168

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20110078081-A1	03-2011	Pirzadeh; Kiushan	G06Q20/20	705/44
*	B	US-20110117839-A1	05-2011	Rhelimi; Alain	G06K19/0719	455/41.1
*	C	US-20130060699-A1	03-2013	Romagnoli; Amy Sobocinski	G06Q20/10	705/44
*	D	US-20120136786-A1	05-2012	Romagnoli; Amy Sobocinski	G06Q20/10	705/44
*	E	US-7962369-B2	06-2011	Rosenberg; Einar	G06Q20/20	705/26.1
*	F	US-20130254102-A1	09-2013	Royyuru; Vijay Kumar	G06Q20/382	705/39
*	G	US-20130097031-A1	04-2013	Royyuru; Vijay Kumar	G06Q20/20	705/16
*	H	US-20130152185-A1	06-2013	Singh; Ravi	G06F21/35	726/9
*	I	US-20100114773-A1	05-2010	Skowronek; Daniel P.	G06Q20/40	705/44
*	J	US-20130097080-A1	04-2013	Smets; Patrik	H04N19/85	705/44
*	K	US-20130200999-A1	08-2013	Spodak; Douglas A.	G05B1/01	340/5.65
*	L	US-20100306076-A1	12-2010	Taveau; Sebastien	G06Q20/02	705/26.8
*	M	US-20140013406-A1	01-2014	Tremlet; Christophe	G06F21/32	726/5

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of References Cited	Application/Control No. 14/728,349	Applicant(s)/Patent Under Reexamination Xie et al.	
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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20130151292-A1	06-2013	Van Deloo; Lori	G06Q10/02	705/5
*	B	US-20120166333-A1	06-2012	von Behren; Rob	G06Q20/10	705/41
*	C	US-8646059-B1	02-2014	von Behren; Rob	G06Q20/367	719/311
*	D	US-8196131-B1	06-2012	von Behren; Rob	G06Q20/367	705/64
*	E	US-20130334318-A1	12-2013	Wakerly; Michael John	G06Q20/352	235/492
*	F	US-20100213253-A1	08-2010	Wollbrand; Karin	G06K19/07769	235/380
*	G	US-20120317628-A1	12-2012	Yeager; C. Douglas	G06Q20/204	726/5
	H					
	I					
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
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	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	758	(electronic near (purse or wallet)) and NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/13 06:44
S2	138	S1 and emulat$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/13 06:45
S3	137	S2 and (app or application or applet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/13 06:45
S4	86	S3 and PIN	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/13 06:45
S5	43	S4 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/13 06:45
S6	3	(("20130124351") or ("20080011833") or ("20130132219")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/04/22 17:49
S7	156	(mobile or portable or wireless) near (POS) and NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/23 16:54
S8	34	(mobile or portable or wireless) near (POS) with NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2014/04/23 16:54

			DERWENT; IBM_TDB			
S9	0	(smartcard) near (POS) with NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/23 17:00
S10	2	(smartcard) near (POS) and NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/23 17:00
S11	0	(smartcard) near ("transaction terminal") and NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/23 17:05
S12	76	(smartcard) near NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/23 17:05
S13	40	S12 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/23 17:06
S14	98	("smart card" or "chip card" or EMV) near (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/23 17:11
S15	38	(contactless) near (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/23 17:17
S16	217	(contactless) near (POS or payment or transaction) and (electronic or digital) near (receipt or bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/24 10:18
S17	217	((contactless) near (POS or payment or transaction)) and (electronic or digital) near (receipt or bill or invoice)	US-PGPUB; USPAT; USOCR;	OR	ON	2014/04/24 10:18

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S18	165	S17 and (provision$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/24 10:18
S19	124	S18 and NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/24 10:18
S20	58	S17 and (restaurant)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/24 10:30
S21	139	((contactless or NFC) near (POS or payment or transaction)) and (send$4 or transmit$4) near (receipt or bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/24 10:46
S22	59	S21 and (restaurant)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/24 10:46
S23	64	(wireless or mobile) near POS and (contactless near (transaction or payment))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/25 21:46
S24	4	POS near (contactless near (card))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/25 22:10
S25	1838	POS near ((card))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/25 22:11
S26	100	S25 and (contactless near (transaction	US-PGPUB;	OR	ON	2014/04/25

		or payment))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			22:11
S27	16	(portable) near POS and ((nfc or contactless) near (transaction or payment))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 20:39
S28	17	folio and nfc	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 21:33
S29	0	(restaurant near folio) and nfc	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 21:37
S30	273	(restaurant or table) and (nfc near (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 21:38
S31	165	S30 and provision$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 21:38
S32	55	S31 and emulat$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 21:39
S33	32	proximity near mobile near payment	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 21:46
S34	403	(mobile near (transaction or payment)) and (smartcard)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2014/04/26 21:58

			IBM_TDB			
S35	29	(mobile near (transaction or payment)) with (smartcard)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 21:59
S36	0	(smartcard-smartcard) near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 22:14
S37	9	(mobile near phone) with (smartcard)near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 22:14
S38	2	(mobile near phone) near (transaction or payment) and (smartcard)near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 22:27
S39	0	(mobile near phone) near (transaction or payment) and (smartcard)near (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 22:28
S40	9	(mobile near phone) and (smartcard)near (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 22:29
S41	67	(person-person) or (peer-peer) and (smartcard near (transaction or payment))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 22:35
S42	4	(smartcard or chipcard) and (POS near emulat$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 22:48
S43	9	(nfc) and (POS near emulat$4)	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2014/04/26 22:49

			EPO; JPO; DERWENT; IBM_TDB			
S44	0	proximity near smartcard near payment	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/26 22:59
S45	3	"20130124351"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 06:04
S46	54	(portable or mobile or slim or wireless) near (POS or "transaction terminal") and (nfc or emv or smartcard) near (reader)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 06:14
S47	67	(portable or mobile or slim or wireless) near (nfc or emv or smartcard) near (POS or "transaction terminal" or reader)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 06:17
S48	123	(portable or mobile or slim or wireless) near (nfc or emv or smartcard or contactless) near (POS or "transaction terminal" or reader)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 06:25
S49	0	(portable or mobile or slim or wireless) near (rfid) near (POS or "transaction terminal")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 07:22
S50	99	(rfid) near (POS or "transaction terminal")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:18
S51	598	(portable or mobile or slim or wireless) near (nfc or emv or smartcard or contactless) and (mobile or wireless or cellular) near (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:19
S52	104	(portable or mobile or slim or wireless) near (nfc or emv or smartcard or	US-PGPUB; USPAT;	OR	ON	2014/04/29 09:21

		contactless) near (device or terminal) and (mobile or wireless or cellular) near (payment or transaction)	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S53	11	(portable or mobile or slim or wireless) near (nfc or emv or smartcard or contactless) near (device or terminal) and (digital or electronic) near (bill or invoice or check)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:28
S54	6	(portable or mobile or wireless) near (contactless) near (transaction or payment) near (device or terminal)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:32
S55	0	S51 and (person-person or peer-peer) near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:42
S56	5	(person-person or peer-peer) near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:42
S57	0	("peer to peer") near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:42
S58	1128	(peer) near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:43
S59	133	S58 and (nfc or emv or smartcard or contactless) near (device or terminal)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:43
S60	10	S59 and (send$4 or transmit$4) near (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 09:49

S61	550	(portable or mobile or slim or wireless) near (nfc or emv or smartcard or contactless) near (device or terminal or scanner)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 10:05
S62	1	S61 and (send$4 or transmit$4) near (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 10:05
S63	0	("2013/0221092").URPN.	USPAT	OR	ON	2014/04/29 11:16
S64	229	(mobile or cellular near phone) and (smartcard)near (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 11:27
S65	180	((mobile or cellular) near phone) and (smartcard)near (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 11:27
S66	1	S65 and (send$4 or transmit$4) near (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 11:28
S67	46	S65 and emulat$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 11:29
S68	1776	(electronic near (transaction or payment) near card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 11:32
S69	397	S68 and (nfc or emv or smartcard or contactless)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/04/29 11:32
S70	49	S69 and (send$4 or transmit$4) near (bill or invoice)	US-PGPUB; USPAT; USOCR;	OR	ON	2014/04/29 11:32

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S71	3	"20130024383"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 07:06
S72	3	"20130132219"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 09:14
S73	258	TSM with (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 09:32
S74	161	S73 and (nfc or emv or smartcard or chipcard)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 09:32
S75	14	S74 and SAM	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 09:33
S76	147	S74 and "secure element"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 09:33
S77	2	"20130218766"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 11:58
S78	41	(TSM or "trusted service") and (transaction or payment) near sett$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 13:56
S79	3	13/245498	US-PGPUB;	OR	ON	2014/05/02

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			13:59
S80	531	provision$4 near (POS or merchant or vendor)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 14:07
S81	3	S80 and (TSM or "trusted service") and (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 14:08
S82	2	12/563444	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 18:16
S83	27	(TSM or "trusted service") and (transaction or payment) near settl$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 18:45
S84	5	(TSM or "trusted service") and (purchase) near settl$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 19:55
S85	88	(TSM or "trusted service") and (verif$4 or confirm$4) near (purchase or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 19:56
S86	34	S85 and "secure element"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 19:58
S87	393	(TSM or "trusted service") and (purchase or transaction) near (process$4 or settl$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2014/05/04 12:17

			IBM_TDB			
S88	152	S87 and (smartcard or chipcard or nfc)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/04 12:19
S89	131	S88 and (secure near element)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/04 12:19
S90	58	S89 and (electronic near (purse or wallet))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/04 12:20
S91	19	S89 and (SAM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/04 12:20
S92	2230	(electronic near (purse or wallet)) and (payment or transaction) near (settl$4 or process$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/04 14:42
S93	41	S92 and (TSM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/04 14:43
S94	59	(mobile near nfc near (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/10 17:20
S95	415	(smartcard or chipcard) and (mobile near (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/11 15:04
S96	54	S95 and (secure near element)	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2014/05/11 15:05

			EPO; JPO; DERWENT; IBM_TDB			
S97	53	S96 and (provisioning or personal$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/11 15:24
S98	25	S96 and (provisioning or personaliz$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/11 15:24
S99	78	(smartcard or chipcard) and (nfc near (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/13 15:16
S100	42	S99 and (payment near process$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/13 15:16
S101	248	(nfc with (invoic$4 or bill$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/13 22:13
S102	78	S101 and (mobile near (transaction or payment))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/13 22:14
S103	25	(nfc with mobile near (invoic$4 or bill$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/13 22:49
S104	0	(secure near element) and (mobile near (billing or invoic$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/13 22:52
S105	549	(secure near element) and ((billing or invoic$4))	US-PGPUB; USPAT;	OR	ON	2014/05/13 22:52

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S106	83	S105 and (mobile near (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/13 22:53
S107	41	(smartcard or chipcard) and ((storing or saving) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:07
S108	0	(nfc near (transaction or payment)) and ((storing or saving) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:08
S109	175	(nfc near (transaction or payment)) and ((bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:08
S110	0	(secure adj element) and ((storing or saving) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:09
S111	107	(secure adj element) and ((transmit$4 or receiv$4) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:09
S112	2	S111 and (nfc near (transaction or payment)) and ((bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:10
S113	2	S111 and (nfc near (transaction or payment))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:10

S114	106	(nfc near (transaction or payment)) and ((bill or invoice) near (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:10
S115	15	S114 and TSM	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:10
S116	589	(smartcard or chipcard or emv) and ((bill or invoice) near (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:12
S117	0	S116 and TSM	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:12
S118	246	S116 and trusted	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:12
S119	27	S116 and trusted near service	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:12
S120	55	(smartcard or chipcard or emv) with ((bill or invoice) near (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/14 23:14
S121	15	"security authentication module" and (electronic or virtual) near (purse or wallet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/15 14:36
S122	10	"security authentication module" and (mobile near (purchase or payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2014/05/15 14:47

			DERWENT; IBM_TDB			
S123	66	(personal$4) near (secure adj element)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/02 14:59
S124	21	S123 and (identif$4 near issuer)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/02 15:00
S125	2	"20120290376"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/02 16:15
S126	1	((identif$4 or match$4 or locat$4) near issuer) same ((match$4 or compar$4) near (device or element) near (ID or identif$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/03 14:16
S127	0	((identif$4 or match$4 or locat$4) near issuer) same ((match$4 or compar$4) near (secure adj element) near (ID or identif$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/03 14:17
S128	4	((identif$4 or match$4 or locat$4) near issuer) same ((secure adj element) near (ID or identif$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/03 14:18
S129	1	(mobile-mobile) near (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/03 14:40
S130	30	(mobile adj mobile) near (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/03 14:40
S131	1	S130 and (secure adj element)	US-PGPUB; USPAT; USOCR;	OR	ON	2014/10/03 14:41

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S132	1102	(smartcard or chipcard) and (fund adj transfer$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 15:55
S133	1	S132 and (personal$4 near (secure adj element))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 15:55
S134	97	S132 and (personal$6near (secure adj element))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 15:55
S135	1	S132 and (personal$6 near (secure adj element))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 15:55
S136	11	(Fund adj transfer) and (personal$6 near (secure adj element))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 15:56
S137	137	("20010011250" | "20010021927" | "20010027441" | "20010039657" | "20020004783" | "20020042776" | "20020068554" | "20020194138" | "20030023954" | "20030074579" | "20030140176" | "20040029569" | "20040030601" | "20040123152" | "20040128259" | "20040140351" | "20050001711" | "20050071418" | "20050091659" | "20050102679" | "20050149926" | "20050184163" | "20050184164" | "20050184165" | "20050188360" | "20050193218" | "20050222961" | "20060036570" | "20060041507" | "20060126831" | "20060165060" | "20060219774" | "20070067325" | "20070090195" | "20070135164" | "20070169043" | "20070226786" | "20080056501" | "20080073426" | "20080130902" | "20080162834" | "20080167988" | "20080208681" | "20080208762" | "20080270253" | "20090158028" |	US-PGPUB; USPAT; USOCR	OR	ON	2014/10/09 15:57

		"20090239512" | "20090261172" | "20090307142" | "20090312011" | "20100012732" | "20100042824" | "20100050271" | "20100058463" | "20100063893" | "20100088237" | "20100114731" | "20100131413" | "20100138518" | "20100203870" | "20100205432" | "20100207742" | "20100211507" | "20100250956" | "20100291896" | "20100291904" | "20100306076" | "20100306107" | "20100306531" | "20100323681" | "20100330958" | "20110016275" | "20110029671" | "20110072425" | "20110078081" | "20110087610" | "20110113473" | "20110131421" | "20120009873" | "20120129452" | "4851653" | "5221838" | "5991399" | "6005942" | "6092201" | "6101477" | "6141752" | "6151657" | "6230267" | "6233683" | "6402028" | "6434238" | "6484174" | "6601761" | "6609113" | "6633984" | "6647260" | "6792536").PN. OR ("6823520" | "6907608" | "6922835" | "6963270" | "7093122" | "7140549" | "7152782" | "7159180" | "7165727" | "7191288" | "7206769" | "7232073" | "7243853" | "7275685" | "7346170" | "7349885" | "7353396" | "7360691" | "7374099" | "7382762" | "7395535" | "7469151" | "7478389" | "7502946" | "7607175" | "7631346" | "7631810" | "7708198" | "7712658" | "7739731" | "7860486" | "7967215" | "8120460" | "8126806" | "8150767" | "8171137").PN. OR ("8429409").URPN.				
S138	0	contactless near (Fund adj transfer) and ((secure adj element))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 15:59
S139	0	contactless near (Fund adj transfer$4) and ((secure adj element))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 15:59
S140	11	(Fund adj transfer$4) and (personal$6 near (secure adj element))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:00
S141	9	S132 and (updat$4 or modify$4 or edit$4 or chang$4) near (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2014/10/09 16:02

			DERWENT; IBM_TDB			
S142	8	(contactless near (transaction or payment)) and (updat$4 or modify$4 or edit$4 or chang$4) near (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:03
S143	580	(contactless near (transaction or payment)) and (fund$1 near transfer$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:04
S144	9	mobile adj (contactless near (transaction or payment)) and (fund$1 near transfer$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:04
S145	5	(contactless) near (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:06
S146	1	(contactless near (transaction or payment)) and (virtual near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:08
S147	0	(contactless near (transaction or payment)) and (digital near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:09
S148	0	(EMV near (transaction or payment)) and (digital near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:12
S149	1	(EMV near (transaction or payment)) and ((digital or electronic or mobile or wireless)near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:13
S150	41	(EMV near (transaction or payment)) and ((bill or invoice))	US-PGPUB; USPAT; USOCR;	OR	ON	2014/10/09 16:13

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S151	56	((EMV or chipcard or smartcard) near (transaction or payment)) and ((digital or electronic or mobile or wireless)near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:13
S152	64	((contactless) near (transaction or payment)) and ((digital or electronic or mobile or wireless) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:17
S153	62	((contactless) near (transaction or payment)) and ((digital or electronic or paperless) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:53
S154	6410	((digital or electronic or paperless) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 16:54
S155	2	"20130151400"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 17:03
S156	0	((mobile or wireless or cellular) adj (contactless) near (purchase or transaction or payment)) and ((digital or electronic or mobile or wireless) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 17:05
S157	73	((mobile or wireless or cellular) adj (contactless) near (purchase or transaction or payment))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 17:05
S158	0	S157 and ((digital or electronic or mobile or wireless) near (bill or invoice))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/10/09 17:05
S159	0	S157 and ((digital or electronic or	US-PGPUB;	OR	ON	2014/10/09

		paperless) near (bill or invoice))	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			17:05
S181	215	(contactless or NFC or wireless or proximity) adj (billing or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/18 15:36
S182	8	S181 and (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/18 15:39
S183	52	(contactless or NFC or wireless or proximity) adj (payment or transaction or purchase) and (electronic adj (invoic$4 or billing))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/18 15:41
S184	886	(contactless or NFC or wireless or proximity) adj (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/18 18:00
S185	32	S184 and (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 18:01
S186	648	POS adj card	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 18:29
S187	7	S186 and (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 18:29
S188	1	cashless adj POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2017/09/18 18:31

			IBM_TDB			
S189	2	cashless near POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 18:32
S190	283	cashless same POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 18:32
S191	2	S190 and (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 18:35
S192	17804	(SIM) same (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:12
S193	564	(SIM adj card) same (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:12
S194	9	(SIM adj card) near (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:12
S195	11	("20010056398" | "20020097715" | "20020120537" | "20030060246" | "20070295803" | "20100030634" | "20100161478" | "6598028" | "7540408" | "7603312" | "8281991").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/09/18 20:15
S196	2	(card-to-card) near payment	US-PGPUB; USPAT; USOCR	OR	OFF	2017/09/18 20:17
S197	48	POS and generat$4 near (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:18
S198	3936	(mobile or m) adj POS	US-PGPUB;	OR	ON	2017/09/18

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			20:49
S199	4	S198 and generat$4 near (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:49
S200	16	S198 and (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:49
S201	114	S198 and (contactless or NFC or wireless or proximity) adj (payment or transaction or purchase)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/18 20:54
S202	109	S198 and (SIM adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:55
S203	114	S198 and ((nfc or contactless or chip) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:55
S204	8	S203 and (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:56
S205	234	merchant adj wallet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 20:58
S206	51	merchant adj (mobile adj wallet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2017/09/18 20:58

			IBM_TDB			
S207	222	((mobile or m) adj POS) and ((contactless or smart or chip) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 21:05
S208	69	((mobile or m) adj POS) same ((contactless or smart or chip) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 21:05
S209	1545	((payment or transaction) adj terminal) same ((contactless or smart or chip) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 21:16
S210	0	S209 and generat$4 near (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 21:16
S211	21	S209 and (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 21:16
S212	91	((peer-to-peer) adj (payment or transaction)) and (contactless or NFC or wireless or proximity) adj (card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/18 21:20
S213	58	S212 and (electronic or digital) near (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/18 21:21
S214	0	((peer-to-peer) adj (POS)) and (contactless or NFC or wireless or proximity) adj (card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/18 21:22
S215	1	((peer-to-peer) adj (POS))	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2017/09/18 21:22

			EPO; JPO; DERWENT; IBM_TDB			
S216	4	("20070233554" | "20100227553" | "20120092137" | "8229354").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/09/18 21:23
S217	1	(POS near emulat$4) and (contactless or NFC or wireless or proximity) adj (card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/18 21:24
S218	56	(POS near application) and (contactless or NFC or wireless or proximity) adj (card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:08
S219	11745	POS and SOC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:09
S220	2680	POS and (system near chip)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:10
S221	366	POS and (system-on-chip)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:10
S222	12	POS same (system-on-chip)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:10
S223	47	((touch or tap) adj (payment or transaction)) and (contactless or NFC or wireless or proximity) adj (card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:13
S224	8566	(contactless or NFC or wireless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2017/09/19 09:21

			IBM_TDB			
S225	174	S224 and (electronic or digital) adj (bill$4 or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:22
S227	11	S224 and (e-bill)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 09:23
S228	8566	(contactless or NFC or wireless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:15
S229	5	S228 and (electronic or digital) adj (statement)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:15
S230	887	(contactless or NFC or wireless or proximity) adj (POS)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:17
S231	31	S230 and (electronic or digital) adj (bill$4 or invoic$4 or statement)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:18
S232	3518	(POS) and ((digital or electronic or e) adj (wallet or purse))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:23
S233	282	S232 and (electronic or digital) adj (bill$4 or invoic$4 or statement)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:23
S234	92	S233 and (contactless or NFC or wireless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2017/09/19 12:23

			EPO; JPO; DERWENT; IBM_TDB			
S235	25	(POS) near ((digital or electronic or e) adj (wallet or purse))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:25
S236	189	(merchant) near ((digital or electronic or e) adj (wallet or purse))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 12:53
S237	4	"20070131780"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/19 16:42
S238	15	("2007/0131780").URPN.	USPAT	OR	OFF	2017/09/19 16:43
S239	184	(nfc or emv or smartcard or contactless or proxmity or chip) near (payment or purchase or transaction) and ((electronic or e or digital) adj (bill$4 or invoic$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/19 17:33
S240	59	(nfc or emv or smartcard or contactless or proxmity or chip) near (payment or purchase or transaction) same ((electronic or e or digital) adj (bill$4 or invoic$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/19 17:34
S241	4	("2003023080").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 18:17
S242	2	("20040127256").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 18:20
S243	1	(mobile or portable) adj POS and ((contactless or nfc or proximity) adj (adapter))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/19 18:21

S244	294	("2004/0127256").URPN.	USPAT	OR	OFF	2017/09/19 18:22
S245	0	(10/625823).APP.	USPAT; USOCR	OR	OFF	2017/09/19 18:25
S246	95	POS near (purse or wallet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 07:00
S247	2	"20120290472"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 08:39
S248	1145	POS same (contactless or proximity or RFID) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 11:05
S249	44	S248 and (fund adj transfer$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 11:23
S250	76	S248 and ((merchant or vendor) near (purse or wallet))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 11:26
S251	67	S248 and ((merchant or vendor) adj (purse or wallet))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 11:26
S252	256	virtual adj POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 12:06
S253	14	S252 and (contactless or proximity or RFID) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 12:06

S254	7	S252 and (emv) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 12:37
S255	3	emv adj POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 12:38
S256	0	"201000274677"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 13:04
S257	3	"20100274677"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 13:04
S258	203	(contactless or proximity or RFID) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:08
S259	0	(NFC) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:08
S260	7	S258 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:08
S261	16	(NFC) near (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:08
S262	0	(smartcard) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2017/09/25 17:10

			DERWENT; IBM_TDB			
S263	0	S258 and (transaction or payment) adj terminal	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 17:12
S264	6563	((customer or client) adj side) and ((payment or transaction) adj process$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:07
S265	87	S264 and (electronic near (purse or wallet)) and NFC	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:07
S266	34	(merchant-to-person)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:17
S267	3	(person-to-merchant) and (contactless or proximity or RFID) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:19
S268	0	(person-to-merchant) and (nfc) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:19
S269	23	(person-to-merchant) and (nfc)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:19
S270	618	(contactless or proximity or RFID) adj (payment or transaction) same (wallet or purse)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:22
S271	1	S270 and (security adj element)	US-PGPUB; USPAT; USOCR;	OR	OFF	2017/09/25 21:22

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S272	243	S270 and (secure adj element)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:22
S273	4	S272 and (electronic or digital or e) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:23
S274	0	S272 and (wireless or paperless or nfc) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:24
S275	5	(contactless or proximity or RFID or nfc) adj (payment or transaction) and (wireless or paperless or nfc) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:24
S276	78	(contactless or proximity or RFID or nfc) adj (payment or transaction) near request	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:25
S277	11	(person-to-merchant) and ((smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:27
S278	12	(person-to-merchant) and ((contactless or smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:27
S279	930	(person-to-person) and ((contactless or smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:27
S280	443	S279 and POS	US-PGPUB;	OR	OFF	2017/09/25

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			21:27
S281	121	S280 and (transmit$4 or send$4) adj (payment or transaction) near request	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:28
S282	15	(person-to-person) same ((contactless or smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:28
S283	82	S281 and (electronic near (purse or wallet))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:28
S284	41	S281 and mobile adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:28
S285	72	business-to-consumer and mobile adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:32
S286	12	S285 and ((contactless or smart or chip or RFID or IC) adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 21:32
S287	5	card-to-card and (nfc or contactless or RFID or proximity or wireless) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 21:34
S288	7	card-to-card and (nfc or contactless or RFID or proximity or wireless) near (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2017/09/25 21:34

			IBM_TDB			
S289	203	(contactless or proximity or RFID or nfc) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 22:06
S290	0	(card-to-card) adj (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 22:06
S291	45	(card-to-card) same (invoic$4 or bill$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/09/25 22:06
S292	0	S289 and mobile adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/09/25 22:09
S293	148	(client-side) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:35
S294	1	S293 and (mobile adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:35
S295	0	S293 and (nfc adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:35
S296	212	(client adj side) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:35
S297	6	S296 and (mobile adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS;	OR	OFF	2017/10/04 23:36

			EPO; JPO; DERWENT; IBM_TDB			
S298	2	S296 and (nfc adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:36
S299	358	(closed-loop adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:37
S300	1	S299 and (nfc adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:37
S301	0	S300 and (mobile adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/04 23:37
S302	6	"20100114773"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 08:56
S303	459	(proximity or contactless or smartcard) adj POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 10:06
S304	91	S303 and (mobile adj (payment or transaction))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 10:07
S305	535	(mobile or virtual) adj (wallet or purse) near (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 12:54
S306	339	S305 and POS	US-PGPUB; USPAT;	OR	OFF	2017/10/05 12:55

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S307	179	S306 and (secure adj element)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 12:57
S308	83	S307 and (smart adj card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 12:57
S309	4	"20140187153"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 13:12
S310	271	(smartcard) and (electronic or digital) adj (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:37
S311	53	(smartcard) with (electronic or digital) adj (bill or invoice)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:38
S312	182	S310 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:38
S313	51	S311 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:39
S314	1265	(electronic or digital) adj (bill or invoice) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:40

S315	1267	(electronic or digital or virtual) adj (bill or invoice) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:40
S316	99209	nfc	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:41
S317	66	S315 and nfc	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 20:41
S318	90	S315 and (smartcard)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/05 21:04
S319	1372	(electronic or virtual or digital) adj (bill or invoice) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:06
S320	50	S319 and (wireless or contactless or nfc or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:12
S321	376	(electronic or virtual or digital) adj (check) and (nfc or wireless or contactless or proximity) adj (transaction or payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:16
S322	376	(electronic or virtual or digital) adj (check) and ((nfc or wireless or contactless or proximity) adj (transaction or payment))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:16
S323	207	S322 and POS	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2017/10/06 06:16

			DERWENT; IBM_TDB			
S324	79	S323 and (smartcard)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/06 06:16
S325	6	"20140143104"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/10/09 07:10
S326	3	"20100274677"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 08:38
S327	4	(("20090170559") or ("20120191612")).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:46
S328	0	5748737/pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:48
S329	4	"5748737".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:48
S330	13595	(electronic or digital or virtual) adj (wallet or purse)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:49
S331	1082	S330 and (nfc or contactless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:49
S332	732	S331 and POS	US-PGPUB; USPAT; USOCR;	OR	OFF	2017/10/09 11:50

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S333	87	S332 and (electronic or digital or virtual) adj (bill or invoic$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:50
S334	25	(electronic or digital or virtual) adj (bill or invoic$4) adj (payment) and (nfc or contactless or proximity) adj (payment or transaction)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/09 11:54
S335	0	(nfc or contactless or proximity) adj (bill or invoic$4) adj (payment)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/10 06:09
S336	139452	restaurant brands.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/10 13:01
S337	0	restaurantbrands.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/10 13:01

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S160	1647	705/21	USPAT	OR	ON	2015/03/26 16:56
S161	75	S160 and (electronic or digital) near (invoice or check)	USPAT	OR	ON	2015/03/26 16:57
S162	25	S161 and (smart or IC or RFID or EMV) adj card	USPAT	OR	ON	2015/03/26 16:57
S163	0	S162 and TSM	USPAT	OR	ON	2015/03/26 16:58
S164	16	S162 and S161 and provision$4	USPAT	OR	ON	2015/03/26 16:58
S165	16	S162 and provision$4	USPAT	OR	ON	2015/03/26 16:58
S166	0	S165 and TSM	USPAT	OR	ON	2015/03/26 16:58
S167	483	705/14.23	USPAT	OR	ON	2015/03/26

						16:58
S168	10	S167 and (electronic or digital) near (invoice or check)	USPAT	OR	ON	2015/03/26 16:58
S169	0	S168 and TSM	USPAT	OR	ON	2015/03/26 16:58
S170	3229	705/41	USPAT	OR	ON	2015/03/26 16:58
S171	259	S170 and (electronic or digital) near (invoice or check)	USPAT	OR	ON	2015/03/26 16:59
S172	114	S171 and (smart or IC or RFID or EMV) adj card	USPAT	OR	ON	2015/03/26 16:59
S173	75	S172 and provision$4	USPAT	OR	ON	2015/03/26 16:59
S174	0	S173 and TSM	USPAT	OR	ON	2015/03/26 16:59
S175	0	S173 and (trusted near service near manag$5)	USPAT	OR	ON	2015/03/26 17:00
S176	0	S171 and (trusted near service near manag$5)	USPAT	OR	ON	2015/03/26 17:00
S177	8994	705/39	USPAT	OR	ON	2015/03/26 17:00
S178	743	S177 and (electronic or digital) near (invoice or check)	USPAT	OR	ON	2015/03/26 17:00
S179	206	S178 and (smart or IC or RFID or EMV) adj card	USPAT	OR	ON	2015/03/26 17:00
S180	1	S179 and (trusted near service near manag$5)	USPAT	OR	ON	2015/03/26 17:00

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/728,349	06/02/2015	Xiangzhen Xie	RFID-085C1	5346

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LogicPatents, LLC
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EXAMINER	
HAYLES, ASHFORD S	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
10/13/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@sbcglobal.net

Office Action Summary	Application No. 14/728,349	Applicant(s) Xie et al.	
	Examiner ASHFORD S HAYLES	Art Unit 3687	AIA Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 6/2/2015 .

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____ .

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☑ Claim(s) 1-20 is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 23 June 2015 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____ .

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____ .

4) ☐ Other: _____ .

DETAILED CORRESPONDENCE

1. This communication is a first Office Action Non-Final rejection on the merits. Claims 1-20 as originally filed are currently pending and are considered below.

Notice of Pre-AIA or AIA Status

2. The present application is being examined under the pre-AIA first to invent provisions.

Drawings

3. The drawings were received on June 13, 2015 and June 23 2015. These drawings are sufficient.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim(s) 1 and 12 are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Mullen et al. U.S. 2012/029472.

As per Claim 1, Mullen et al. discloses a method for mobile payment, the method comprising:

causing a mobile device to receive an electronic invoice from a point of sale (POS) device (pg.13, ¶ [0155] discusses a merchant may send a message (e.g., an email or text message) to the user-supplied address that may contain a link to the user's bill),

wherein the mobile device is a near-field communication device and configured to execute an installed application therein to communicate with the POS device to generate a payment request in response to the electronic invoice (pg.13, ¶ [0158] discusses a payment application installed on mobile device, pg.5, ¶ [0074] discusses Mobile device 202 may, for example, complete a purchase transaction by first obtaining required payment information from contactless device 204 and then communicating such payment information to network entities e.g., payment server 216 and/or issuer 220);

displaying the electronic invoice on a display screen of the mobile device for a user to verify the payment request (pg.13, ¶ [0155] discusses a user's meal tab at a restaurant may be itemized by GUI 2508 and an alphanumeric entry box (e.g., box 2510) may allow the user to enter additional data (e.g., add a tip to the bill). A user may, for example, review a total to be charged, verify such a total, and then present payment card 2504 to mobile device 2502 to settle the total amount);

processing the payment request in the mobile device (pg.9, ¶ [0114] discusses Payment information used to settle a transaction associated with the selected food purchase may be collected and/or generated by the mobile device and forwarded onto a payment server and/or an associated issuer for settlement); and

notifying the user in the mobile device that a monetary transaction per the payment request has been successfully completed with the POS device (pg.9, ¶ [0116] discusses a mobile device may complete a purchase transaction with an entity of a payment network (e.g., a payment server) and may further request that the payment server deliver a receipt to the mobile device in a text message format).

As per Claim 12, Mullen et al. discloses a method for mobile payment, the method comprising:

generating an electronic invoice in a point of sale (POS) device (pg.13, ¶ [0154] discusses Mobile device 2502 may interact with a merchant establishment (e.g., a restaurant) to gain entry into a user's tab at the merchant's establishment (e.g., a food and alcohol bill generated by the restaurant);

transporting the electronic invoice to a mobile device by causing the mobile device to read off data pertaining to the electronic invoice from the POS device (pg.13, ¶ [0155] discusses a merchant may send a message (e.g., an email or text message) to the user-supplied address that may contain a link to the user's bill),

wherein the mobile device is a near-field communication device and configured to execute an installed application therein to communicate with the POS device to generate a payment request in response to the electronic invoice (pg.13, ¶ [0158] discusses a payment application installed on mobile device, pg.5, ¶ [0074] discusses Mobile device 202 may, for example, complete a purchase transaction by first obtaining required payment information from contactless device 204 and then communicating such payment information to network entities e.g., payment server 216 and/or issuer 220);

receiving a notification from a payment gateway that the electronic invoice has been settled (pg.9, ¶ [0116] discusses a mobile device may also provide a text message address (e.g., an SMS text

message address) to the payment server. In so doing, for example, the mobile device may receive a receipt of the completed purchase transaction from the payment server via a text message at the text message address provided by the mobile device),

wherein a user of the mobile devices verifies the electronic invoice displayed on the mobile device and authorizes a payment to the electronic invoice (pg.13, ¶ [0154] discusses a user may monitor each item on the bill, enter an additional amount into the bill (e.g., a tip), and then pay the bill all from the convenience of the user's mobile device 2502).

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2, 4, 5, 7-9, 11-13, 16-18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Mullen et al. US 2012/0290472 in view of Dryer et al. US2012/0290376.

As per Claim 2, Mullen et al. discloses the method as recited in claim 1. However, Mullen et al. is silent regarding wherein the POS device includes a contactless card loaded with the electronic invoice, and said causing a mobile device to receive an electronic invoice from a point of sale (POS) device comprises reading the contactless card to obtain the electronic invoice by the mobile device.

Dryer et al. teaches wherein the POS device includes a contactless card loaded with the electronic invoice, and said causing a mobile device to receive an electronic invoice from a point of sale (POS) device comprises reading the contactless card to obtain the electronic invoice by the mobile device (pg.5, ¶ [0041] discusses electronic payment device 120 are equipped with respective NFC chips

or cards 119, 129, which are utilized to establish a NFC connection with each other when they are brought together or sufficiently close to each other, ¶ [0045] discusses the merchant generating invoice, receipt or transaction data using electronic payment device for purchase of item by the consumer from the merchant).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide a merchant POS with a NFC transaction card as taught by Dryer et al. to provide a system and method where Authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

As per Claim 4, Mullen et al. discloses the method as recited in claim 1, wherein said displaying the electronic invoice on a display screen of the mobile device comprises:

causing the user to verify an amount in the electronic invoice and make a change to the amount when needed (pg.13, ¶ [0155] discusses a user's meal tab at a restaurant may be itemized by GUI 2508 and an alphanumeric entry box (e.g., box 2510) may allow the user to enter additional data, e.g. add a tip to the bill).;

paying the amount with a chosen instrument, wherein the chosen instrument is selected from a group consisting of an electronic wallet already created in the mobile device, a traditional credit or debit card, and an electronic transfer (pg.6, ¶ [0086] discusses GUI 500 may be generated to allow a user an opportunity to select which payment option (e.g., credit option 502) from a number of payment options is to be used to settle a payment transaction, pg.9, ¶ [0111] discusses a user may elect to charge $10 against a VISA credit account, $35 against a MIC debit account, and 500 rewards points earned by the VISA credit account towards full payment of a $50 amount owing for a particular selected purchase).

As per Claim 5, Mullen et al. discloses the method as recited in claim 1. However, Mullen et al. is silent regarding a method wherein the POS device includes a contactless card loaded with the electronic invoice, and said causing a mobile device to receive an electronic invoice from a point of sale (POS) device comprises causing the mobile device to execute an installed module upon detecting a contactless card in a near field of the mobile device, wherein the installed module is configured to read off data pertaining to the electronic bill from the contactless card.

Dryer et al. teaches wherein the POS device includes a contactless card loaded with the electronic invoice (pg.5, ¶ [0041] discusses electronic payment device 120 are equipped with respective NFC chips or cards 119, 129, ¶ [0046] discusses the payment application 123 executing on the electronic payment device 120 generates an authorization token 170[1].),

and said causing a mobile device to receive an electronic invoice from a point of sale (POS) device comprises causing the mobile device to execute an installed module upon detecting a contactless card in a near field of the mobile device (pg.6, ¶ [0047] discusses the consumer's mobile communication device 110 and the merchant's electronic payment device 120 brought into contact or in proximity with each other to establish a temporary connection, e.g., a NFC connection 160, between the devices so they can communicate with each other,

wherein the installed module is configured to read off data pertaining to the electronic bill from the contactless card, (pg.5 ¶ [0054] discusses the payment application 123 executing on the electronic payment device 120 or the mobile wallet application 113 executing on the mobile communication device 110 transforms or encodes the merchant-generated authorization token. The encoded authorization token 170 may embody or be encoded with transaction data 122, and may be decoded by the cloud wallet server 140 using an appropriate key or decoding mechanism. The ability to encode and

[1] Examiner is construing authorization token as an electronic invoice because the token includes invoice amount and transaction data.

decode the authorization data provides for more flexibility and inclusion of additional information associated with the merchant 125 and/ or transaction to ensure that the credit card data 147 to be utilized is utilized for payment is for the correct amount, e.g., if the invoice or receipt amount 122 is encoded within or transmitted with the authorization token 170, and that the payment request is for a particular merchant 125 for that specified amount).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to receive transaction data from a merchant in order to process a mobile payment as taught by Dryer et al. to provide a system and method where authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

As per Claim 7, Mullen et al. discloses the method as recited in claim 6, wherein said processing the payment request in the mobile device:

transporting the payment request to a payment gateway (pg.13, ¶ [0149] discusses mobile device 2302 may customize a payment message to remote application 2308 that includes only the filtered subset of data that is needed by remote application 2308 to complete the purchase transaction),

where the payment gateway is configured to perform the monetary transaction per the payment request by deducting an amount from an account owned by the user (pg.11, ¶ [0137] discusses enable a funds transfer from a source account (e.g., an account associated with a payment card that is tapped against a display of a mobile device) to a target account (e.g., a car loan account). Portion 2002 may, for example, list account details that may be associated with a target account (e.g., an account number associated with a car loan, the payoff amount, and the amount due). Portion 2002 may, for example, include details that may be associated with a target account that a mobile device has collected

from a network entity (e.g., a bank) via a network connection between the mobile device and the network entity).

Mullen discloses the claimed invention except for a secure channel. It would have been obvious to one having ordinary skill in the arty at the time the invention was made to send data to a payment gateway using a secure channel since it was known in the art that payment gateways such as VISA and MasterCard require SET protocols to communicate data when conducting transactions over the Internet[2].

However, Mullen et al. is silent regarding generating a notification to be sent to the registered user associated with the POS device.

Dryer et al. teaches generating a notification to be sent to the registered user associated with the POS device (pg.5, ¶ [0043] discusses sends the associated credit card data 147 to the payment processor computer 130 at 208, which then processes electronic transaction, updates merchant account 132 and notifies merchant 125 as necessary at 210).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide a merchant with notification regarding the completion of payment transaction as taught by Dryer et al. to provide a system and method where authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

As per Claim 8, Mullen et al. discloses the method as recited in claim 7, wherein said displaying the electronic invoice on a display screen of the mobile device comprises:

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[2] *Partnering for Performance with MasterCard e-Business Solutions, pg.8,* MasterCard International Incorporated 2001.

causing the user to verify an amount in the electronic invoice and make a change to the amount when needed (pg.13, ¶ [0155] discusses a user's meal tab at a restaurant may be itemized by GUI 2508 and an alphanumeric entry box (e.g., box 2510) may allow the user to enter additional data (e.g., add a tip to the bill). A user may, for example, review a total to be charged, verify such a total, and then present payment card 2504 to mobile device 2502 to settle the total amount);

paying the amount with an electronic payment provided by an installed module in the mobile device (pg.9, ¶ [0114] discusses Payment information used to settle a transaction associated with the selected food purchase may be collected and/or generated by the mobile device and forwarded onto a payment server and/or an associated issuer for settlement),

wherein the installed module in the mobile device is configured to generate a payment request including the data pertaining to the electronic invoice to a payment gateway for processing (pg.9, ¶ [0114] discusses Payment information used to settle a transaction associated with the selected food purchase may be collected and/or generated by the mobile device and forwarded onto a payment server and/or an associated issuer for settlement).

As per Claim 9, Mullen et al. discloses the method as recited in claim 8, wherein data exchange between the mobile device and the payment gateway (pg.10, ¶ [0128] discusses a mobile device may communicate payment information to a payment server to complete a purchase transaction)

Mullen discloses the claimed invention except for a secure channel. It would have been obvious to one having ordinary skill in the arty at the time the invention was made to send data to a payment gateway using a secure channel since it was known in the art that payment gateways such as VISA and MasterCard require SET protocols to communicate data when conducting transactions over the Internet[3].

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[3] *Partnering for Performance with MasterCard e-Business Solutions, pg.8,* MasterCard International Incorporated 2001.

Dryer et al. teaches (pg.6, ¶ [0052] discusses based at least in part upon data 122 received from merchant 125 (if merchant specifies types of payment) and electronic payment option data 147 stored locally on mobile communication device 110 indicating which credit cards can be used), the Examiner is construing the ability to specify types of payment sent along with the transaction data, as using the secured channel established by the security information in the data pertaining to the electronic invoice, because the cited portion of Dryer describes the received transaction data having invoice amount and payment type e.g. MasterCard. In, the instant case, MasterCard would require that Internet and online payments use SET secure electronic transaction protocol to move messages securely over the Internet.

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide payment specific instructions when delivering transaction data to a mobile device to carry out a mobile transaction as taught by Dryer et al. to provide a system and method where authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

As per Claim 11, Mullen et al. discloses the method of the claimed invention, wherein said notifying the user in the mobile device that a monetary transaction per the payment request has been successfully completed with the POS device (pg.9, ¶ [0116] discusses a mobile device may complete a purchase transaction with an entity of a payment network (e.g., a payment server) and may further request that the payment server deliver a receipt to the mobile device in a text message format).

However, Mullen et al. is silent regarding sending a notification of successful payment to the registered user of the POS device.

Dryer et al. teaches sending a notification of successful payment to the registered user of the POS device (pg.5, ¶ [0043] discusses sends the associated credit card data 147 to the payment processor

computer 130 at 208, which then processes electronic transaction, updates merchant account 132 and notifies merchant 125 as necessary at 210).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide a merchant with notification regarding the completion of payment transaction as taught by Dryer et al. to provide a system and method where authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

As per Claim 13, Mullen et al. discloses the method as recited in claim 12. However, Mullen et al. is silent regarding wherein the POS device includes a contactless card loaded with the electronic invoice, and the mobile device reads off a contactless card in a near field of the mobile device to obtain the data pertaining to the electronic invoice from the POS device.

Dryer et al. teaches wherein the POS device includes a contactless card loaded with the electronic invoice (pg.5, ¶ [0041] discusses electronic payment device 120 are equipped with respective NFC chips or cards 119, 129, ¶ [0046] discusses the payment application 123 executing on the electronic payment device 120 generates an authorization token 170[4]), and

the mobile device reads off a contactless card in a near field of the mobile device to obtain the data pertaining to the electronic invoice from the POS device (pg.6, ¶ [0047] discusses the consumer's mobile communication device 110 and the merchant's electronic payment device 120 brought into contact or in proximity with each other to establish a temporary connection, e.g., a NFC connection 160, between the devices so they can communicate with each other).

[4] Examiner is construing authorization token as an electronic invoice because the token includes invoice amount and transaction data.

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide a merchant POS with a NFC transaction card as taught by Dryer et al. to provide a system and method where Authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

As per Claim 16, Mullen et al. discloses the method of the claimed invention. However, Mullen et al. is silent regarding wherein the registered user receives a notification that the electronic invoice has been settled via the mobile device.

Dryer et al. teaches wherein the registered user receives a notification that the electronic invoice has been settled via the mobile device (pg.5, ¶ [0043] discusses sends the associated credit card data 147 to the payment processor computer 130 at 208, which then processes electronic transaction, updates merchant account 132 and notifies merchant 125 as necessary at 210).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide a merchant with notification regarding the completion of payment transaction as taught by Dryer et al. to provide a system and method where authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

As per Claim 17, Mullen et al. discloses the method as recited in claim 12, wherein data exchange between the mobile device and the payment gateway (pg.10, ¶ [0128] discusses a mobile device may communicate payment information to a payment server to complete a purchase transaction)

Mullen discloses the claimed invention except for a secure channel. It would have been obvious to one having ordinary skill in the arty at the time the invention was made to send data to a payment gateway using a secure channel since it was known in the art that payment gateways such as VISA and MasterCard require SET protocols to communicate data when conducting transactions over the Internet[5].

Dryer et al. teaches (pg.6, ¶ [0052] discusses based at least in part upon data 122 received from merchant 125 (if merchant specifies types of payment) and electronic payment option data 147 stored locally on mobile communication device 110 indicating which credit cards can be used), the Examiner is construing the ability to specify types of payment sent along with the transaction data, as using the secured channel established by the security information in the data pertaining to the electronic invoice, because the cited portion of Dryer describes the received transaction data having invoice amount and payment type e.g. MasterCard. In, the instant case, MasterCard would require that Internet and online payments use SET secure electronic transaction protocol to move messages securely over the Internet.

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide payment specific instructions when delivering transaction data to a mobile device to carry out a mobile transaction as taught by Dryer et al. to provide a system and method where authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

As per Claim 18, Mullen et al. discloses a system for mobile payment, the system comprising:

after a user of the mobile devices verifies the electronic invoice displayed on the mobile device and authorizes a payment to the electronic invoice (pg.13, ¶ [0158] discusses a payment application

[5] *Partnering for Performance with MasterCard e-Business Solutions, pg.8,* MasterCard International Incorporated 2001.

installed on mobile device, pg.5, ¶ [0074] discusses Mobile device 202 may, for example, complete a purchase transaction by first obtaining required payment information from contactless device 204 and then communicating such payment information to network entities e.g., payment server 216 and/or issuer 220);

the mobile device is configured to establish a communication session with the payment gateway to proceed with the payment to the electronic invoice (pg.9, ¶ [0116] discusses a mobile device may complete a purchase transaction with an entity of a payment network (e.g., a payment server).

Mullen discloses the claimed invention except for a secure channel. It would have been obvious to one having ordinary skill in the arty at the time the invention was made to send data to a payment gateway using a secure channel since it was known in the art that payment gateways such as VISA and MasterCard require SET protocols to communicate data when conducting transactions over the Internet[6].

Dryer et al. teaches a point of sale (POS) device provided to generate an electronic invoice upon receiving an entry (pg.5, ¶ [0045] discusses the merchant generating invoice, receipt or transaction data using electronic payment device for purchase of item by the consumer from the merchant);

a contactless card loaded with the electronic invoice (pg.5, ¶ [0041] discusses electronic payment device 120 are equipped with respective NFC chips or cards 119, 129, ¶ [0046] discusses the payment application 123 executing on the electronic payment device 120 generates an authorization token 170[7].),

wherein the contactless card is placed in a near field of a mobile device configured to execute an installed application therein to read off data communicate with the POS device to generate a payment

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[6] *Partnering for Performance with MasterCard e-Business Solutions, pg.8,* MasterCard International Incorporated 2001.

[7] Examiner is construing authorization token as an electronic invoice because the token includes invoice amount and transaction data.

request in response to the electronic invoice (pg.6, ¶ [0047] discusses the consumer's mobile communication device 110 and the merchant's electronic payment device 120 brought into contact or in proximity with each other to establish a temporary connection, e.g., a NFC connection 160, between the devices so they can communicate with each other, pg.5 ¶ [0054] discusses the payment application 123 executing on the electronic payment device 120 or the mobile wallet application 113 executing on the mobile communication device 110 transforms or encodes the merchant-generated authorization token. The encoded authorization token 170 may embody or be encoded with transaction data 122, and may be decoded by the cloud wallet server 140 using an appropriate key or decoding mechanism. The ability to encode and decode the authorization data provides for more flexibility and inclusion of additional information associated with the merchant 125 and/ or transaction to ensure that the credit card data 147 to be utilized is utilized for payment is for the correct amount, e.g., if the invoice or receipt amount 122 is encoded within or transmitted with the authorization token 170, and that the payment request is for a particular merchant 125 for that specified amount),

wherein the POS device receives a notification from a payment gateway that the electronic invoice has been settled (pg.5, ¶ [0043] discusses sends the associated credit card data 147 to the payment processor computer 130 at 208, which then processes electronic transaction, updates merchant account 132 and notifies merchant 125 as necessary at 210).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide a merchant with notification regarding the completion of payment transaction as taught by Dryer et al. to provide a system and method where authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

6. Claims 3, 6, 10, 14, 15 and 19-20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Mullen et al. US 2012/0290472 in view of Dryer et al. US2012/0290376 further in view of Florek et al. 2011/0112968.

As per Claims 3 and 14, Mullen et al. and Dryer et al. discloses the method of the claimed invention. However, Mullen et al. and Dryer et al. are silent regarding wherein the POS device includes a secure element that provides security and confidentiality required to support secure data communication between the POS device and a payment gateway.

Florek et al. teaches wherein the POS device includes a secure element that provides security and confidentiality required to support secure data communication between the POS device and a payment gateway (pg.10, ¶ [0089] discusses In its hardware on the SAM card 42 the Sales Device 28 encompasses a Secure Element 6 into which the POS payment terminal 27 identification and also the Master Key for the encryption of the communicated data is loaded).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen and Dryer et al., to include the ability to provide a merchant sales device with a secure element to conduct mobile transactions as taught by Florek et al. to provide a method of direct debit payment using a contactless transmission link and describes a configuration, in which a temporary payment terminal, with simplified structure that is intended above all for small business premises, can be created using a mobile communication device. The solution refers to increase in security and comfort in paying over the mobile communication device with removable memory card for example in the form of a microSD card (pg.1, ¶ [0001]).

As per Claims 10 and 20, Mullen et al. and Dryer et al. discloses the method of the claimed invention. However, Mullen et al. and Dryer et al. are silent regarding wherein the mobile device includes a secure element that provides security and confidentiality required to support secure data communication between the mobile device and the payment gateway.

Florek et al. teaches wherein the mobile device includes a secure element that provides security and confidentiality required to support secure data communication between the mobile device and the payment gateway (Figure 6, depicts MicroSD 18 for insertion into customer mobile phone having Secure Element 31).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen and Dryer et al., to include the ability to provide a customer mobile phone with a secure element to conduct mobile transactions as taught by Florek et al. to provide a method of direct debit payment using a contactless transmission link and describes a configuration, in which a temporary payment terminal, with simplified structure that is intended above all for small business premises, can be created using a mobile communication device. The solution refers to increase in security and comfort in paying over the mobile communication device with removable memory card for example in the form of a microSD card (pg.1, ¶ [0001]).

As per Claims 6, 15 and 19, Mullen et al. discloses the claimed invention. However, Mullen et al. is silent regarding wherein the data includes security information of a registered user associated with the POS device, the security information includes an account and bank information of the registered user, an identifier of the secure element in the contactless card or the POS device.

Dryer et al. teaches wherein the data includes security information of a registered user associated with the POS device, the security information includes an account and bank information of the registered user (pg.5, ¶ [0046] discusses includes or is encoded with transaction data 122 such as merchant identification (Merchant ID) types of electronic payment accepted by the merchant (e.g. VISA, MASTERCARD, etc.).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen to include the ability to provide merchant identification and payment type information as taught by Dryer et al. to provide a system and method

where authorization data is shared between the mobile communication device and the electronic payment device without providing electronic payment instrument (e.g. credit card) data to the merchant (Abstract).

However, Mullen et al. and Dryer et al. are silent regarding an identifier of the secure element in the contactless card or the POS device.

Florek et al. teaches an identifier of the secure element in the contactless card or the POS device (pg.10, ¶ [0089] discusses in its hardware on the SAM card 42 the Sales Device 28 encompasses a Secure Element 6 into which the POS payment terminal 27 identification and also the Master Key for the encryption of the communicated data is loaded).

Therefore it would have been obvious to one of ordinary skill in the art of mobile commerce at the time of the invention to modify the system of Mullen and Dryer et al., to include the ability to provide information identifying a merchant sales device with a secure element within a mobile transactions as taught by Florek et al. to provide a method of direct debit payment using a contactless transmission link and describes a configuration, in which a temporary payment terminal, with simplified structure that is intended above all for small business premises, can be created using a mobile communication device. The solution refers to increase in security and comfort in paying over the mobile communication device with removable memory card for example in the form of a microSD card (pg.1, ¶ [0001]).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Goldthwaite et al. U.S. Patent Application Publication 2004/0127256 discusses a mobile device equipped with a contactless smart card reader/writer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ASHFORD S HAYLES whose telephone number is (571)270-5106. The examiner can normally be reached on M-F 6AM-4PM with Flex.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fahd Obeid can be reached on 5712703324. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ASHFORD S HAYLES/
Primary Examiner, Art Unit 3687

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 5346

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/728,349	06/02/2015 RULE	705	3687	RFID-085C1

APPLICANTS
RFCyber Corporation, Fremont, CA;

INVENTORS
Xiangzhen Xie, Shenzhen, CHINA;
Liang Seng Koh, Fremont, CA;
Hsin Pan, Fremont, CA;

**** CONTINUING DATA **************************
This application is a CON of 13/853,937 03/29/2013 PAT 9047601
which claims benefit of 61/618,802 04/01/2012
and is a CIP of 13/350,832 01/16/2012
which is a CIP of 11/534,653 09/24/2006 PAT 8118218

**** FOREIGN APPLICATIONS **************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
06/10/2015

Foreign Priority claimed	☐ Yes ☑ No	☐ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	☐ Yes ☑ No		CHINA	22	20	3
Verified and Acknowledged	/ASHFORD S HAYLES/ Examiner's Signature	Initials				

ADDRESS
LogicPatents, LLC
21701 Stevens Creek Boulevard, #284
CUPERTINO, CA 95015
UNITED STATES

TITLE
Method and apparatus for mobile payments

FILING FEE RECEIVED		
730	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/728,349	Xie et al.
	Examiner	Art Unit
	ASHFORD S HAYLES	3687

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
705	21	09/21/2017	ASH

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST (SEE ATTACHMENTS)	09/21/2017	ASH

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/ASHFORD S HAYLES/ Primary Examiner, Art Unit 3687	

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/728,349	06/02/2015	Xiangzhen Xie	RFID-085C1

CONFIRMATION NO. 5346

26797
LogicPatents, LLC
21701 Stevens Creek Boulevard, #284
CUPERTINO, CA 95015

PUBLICATION NOTICE

OC000000077792223

Title: Method and apparatus for mobile payments

Publication No.US-2015-0278800-A1
Publication Date:10/01/2015

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

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Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/728,349

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/728,349	06/02/2015	2642	730	RFID-085C1	20	3

CONFIRMATION NO. 5346

UPDATED FILING RECEIPT

26797
LogicPatents, LLC
21701 Stevens Creek Boulevard, #284
CUPERTINO, CA 95015

OC000000075955474

Date Mailed: 06/26/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Xiangzhen Xie, Shenzhen, CHINA;
Liang Seng Koh, Fremont, CA;
Hsin Pan, Fremont, CA;

Applicant(s)

RFCyber Corporation, Fremont, CA;

Power of Attorney: The patent practitioners associated with Customer Number 26797

Domestic Priority data as claimed by applicant

This application is a CON of 13/853,937 03/29/2013 PAT 9047601
which claims benefit of 61/618,802 04/01/2012
and is a CIP of 13/350,832 01/16/2012
which is a CIP of 11/534,653 09/24/2006 PAT 8118218

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 06/10/2015
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/728,349**
Projected Publication Date: 10/01/2015
Non-Publication Request: No
Early Publication Request: No

**** SMALL ENTITY ****

Title

Method and apparatus for mobile payments

Preliminary Class

455

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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DocCode – SCORE

SCORE Placeholder Sheet for IFW Content

Application Number: 14728349 Document Date: 06/23/2015

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- Drawing

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Form Revision Date: August 26, 2013

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Xiangzhen Xie et al
Title:	Method and apparatus for mobile payments
Serial No.:	14/728,349
Filing Date:	06/02/2015
Examiner:	Unknown
Group Art Unit:	Unknown
Docket No.:	RFID-085C1

June 23, 2015

Mail Stop: Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Response to
NOTICE TO FILE CORRECTED APPLICATION PAPERS
Filing Date Granted

Dear Sir:

In response to NOTICE TO FILE CORRECTED APPLICATION PAPERS– Filing Date Granted, (hereinafter "NOTICE"), mailed by the United States Patent and Trademark Office on 06/19/2015, the Applicant respectfully request the Commissioner to enter the following preliminary amendments:

AMENDMENTS TO THE DRAWINGS begin on page 2 of this Response.

REMARKS begin on page 3 of this Response.

AMENDMENTS TO THE DRAWINGS

FIG. 6D is enclosed. A complete set of the drawings is enclosed herewith to facilitate the entry of the amendments.

REMARKS

FIG. 6D was missing from the originally filed drawings. The Applicant chose the option "**III. Acceptance of application as deposited: (A)**".

The Applicant hereby states no new matter is introduced with the inclusion of FIG. 6D. The full description of FIG. 6D is given in paragraphs [0133]-[0134]. Further, this instant application is a continuation of US Pat. App. Serial No.: 13/853,937 filed on 03/29/2013, now US Pat. No.: 9,047,601 issued on 06/02/2015.

It is hereby respectfully submitted that the enclosed document completes the filing of the above patent application and justifies the US filing date of 03/29/2013. Please telephone the undersigned at (408)777-8873, if there are any questions.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to "Commissioner of Patents and Trademarks, Washington, DC 20231", on June 23, 2015.

Name: Joe Zheng

Signature: / joe zheng /

Respectfully submitted;

/ joe zheng /

Joe Zheng
Reg.: No. 39,450

Electronic Acknowledgement Receipt

EFS ID:	22718276
Application Number:	14728349
International Application Number:	
Confirmation Number:	5346
Title of Invention:	Method and apparatus for mobile payments
First Named Inventor/Applicant Name:	Xiangzhen Xie
Customer Number:	26797
Filer:	Joe Zheng
Filer Authorized By:	
Attorney Docket Number:	RFID-085C1
Receipt Date:	23-JUN-2015
Filing Date:	02-JUN-2015
Time Stamp:	18:06:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Drawings-other than black and white line drawings	DrawingsAsFiled.pdf	581533 b97a83ad654dae34e6f18e5e50baf656577a0f81	no	22
Warnings:					
Information:					

2	Response to Pre-Exam Sequence Notice	ResponseToMissingParts2.pdf	87925 8801549c68964033e8501c2ca64217febfd224ee	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	669458	

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New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

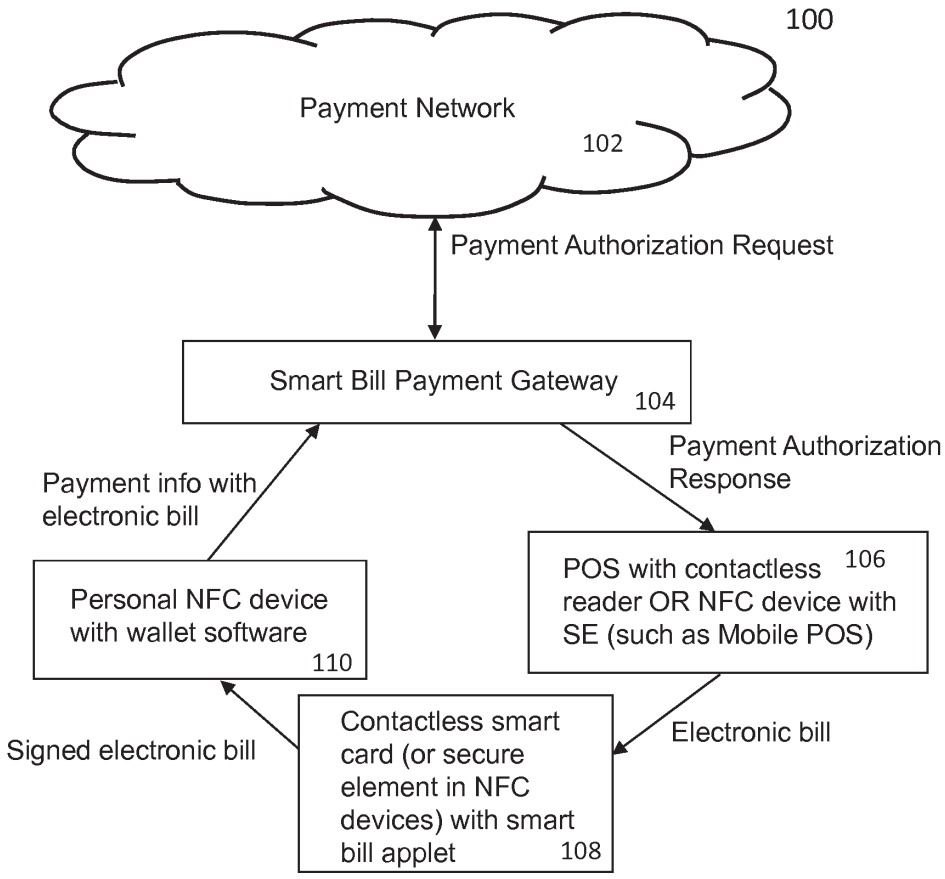

100
Payment Network
102
Payment Authorization Request
Smart Bill Payment Gateway
104
Payment Authorization Response
Payment info with electronic bill
Personal NFC device with wallet software
110
POS with contactless reader OR NFC device with SE (such as Mobile POS)
106
Signed electronic bill
Contactless smart card (or secure element in NFC devices) with smart bill applet
108
Electronic bill

FIG. 1A

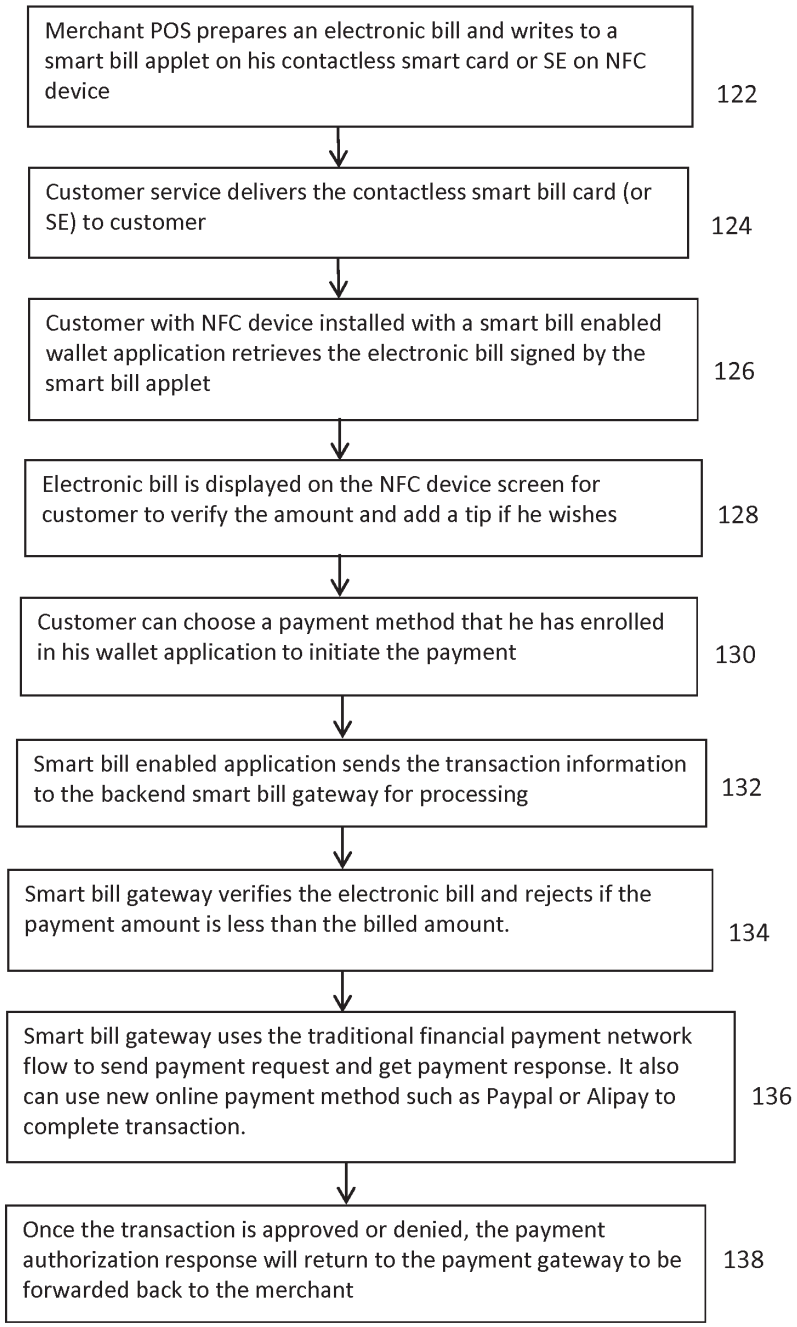

120
Merchant POS prepares an electronic bill and writes to a smart bill applet on his contactless smart card or SE on NFC device
122
Customer service delivers the contactless smart bill card (or SE) to customer
124
Customer with NFC device installed with a smart bill enabled wallet application retrieves the electronic bill signed by the smart bill applet
126
Electronic bill is displayed on the NFC device screen for customer to verify the amount and add a tip if he wishes
128
Customer can choose a payment method that he has enrolled in his wallet application to initiate the payment
130
Smart bill enabled application sends the transaction information to the backend smart bill gateway for processing
132
Smart bill gateway verifies the electronic bill and rejects if the payment amount is less than the billed amount.
134
Smart bill gateway uses the traditional financial payment network flow to send payment request and get payment response. It also can use new online payment method such as Paypal or Alipay to complete transaction.
136
Once the transaction is approved or denied, the payment authorization response will return to the payment gateway to be forwarded back to the merchant
138

FIG. 1B

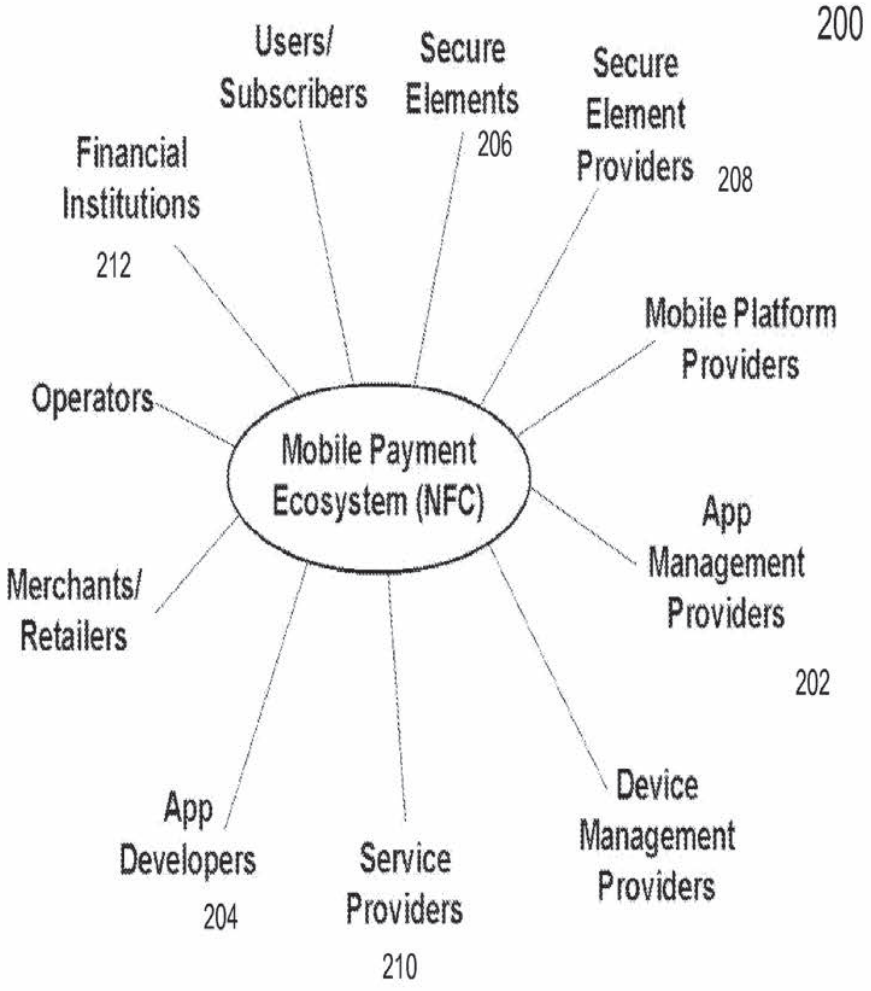

200
Users/
Subscribers
Secure
Elements
206
Secure
Element
Providers
208
Financial
Institutions
212
Mobile Platform
Providers
Operators
Mobile Payment
Ecosystem (NFC)
App
Management
Providers
202
Merchants/
Retailers
Device
Management
Providers
App
Developers
204
Service
Providers
210

FIG. 2A

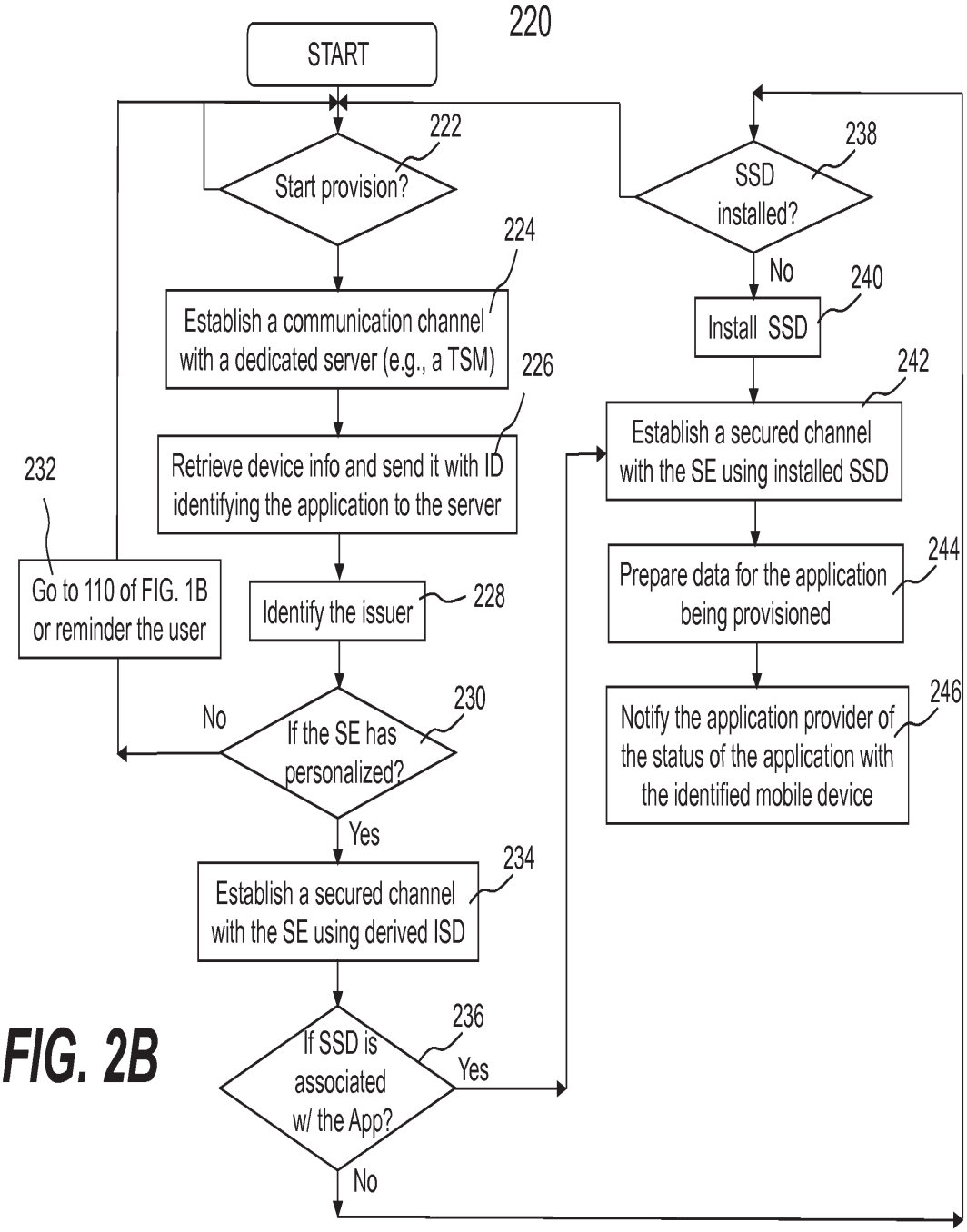

220
START
222
Start provision?
224
Establish a communication channel with a dedicated server (e.g., a TSM)
226
Retrieve device info and send it with ID identifying the application to the server
228
Identify the issuer
230
If the SE has personalized?
No
Yes
232
Go to 110 of FIG. 1B or reminder the user
234
Establish a secured channel with the SE using derived ISD
236
If SSD is associated w/ the App?
Yes
No
238
SSD installed?
No
240
Install SSD
242
Establish a secured channel with the SE using installed SSD
244
Prepare data for the application being provisioned
246
Notify the application provider of the status of the application with the identified mobile device

FIG. 2B

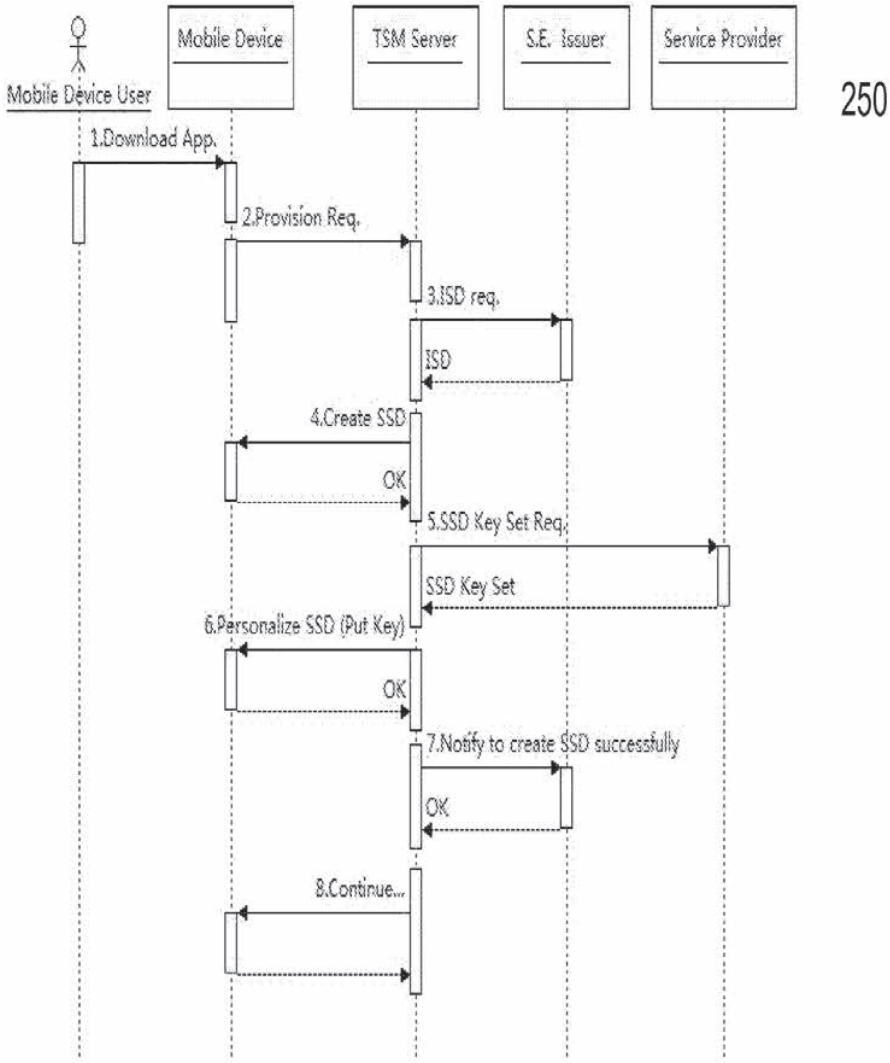
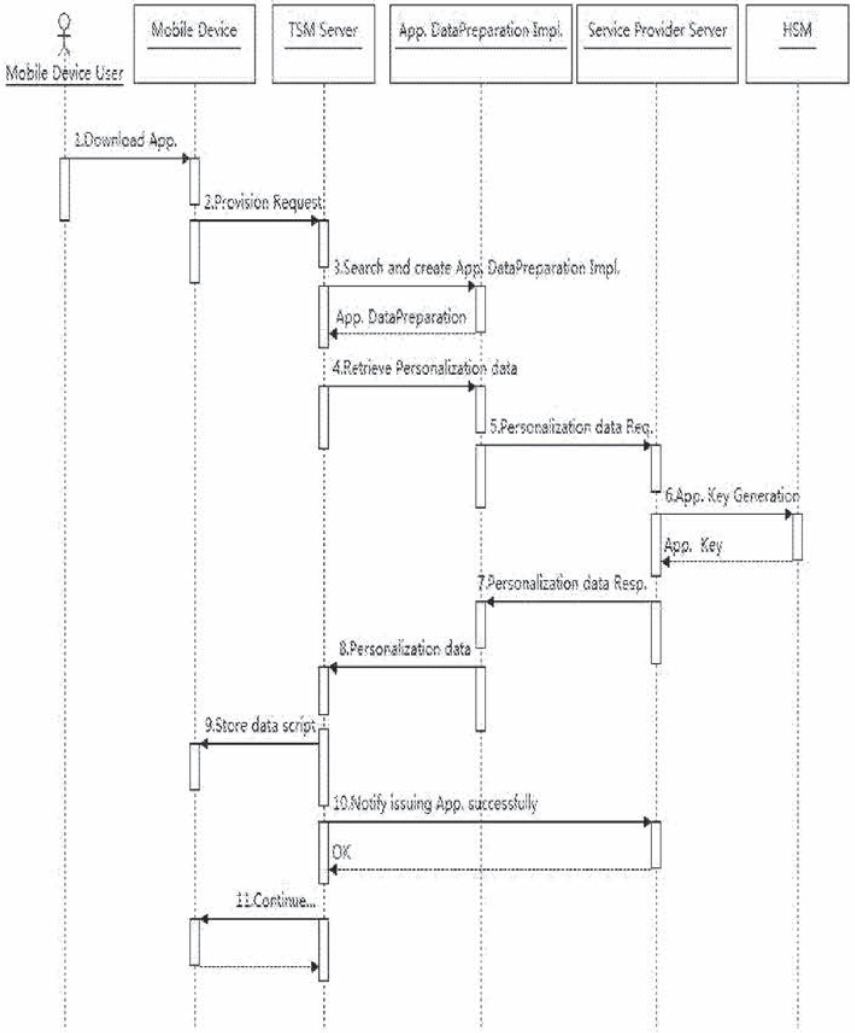

Mobile Device User
Mobile Device
TSM Server
S.E. Issuer
Service Provider
250
1.Download App.
2.Provision Req.
3.ISD req.
ISD
4.Create SSD
OK
5.SSD Key Set Req.
SSD Key Set
6.Personalize SSD (Put Key)
OK
7.Notify to create SSD successfully
OK
8.Continue...

FIG. 2C


Mobile Device User
Mobile Device
TSM Server
App. DataPreparation Impl.
Service Provider Server
HSM
1.Download App.
2.Provision Request
3.Search and create App. DataPreparation Impl.
App. DataPreparation
4.Retrieve Personalization data
5.Personalization data Req.
6.App. Key Generation
App. Key
7.Personalization data Resp.
8.Personalization data
9.Store data script
10.Notify issuing App. successfully
OK
11.Continue...

255

FIG. 2D

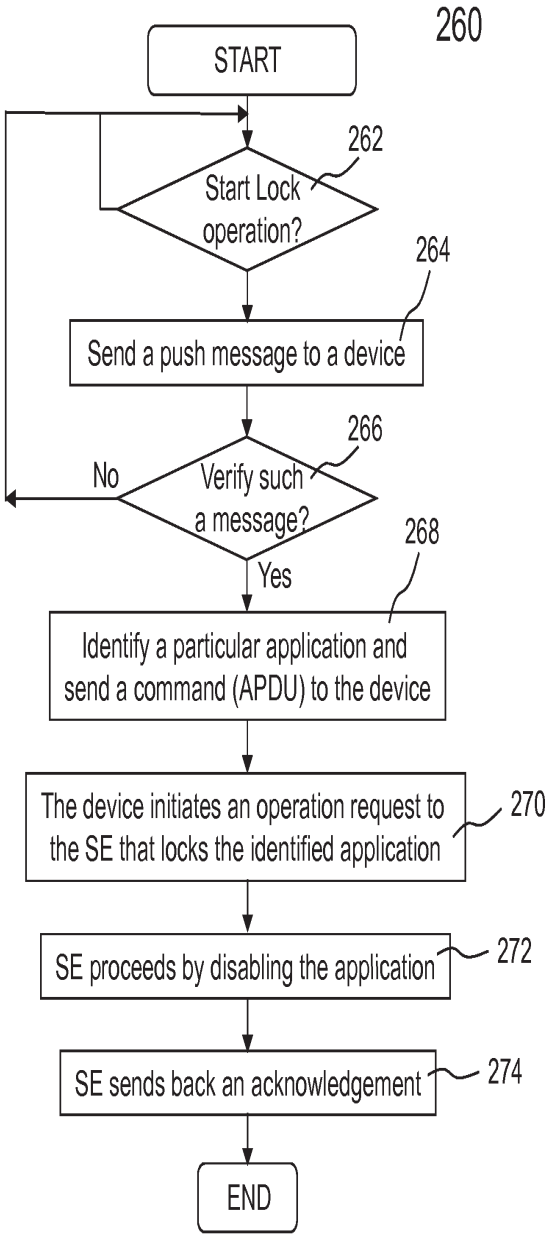

260
START
262
Start Lock operation?
264
Send a push message to a device
266
No
Verify such a message?
Yes
268
Identify a particular application and send a command (APDU) to the device
The device initiates an operation request to the SE that locks the identified application
270
SE proceeds by disabling the application
272
SE sends back an acknowledgement
274
END

FIG. 2E

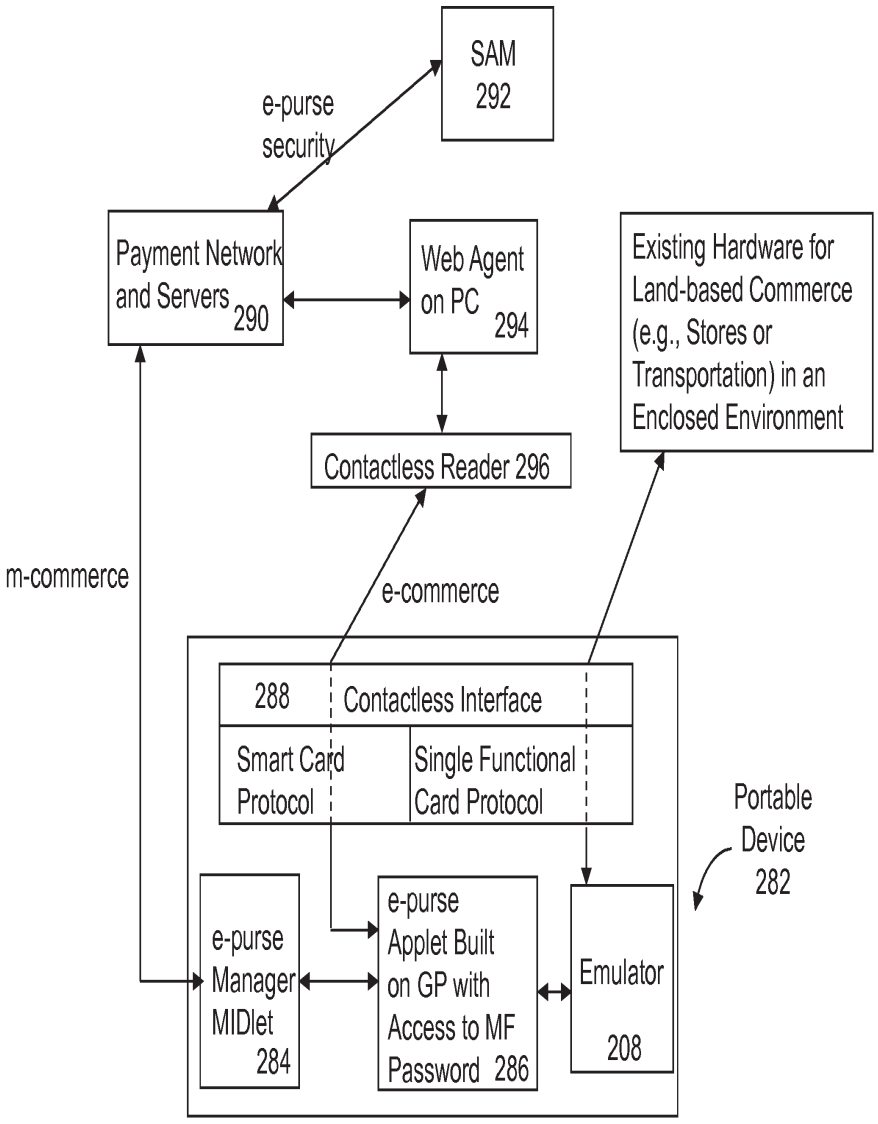

280
SAM
292
e-purse
security
Payment Network
and Servers
290
Web Agent
on PC
294
Existing Hardware for
Land-based Commerce
(e.g., Stores or
Transportation) in an
Enclosed Environment
Contactless Reader 296
m-commerce
e-commerce
288
Contactless Interface
Smart Card
Protocol
Single Functional
Card Protocol
Portable
Device
282
e-purse
Manager
MIDlet
284
e-purse
Applet Built
on GP with
Access to MF
Password 286
Emulator
208

FIG. 2F

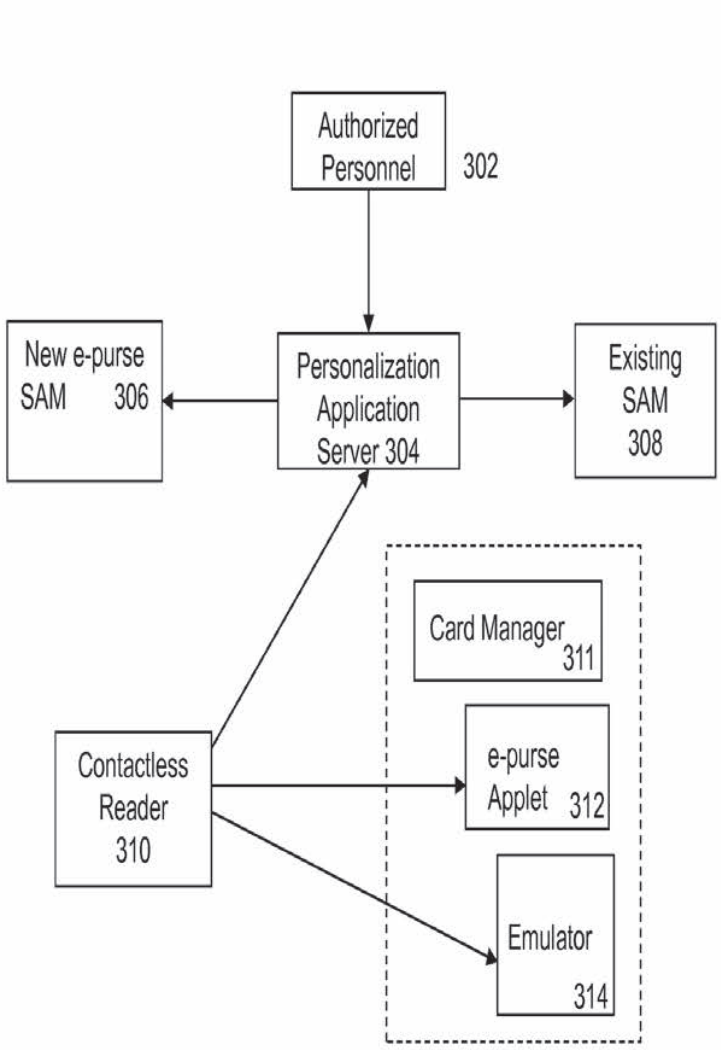

300
Authorized Personnel
302
New e-purse SAM
306
Personalization Application Server 304
Existing SAM
308
Card Manager
311
e-purse Applet
312
Contactless Reader
310
Emulator
314

FIG. 3A

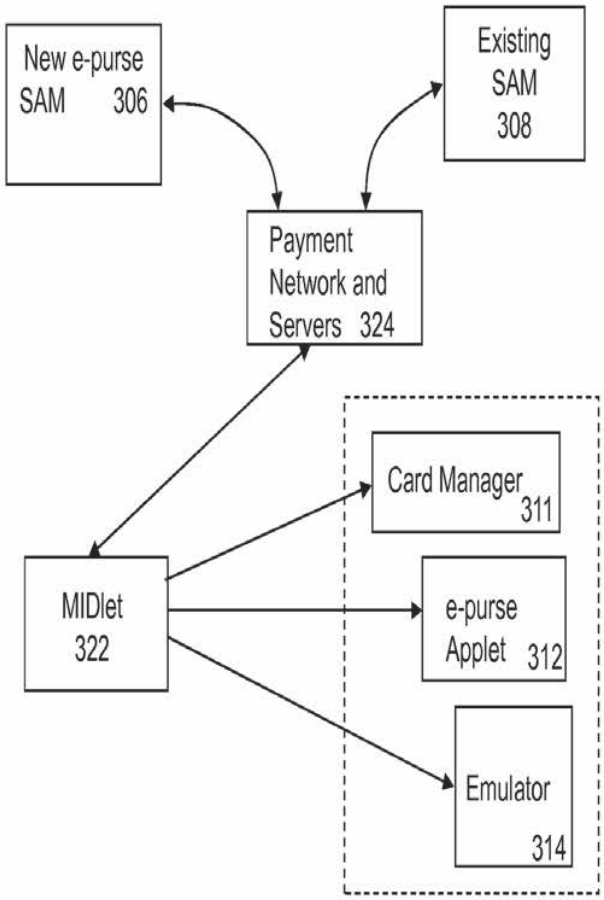

320
New e-purse SAM 306
Existing SAM 308
Payment Network and Servers 324
Card Manager 311
MIDlet 322
e-purse Applet 312
Emulator 314

FIG. 3B

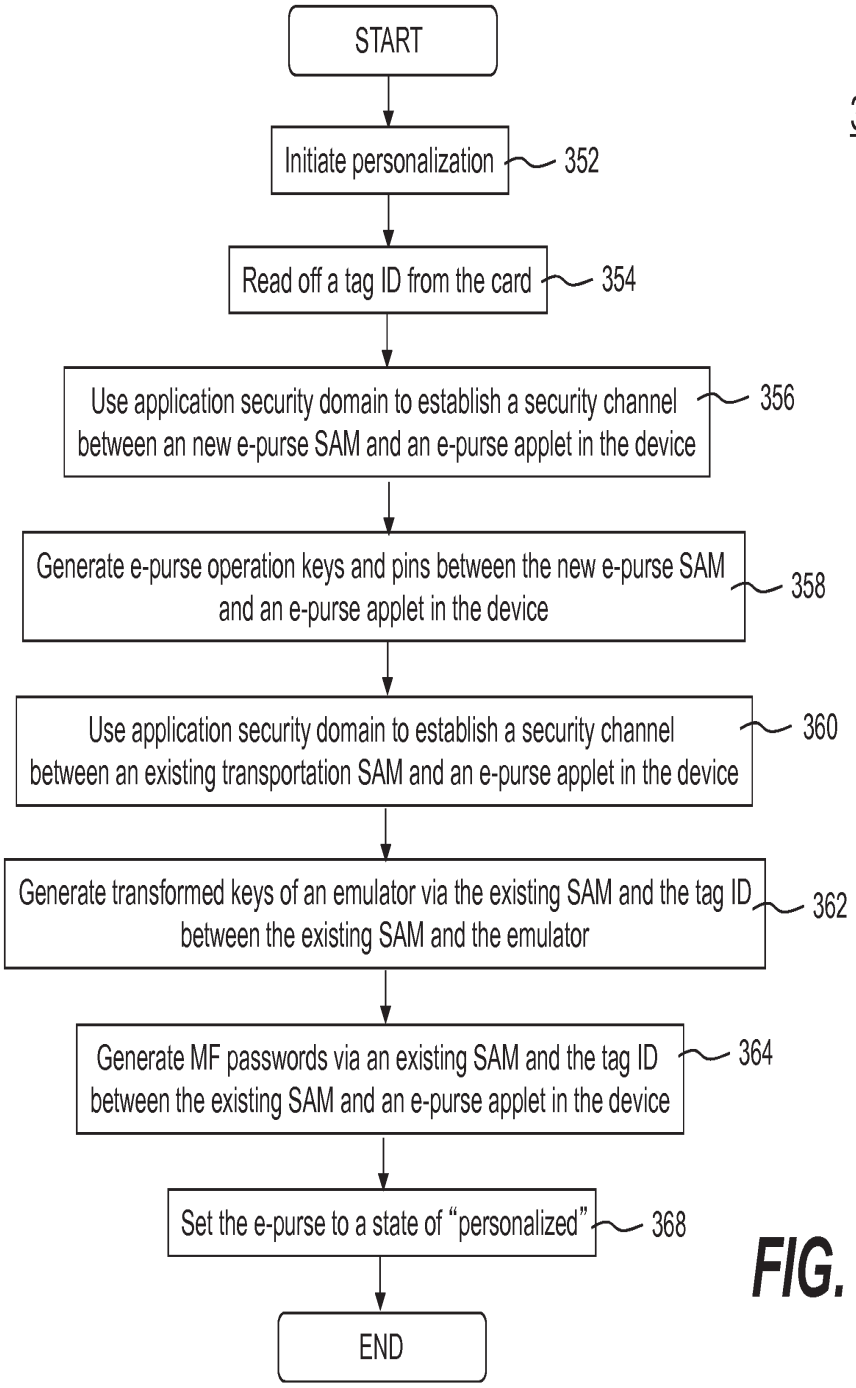

START
350
Initiate personalization
352
Read off a tag ID from the card
354
Use application security domain to establish a security channel between an new e-purse SAM and an e-purse applet in the device
356
Generate e-purse operation keys and pins between the new e-purse SAM and an e-purse applet in the device
358
Use application security domain to establish a security channel between an existing transportation SAM and an e-purse applet in the device
360
Generate transformed keys of an emulator via the existing SAM and the tag ID between the existing SAM and the emulator
362
Generate MF passwords via an existing SAM and the tag ID between the existing SAM and an e-purse applet in the device
364
Set the e-purse to a state of "personalized"
368
END

FIG. 3C

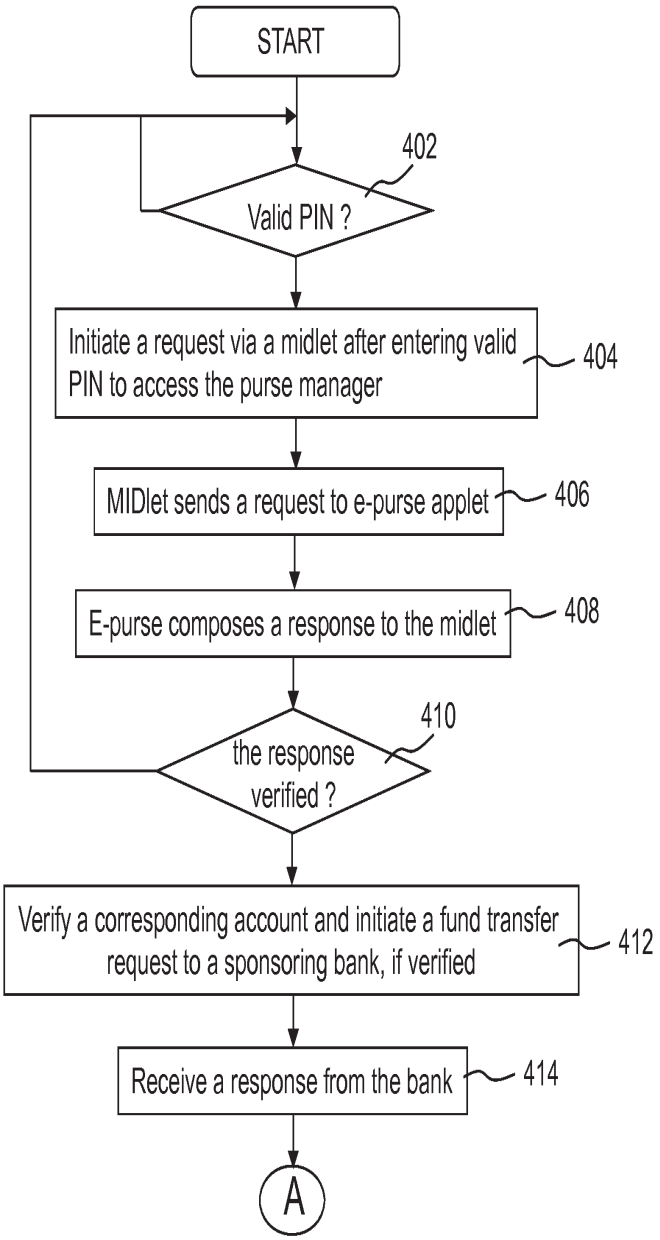

400
START
402
Valid PIN ?
Initiate a request via a midlet after entering valid PIN to access the purse manager
404
MIDlet sends a request to e-purse applet
406
E-purse composes a response to the midlet
408
410
the response verified ?
Verify a corresponding account and initiate a fund transfer request to a sponsoring bank, if verified
412
Receive a response from the bank
414
A

FIG. 4A

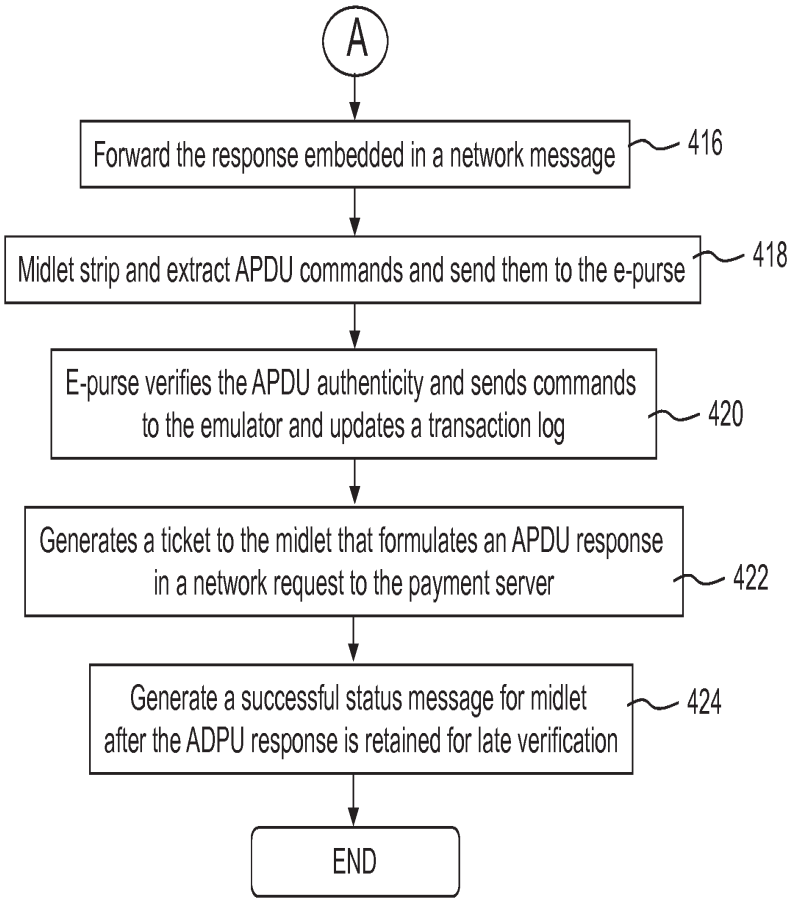

A
Forward the response embedded in a network message
416
Midlet strip and extract APDU commands and send them to the e-purse
418
E-purse verifies the APDU authenticity and sends commands to the emulator and updates a transaction log
420
Generates a ticket to the midlet that formulates an APDU response in a network request to the payment server
422
Generate a successful status message for midlet after the ADPU response is retained for late verification
424
END

FIG. 4B

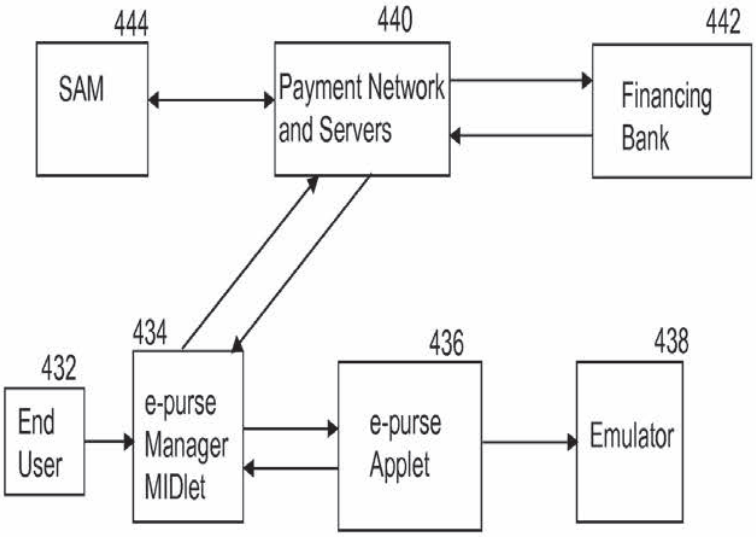

444
SAM
440
Payment Network and Servers
442
Financing Bank
434
432
End User
e-purse Manager MIDlet
436
e-purse Applet
438
Emulator

FIG. 4C

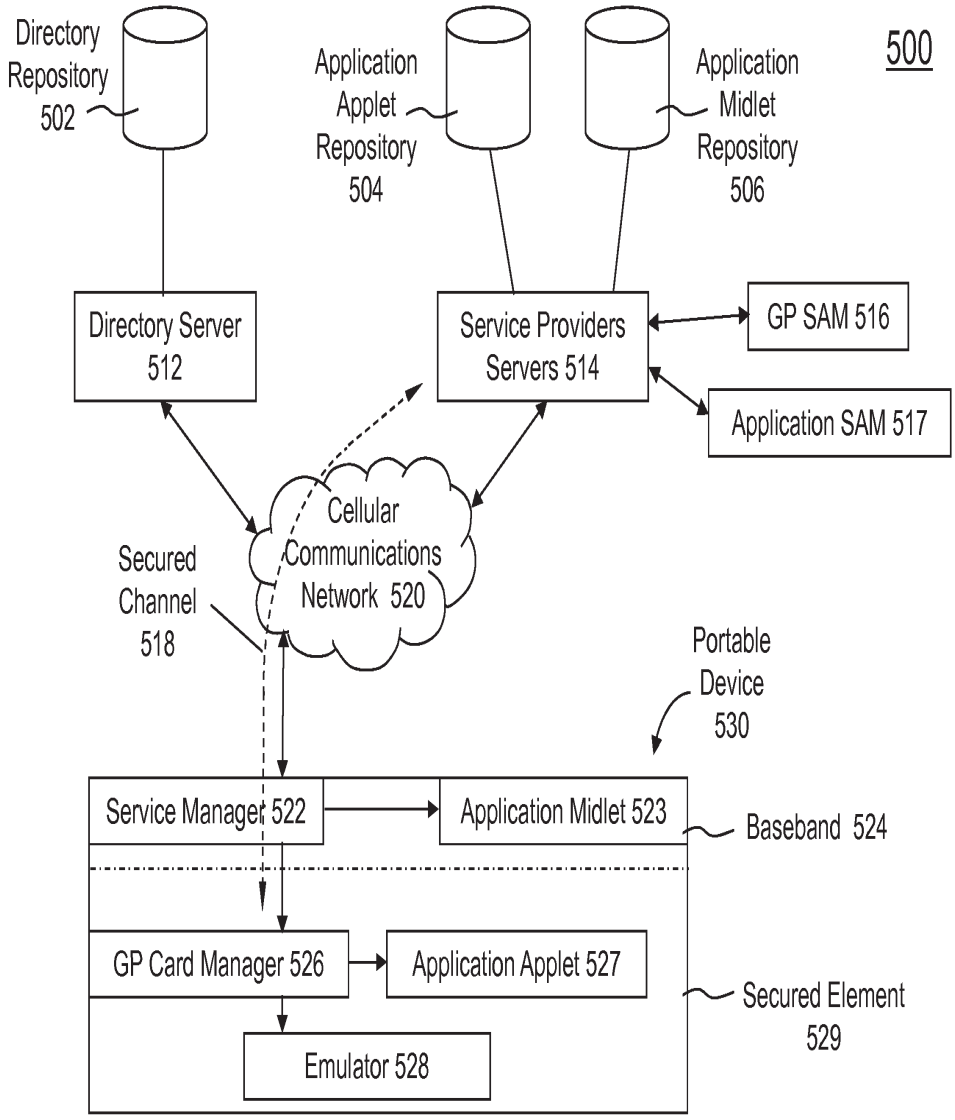

500
Directory Repository 502
Application Applet Repository 504
Application Midlet Repository 506
Directory Server 512
Service Providers Servers 514
GP SAM 516
Application SAM 517
Cellular Communications Network 520
Secured Channel 518
Portable Device 530
Service Manager 522
Application Midlet 523
Baseband 524
GP Card Manager 526
Application Applet 527
Secured Element 529
Emulator 528

FIG. 5A

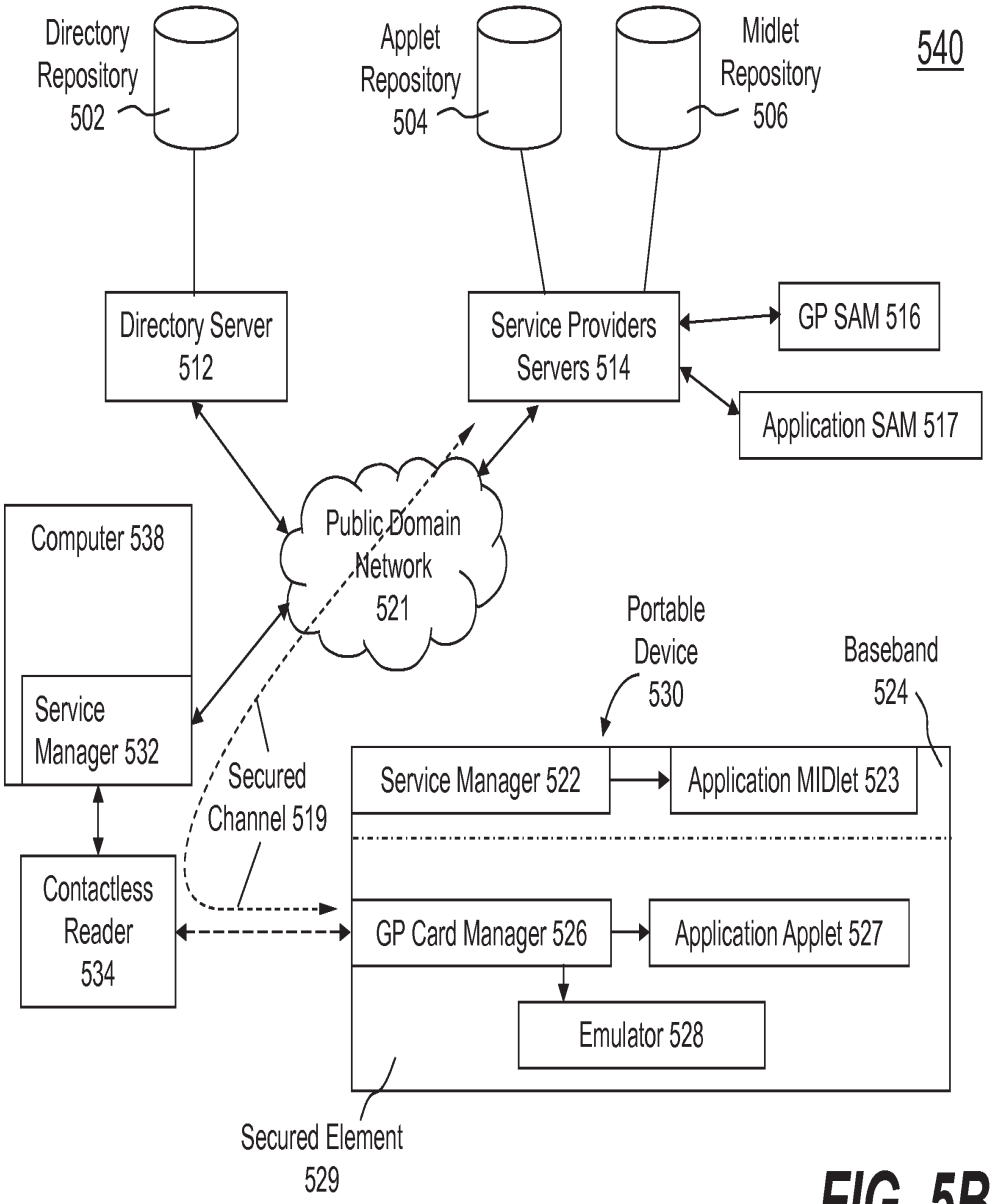

Directory Repository 502
Applet Repository 504
Midlet Repository 506
540
Directory Server 512
Service Providers Servers 514
GP SAM 516
Application SAM 517
Public Domain Network 521
Computer 538
Service Manager 532
Portable Device 530
Baseband 524
Secured Channel 519
Service Manager 522
Application MIDlet 523
Contactless Reader 534
GP Card Manager 526
Application Applet 527
Emulator 528
Secured Element 529

FIG. 5B

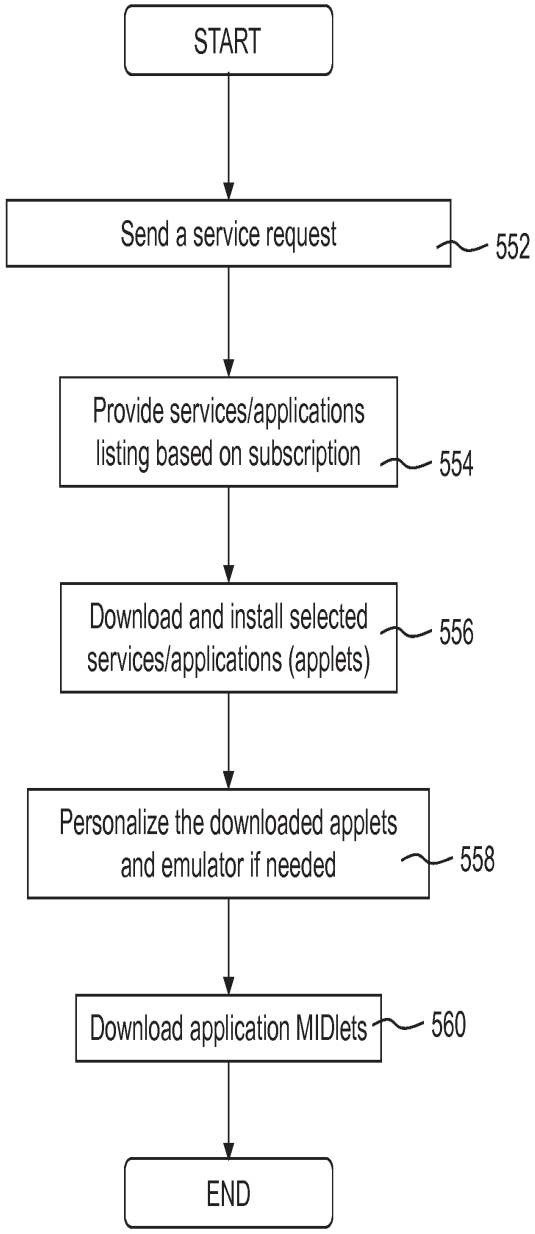

START
550
Send a service request
552
Provide services/applications listing based on subscription
554
Download and install selected services/applications (applets)
556
Personalize the downloaded applets and emulator if needed
558
Download application MIDlets
560
END

FIG. 5C

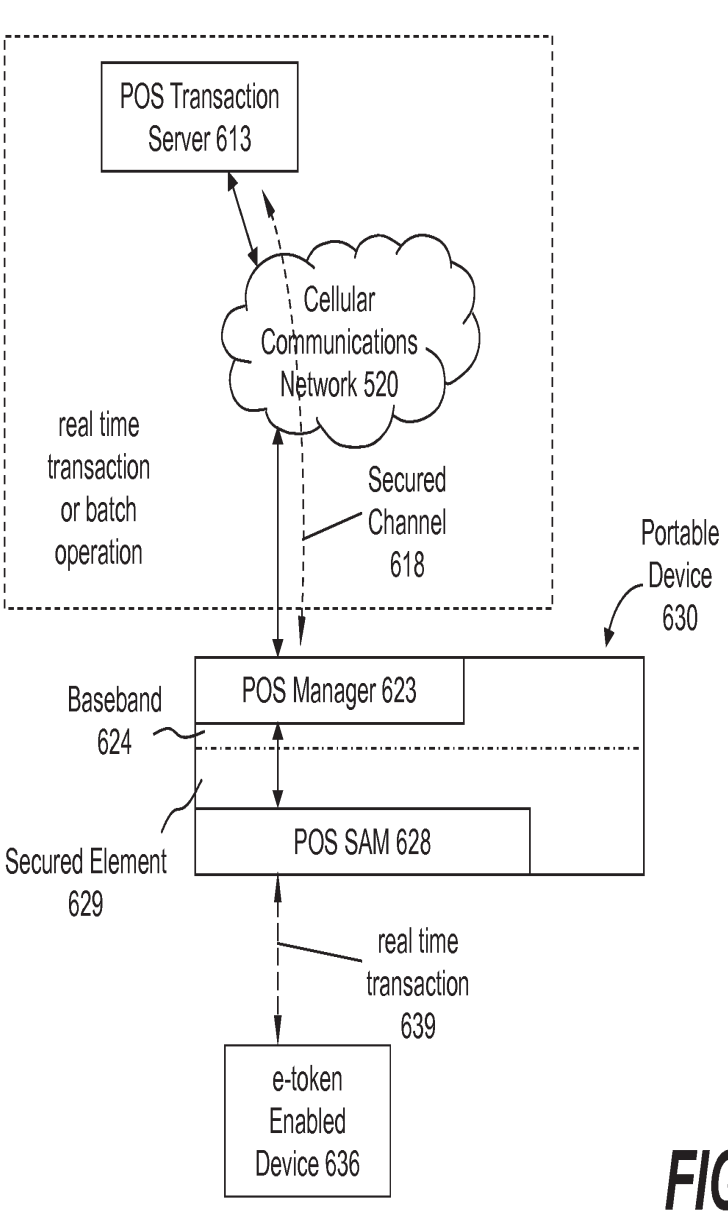

600
POS Transaction Server 613
Cellular Communications Network 520
real time transaction or batch operation
Secured Channel 618
Portable Device 630
Baseband 624
POS Manager 623
Secured Element 629
POS SAM 628
real time transaction 639
e-token Enabled Device 636

FIG. 6A

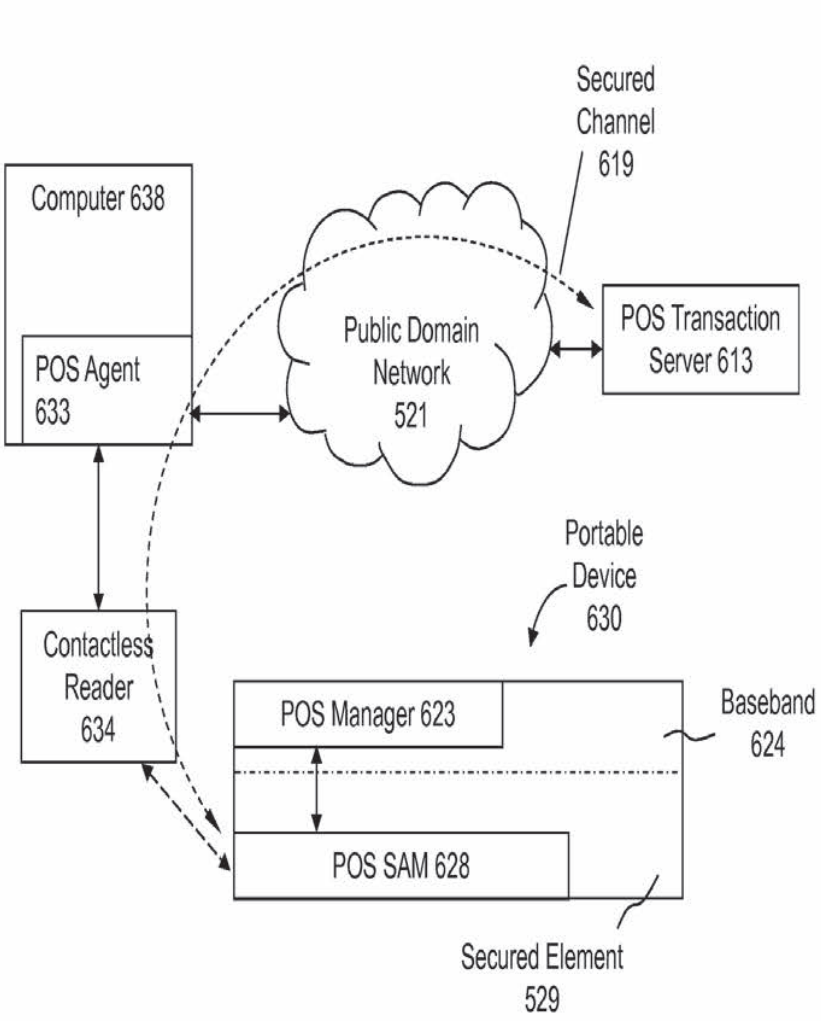

640
Secured
Channel
619
Computer 638
POS Agent
633
Public Domain
Network
521
POS Transaction
Server 613
Portable
Device
630
Contactless
Reader
634
POS Manager 623
Baseband
624
POS SAM 628
Secured Element
529

FIG. 6B

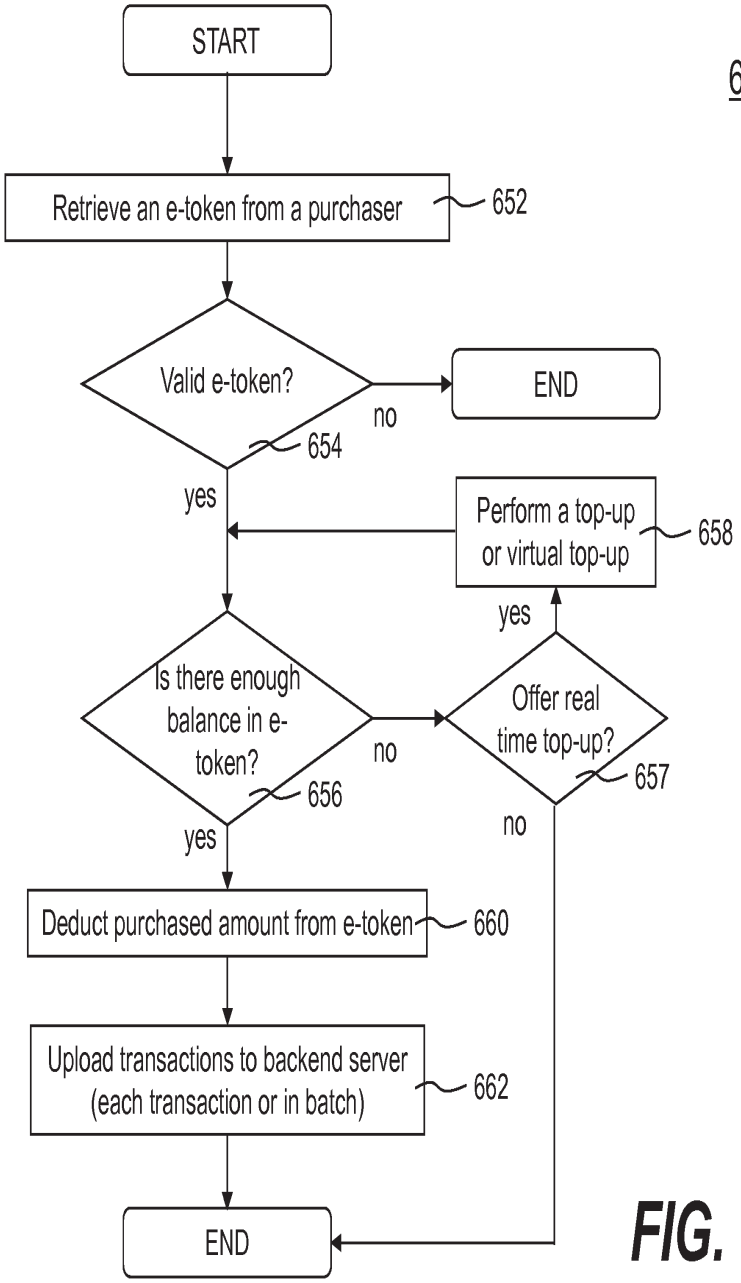

START
650
Retrieve an e-token from a purchaser
652
Valid e-token?
no
END
654
yes
Perform a top-up or virtual top-up
658
yes
Is there enough balance in e-token?
no
Offer real time top-up?
657
656
yes
no
Deduct purchased amount from e-token
660
Upload transactions to backend server (each transaction or in batch)
662
END

FIG. 6C

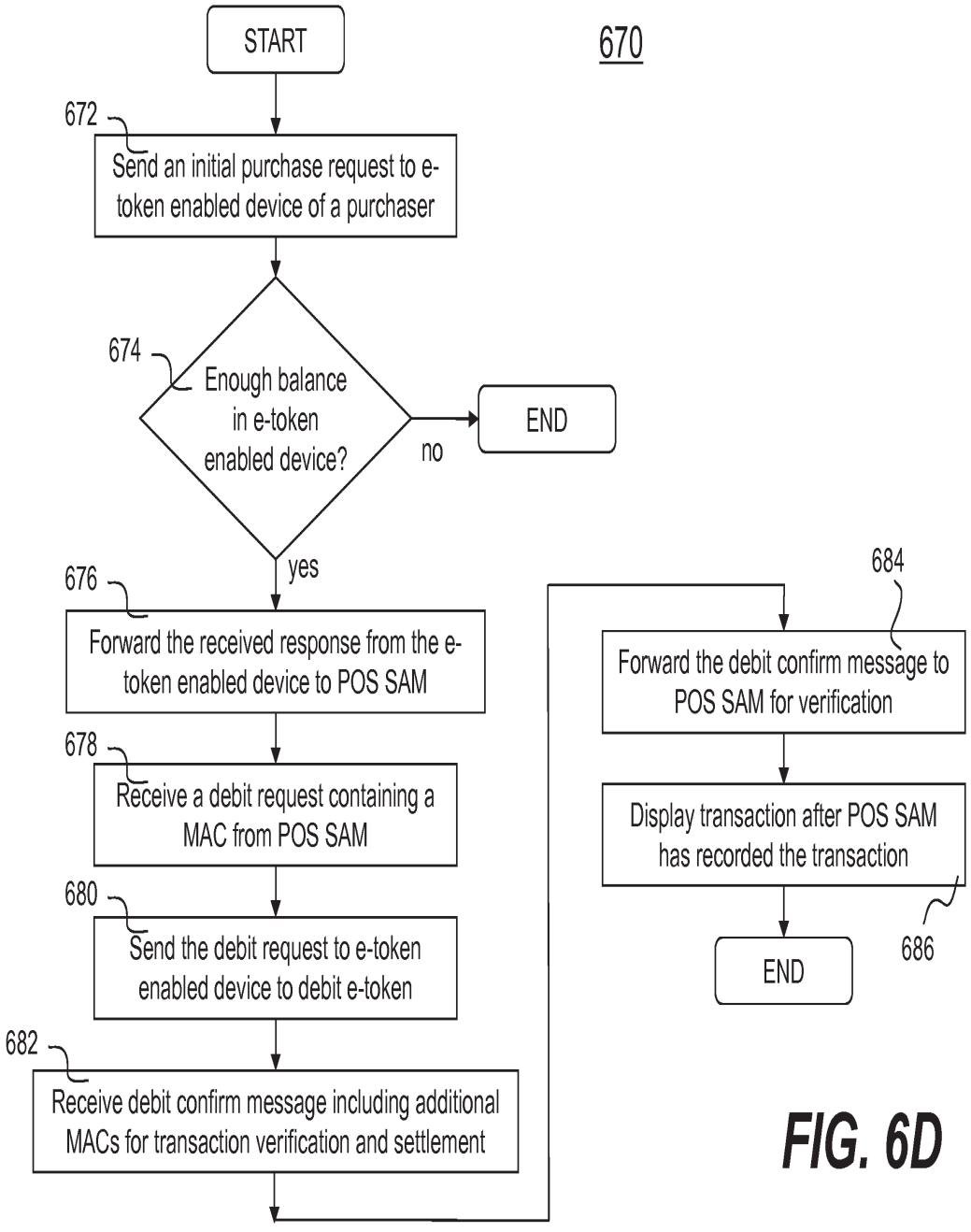

START
670
672
Send an initial purchase request to e-token enabled device of a purchaser
674
Enough balance in e-token enabled device?
no
END
yes
676
Forward the received response from the e-token enabled device to POS SAM
678
Receive a debit request containing a MAC from POS SAM
680
Send the debit request to e-token enabled device to debit e-token
682
Receive debit confirm message including additional MACs for transaction verification and settlement
684
Forward the debit confirm message to POS SAM for verification
Display transaction after POS SAM has recorded the transaction
686
END

FIG. 6D

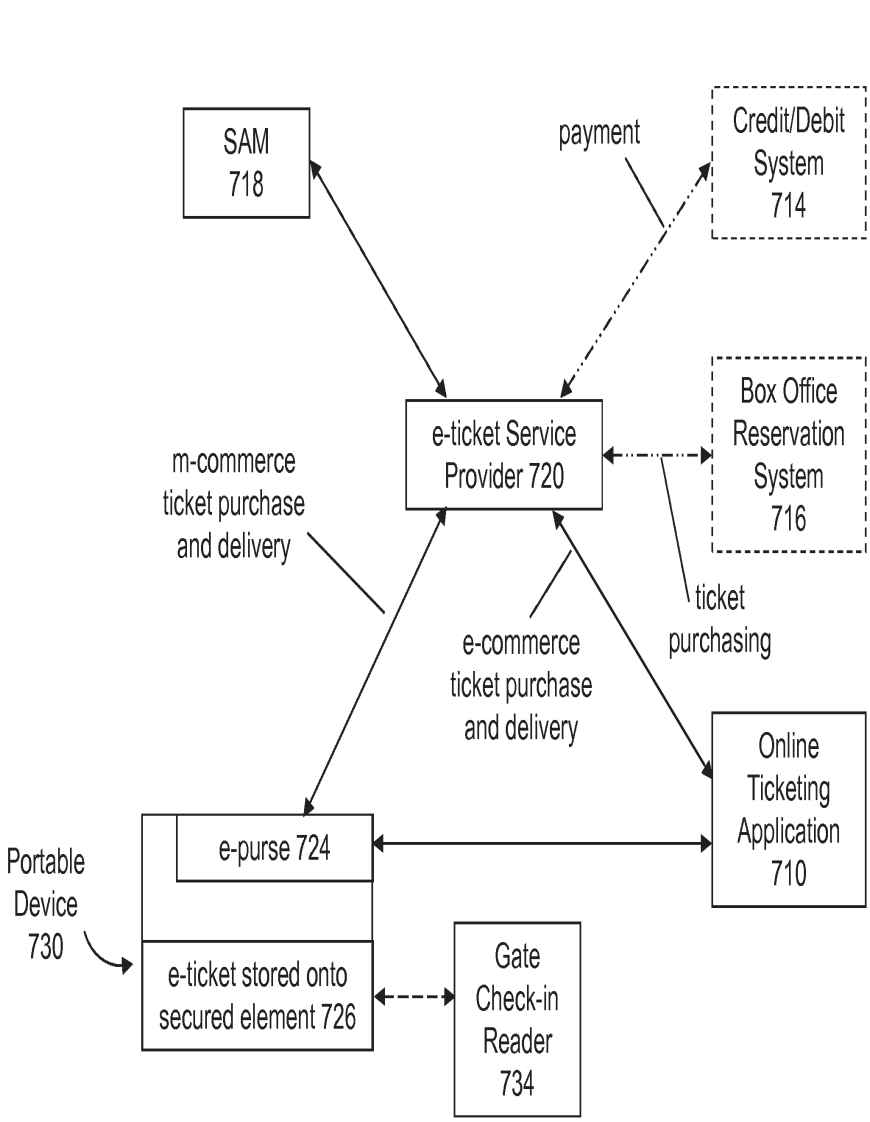

700
SAM
718
payment
Credit/Debit
System
714
e-ticket Service
Provider 720
Box Office
Reservation
System
716
m-commerce
ticket purchase
and delivery
ticket
purchasing
e-commerce
ticket purchase
and delivery
Online
Ticketing
Application
710
Portable
Device
730
e-purse 724
e-ticket stored onto
secured element 726
Gate
Check-in
Reader
734

FIG. 7

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/728,349	06/02/2015	Xiangzhen Xie	RFID-085C1

CONFIRMATION NO. 5346

26797
LogicPatents, LLC
21701 Stevens Creek Boulevard, #284
CUPERTINO, CA 95015

WITHDRAWAL NOTICE

OC000000075833309

Date Mailed: 06/19/2015

Letter Regarding a New Notice and/or the Status of the Application

If a new notice or Filing Receipt is enclosed, applicant may disregard the previous notice mailed on 06/12/2015. The time period for reply runs from the mail date of the new notice. Within the time period for reply, applicant is required to file a reply in compliance with the requirements set forth in the new notice to avoid abandonment of the application.

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web. https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If the reply is not filed electronically via EFS-Web, the reply must be accompanied by a copy of the new notice.

If the Office previously granted a petition to withdraw the holding of abandonment or a petition to revive under 37 CFR 1.137, the status of the application has been returned to pending status.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/tpetros/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/728,349

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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CONFIRMATION NO. 5346

26797
LogicPatents, LLC
21701 Stevens Creek Boulevard, #284
CUPERTINO, CA 95015

FORMALITIES LETTER

OC000000075833494

Date Mailed: 06/19/2015

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- A substitute specification in compliance with 37 CFR 1.52, 1.121(b)(3), and 1.125, is required. The substitute specification must be submitted with markings and be accompanied by a clean version (without markings) as set forth in 37 CFR 1.125(c) and a statement that the substitute specification contains no new matter (see 37 CFR 1.125(b)). The specification, claims, and/or abstract page(s) submitted is not acceptable and cannot be scanned or properly stored because:
  - The application contains drawings, but the specification does not contain a brief description of the several views of the drawings as required by 37 CFR 1.74 and 37 CFR 1.77(b)(9).

The following item(s) appear to have been **omitted** from the application:

- Figure(s) **6D** described in the specification.

Applicant must reply to this notice within the time period set forth in this notice to avoid abandonment of this application. Applicant must select one of the three following options and the reply must comply with the requirements set forth in the selected option and any other requirements set forth in this notice. The reply should also indicate which option applicant has selected.

I. Petition for date of deposit: Should applicant contend that the above-noted omitted item(s) was in fact deposited in the U.S. Patent and Trademark Office (USPTO) with the nonprovisional application papers, a copy of this Notice and a petition (and the petition fee set forth in 37 CFR 1.17(f) with evidence of such deposit **must** be filed within **TWO MONTHS** of the date of this Notice. The petition fee will be refunded if it is determined that the item(s) was received by the USPTO. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b).**

II. Petition for later filing date: Should applicant desire to supply the omitted item(s) and accept the date that such omitted item(s) was filed in the USPTO as the filing date of the above-identified application, a copy of this Notice, the omitted item(s), and a petition under 37 CFR 1.182 with the petition fee set forth in 37 CFR 1.17(f) requesting the later filing date **must** be filed within **TWO MONTHS** of the date of this Notice. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b).**

Applicant is advised that generally the filing fee required for an application is the filing fee in effect on the filing date accorded the application and that payment of the requisite basic filing fee on a date later than the filing date of the application requires payment of a surcharge (37 CFR 1.16(f)). To avoid processing delays and payment of a surcharge, applicant should submit any balance due for the requisite filing fee based on the later filing date being requested when submitting the omitted item(s) and the petition (and petition fee) requesting the later filing date.

III. Acceptance of application as deposited: Applicant may accept the application as deposited in the USPTO by filing an appropriate amendment as set forth in either (A) or (B) below within **TWO MONTHS** of the date of this Notice. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b)** . The application will maintain a filing date as of the date of deposit of the application papers in the USPTO, and original application papers (i.e., the original disclosure of the invention) will include only those application papers present in the USPTO on the date of deposit. A petition is not required for this option.

(A) If applicant wants to accept the application as deposited without adding the subject matter that was in the omitted item (e.g., a missing page or figure), applicant is required to submit one or more of the following items without adding any new matter (see 35 U.S.C. 132(a)):

1. For a missing page of the specification,
   a) a substitute specification including claims that amends the specification to renumber the pages consecutively and cancels any incomplete sentences, and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;
2. For a missing figure of the drawings,
   a) replacement drawing sheets in compliance with 37 CFR 1.121(d) to renumber the drawing figures consecutively (if necessary),
   b) a substitute specification excluding claims that amends the specification to cancel any references to any omitted drawing(s) and corrects the references in the specification to the drawing figures to correspond with any relabeled drawing figures, and
   c) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;
3. For a missing page of the claim listing only, a replacement claim listing with the claims renumbered consecutively or, if amendment to the claims is also necessary, then a complete claim listing in compliance with 37 CFR 1.121(c);
4. For a missing or unreadable compact disc,
   a) a substitute specification (excluding the claims) deleting the reference to the compact disc and the files contained on the compact disc, and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125; and
5. For a missing or unreadable file submitted on a compact disc,
   a) a substitute specification (excluding the claims) deleting the reference to the missing or unreadable file, and a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125; and
   b) a replacement transmittal letter listing all of the files except the missing or unreadable file in compliance with 37 CFR 1.52(e)(3)(ii).

(B) Alternatively, if applicant wants to accept the application as deposited but wishes to add the subject matter in the omitted item (e.g., a missing page or figure) by relying on an incorporation by reference under 37 CFR 1.57 or other portions of the original disclosure, applicant is required to submit one or more of the following items without adding any new matter (see 35 U.S.C. 132(a)):

1. To add the subject matter in a missing page of specification,
   a) a substitute specification excluding claims and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;

2. To add a missing figure of the drawings, new and replacement drawing sheets in compliance with 37 CFR 1.121(d);
3. To add the subject matter in a missing page of the claim listing, a complete claim listing in compliance with 37 CFR 1.121(c) (e.g., a claim in the missing page should be submitted as a new claim);
4. To add the subject matter in a missing or unreadable compact disc,
   a) a replacement compact disc and a duplicate copy of the compact disc, in compliance with 37 CFR 1.52(e); and
   b) a statement that the replacement compact disc contains no new matter in compliance with 37 CFR 1.52(e)(4); and,
5. To add the subject matter in a missing or unreadable file submitted on a compact disc,
   a) a replacement compact disc that contains all of the files listed in the specification including the missing or unreadable file and a duplicate copy of the compact disc, in compliance with 37 CFR 1.52(e); and
   b) a statement that the replacement compact disc contains no new matter in compliance with 37 CFR 1.52(e)(4).

If applicant is relying on an incorporation by reference under 37 CFR 1.57 to add the omitted subject matter, then applicant must also comply with the requirements of 37 CFR 1.57.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/tpetros/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/728,349	06/02/2015	2642	730	RFID-085C1	20	3

CONFIRMATION NO. 5346

26797
LogicPatents, LLC
21701 Stevens Creek Boulevard, #284
CUPERTINO, CA 95015

FILING RECEIPT

OC000000075833493

Date Mailed: 06/19/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Xiangzhen Xie, Shenzhen, CHINA;
Liang Seng Koh, Fremont, CA;
Hsin Pan, Fremont, CA;

Applicant(s)

RFCyber Corporation, Fremont, CA;

Power of Attorney: The patent practitioners associated with Customer Number 26797

Domestic Priority data as claimed by applicant

This application is a CON of 13/853,937 03/29/2013 PAT 9047601
which claims benefit of 61/618,802 04/01/2012
and is a CIP of 13/350,832 01/16/2012
which is a CIP of 11/534,653 09/24/2006 PAT 8118218

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 06/10/2015
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/728,349**
Projected Publication Date: To Be Determined - pending completion of Corrected Papers
Non-Publication Request: No
Early Publication Request: No

**** SMALL ENTITY ****

Title

Method and apparatus for mobile payments

Preliminary Class

455

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Xiangzhen Xie, et al
Title:	Method and apparatus for mobile payments
Serial No.:	14/728,349
Filing Date:	06/02/2015
Examiner:	Unknown
Group Art Unit:	Unknown
Docket No.:	RFID-085C1

June 13, 2015

Mail Stop: Missing
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Response to
NOTICE TO FILE CORRECTED APPLICATION PAPERS
Filing Date Granted

Dear Sir:

In response to NOTICE TO FILE CORRECTED APPLICATION PAPERS– Filing Date Granted, (hereinafter "NOTICE"), mailed by the United States Patent and Trademark Office on June 12, 2015. FIG. 6D is enclosed to complete the filing of the above-identified patent application.

The Applicant chooses the option "**III. Acceptance of application as deposited: (A)**" and respectfully requests the following amendments be entered:

AMENDMENTS TO THE DRAWINGS begin on page 2 of this Amendment.
REMARKS begin on page 3 of this Amendment.

AMENDMENTS TO THE DRAWINGS

FIG. 1A and FIG. 1B are enclosed herewith to replace FIG. 1 and FIG. 2 as originally filed.

REMARKS

The Applicant hereby states no new matter is introduced

It is hereby respectfully submitted that the enclosed document completes the filing of the above patent application.

Please telephone the undersigned at (408)777-8873, if there are any questions.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to "Commissioner of Patents and Trademarks, Washington, DC 20231", on June 13, 2015.

Name: Joe Zheng

Signature: / joe zheng /

Respectfully submitted;

/ joe zheng /

Joe Zheng
Reg.: No. 39,450

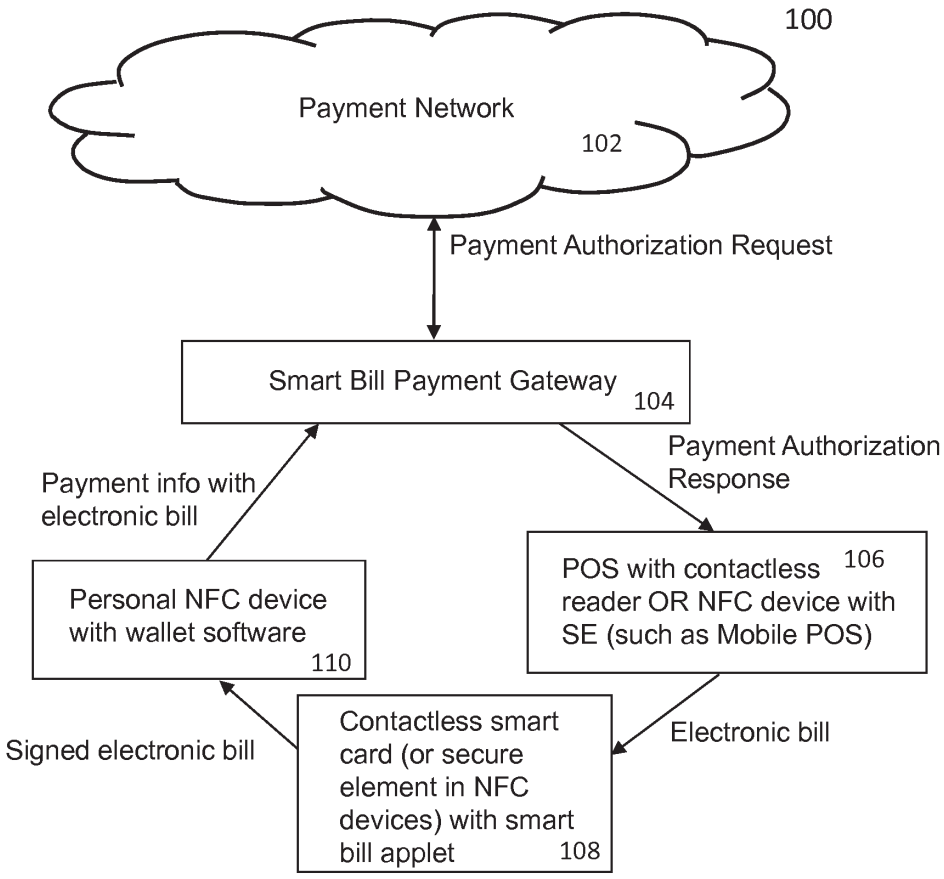
100
Payment Network
102
Payment Authorization Request
Smart Bill Payment Gateway
104
Payment info with electronic bill
Payment Authorization Response
Personal NFC device with wallet software
110
POS with contactless reader OR NFC device with SE (such as Mobile POS)
106
Signed electronic bill
Contactless smart card (or secure element in NFC devices) with smart bill applet
108
Electronic bill

FIG. 1A

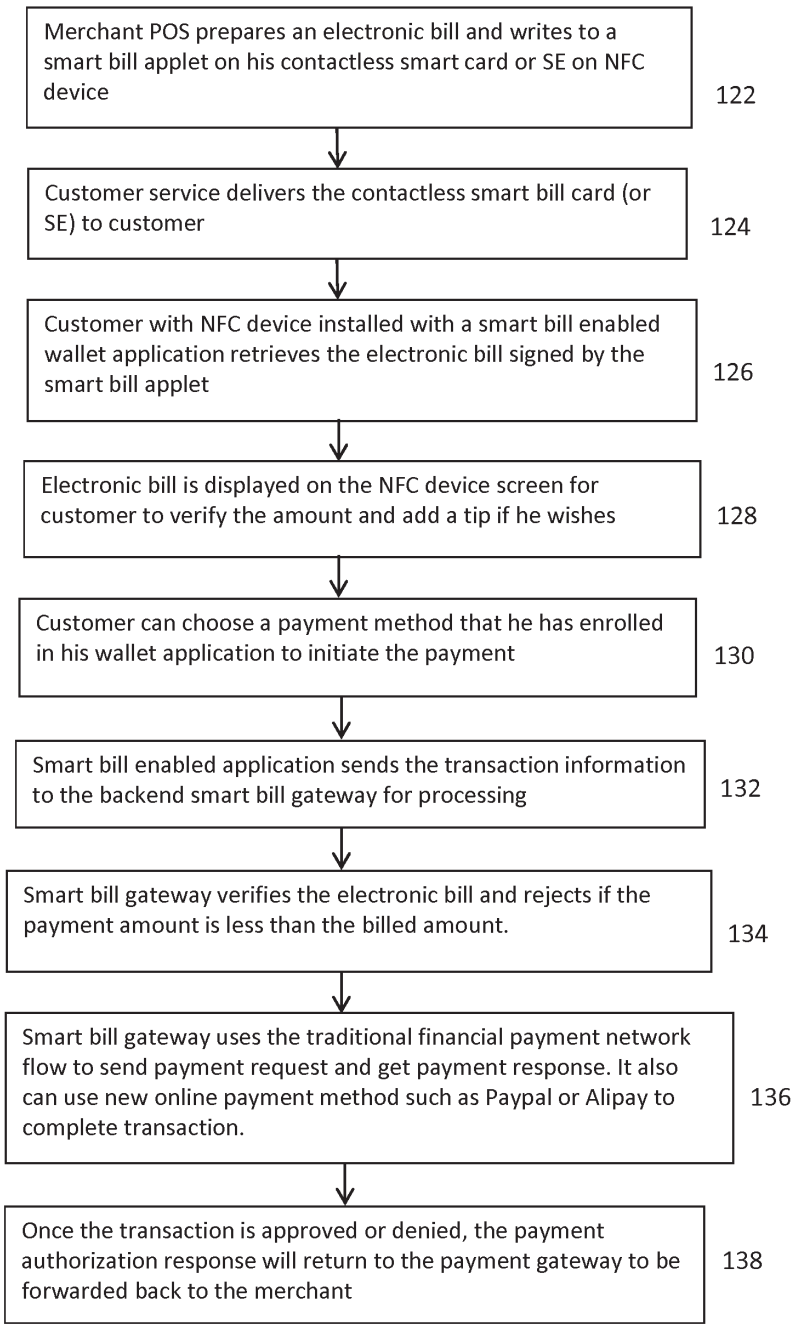
120
Merchant POS prepares an electronic bill and writes to a smart bill applet on his contactless smart card or SE on NFC device
122
Customer service delivers the contactless smart bill card (or SE) to customer
124
Customer with NFC device installed with a smart bill enabled wallet application retrieves the electronic bill signed by the smart bill applet
126
Electronic bill is displayed on the NFC device screen for customer to verify the amount and add a tip if he wishes
128
Customer can choose a payment method that he has enrolled in his wallet application to initiate the payment
130
Smart bill enabled application sends the transaction information to the backend smart bill gateway for processing
132
Smart bill gateway verifies the electronic bill and rejects if the payment amount is less than the billed amount.
134
Smart bill gateway uses the traditional financial payment network flow to send payment request and get payment response. It also can use new online payment method such as Paypal or Alipay to complete transaction.
136
Once the transaction is approved or denied, the payment authorization response will return to the payment gateway to be forwarded back to the merchant
138

FIG. 1B

Electronic Acknowledgement Receipt

EFS ID:	22624479
Application Number:	14728349
International Application Number:	
Confirmation Number:	5346
Title of Invention:	Method and apparatus for mobile payments
First Named Inventor/Applicant Name:	Xiangzhen Xie
Customer Number:	26797
Filer:	Joe Zheng
Filer Authorized By:	
Attorney Docket Number:	RFID-085C1
Receipt Date:	13-JUN-2015
Filing Date:	02-JUN-2015
Time Stamp:	14:52:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response to Pre-Exam Sequence Notice	ResponseToMissingParts.pdf	197993 679acddb6cdf656103fa0a2399deae8e13fdddd3	no	5
Warnings:					
Information:					

Total Files Size (in bytes):	197993

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/728,349

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
Application Size Fee (37 CFR 1.16(s))									
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/728,349	06/02/2015	2642	730	RFID-085C1	20	3

CONFIRMATION NO. 5346

26797
LogicPatents, LLC
21701 Stevens Creek Boulevard, #284
CUPERTINO, CA 95015

FILING RECEIPT

Date Mailed: 06/12/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Xiangzhen Xie, Shenzhen, CHINA;
Liang Seng Koh, Fremont, CA;
Hsin Pan, Fremont, CA;

Applicant(s)

RFCyber Corporation, Fremont, CA;

Power of Attorney: The patent practitioners associated with Customer Number 26797

Domestic Priority data as claimed by applicant

This application is a CON of 13/853,937 03/29/2013 PAT 9047601
which claims benefit of 61/618,802 04/01/2012
and is a CIP of 13/350,832 01/16/2012
which is a CIP of 11/534,653 09/24/2006 PAT 8118218

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 06/10/2015
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/728,349**
Projected Publication Date: To Be Determined - pending completion of Corrected Papers
Non-Publication Request: No
Early Publication Request: No

** SMALL ENTITY **

Title

Method and apparatus for mobile payments

Preliminary Class

455

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/728,349	06/02/2015	Xiangzhen Xie	RFID-085C1

CONFIRMATION NO. 5346

26797
LogicPatents, LLC
21701 Stevens Creek Boulevard, #284
CUPERTINO, CA 95015

FORMALITIES LETTER

OC000000075691719

Date Mailed: 06/12/2015

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - More than one figure is present and each figure is not labeled "Fig." with a consecutive Arabic numeral (1, 2, etc.) or an Arabic numeral and capital letter in the English alphabet (A, B, etc.)(see 37 CFR 1.84(u)(1)). See Figure(s) 1, 2, 6D. A brief description of the several views of the drawings (see 37 CFR 1.74) should be added or amended to correspond to the corrected numbering of the figures. See also 37 CFR 1.77(b)(9).

The following item(s) appear to have been **omitted** from the application:

- Figure(s) **1A, 1B** described in the specification.

Applicant must reply to this notice within the time period set forth in this notice to avoid abandonment of this application. Applicant must select one of the three following options and the reply must comply with the requirements set forth in the selected option and any other requirements set forth in this notice. The reply should also indicate which option applicant has selected.

I. Petition for date of deposit: Should applicant contend that the above-noted omitted item(s) was in fact deposited in the U.S. Patent and Trademark Office (USPTO) with the nonprovisional application papers, a copy of this Notice and a petition (and the petition fee set forth in 37 CFR 1.17(f) with evidence of such deposit **must** be filed within **TWO MONTHS** of the date of this Notice. The petition fee will be refunded if it is determined that the item(s) was received by the USPTO. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b).**

II. Petition for later filing date: Should applicant desire to supply the omitted item(s) and accept the date that such omitted item(s) was filed in the USPTO as the filing date of the above-identified application, a copy of this Notice, the omitted item(s), and a petition under 37 CFR 1.182 with the petition fee set forth in 37 CFR 1.17(f) requesting the later filing date **must** be filed within **TWO MONTHS** of the date of this Notice. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b).**

Applicant is advised that generally the filing fee required for an application is the filing fee in effect on the filing date accorded the application and that payment of the requisite basic filing fee on a date later than the filing date of the application requires payment of a surcharge (37 CFR 1.16(f)). To avoid processing delays and payment of a surcharge, applicant should submit any balance due for the requisite filing fee based on the later filing date being requested when submitting the omitted item(s) and the petition (and petition fee) requesting the later filing date.

III. Acceptance of application as deposited: Applicant may accept the application as deposited in the USPTO by filing an appropriate amendment as set forth in either (A) or (B) below within **TWO MONTHS** of the date of this Notice. **THIS TWO MONTH PERIOD IS EXTENDABLE UNDER 37 CFR 1.136(a) or (b)** . The application will maintain a filing date as of the date of deposit of the application papers in the USPTO, and original application papers (i.e., the original disclosure of the invention) will include only those application papers present in the USPTO on the date of deposit. A petition is not required for this option.

(A) If applicant wants to accept the application as deposited without adding the subject matter that was in the omitted item (e.g., a missing page or figure), applicant is required to submit one or more of the following items without adding any new matter (see 35 U.S.C. 132(a)):

1. For a missing page of the specification,
   a) a substitute specification including claims that amends the specification to renumber the pages consecutively and cancels any incomplete sentences, and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;
2. For a missing figure of the drawings,
   a) replacement drawing sheets in compliance with 37 CFR 1.121(d) to renumber the drawing figures consecutively (if necessary),
   b) a substitute specification excluding claims that amends the specification to cancel any references to any omitted drawing(s) and corrects the references in the specification to the drawing figures to correspond with any relabeled drawing figures, and
   c) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;
3. For a missing page of the claim listing only, a replacement claim listing with the claims renumbered consecutively or, if amendment to the claims is also necessary, then a complete claim listing in compliance with 37 CFR 1.121(c);
4. For a missing or unreadable compact disc,
   a) a substitute specification (excluding the claims) deleting the reference to the compact disc and the files contained on the compact disc, and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125; and
5. For a missing or unreadable file submitted on a compact disc,
   a) a substitute specification (excluding the claims) deleting the reference to the missing or unreadable file, and a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125; and
   b) a replacement transmittal letter listing all of the files except the missing or unreadable file in compliance with 37 CFR 1.52(e)(3)(ii).

(B) Alternatively, if applicant wants to accept the application as deposited but wishes to add the subject matter in the omitted item (e.g., a missing page or figure) by relying on an incorporation by reference under 37 CFR 1.57 or other portions of the original disclosure, applicant is required to submit one or more of the following items without adding any new matter (see 35 U.S.C. 132(a)):

1. To add the subject matter in a missing page of specification,
   a) a substitute specification excluding claims and
   b) a statement that the substitute specification includes no new matter, in compliance with 37 CFR 1.121(b)(3) and 1.125;

2. To add a missing figure of the drawings, new and replacement drawing sheets in compliance with 37 CFR 1.121(d);
3. To add the subject matter in a missing page of the claim listing, a complete claim listing in compliance with 37 CFR 1.121(c) (e.g., a claim in the missing page should be submitted as a new claim);
4. To add the subject matter in a missing or unreadable compact disc,
   a) a replacement compact disc and a duplicate copy of the compact disc, in compliance with 37 CFR 1.52(e); and
   b) a statement that the replacement compact disc contains no new matter in compliance with 37 CFR 1.52(e)(4); and,
5. To add the subject matter in a missing or unreadable file submitted on a compact disc,
   a) a replacement compact disc that contains all of the files listed in the specification including the missing or unreadable file and a duplicate copy of the compact disc, in compliance with 37 CFR 1.52(e); and
   b) a statement that the replacement compact disc contains no new matter in compliance with 37 CFR 1.52(e)(4).

If applicant is relying on an incorporation by reference under 37 CFR 1.57 to add the omitted subject matter, then applicant must also comply with the requirements of 37 CFR 1.57.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/tlulu/

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S DEPARTMENT OF COMMERCE

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 26797

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☐ The address associated with Customer Number:

OR

☐

Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address: RFCyber Corporation, 4160 Technology Drive, Suite A, Fremont, CA 94538

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	[signature]	Date	3/27/2013
Name	Hsin Pan	Telephone	
Title	General Manager		

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: RFCyber Corporation

Application No./Patent No.: Unassigned Filed/Issue Date: herewith

Titled: Method and apparatus for settling payments using mobile devices

RFCyber Corporation, a California corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

      Reel _____, Frame _____, or for which a copy thereof is attached.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/ joe zheng /	03/28/2013
Signature	Date
Joe Zheng	39,450
Printed or Typed Name	Title or Registration Number

ASSIGNMENT OF PATENT APPLICATION

Whereas I, an undersigned inventor, have invented certain new and useful improvements as set forth in the patent application entitled:

Method and apparatus for settling payments using mobile devices

(Docket No. RFID-085), (check one)

☒ for which I have executed a U.S. patent application on even date herewith. (Accompanying)
☐ which bears U.S. application No. . (Not accompanying)
☐ which is a U.S. provisional application. (Accompanying)

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, an undersigned inventor, hereby:

1) Sell, assign and transfer to RFCyber Corp., a corporation in the State of California having a principal place of business at 4160 Technology Drive, Suite A, Fremont, CA 94538, USA ("ASSIGNEE"), the entire right, title and interest in any and all improvements and inventions disclosed in, applications based upon, and patents (including foreign patents and the right to claim priority) granted upon, the above-referenced application.

2) Authorize and request the Commissioner of Patents to issue any and all Letters Patents resulting from said application or any division, continuation, substitute, renewal, re-examination or reissue thereof to the ASSIGNEE.

3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.

4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the ASSIGNEE, its successors, assigns and other legal representative, and shall be binding upon the inventor, as well as the inventor's heirs, legal representatives and assigns.

5) Warrant and represent that I have not entered, and will not enter into any assignment, contract, or understanding that conflicts with this assignment.

6) Authorize and request my representative to insert above the application No. in order to assist with recordal of this assignment.

Signed on the date indicated beside my signature.

1. Inventor Signature: Xie Xiangzhen Date: 2013.7.28
Xiangzhen Xie

2. Inventor Signature: Date:
Liang Seng Koh

3. Inventor Signature: Date: 3/27/2013
Hsin Pan

ASSIGNMENT OF PATENT APPLICATION

Whereas I, an undersigned inventor, have invented certain new and useful improvements as set forth in the patent application entitled:

Method and apparatus for settling payments using mobile devices

(Docket No. RFID-085), (check one)

☒ for which I have executed a U.S. patent application on even date herewith. (Accompanying)
☐ which bears U.S. application No. . (Not accompanying)
☐ which is a U.S. provisional application. (Accompanying)

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, an undersigned inventor, hereby:

1) Sell, assign and transfer to RFCyber Corp., a corporation in the State of California having a principal place of business at 4160 Technology Drive, Suite A, Fremont, CA 94538, USA ("ASSIGNEE"), the entire right, title and interest in any and all improvements and inventions disclosed in, applications based upon, and patents (including foreign patents and the right to claim priority) granted upon, the above-referenced application.

2) Authorize and request the Commissioner of Patents to issue any and all Letters Patents resulting from said application or any division, continuation, substitute, renewal, re-examination or reissue thereof to the ASSIGNEE.

3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.

4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the ASSIGNEE, its successors, assigns and other legal representative, and shall be binding upon the inventor, as well as the inventor's heirs, legal representatives and assigns.

5) Warrant and represent that I have not entered, and will not enter into any assignment, contract, or understanding that conflicts with this assignment.

6) Authorize and request my representative to insert above the application No. in order to assist with recordal of this assignment.

Signed on the date indicated beside my signature.

1. Inventor Signature: _____ Date: _____
Xiangzhen Xie

2. Inventor Signature: _____ Date: 3/27/2013
Liang Seng Koh

3. Inventor Signature: _____ Date: _____
Hsin Pan

Docket No.: RFID-085C1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

UTILITY PATENT APPLICATION

FOR

Method and apparatus for mobile payments

Inventor(s): Xiangzhen Xie
C505, Long Tai Xuan, Nanguang Village
Nanshang District
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Citizenship: P. R. China

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Fremont, CA 94539, USA
Citizenship: USA

Hsin Pan
2374 Olive Avenue
Fremont, CA 94539, USA
Citizenship: USA.

Express Mail Label # E-filing Date of Deposit: June 2, 2015
I hereby certify that this paper or fee is being deposited with the United States Postal Service using "Express Mail Post Office To Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to "Mail Stop: New Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313"

Signed: / joe zheng /
Joe Zheng

Method and apparatus for mobile payments

Xiangzhen Xie
Liang Seng Koh
Hsin Pan

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation of co-pending US Pat. App. Serial No.: 13/853,937 filed on 03/29/2013, now US Pat. No.: 9,047,601 issued on 06/02/2015.

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention is generally related to the area of electronic commerce. Particularly, the present invention is related to a mobile device configured to settle payments using a mobile device reading electronic bills or invoices off from another mobile device in a near field communication range.

The Background of Related Art

[0002] For many credit or debit card transactions, the payment process is started by a customer asking for a bill when checking out a purchase. A cashier or service member brings a bill to the customer for verification. The customer then hands out a credit/debit card to the service member. The service member brings the card to a Point of Sales (POS) counter to initiate a transaction payment. The service member then brings back a receipt to the customer for signature to authorize the transaction. It is a lengthy process that typically takes a couple of minutes or much longer when the service member has to take care of multiple payment transactions at a time. In addition, in the case for the debit card transactions, the process may be even more troublesome when a PIN is needed to authorize the transaction at the POS.

[0003] There is a need to simplify the payment process. With the advancement in mobile devices, it is anticipated that many consumers will carry one with them. Thus there is an opportunity of using a mobile device to quickly settle the payment at a point of sale (POS).

SUMMARY OF THE INVENTION

[0004] This section is for the purpose of summarizing some aspects of the present invention and to briefly introduce some preferred embodiments. Simplifications or omissions may be made to avoid obscuring the purpose of the section. Such simplifications or omissions are not intended to limit the scope of the present invention.

[0005] The present invention is related to techniques for mobile devices configured to support settlement of charges in electronic invoices or bills. According to one aspect of the present invention, a mobile device embedded with a secure element generates or is loaded with an electronic invoice. When the mobile device is brought to a consumer with an NFC mobile device, the data including the electronic invoice and other information regarding the mobile device or an owner thereof is read off wirelessly into the NFC mobile device. After the user verifies the amount being charged and authorizes the payment, the NFC mobile device communicates with a payment gateway or network for payment that is configured to proceed with the payment in accordance with a chosen payment method.

[0006] According to another aspect of the present invention, the mobile device is a contactless card or part of a point of sale (POS) machine used to generate the electronic invoice. One embodiment of the present invention provides unanticipated benefits and advantages in an application in which a payment process would otherwise have to be involved in more than one contacts between a merchant and the consumer. One of such applications is a payment process in a restaurant, where a consumer is given a check first for verification and a chance to add a gratitude before

a final charge is determined and paid. Using the NFC mobile device, the consumer can finish the payment using a chosen payment method at the point of sale without further contacting the merchant.

[0007] According to still another aspect of the present invention, a consumer uses his/her mobile device, per the data received therein, to settle the payment process with a payment network, where the payment network may be an existing payment infrastructure (e.g., money transfer or credit card/debit). A payment response is sent to the merchant once a payment is delivered to a designated account by the merchant.

[0008] According to still another aspect of the present invention, the mobile device being used by the consumer is itself an electronic purse. Thus the consumer operates his/her mobile device to settle the charge once the electronic invoice is received and displayed thereon.

[0009] According to still another aspect of the present invention, the mobile device used by the consumer is a near field communication (NFC) device and being part of a mobile payment ecosystem in which various parties are work with each other in order for the mobile payment ecosystem successful. Via a server (e.g., implemented as a manager) configured to provide what is referred to herein as Trusted Service Management (TSM), the secure element in the mobile device can be remotely personalized and various applications or modules can be downloaded, updated, managed or replaced after they are respectively provisioned via the Trusted Service Manager (i.e., the TSM server). One of the modules being installed in the POS machine or an NFC device used by the merchant is referred to as Smart Bill Payment. The module is configured to facilitate the communication between the merchant (its device) and the user (his/her mobile device) and the data exchange therebetween, where the mobile device being used by the user is installed with a corresponding application related to Smart Bill Payment.

[0010] One important features, advantages and benefits in the present invention is to facilitate the settlement of charges using an NFC mobile device to read off data pertaining to an electronic invoice. The present invention may be implemented as a

single device, a server, a system or a part of system. It is believed that various implementations may lead to results that may not be achieved conventionally.

[0011] According to one embodiment, the present invention is a method for settling a payment, the method comprises: providing a software module to be executed in a first mobile device embedded with a secure element, wherein the secure element has been personalized and the software module is provisioned with the personalized secure element, the first mobile device is configured to include data pertaining to an electronic invoice; receiving a payment request from a second mobile device after a user of the second mobile device authorizes the payment to the electronic invoice transported wirelessly from the first mobile device, wherein the second mobile device is a near-field communication device and is configured to execute an application that communicates with the software module in the first mobile device to read the data off from the first mobile device; verifying the payment request; and sending a payment response to a user of the first mobile device after the payment request is processed. In the embodiment, the second mobile device includes a display screen and is caused to display the electronic invoice when the data is in the second mobile device.

[0012] According to another embodiment, the present invention is a gateway provided for settling a payment, the gateway may include a server or a collection of servers. The gateway comprises a portal providing a software module to be downloaded and executed in a first mobile device embedded with a secure element, wherein the secure element has been personalized and the software module is provisioned with the personalized secure element, the first mobile device is configured to include data pertaining to an electronic invoice. The gateway further comprises a server that includes: a processor and a store, coupled to the processor, for code to be executed in the processor to cause the server to perform operations of:

receiving a payment request from a second mobile device after a user of the second mobile device authorizes the payment to the electronic invoice transported wirelessly from the first mobile device, wherein the second mobile device is a near-field communication device and is configured to execute an

application that communicates with the software module in the first mobile device to read the data off from the first mobile device;

verifying the payment request; and

sending a payment response to a user of the first mobile device after the payment request is processed.

[0013] Other objects, features, and advantages of the present invention will become apparent upon examining the following detailed description of an embodiment thereof, taken in conjunction with the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The invention will be readily understood by the following detailed description in conjunction with the accompanying drawings, wherein like reference numerals designate like structural elements, and in which:

[0015] FIG. 1A shows a system configuration according to one embodiment of the present invention, where the payment network represents a collection of services or networks provided to settle payments via a financial institution;

[0016] FIG. 1B shows a flowchart or process of settling a payment according to one embodiment, where the process may be implemented in software or a combination of software and hardware;

[0017] FIG. 2A shows a mobile payment ecosystem in which related parties are shown in order for the mobile payment ecosystem successful;

[0018] FIG. 2B shows a flowchart or process of provisioning one or more applications according to one embodiment;

[0010] FIG. 2C shows a data flow illustrating various interactions among different parties when an application is being provisioned in one embodiment;

[0011] FIG. 2D shows a data flow among different entities when preparing the application data in provisioning an application;

[0012] FIG. 2E shows a flowchart or process for locking or disabling an installed application;

[0013] FIG. 2F shows an exemplary architecture diagram of a portable device enabled as an e-purse conducting e-commerce and m-commerce, according to one embodiment of the present invention;

[0014] FIG. 3A is a block diagram of related modules interacting with each other to achieve what is referred to herein as e-purse personalization by an authorized personnel (a.k.a., personalizing a mobile device or a secure element therein while provisioning an application);

[0015] FIG. 3B shows a block diagram of related modules interacting with each other to achieve what is referred to herein as e-purse personalization by a user of the e-purse;

[0016] FIG. 3C shows a flowchart or process of personalizing an e-purse according to one embodiment of the present invention;

[0017] FIG. 4A and FIG. 4B show together a flowchart or process of financing, funding, load or top-up an e-purse according to one embodiment of the present invention;

[0018] FIG. 4C shows an exemplary block diagram of related blocks interacting with each other to achieve the process FIG. 4A and FIG. 4B;

[0019] FIG. 5A is a diagram showing a first exemplary architecture of a portable device for enabling e-commerce and m-commerce functionalities over a cellular communications network (i.e., 3G, LTE or GPRS network), according an embodiment of the present invention;

[0020] FIG. 5B is a diagram showing a second exemplary architecture of a portable device for enabling e-commerce and m-commerce functionalities over a wired and/or wireless data network (e.g., Internet), according another embodiment of the present invention;

[0021] FIG. 5C is a flowchart illustrating an exemplary process of enabling the portable device of FIG. 5A for services/applications provided by one or more service providers in accordance with one embodiment of the present invention;

[0022] FIG. 6A is a diagram showing an exemplary architecture, in which a portable device is enabled as a mobile POS conducting e-commerce and m-commerce, according to one embodiment of the present invention;

[0023] FIG. 6B is a diagram showing an exemplary architecture, in which a portable device is enabled as a mobile POS conducting a transaction upload operation over a network, according to an embodiment of the present invention;

[0024] FIG. 6C is a flowchart illustrating an exemplary process of conducting m-commerce using the portable device enabled as a mobile POS with an e-token enabled device as a single functional card in accordance with one embodiment of the present invention;

[0025] FIG. 6D is a flowchart illustrating an exemplary process of conducting m-commerce using the portable device enabled as a mobile POS against a an e-token enabled device as a multi-functional card; and

[0026] FIG. 7 is a diagram depicting an exemplary configuration in which a portable device used for an e-ticking application.

DETAILED DESCRIPTION OF THE INVENTION

[0019] In the following description, numerous specific details are set forth to provide a thorough understanding of the present invention. The present invention may be practiced without these specific details. The description and representation herein are the means used by those experienced or skilled in the art to effectively convey the substance of their work to others skilled in the art. In other instances, well-known methods, procedures, components, and circuitry have not been described in detail since they are already well understood and to avoid unnecessarily obscuring aspects of the present invention.

[0020] Reference herein to “one embodiment” or “an embodiment” means that a particular feature, structure, or characteristic described in connection with the embodiment can be included in at least one implementation of the invention. The appearances of the phrase “in one embodiment” or “in the embodiment” in various

places in the specification are not necessarily all referring to the same embodiment, nor are separate or alternative embodiments mutually exclusive of other embodiments. Further, the order of blocks in process, flowcharts or functional diagrams representing one or more embodiments do not inherently indicate any particular order nor imply limitations in the invention. As used in this specification and the appended claims, the singular forms "a," "an," and "the" include plural referents unless the context clearly dictates otherwise. It should also be noted that the term "or" is generally employed in its sense including "and/or" unless the context clearly dictates otherwise.

[0021] Embodiments of the present invention are discussed herein with reference to FIGS. 1A - 7. However, those skilled in the art will readily appreciate that the detailed description given herein with respect to these figures is for explanatory purposes only as the invention extends beyond these limited embodiments.

[0022] Near Field Communication (NFC) presents significant business opportunities when used in mobile devices for applications such as payment, transport ticketing, loyalty, physical access control, and other exciting new services. To support this fast evolving business environment, various NFC-enabled mobile phones or devices are being advanced to support various uses in daily life.

[0023] FIG. 1A shows a system configuration 100 according to one embodiment of the present invention. A network 102 represents a collection of services or networks provided to settle payments by a financial institution. In other words, it is a system providing services to electronically transfer money or settle payments. What makes it a system is that it employs cash-substitutes as the traditional payments are negotiable instruments such as drafts (e.g., checks) and documentary credits, such as letter of credits. With the advent of computers and electronic communications, a large number of alternative electronic payment systems have emerged. These include debit cards, credit cards, electronic funds transfers, direct credits, direct debits, internet banking and e-commerce payment systems. Payment systems are used in lieu of tendering cash in domestic and international transactions and consist of a major service provided by banks and other financial institutions.

[0024] The payment system or network 102 may be physical or electronic and has its own procedures and protocols. An example of the payment system that has become globally available is Visa or Master Card, a true global credit card and automated teller machine network. Both merchants and consumers use the payment system to settle transactions.

[0025] According to one embodiment, a payment gateway 104 includes a server or a collection of servers configured to provide an application that may be installed in a mobile device for a user thereof to enjoy one of the benefits in the present invention. The application named smart bill payment herein is published in the Internet and may be downloaded from a designated place (e.g., a portal provided by a server). A user uses a mobile device to download the application and install it in the mobile device. The application may be automatically or manually executed to authorize a payment to a displayed electronic invoice, wherein the electronic invoice is generated or produced from a data exchange with another device via a secure element in the mobile device. Unless otherwise explicitly indicated, the term of “mobile device”, “computing device”, “smart phone”, “portable device”, “handset” or the like will be interchangeably used herein, but those skilled in the art will understand the description herein shall be equally applicable to other devices such as a wearable watch, a tablet, a laptop computer, and other portable computing device with the capability of near field communication (NFC).

[0026] Referenced by 106 is a device at a point of sale (POS), herein a POS device. Depending on implementation, the POS device 106 may come as a single device (e.g., an NFC device) or a stationary device with one or more portable devices (e.g., contactless cards). One of the purposes for the device 106 is to generate an electronic bill (or invoice) to be loaded to a portable device 108 (e.g., a contactless card or an NFC device) for contacting with an NFC device of a consumer for settlement of the invoice.

[0027] According to one embodiment, the POS device is a single device embedded with a secure element. The single device may be an NFC device that is used to enter information to generate an invoice. For example, a customer has

ordered several dishes in a restaurant, a casher enters the individual charges for the dishes in the NFC device that generates a bill showing the total including the sale tax and sometimes the tips. The casher or a waiter brings the NFC device to the customer for authorization and payment. According to another embodiment, the POS device includes a stationary device corresponding to 106 of FIG. 1A and one or more contactless cards corresponding to 108 of FIG. 1A. The stationary device is used by the casher to enter charging information to generate an invoice. A contactless card is loaded with the electronic invoice and brought to the customer for authorization and payment. In the following description, unless specifically stated, a POS device means either one of the cases and will be described as if it is a single device. Given the detailed description herein, those skilled in the art can fully appreciate what a POS device means when practicing one embodiment of the present invention.

[0028] As will be further described below, the POS device is embedded with a secure element. It is the secure element that provides the security and confidentiality required to support secure data communication between two devices, and facilitates the communication between a mobile device and a server. In general, a secure element (SE) is a tamper-resistant platform (e.g., a single-chip secure microcontroller) capable of securely hosting applications and their confidential and cryptographic data (e.g., key management) in accordance with the rules and security requirements set forth by a set of well-identified trusted authorities. The common form factors of SE include: Universal Integrated Circuit Card (UICC), embedded SE and microSD. Both the UICC and microSD are removable. In one embodiment of the invention, a software module is configured to act as an SE and upgradable by overwriting some or all of the components therein. Regardless of the form factors, each form factor links to a different business implementation and satisfies a different market need. For a secure element to be used, it has to be personalized. The details of personalizing a secure element may be found in co-pending US App. Ser. No.: 13/749,696 which is hereby incorporated by reference.

[0029] According to one embodiment, a software module (e.g., an applet), referred to herein as smart bill payment applet, corresponding to an application as described above, is loaded in the POS device and provisioned with the secure element

therein. The module may be published by a service provider operating the gateway or server 104 and downloadable to an NFC device over a wireless or wired network. Once downloaded, the module must be provisioned with the service provider so that secure data may be exchanged with the server 104. Co-pending US App. Ser. No.: 13/749,696 describes the details of provisioning an application with a personalized secure element, which is hereby incorporated by reference.

[0030] FIG. 1B shows a flowchart or process 120 of settling a payment according to one embodiment of the present invention. The process 120 may be implemented in software or a combination of software and hardware. Without any implied limitations, the process 120 may be better understood in conjunction of FIG. 1A.

[0031] To facilitate the description of the process 120, it is assumed that a customer has dinned in a restaurant, where the restaurant has installed a POS device that includes a stationary device for a casher to manage/input various charging data to generate a bill for the customer. The POS device also includes a reader exchanging data with one or more contactless cards. In other words, after the casher enters the necessary information, an electronic bill is generated and loaded into a contactless card.

[0032] At the end of the dinning, a waiter lets a casher prepare a check (i.e., a bill) on a POS machine corresponding to 106 of FIG. 1. The POS machine generates an electronic bill that is transported to a contactless card at 122, where the contactless card is embedded with a personalized secure element. At 124, the waiter brings the contactless card to the customer. The customer uses his mobile device to read the contactless card at 126. As described above, the mobile device is assumed to have been installed with a corresponding smart bill application. Upon detecting the contactless card in the near field, the smart bill application is executed and reads off data pertaining to the electronic bill from the contactless card at 128 and subsequently displays the electronic bill on a screen of the mobile device for the consumer to verify. Unlike a traditional invoice commonly seen on a screen, the electronic bill in the contactless card and being transferred from the contactless card to the mobile device

includes security information of a registered user associated with the restaurant or the merchant. The security information includes, but may not be limited to, an account and bank information of the restaurant, the identifier of the secure element in the contactless card or the POS device. In one embodiment, the data also includes an address or a link from which the merchant gets a notification (i.e., the payment response) when the charge is settled. Depending on the implementation, the notification may be sent to a designated mobile device as a short message or an email message.

[0033] Upon seeing the displayed bill being displayed on a display screen, the customer may choose a method to settle the invoice. Depending on implementation, the customer may choose to settle the charge with an electronic wallet or purse (a.k.a., e-purse) already created in the mobile device, cash, a traditional credit or debit card, an electronic transfer/payment or others. The settlement with e-purse will be further detailed below.

[0034] FIG. 1B is provided to illustrate one embodiment of using the electronic payment, a type of money transfer service provided by the payment gateway 102 as shown in FIG. 1A. At 130, the customer has chosen the electronic payment that is provided by the installed smart bill application and enters how much to be paid against the bill. It shall be noted that the consumer may enter more than what is being charged in the invoice as a tip to the service provided by the restaurant. Once the total amount is entered by the consumer, at 132, the application (i.e., the mobile device) sends a payment request including the data pertaining to the electronic bill to the server 104 for processing. As further described late herein, in one embodiment, the data exchange between the mobile device and the gateway 102 is conducted in a secured channel established in accordance with the security information in the data pertaining to the electronic invoice.

[0035] Upon receiving the payment request, the server 104 is configured to verify if the amount entered by the consumer is sufficient to cover the charge in the bill at 134. If the amount is less than what is being charged in the bill, for example, the consumer may enter a wrong number or a typo in the number, the server 104 would

return the payment request to the mobile device. Upon receiving the rejection, the bill application in the mobile device displays the rejection to get attention from the consumer so that an appropriate step may be taken to proceed with the payment. If the amount is equal or more than what is being charged (e.g., the consumer desires to include a tip on top of the charge), the server 104 proceeds with the payment request at 136.

[0036] As shown in FIG. 1B, the server 104 receives the payment request authorized by the consumer and proceeds with the payment request in conjunction with the payment network 102. In one embodiment, the server 104 provides a payment service similar to Paypal commonly used in US and other countries or Alipay mainly used in China. Once the transaction is complete or denied, the server 104 sends a notice to the merchant (e.g., the restaurant).

[0037] As indicated above, in one embodiment, the device 110 of FIG. 1A is configured to function as an electronic purse or e-purse that may be used to directly settle a charge being displayed on a display screen thereof. The following description details how the e-purse works in a mobile payment ecosystem.

[0038] Referring now to FIG. 2A, it shows a mobile payment ecosystem 200 in which related parties are involved in order for the mobile payment ecosystem successful. According to one embodiment, an NFC device is allowed to install or download one or more applications from respective designated servers 202 (i.e., application management providers), where the applications are originally developed by developers 204 and distributed by service providers 210, application management providers 202 or others. It is assumed that the secure element 206 provided by a secure element provider 208 has already been personalized via a TSM or a trusted third party (e.g., a financial institution 212).

[0039] Once an application (e.g., a Smart Bill Payment application in the device 110 or a Smart Bill Payment applet in the POS device 106 of FIG. 1A) is installed in an NFC device, the next step is to provision the application with the secure element therein. An application provisioning process can be started in several ways. One of the ways is that an SE holder selects an application from a TSM portal on the mobile

device and initiates the provisioning process. Another one is that the SE holder receives an application provisioning notification on the mobile device from the TSM on behalf of an application (service) provider.

[0040] The TSM or application providers can publish their applications on a TSM portal to be downloaded to a mobile device with the SE and/or subscribed at a request of a user (a.k.a., an SE holder). In one embodiment, the TSM is a cloud service to serve many SE issuers. Thus, many applications from various service providers are available on the TSM portal. However, when getting onto the TSM portal, SE holders can only see those applications approved by its own SE issuer. Depending on the arrangement between an SE and a service provider, an application can either be downloaded/installed/personalized using the ISD keyset of the SE or a specific SSD keyset of the service provider. If an SSD keyset has not been installed on the SE, it can be installed during an application installation.

[0041] The TSM is designed to know the memory state or status of an SE for various SSDs. Based on the state of the SE and the memory allocation policy of the SSDs, the available applications for the various SSD in the application store may be marked with different indicators, for example, “OK to install”, or “Insufficient memory to install”. This will prevent unnecessary failure for users.

[0042] Once an application is installed on an NFC device, the application initiates a provisioning process by itself, or the TSM can push a provisioning notification to the NFC device via a cellular network or a wireless data network. Depending on the type of the devices, there are many different types of push messages to cause the NFC device to initial the provision process. An example of the push methods includes an SMS push or an Android Google Push. Once a user accepts the notification, the provisioning process starts. The details of the provisioning process will be described below whenever deemed appropriate.

[0043] As part of the application provisioning, a TSM server implements some protective mechanism. One is to prevent an SE from being accidentally locked. Another is to disable application download if there is no sufficient memory on SE. In some cases, an SE may permanently lock itself if there are too many failed mutual

authentications during secure channel establishment. In order to prevent the SE from being accidentally locked, the TSM keeps the track of the number of failed authentications between an SE and the TSM when establishing a secured channel between the two entities. In one embodiment, the TSM is configured to reject any further request if a preset limit is reached. The TSM can continue to process the SE request if the SE is reset at the service center manually.

[0044] The TSM also keeps track of the memory usage of each SE. The TSM decides whether an application can be installed on an SE based on the memory allocation assigned by the SE issuer to each service provider. According one embodiment, there are three types of policies:

- pre-assigned fixed memory to guarantee a space of fixed capacity.
- pre-assigned minimum memory to guarantee a space of a minimum capacity (implying that the capacity may be expanded under some conditions).
- best efforts (e.g., a contractual provision which requires the SE issuer to use its highest efforts to perform its obligations and to maximize the benefits to be received by the user).

[0045] According to one embodiment, an SE issuer uses a TSM web portal to make this assignment.

1. For a batch of SE, the SE issuer can pre-assign a memory policy for a service provider to install its applications via the TSM web portal;
2. The TSM server verifies whether the space of the respective service provider conforms to its policy when a mobile device requests to install one of its applications. If not conformed, this request is rejected, otherwise, the TSM server will proceed to handle the provisioning request;
3. If the provisioning succeeds, the TSM will accumulate the memory size of this application service.

[0046] When a mobile user subscribes to a mobile application (assuming it has been installed), the application has to be provisioned with the SE in the mobile device before it can be used. According to one embodiment, the provisioning process includes four major stages:

- to create an supplemental security domain (SSD) on the SE, if needed;
- to download and install an application cap on the SE;
- to personalize the application on the SE; and
- to download a UI component on mobile phone.

[0047] FIG. 2B shows a flowchart or process 220 of provisioning one or more applications according to one embodiment. The process 220 may be implemented in software or a combination of software and hardware. In one embodiment, the application provisioning process 220 needs to go through a provisioning manager (i.e., proxy) on the mobile phone to interact with the SE therein.

[0048] As shown in FIG. 2B, at 222, the application provisioning process 220 may be started manually or automatically. For example, a user may initiate the process 220 by selecting an installed application to subscribe related services or the installed application, when activated, initiates the provisioning process, provided it has not been provisioned. In another embodiment, a provider of an application pushes a message (e.g., SMS) to the mobile phone to initiate the provisioning process.

[0049] As shown in FIG. 2B, at 222, the application provisioning process 220 may be started manually or automatically. For example, a user may initiate the process 220 by selecting an installed application to subscribe related services or the installed application, when activated, initiates the provisioning process, provided it has not been provisioned. In another embodiment, a provider of an application pushes a message (e.g., SMS) to the mobile phone to initiate the provisioning process.

[0050] In any case, the process 220 goes to 224 to establish a communication with a dedicated server (e.g., a TSM server or a server operated by an application distributor) after the device information (e.g., CPLC) is retrieved from the SE in the mobile device. The device information along with an identifier identifying the application is transmitted to the server at 226. Based on the device information, the server identifies the issuer for the SE first at 228 to determine if the SE has been personalized at 230. If the SE has not been personalized, the process 220 goes to 232 to personalize the SE.

[0051] It is now assumed that the SE in the mobile device has been personalized. The process 220 now goes to 234 to establish a secure channel with the SE using the derived ISD. Depending on who houses the HSM (TSM or SE issuer) for the ISD, the server will contact the HSM to compute the derived ISD for the SE and establish a secure channel with the SE using this derived ISD. The server is then configured to check to see whether there is an SSD associated with this application at 236. If there is not an SSD associated with the application, the server is configured to check a database to see whether it has been installed with this SE. If the SSD installation is needed, then the process 220 goes to install the SSD. In one embodiment, the user is alerted of the installation of the SSD (keys). Should the user refuse to install the SSD at 238, the process 220 stops and goes to 222 to restart the provisioning process 220.

[0052] It is now assumed that the process of installing the SSD proceeds at 240. Installing the SSD is similar to installing the ISD. The TSM server is configured to contact the HSM that houses the SSD master key to compute the derived SSD key set for the SE. The master SSD key set can be either in the TSM or with the service provider or the SE issuer, largely depending on how the arrangement is made with all parties involved.

[0053] To download/install the application to the SE, the server is configured to establish a secure channel with the SE using this derived SSD at 242. In one embodiment, this is similar to how the ISD-based secure channel is established. At 244, the data for the application is prepared, the detail of which will be further discussed below. According to one embodiment, the server is configured to contact the service provider to prepare asset of APDUs, such as STORE DATA APDUs, where ADPU stands for Application Protocol Data Unit. Depending on an application installed in a mobile device, the server may be caused to repeatedly issue STORE DATA to personalize the application with the SE. Additional data including an appropriate interface (e.g., a user interface of the application per the mobile device) may be downloaded provided that the provisioning process is successfully done. At 246, the server will notify the application provider the status of the application that has been provisioned. According to one embodiment and the above description, FIG. 2C

shows a data flow 250 illustrating various interactions among different parties when an application is being provisioned in one embodiment.

[0054] As shown in 244 of FIG. 2B, one of the important functions in provisioning an application is to prepare customized application data for the targeted SE. For example, for an e-purse application, the personalized data for the application includes various personalized transaction keys generated based on the device information (e.g., CPLC info) of the SE. For transit e-purse, part of the personalized data includes the Mifare access keys derived from an identifier (ID) of the Mifare card, the server is configured to personalize both Java Card applications and Mifare4Mobile service objects. In general, there are at least two different ways to prepare the data to facilitate subsequent transactions.

[0055] For data preparation, one embodiment of the present invention supports two operation modes to interact with service providers for computing the personalized application data. For the first mode, a TSM server does not have direct access to the HSM associated with a service provider. The service provider may have a server interacting with its HSM to generate the application keys (e.g., Transit, e-purse, or Mifare Key). The TSM data preparation implementation is to make use of application program interfaces (API) or a protocol provided by the server to request for derived application keys. The second mode is that data preparation implementation can directly access the HSM associated with the service provider to generate the application keys.

[0056] According to one embodiment, FIG. 2D shows a data flow 255 among different entities when preparing the application data in provisioning an application. FIG. 2D is provided to show the first mode in which a TSM server does not have direct access to the HSM associated with a service provide. The second mode has a similar flow except that the application data preparation implementation will interact directly with the HSM of a service provider.

[0057] Besides supporting a provisioning process, one embodiment of the present invention also supports the life cycle management of an SE. The life cycle management includes, but may not be limited to, SE lock, SE unlock, Application

Delete (disabling). The initiation of these activities may be through a TSM push notification. In actual use of mobile devices, FIG. 2E shows a flowchart or process 260 of locking an installed application. An NFC device may have been installed with a number of applications in connection with or running on top of the secured element therein. For some reason (e.g., no activity for a prolonged period or expiration), an application needs to be disabled or locked by its distributor or provider.

[0058] FIG. 2E shows an operation or process 260 to disable an installed application. The process 260 is initiated at 262. In one embodiment, the process 260 is initiated by an operator manually via a TSM web portal. In another embodiment, the process 260 is automatically initiated by a service provider internal workflow (e.g., using TSM web service API). Once the process 260 is initiated, a message is pushed to an NFC device (e.g., within a mobile device) in which an application is to be disabled. Depending on application, such a message may come in different forms. In one embodiment, the message is a PUSH command. In another embodiment, the message is a TCP/IP request delivered to the device via a network. The message may be sent from a server (e.g., a TSM server) at 264. Depending on implementation, such a message may include an identifier identifying an application to be locked or disabled. Upon receiving such a message, a card manager proxy on the device is caused to verify whether such a message is indeed from its original distributor or provider by returning a message at 266. According to one embodiment, the message is sent to the TSM server for verification. If the verification fails, namely there is no acknowledgement to such an inquiry, the process 260 is abandoned.

[0059] It is now assumed that the verification is successful, namely the inquiry from the device to a provider of the application returns an acknowledgement that the original request is authenticated. In general, such an acknowledgement includes an identifier confirming the application to be locked at 268. The TSM server is configured to establish a secure channel with the SE as described previously. Then, the TSM server is to prepare appropriate APDUs (such as SET STATUS, or/and DELETE) for the SE for execution via the card manager proxy.

[0060] In any case, in responding to the command, the SE proceeds by locking the application at 272. According to one embodiment, the SE is caused to disassociate with the application, thus making the installed application no longer usable with the SE. At 274, the SE is configured to send out an acknowledgement to notify related parties that this application is no longer operating in the device. In one embodiment, the acknowledgement is sent over to the TSM server where there is a database recording what applications have been installed in what device, and a corresponding status of each. The database is updated with the acknowledgement from the SE.

[0061] FIG. 2E shows a flowchart or process for disabling or locking an installed application. It is known to those skilled in the art that other operations, such as unlocking or enabling an installed application, extending expiration of an installed application, are similar to the one shown in FIG. 2E, and thus the flowcharts thereof are not provided herein.

[0062] Referring now to FIG. 2F, there shows an exemplary architecture diagram 280 of a portable device enabled as an electronic wallet or e-purse to facilitate e-commerce and m-commerce, according to one embodiment of the present invention. The diagram 280 includes a cell phone 282 embedded with a smart card module. An example of such a cell phone is a near field communication (NFC) enabled cellphone that includes a Smart MX (SMX) module. Not separately shown, there is an SE that has already personalized according to the process discussed above. An application to enable the device as e-purse has also been installed. Unless explicitly stated, the following description will not call out which part is performing the function of a secure element and which part is performing as an application. Those skilled in the art shall appreciate the proper parts or functions being performed given the detailed description herein.

[0063] The SMX is pre-loaded with a Mifare emulator 288 (which is a single functional card) for storing values. The portable phone is equipped with a contactless interface (e.g., ISO 14443 RFID) that allows the portable phone to act as a tag. In one embodiment, the SMX is a JavaCard that can run Java applets. The e-purse application is configured to be able to access the Mifare data structures with

appropriate transformed passwords based on the access keys created when the SE is personalized.

[0064] In the portable phone 282, an e-purse manager MIDlet 204 is provided. For m-commerce, the MIDlet 284 acts as an agent to facilitate communications between an e-purse applet 286 and one or more payment network and servers 290 to conduct transactions therebetween. As used herein, a MIDlet is a software component suitable for being executed on a portable device. The e-purse manager MIDlet 284 is implemented as a "MIDlet" on a Java cell phone, or an "executable application" on a PDA device. One of the functions of the e-purse manager MIDlet 284 is to connect to a wireless network and communicate with an e-purse applet which can reside on either the same device or an external smart card. In addition, it is configured to provide administrative functions such as changing a PIN, viewing an e-purse balance and a transaction history log. In one application in which a card issuer provides a SAM 292 that is used to enable and authenticate any transactions between a card and a corresponding server (also referred to as a payment server). As shown in FIG. 2F, APDU commands are constructed by the servers 290 having access to a SAM 292, where the APDU is a communication unit between a reader and a card. The structure of an APDU is defined by the ISO 7816 standards in one embodiment. Typically, an APDU command is embedded in network messages and delivered to the server 290 or the e-purse applet 286 for processing.

[0065] For e-commerce, a web agent 294 on a computer (not shown) is responsible for interacting with a contactless reader (e.g., an ISO 14443 RFID reader) and the network server 290. In operation, the agent 294 sends the APDU commands or receives responses thereto through the contactless reader 296 to/from the e-purse applet 286 residing in the cell phone 282. On the other hand, the agent 294 composes network requests (such as HTTP) and receives responses thereto from the payment server 280.

[0066] To personalize or provision the portable phone 282, FIG. 3A shows a block diagram 300 of related modules interacting with each other to achieve what is referred to herein as e-purse personalization (or provisioning) by an authorized

person. FIG. 3B shows a block diagram 320 of related modules interacting with each other to achieve what is referred to herein as e-purse personalization by a user of the e-purse as shown in FIG. 2F.

[0100] FIG. 3C shows a flowchart or process 350 of personalizing an e-purse applet according to one embodiment of the present invention. FIG. 3C is suggested to be understood in conjunction with FIG. 3A and FIG. 3B. The process 350 may be implemented in software, hardware or a combination of both.

[0101] As described above, an e-purse manager is built on top of the already-personalized SE to provide a security mechanism necessary to personalize the e-purse applet designed therefor. In operation, a security domain is used for establishing a secured channel between a personalization application server and the e-purse applet. According to one embodiment, the essential data to be personalized into the e-purse applet include one or more operation keys (e.g., a load or top-up key and a purchase key), default PINs, administration keys (e.g., an unblock PIN key and a reload PIN key), and passwords (e.g., from Mifare).

[0102] It is assumed that a user desires to personalize an e-purse applet embedded in a portable device (e.g., a cell phone). At 352 of FIG. 3C, a personalization process is initiated. Depending on implementation, the personalization process may be implemented in a module in the portable device and activated manually or automatically, or a physical process initiated by an authorized person (typically associated with a card issuer). As shown in FIG. 3A, an authorized personal initiates a personalization process 304 to personalize the e-purse applet for a user thereof via an existing new e-purse SAM 306 and an existing SAM 308 with the contactless reader 310 as the interface. The card manager 311 performs at least two functions: 1) establishing a security channel, via a security domain, to install and personalize an external application (e.g., e-purse applet) in the card personalization; and 2) creating security means (e.g., PINs) to protect the application during subsequent operations. As a result of the personalization process using the personalization application server 304, the e-purse applet 312 and the emulator 314 are personalized.

[0103] Similarly, as shown in FIG. 3B, a user of an e-purse desires to initiate a personalization process to personalize the e-purse applet wirelessly (e.g., via the m-commerce path of FIG. 2). Different from FIG. 3A, FIG. 3B allows the personalization process to be activated manually or automatically. For example, there is a mechanism on a cell phone that, if pressed, activates the personalization process. Alternatively, a status of "non-personalized" may prompt to the user to start the personalization process. As described above, a MIDlet 322 (i.e., a provisioning manager or a service manager) in a portable device acts as an agent to facilitate the communication between a payment server 324 and the e-purse applet 312 as well as the emulator 314, wherein the payment server 324 has the access to the existing new e-purse SAM 306 and an existing SAM 308. As a result of the personalization process, the e-purse applet 312 and the emulator 314 are personalized.

[0104] Referring now back to FIG. 3C, after the personalization process is started, in view of FIG. 3A, the contactless reader 310 is activated to read the tag ID (i.e., RFID tag ID) and essential data from a smart card in the device at 354. With an application security domain (e.g., a default security setting by a card issuer), a security channel is then established at 356 between a new e-purse SAM (e.g., the SAM 306 of FIG. 3A) and an e-purse applet (e.g., the e-purse applet 312 of FIG. 3A) in the portable device.

[0105] Each application security domain key set includes at least three (3) DES keys. For example:

Key1: 255/1/DES-ECB/404142434445464748494a4b4c4d4e4f

Key2: 255/2/DES-ECB/404142434445464748494a4b4c4d4e4f

Key3: 255/3/DES-ECB/404142434445464748494a4b4c4d4e4f

A security domain is used to generate session keys for a secured session between two entities, such as the card manager applet and a host application, in which case the host application may be either a desktop personalization application or a networked personalization service provided by a backend server.

[0106] A default application domain can be installed by a card issuer and assigned to various application/service providers. The respective application owner can change the value of the key sets before the personalization process (or at the initial of the

process). Then the application can use the new set to create a security channel for performing the personalization process.

[0107] With the security channel is established using the application provider's application security domain, the first set of data can be personalized to the e-purse applet. The second set of data can also be personalized with the same channel, too. However, if the data are in separate SAM, then a new security channel with the same key set (or different key sets) can be used to personalize the second set of data.

[0108] Via the new e-purse SAM 306, a set of e-purse operation keys and PINs are generated for data transactions between the new e-purse SAM and the e-purse applet to essentially personalize the e-purse applet at 358.

[0109] A second security channel is then established at 360 between an existing SAM (e.g., the SAM 308 of FIG, 3A) and the e-purse applet (e.g., the e-purse applet 312 of FIG, 3A) in the portable device. At 362, a set of transformed keys is generated using the existing SAM and the tag ID. The generated keys are stored in the emulator for subsequent data access authentication. At 358, a set of MF passwords is generated using the existing SAM and the tag ID, then is stored into the e-purse applet for future data access authentication. After it is done, the e-purse including the e-purse applet and the corresponding emulator is set to a state of "personalized".

[0110] FIG. 4A and FIG. 4B show together a flowchart or process 400 of financing or funding an e-purse according to one embodiment of the present invention. The process 400 is conducted via the m-commerce path of FIG. 2. To better understand the process 400, FIG. 4C shows an exemplary block diagram 450 of related blocks interacting with each other to achieve the process 400. Depending on an actual application of the present invention, the process 400 may be implemented in software, hardware or a combination of both.

[0111] A user is assumed to have obtained a portable device (e.g., a cell phone) that is configured to include an e-purse. The user desires to fund the e-purse from an account associated with a bank. At 402, the user enters a set of personal identification numbers (PIN). Assuming the PIN is valid, an e-purse manger in the portable device is

activated and initiates a request (also referred to an over-the-air (OTA) top-up request) at 404. The MIDlet in the portable device sends a request to the e-purse applet at 406, which is illustrated in FIG. 4C where the e-purse manager MIDlet 434 communicates with the e-purse applet 436.

[0112] At 408, the e-purse applet composes a response in responding to the request from the MIDlet. Upon receiving the response, the MIDlet sends the response to a payment network and server over a cellular communications network. As shown in FIG. 4C, the e-purse manager MIDlet 434 communicates with the e-purse applet 436 for a response that is then sent to the payment network and server 440. At 410, the process 400 needs to verify the validity of the response. If the response cannot be verified, the process 400 stops. If the response can be verified, the process 400 moves to 412 where a corresponding account at a bank is verified. If the account does exist, a fund transfer request is initiated. At 414, the bank receives the request and responds to the request by returning a response. In general, the messages exchanged between the payment network and server and the bank are compliant with a network protocol (e.g., HTTP for the Internet).

[0113] At 416, the response from the bank is transported to the payment network and server. The MIDlet strips and extracts the APDU commands from the response and forwards the commands to the e-purse applet at 418. The e-purse applet verifies the commands at 420 and, provided they are authorized, sends the commands to the emulator at 420 and, meanwhile updating a transaction log. At 422, a ticket is generated to formulate a response (e.g., in APDU format) for the payment server. As a result, the payment server is updated with a successful status message for the MIDlet, where the APDU response is retained for subsequent verification at 424.

[0114] As shown in FIG. 4C, the payment network and server 440 receives a response from the e-purse manager MIDlet 434 and verifies that the response is from an authorized e-purse applet 436 originally issued therefrom with a SAM 444. After the response is verified, the payment network and server 440 sends a request to the financing bank 442 with which the user 432 is assumed to maintain an account. The

bank will verify the request, authorize the request, and return an authorization number in some pre-arranged message format. Upon receiving the response from the bank 442, the payment server 440 will either reject the request or accept the request by forming a network response sent to the MIDlet 434.

[0115] The e-purse manager 434 verifies the authenticity (e.g., in APDU format) and sends commands to the emulator 438 and updates the transaction logs. By now, the e-purse applet 436 finishes the necessary steps and returns a response to the MIDlet 434 that forwards an (APDU) response in a network request to the payment server 440.

[0116] Although the process 400 is described as funding the e-purse. Those skilled in the art can appreciate that the process of making purchasing over a network with the e-purse is substantially similar to the process 400, accordingly no separate discussion on the process of making purchasing is provided.

[0117] Referring to FIG. 5A, there is shown a first exemplary architecture 500 of enabling a portable device 530 for e-commerce and m-commerce over a cellular communications network 520 (e.g., a GPRS network) in accordance with one embodiment of the present invention. The portable device 530 comprises a baseband 524 and a secured element 529 (e.g., a smart card). One example of such portable device is a Near Field Communication (NFC) enabled portable device (e.g., a cell mobile phone or a PDA). The baseband 524 provides an electronic platform or environment (e.g., a Java Micro Edition (JME), or Mobile Information Device Profile (MIDP)), on which an application MIDlet 523 and a service manager 522 can be executed or run. The secured element 529 contains a global platform (GP) card manager 526, an emulator 528 and other components such as PIN manager (not shown), wherein the global platform is an independent, not-for-profit organization concerned with a standardized infrastructure for development, deployment and management of smart cards.

[0118] To enable the portable device 530 to conduct e-commerce and m-commerce, one or more services/applications need to be pre-installed and pre-configured thereon. An instance of a service manager 522 (e.g., a MIDlet with GUI)

needs to be activated. In one embodiment, the service manager 522 is downloaded and installed. In another embodiment, the service manager 522 is preloaded. In any case, once the service manager 522 is activated, a list of directories for various services is shown. The items in the list may be related to the subscription by a user, and may also include items in promotion independent of the subscription by the user. The directory list may be received from a directory repository 502 of a directory server 512. The directory server 512 acts as a central hub (i.e., yellow page functions) for different service providers (e.g., an installation server, a personalization server) that may choose to offer products and/or services to subscribers. The yellow page functions of the directory server 512 may include service plan information (e.g., service charge, start date, end date, etc.), installation, personalization and/or MIDlet download locations (e.g., Internet addresses). The installation and personalization may be provided by two different business entities. For example, the installation is provided by an issuer of a secured element 529, while the personalization may be provided by a service provider who holds application transaction keys for a particular application.

[0119] According to one embodiment, the service manager 522 is configured to connect to one or more servers 514 (e.g., a TSM server) from a service provider(s) over the cellular communications network 520. It is assumed that the user has chosen one of the applications from the displayed directory. A secured channel 518 is established between the one or more servers 514 and the GP manager 526 to install/download an application applet 527 selected by the user and then to personalize the application applet 527 and optionally emulator 528, and finally to download an application MIDlet 523. The applet repository 504 and MIDlet repository 506 are the sources of generic application applets and application MIDlets, respectively. GP SAM 516 and application SAM 517 are used for creating the secured channel 518 for the personalization operations.

[0120] FIG. 5B is a diagram showing a second exemplary architecture 540 of enabling a portable device 530 for e-commerce and m-commerce over a public network 521, according to another embodiment of the present invention. Most of the components of the second architecture 540 are substantially similar to those of the first architecture 500 of FIG. 5A. While the first architecture 500 is based on operations

over a cellular communications network 520, the public network 521 (e.g., Internet) is used in the second architecture 540. The public network 521 may include a local area network (LAN), a wide area network (WAN), a Wi-Fi (IEEE 802.11) wireless link, a Wi-Max (IEEE 802.16) wireless link, etc. In order to conduct service operations over the public network 521, an instance of the service manager 532 (i.e., same or similar functionality of the service manager MIDlet 522) is installed on a computer 538, which is coupled to the public network 521. The computer 538 may be a desktop personal computer (PC), a laptop PC, or other computing devices that can execute the instance of the service manager 532 and be connected to the public network 521. The connection between the computer 538 and the portable device 530 is through a contactless reader 534. The service manager 532 acts as an agent to facilitate the installation and personalization between one or more servers 514 of a service provider and a GP card manager 526 via a secured channel 519.

[0121] FIG. 5C is a flowchart illustrating a process 550 of enabling a portable device for e-commerce and m-commerce functionalities in accordance with one embodiment of the present invention. The process 550 may be implemented in software, hardware or a combination of both depending on implementation. To better understand the process 500, previous figures especially FIG. 5A and FIG. 5B are referred to in the following description.

[0122] Before the process 550 starts, an instance of a service manager 522 or 532 has been downloaded or pre-installed on either the portable device 530 or a computer 538. At 552, the service manager is activated and sends a service request to the server 514 at a service provider. Next after the authentication of a user and the portable device has been verified, at 554, the process 550 provides a directory list of services/applications based on subscription of the user of the portable device 530. For example, the list may contain a mobile POS application, an e-purse application, an e-ticketing application, and other commercially offered services. Then one of the services/applications is chosen from the directory list. For example, an e-purse or a mobile-POS may be chosen to configure the portable device 530. Responding to the user selection, the process 550 downloads and installs the selected services/applications at 556. For example, e-purse applet (i.e., application applet 527)

is downloaded from the applet repository 504 and installed onto a secured element 529. The path for downloading or installation may be either via a secured channel 518 or 519. At 558, the process 550 personalizes the downloaded application applet and the emulator 528 if needed. Some of the downloaded application applets do not need to be personalized and some do. In one embodiment, a mobile POS application applet ("POS SAM") needs to be personalized, and the following information or data array has to be provided:

a unique SAM ID based on the unique identifier of the underlying secured element;

a set of debit master keys;

a transformed message encryption key;

a transformed message authentication key;

a maximum length of remark for each offline transaction;

a transformed batch transaction key; and

a GP PIN.

[0123] In another embodiment, personalization of an e-purse applet for a single functional card not only needs to configure specific data (i.e., PINs, transformed keys, start date, end date, etc.) onto the e-purse, but also needs to configure the emulator to be operable in an open system. Finally, at 560, the process 550 downloads and optionally launches the application MIDlet 523. Some of the personalized data from the application applet may be accessed and displayed or provided from the user. The process 550 ends when all of the components of services/applications have been installed, personalized and downloaded.

[0124] According to one embodiment, an exemplary process of enabling a portable device 530 as a mobile POS is listed as follows:

connecting to an installation server (i.e., one of the service provider server 514) to request the server to establish a first security channel (e.g., the secured channel 518) from an issuer domain (i.e., applet repository 504) to the GP card manager 526 residing in a secured element 529;

receiving one or more network messages including APDU requests that envelop a POS SAM applet (e.g., a Java Cap file from the applet repository 504);

extracting the APDU requests from the received network messages;

sending the extracted APDU requests to the GP card manager 526 in a correct order for installation of the POS SAM (i.e., application applet 527) onto the secured element 529;

connecting to a personalization server (i.e., one of the service provider servers 514) for a second security channel (may or may not be the secured channel 518 depending on the server and/or the path) between the personalization server and the newly downloaded applet (i.e., POS SAM);

receiving one or more network messages for one or more separated 'STORE DATA APDU'; and

extracting and sending the 'STORE DATA APDU' to personalize POS SAM; and

downloading and launching POS manager (i.e., application MIDlet 523).

[0125] Referring to FIG. 6A, there is shown an exemplary architecture 600, in which a portable device 630 is enabled as a mobile POS to conduct e-commerce and m-commerce, according to one embodiment of the present invention. The portable device 630 comprises a baseband 624 and a secured element 629. A POS manager 623 is downloaded and installed in the baseband 623 and a POS SAM 628 is installed and personalized in the secured element 629 to enable the portable device 630 to act as a mobile POS. Then a real time transaction 639 can be conducted between the mobile POS enabled portable device 630 and an e-token enabled device 636 (e.g., a single functional card or a portable device enabled with an e-purse). The e-token may represent e-money, e-coupon, e-ticket, e-voucher or any other forms of payment tokens in a device.

[0126] The real time transaction 639 can be conducted offline (i.e., without the portable device connecting to a backend POS transaction server 613). However, the portable device 630 may connect to the backend POS transaction servers 613 over the cellular network 520 in certain instances, for example, the amount of the transaction is over a pre-defined threshold or limit, the e-token enabled device 636 needs a top-up or virtual top-up, transactional upload (single or in batch).

[0127] Records of accumulated offline transactions need to be uploaded to the backend POS transaction server 613 for settlement. The upload operations are conducted with the portable device 630 connecting to the POS transaction server 613 via a secured channel 618. Similar to the installation and personalization procedures, the upload operations can be conducted in two different routes: the cellular communications network 520; or the public network 521. The first route has been described and illustrated in FIG. 6A.

[0128] The second route is illustrated in FIG. 6B showing an exemplary architecture 640, in which a portable device 630 is enabled as a mobile POS conducting a transaction upload in batch operation over a public network 521, according to an embodiment of the present invention. Records of offline transactions in the mobile POS are generally kept and accumulated in a transaction log in the POS SAM 628. The transaction log are read by a contactless reader 634 into a POS agent 633 installed on a computer 638. The POS agent 633 then connects to a POS transaction server 613 over the public network 521 via a secured channel 619. Each of the upload operations is marked as a different batch, which includes one or more transaction records. Data communication between the POS SAM 628, the contactless reader 634 and the POS agent 632 in APDU containing the transaction records. Network messages that envelop the APDU (e.g., HTTP) are used between the POS agent 632 and the POS transaction server 613.

[0129] In one embodiment, an exemplary batch upload process from the POS manager 623 or the POS agent 633 includes:

sending a request to the POS SAM 628 to initiate a batch upload operation;

retrieving accumulated transaction records in form of APDU commands from a marked “batch” or “group” in the POS SAM 628 when the POS SAM 628 accepts the batch upload request;

forming one or more network messages containing the retrieved APDU commands;

sending the one or more network messages to the POS transaction server 613 via a secured channel 619;

receiving a acknowledgement signature from the POS transaction server 613;

forwarding the acknowledgement signature in form APDU to the POS SAM 628 for verification and then deletion of the confirmed uploaded transaction records; and

repeating the step b) to step f) if there are additional un-uploaded transaction records still in the same "batch" or "group".

[0130] Referring to FIG. 6C, there is shown a flowchart illustrating a process 650 of conducting m-commerce using the portable device 630 enabled to act as a mobile POS with an e-token enabled device 636 as a single functional card in accordance with one embodiment of the present invention. The process 650, which is preferably understood in conjunction with the previous figures especially FIG. 6A and FIG. 6B, may be implemented in software, hardware or a combination of both.

[0131] The process 650 (e.g., a process performed by the POS manager 623 of FIG. 6A) starts when a holder of an e-token enabled device (e.g., a Mifare card or an e-purse enabled cell phone emulating single functional card) desires to make a purchase or order a service with the mobile POS (i.e., the portable device 630). At 652, the portable device 630 retrieving an e-token (e.g., tag ID of Mifare card) by reading the e-token enabled device. Next, the process 650 verifies whether the retrieved e-token is valid at 654. If the e-token enabled device 636 of FIG. 6A is a single functional card (e.g., Mifare), the verification procedure performed by the POS manager 623 includes: i) reading the card identity (ID) of the card stored on an area that is unprotected or protected by a well-known key; ii) sending an APDU request containing the card ID to the POS SAM 628; iii) and receiving one or more transformed keys (e.g., for transaction counter, an issuer data, etc.) generated by the POS SAM 628. If the one or more received transformed keys are not valid, that is, the retrieved e-token being not valid, then the process 650 ends. Otherwise, the process 650 following the "yes" branch to 656, in which it is determined whether there is enough balance in the retrieved e-token to cover the cost of the current transaction. If the result is "no" at 656, the process 650 may optionally offer the holder to top-up (i.e., load, fund, finance) the e-token at 657. If "no", the process 650 ends. Otherwise if the holder agrees to a real time top-up of the e-token enabled device, the process 650 performs either a top-up or a virtual top-up operation at 658. Then the process 650

goes back to 656. Whereas there is enough balance in the e-token, the process 650 deducts or debits the purchase amount from the e-token of the e-token enabled device 636 at 660. In the single functional card case, the one or more transformed keys are used to authorize the deduction. Finally at 662, records of one or more offline transactions accumulated in the POS SAM 628 are uploaded to the POS transaction server 613 for settlement. The upload operations may be conducted for each transaction or in batch over either the cellular communications network 520 or the public domain network 521.

[0132] The top-up operations have been described and shown in the process 400 of FIG. 4A. A virtual top-up operation is a special operation of the top-up operation and typically is used to credit an e-token by a sponsor or donor. To enable a virtual top-up operation, the sponsor needs to set up an account that ties to an e-token enabled device (e.g., a single functional card, a multi-functional card, an e-token enable cell phone, etc.). For example, an online account is offered by a commercial entity (e.g., business, bank, etc.). Once the sponsor has funded the e-token to the online account, the holder of the e-token enabled device is able to receive an e-token from the online account when connecting to the mobile POS. Various security measures are implemented to ensure the virtual top-up operation is secure and reliable. One exemplary usage of the virtual top-up is that a parent (i.e., a sponsor) can fund an e-token via an online account, which is linked to a cell phone (i.e., an e-token enabled device) of a child (i.e., the holder), such that the child may receive the funded e-token while the child makes a purchase at a mobile POS. In addition to various e-commerce and m-commerce functionalities described herein, the POS manager 623 is configured to provide various query operations, for example, a) checking the un-batched (i.e., not uploaded) balance accumulated in the POS SAM, b) listing the un-batched transaction log in the POS SAM, c) viewing details of a particular transaction stored in the POS SAM, d) checking the current balance of an e-token enabled device, e) listing a transaction log of the e-token enabled device, and f) viewing details of a particular transaction of the e-token enabled device.

[0133] Referring to FIG. 6D, there is shown a flowchart illustrating an exemplary process 670 of conducting m-commerce using the portable device 630 enabled to act

as a mobile POS with an e-token enabled device 636 as a multi-functional card in accordance with one embodiment of the present invention. The process 670, which is preferably understood in conjunction with the previous figures especially FIG. 6A and FIG. 6B, may be implemented in software, hardware or a combination of both.

[0134] The process 670 (e.g., a process performed by the POS manager 623 of FIG. 6A) starts when a holder of an e-token enabled device 636 (e.g., a multi-functional card or an e-purse enabled cell phone emulating a multi-functional card) desires to make a purchase or order a service with the mobile POS (i.e., the portable device 630). At 672, the process 670 sends an initial purchase request to the e-token enabled device 636. The purchase amount is sent along with the initial request (e.g., APDU commands). Next the process 670 moves to decision 674. When there is not enough balance in the e-token enabled device 636. The initial purchase request will be turned down as a return message received at the POS manager 623. As a result, the process 670 ends with the purchase request being denied. If there is enough balance in the e-token enabled device 636, the result of the decision 674 is "yes" and the process 670 follows the "yes" branch to 676. The received response (e.g., APDU commands) from the e-token enabled device 636 is forwarded to the POS SAM 628. The response comprises information such as the version of the e-token key and a random number to be used for establishing a secured channel between the applet (e.g., e-purse applet) resided on the e-token enabled device 636 and the POS SAM 628 installed on the portable device 630. Then, at 678, the process 670 receives a debit request (e.g., APDU commands) generated by the POS SAM 628 in response to the forwarded response (i.e., the response at 676). The debit request contains a Message Authentication Code (MAC) for the applet (i.e., e-purse applet) to verify the upcoming debit operation, which is performed in response to the debit request sent at 680. The process 670 moves to 682 in which a confirmation message for the debit operation is received. In the confirmation message, there are additional MACs, which are used for verification and settlement by the POS SAM 628 and the POS transaction server 613, respectively. Next at 684, the debit confirmation message is forwarded to the POS SAM 628 for verification. Once the MAC is verified and the purchase transaction is recorded in the POS SAM 628, the recorded transaction is displayed at

686 before the process 670 ends. It is noted that the e-commerce transaction described may be carried out offline or online with the POS transaction server 613. Also when there is not enough balance in the e-token enabled device, a top-up or funding operation may be performed using the process 400 illustrated in FIG. 4A and FIG. 4B.

[0135] FIG. 7 shows an exemplary configuration in which a portable device is used for an e-ticketing application. A portable device 730 is configured to include an e-purse 724. When an owner or holder of the portable device 730 desires to purchase a ticket for a particular event (e.g., a concert ticket, a ballgame ticket, etc.), the owner can use e-purse 724 to purchase a ticket through an e-ticket service provider 720. The e-ticket service provider 720 may contact a traditional box office reservation system 716 or an online ticketing application 710 for ticket reservation and purchase. Then e-token (e.g., e-money) is deducted from the e-purse 724 of the portable device 730 to pay the ticket purchase to a credit/debit system 714 (e.g., a financial institute, a bank). A SAM 718 is connected to the e-ticket service provider 720 so that the authentication of e-purse 724 in the portable device 730 can be assured. Upon a confirmation of the payment is received, the e-ticket is delivered to the portable device 730 over the air (e.g., a cellular communications network) and stored onto a secured element 726 electronically, for example, an e-ticket code or key or password. Later on, when the owner of the portable device 730, the ticket holder, attends the particular event, the owner needs only to let a gate check-in reader 734 to read the stored e-ticket code or key in the portable device 730. In one embodiment, the gate check-in reader 734 is a contactless reader (e.g., an ISO 14443 complied proximity coupling device). The portable device 730 is a NFC capable mobile phone.

[0136] Referring now to FIG. 8A, it shows a diagram of multiple parties involved in a TSM operated and orchestrated by a business according to one embodiment. A TSM operation team 802 includes an administration responsible for managing accounts for users that have personalized their SEs via the TSM and other tasks. In one embodiment, the TSM operation team 802 includes someone for managing the accounts and someone for managing system resources, such as managing HSM, creating HSM indices and GP keyset mapping. In addition, the team is responsible for

offline importing default ISD info from one or more SE manufacturers. The team may also include someone referred to as a certification engineer responsible to collaborate with service providers and the SE issuers on application approval process. The TSM sales team 804, also referred to as business account manager, is responsible for sales and account management for the vendors of the TSM. Some of the team 804 may only work with the SE manufacturers, some may only work with SE Issuers while other may work with more than one type of vendors. The TSM partner service team 806, also referred to as support engineers, is responsible for providing technical support to the vendors of the TSM, such as the SE issuers and the service providers. The TSM partner service team 806, does not deal directly with mobile users but helps partners analyze audit logs. The vendors 808 include one or more of the SE Issuers, the SE manufacturers, and the service providers. An SE issuer holds the responsibilities for the issuance of SEs and owns the ISD of the SEs. Working with the TSM teams, it can install additional SSD for service providers if needed. An SE manufacturer as the name suggests is responsible for manufacturing the SEs and installing a default ISD in the SEs. It also works with the TSM teams to provide these default ISD key sets. The service provider is responsible for developing NFC mobile applications. Exemplary applications from the service providers include, but may not be limited to, transit purses, bank's e-purses and credit cards. Smaller service providers may be those to provide applications used as room keys.

[0137] FIG. 8B shows relevant operations among the parties in the TSM according to one embodiment. The description of the operations is not to be described in detail herein to avoid obscuring the important aspect of the embodiment of the present invention. FIG. 8C shows a work flow among multiple parties to establish mutually agreed arrangement in an exemplary TSM. An SE issuer or a service provider asks the TSM to house its GP keyset. For the SE issuer. In one embodiment, this GP keyset is most likely to be used as ISD. For the service provider, this keyset will be used as SSD. The process of creating the keyset involves creating the keys in the HSM and creates a mapping in TSM system as indicated in FIG. 8C. The effective range of the mapping will be set to a contract expiring date. In general, an HSM key index cannot be active for more than one mapping at the same time.

[0138] When the keyset is about to expire, a renewal may be made. The renewal flow is similar to the creation process shown in FIG. 8C. According to one embodiment, the TSM will send a notification to the keyset owner periodically a few months before the keyset expires. The notification stops once the keyset owner renews the contract. The keyset owner can start the renewal process by creating a work request or item. A responsible TSM business account manager approves/rejects the work item. Upon receiving the approved work item, the TSM administration updates the keyset expiring date according to the renewal contract.

[0139] Similarly, the keyset can be expired earlier or terminated. The terminate flow is similar to the creation process shown in FIG. 8C. The keyset owner can request to stop the keyset at a future date. The responsible TSM business account manager will verify and approve/reject the request immediately. The TSM administration sets the expiring date of the mapping to the specified date. The HSM key indices can be reused by the TSM for other vendors. An audit log is maintained to keep track of the transactions.

[0140] FIG. 8D shows a data flow for an ISD mapping between an SE issuer and the TSM. In general, the ISD mappings are managed by each SE Issuer directly. An SE Issuer can create a mapping to bind an external or internal keyset to an ISD key index. External keysets are keysets not residing in an HSM associated with aTSM while the internal keysets are those residing in the HSM. Normally, the SE issuer should not need to specify the default ISD as the default ISD comes from the SE manufacturer. However, an SE Issuer has an option to overwrite this default ISD if needed.

[0141] According to FIG. 8D, the SE Issuer creates an ISD mapping for a card OS to bind a keyset and an ISD key index (e.g., ranging from 1 to 127). If the keyset is not external, the TSM will ensure that the keyset mapping with its HSM exists. In operation, the SE issuer can directly modify or delete the ISD mapping. As described above, an SE Manufacturer has the default ISD information for the SEs that it produces. The TSM provides both batch and real-time approaches for the SE manufacturer to share this information. Depending on the agreement with TSM, the

manufacturer can use either the batch or real-time approach, which has been described above.

[0142] For security reasons, a service provider (SP) may want to have its own SSD for personalizing its applications. The SSD mapping is created by an SE issuer to bind a key index it assigns to the service provider to the SP keyset. FIG. 8E shows a corresponding data flow among a server provider, an SE issuer and the TSM. Similar to the SSD creation, a service provider may request the SE issuer to delete an SSD mapping. The workflow is substantially similar to the SSD creation.

[0143] As described above, applications are provided by service providers to the users. An application needs to be approved and published before it is available for mobile users to subscribe and download. For example, a service provider needs to submit an application to SE issuer and TSM for approval. In operation, a service provider needs to submit an application to the SE issuer and TSM for approval. FIG. 8F shows a data flow for the approval of an application by an SE issuer. If a dedicated SSD is needed, the service provider can request an SSD beforehand as described in Section 6, or can indicate in the request. If a dedicated SSD is needed, the service provider can request an SSD beforehand as above or can indicate in the request. Before an approved application is available to general public yet, either the service provider or the SE issuer can initiate the publishing process. Both parties must agree before the application is published in the TSM for the users. Then the vendors are notified of the date and availability of the application.

[0144] In some cases, an SE needs to be replaced. The SE replacement could happen at a request of either a mobile user or its SE issuer. Mostly, it is to upgrade a SE for a bigger memory for more services. The following three points should be noted:

- For those applications need to migrate their application states from the old SE, the old SE

need to be still accessible by the applications (via TSM).

- For those applications requiring no state migration, the TSM needs simply just reinstall and personalize the applications.

• However, if any applications that have states in the SE but do not support state migration, the TSM is not able to migrate their states. For these applications, they will be treated as the second case (namely, the applications must be reinstalled and personalized).

[0145] FIG. 8G shows a process of replacing an SE and involves the following stages. An SE issuer informs a TSM about

• SE issuer informs TSM about SE replacement request;

• TSM collaborates with service providers to prepare APDU commands for collecting states of applications on the old SE;

• For each application, TSM executes the command(s) to retrieve application states and lock the application;

• TSM informs mobile user to physically change the new SE. Mobile user may change his/her mind to rollback the replacement request. No rollback is possible after this step;

• TSM will update the default ISD if it has not been done; and

• Collaborating with Service Providers, TSM will install and personalize or provision each application. If needed, TSM will install the SSD for service providers. The personalization data will be prepared based on the static data in the service provider and the dynamic application states.

[0146] Referring now to FIG. 9, it shows a snapshot of a screen display of an account for a personalized SE. As shown in the menu 902, the account maintains detailed information 904 about the SE that has been personalized. In addition, the account includes a list of provisioned applications as well as security keys. Other information such as application owners (who developed the applications), the responsible contact at the TSM, an SE log as well as an applications log may be maintained.

[0147] The invention is preferably implemented by software, but can also be implemented in hardware or a combination of hardware and software. The invention can also be embodied as computer readable code on a computer readable medium. The computer readable medium is any data storage device that can store data which

can thereafter be read by a computer system. Examples of the computer readable medium include read-only memory, random-access memory, CD-ROMs, DVDs, magnetic tape, optical data storage devices, and carrier waves. The computer readable medium can also be distributed over network-coupled computer systems so that the computer readable code is stored and executed in a distributed fashion.

[0148] The present invention has been described in sufficient details with a certain degree of particularity. It is understood to those skilled in the art that the present disclosure of embodiments has been made by way of examples only and that numerous changes in the arrangement and combination of parts may be resorted without departing from the spirit and scope of the invention as claimed. Accordingly, the scope of the present invention is defined by the appended claims rather than the foregoing description of embodiment.

Claims

We claim:

1. A method for mobile payment, the method comprising:
   causing a mobile device to receive an electronic invoice from a point of sale (POS) device, wherein the mobile device is a near-field communication device and configured to execute an installed application therein to communicate with the POS device to generate a payment request in response to the electronic invoice;
   displaying the electronic invoice on a display screen of the mobile device for a user to verify the payment request;
   processing the payment request in the mobile device; and
   notifying the user in the mobile device that a monetary transaction per the payment request has been successfully completed with the POS device.

2. The method as recited in claim 1, wherein the POS device includes a contactless card loaded with the electronic invoice, and said causing a mobile device to receive an electronic invoice from a point of sale (POS) device comprises reading the contactless card to obtain the electronic invoice by the mobile device.

3. The method as recited in claim 2, wherein the POS device includes a secure element that provides security and confidentiality required to support secure data communication between the POS device and a payment gateway.

4. The method as recited in claim 1, wherein said displaying the electronic invoice on a display screen of the mobile device comprises:
   causing the user to verify an amount in the electronic invoice and make a change to the amount when needed;
   paying the amount with a chosen instrument, wherein the chosen instrument is selected from a group consisting of an electronic wallet already created in the mobile device, a traditional credit or debit card, and an electronic transfer.

5. The method as recited in claim 1, wherein the POS device includes a contactless card loaded with the electronic invoice, and said causing a mobile device to receive an electronic invoice from a point of sale (POS) device comprises causing the mobile device to execute an installed module upon detecting a contactless card in a near field of the mobile device, wherein the installed module is configured to read off data pertaining to the electronic bill from the contactless card.

6. The method as recited in claim 5, wherein the data includes security information of a registered user associated with the POS device, the security information includes an account and bank information of the registered user, an identifier of the secure element in the contactless card or the POS device.

7. The method as recited in claim 6, wherein said processing the payment request in the mobile device:

   transporting the payment request over a secured channel to a payment gateway, where the payment gateway is configured to perform the monetary transaction per the payment request by deducting an amount from an account owned by the user and generates a notification to be sent to the registered user associated with the POS device.

8. The method as recited in claim 7, wherein said displaying the electronic invoice on a display screen of the mobile device comprises:

   causing the user to verify an amount in the electronic invoice and make a change to the amount when needed;

   paying the amount with an electronic payment provided by an installed module in the mobile device, wherein the installed module in the mobile device is configured to generate a payment request including the data pertaining to the electronic invoice to a payment gateway for processing.

9. The method as recited in claim 8, wherein data exchange between the mobile device and the payment gateway is conducted in a secured channel established in

accordance with the security information in the data pertaining to the electronic invoice.

10. The method as recited in claim 9, wherein the mobile device includes a secure element that provides security and confidentiality required to support secure data communication between the mobile device and the payment gateway.

11. The method as recited in claim 9, wherein said notifying the user in the mobile device that a monetary transaction per the payment request has been successfully completed with the POS device comprising: sending a notification of successful payment to the registered user of the POS device.

12. A method for mobile payment, the method comprising:
generating an electronic invoice in a point of sale (POS) device;
transporting the electronic invoice to a mobile device by causing the mobile device to read off data pertaining to the electronic invoice from the POS device, wherein the mobile device is a near-field communication device and configured to execute an installed application therein to communicate with the POS device to generate a payment request in response to the electronic invoice;
receiving a notification from a payment gateway that the electronic invoice has been settled, wherein a user of the mobile devices verifies the electronic invoice displayed on the mobile device and authorizes a payment to the electronic invoice.

13. The method as recited in claim 12, wherein the POS device includes a contactless card loaded with the electronic invoice, and the mobile device reads off a contactless card in a near field of the mobile device to obtain the data pertaining to the electronic invoice from the POS device.

14. The method as recited in claim 13, wherein the POS device includes a secure element that provides security and confidentiality required to support secure data communication between the POS device and the payment gateway.

15. The method as recited in claim 14, wherein the data includes security information of a registered user associated with the POS device, the security information includes an account and bank information of the registered user, an identifier of the secure element in the contactless card or the POS device.

16. The method as recited in claim 15, wherein the registered user receives a notification that the electronic invoice has been settled via the mobile device.

17. The method as recited in claim 12, wherein data exchange between the mobile device and the payment gateway is conducted in a secured channel established in accordance with the security information in the data pertaining to the electronic invoice.

18. A system for mobile payment, the system comprising:

a point of sale (POS) device provided to generate an electronic invoice upon receiving an entry;

a contactless card loaded with the electronic invoice, wherein the contactless card is placed in a near field of a mobile device configured to execute an installed application therein to read off data communicate with the POS device to generate a payment request in response to the electronic invoice, wherein the POS device receives a notification from a payment gateway that the electronic invoice has been settled, after a user of the mobile devices verifies the electronic invoice displayed on the mobile device and authorizes a payment to the electronic invoice, the mobile device is configured to establish a secure communication session with the payment gateway to proceed with the payment to the electronic invoice.

19. The system as recited in claim 18, wherein the installed application is configured to cause the mobile device to transport the data to the payment gateway, the data includes security information of a registered user associated with the POS device,

the security information includes an account and bank information of the registered user, an identifier of the secure element in the contactless card or the POS device.

20. The system as recited in claim 19, wherein the mobile device includes a secure element that provides security and confidentiality required to support secure data communication between the mobile device and the payment gateway.

Method and apparatus for mobile payments

Abstract

Techniques for mobile devices configured to support settlement of charges in electronic invoices or bills are described. An NFC mobile device is used to read off from a POS device data pertaining to the electronic invoices for payment. The data includes the electronic invoice and other information regarding a registered user of the POS device or an owner thereof is. After the user verifies the amount being charged and authorizes the payment, the NFC mobile device communicates with a payment gateway or network for payment that is configured to proceed with the payment in accordance with a chosen payment methods.

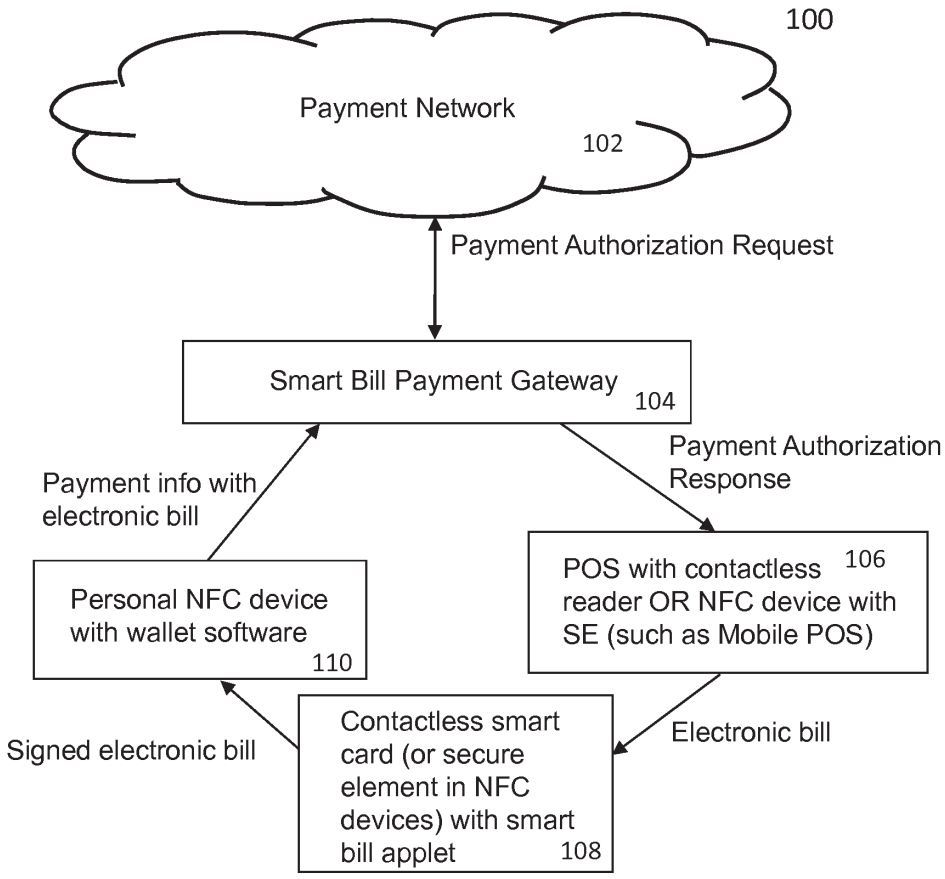

100
Payment Network
102
Payment Authorization Request
Smart Bill Payment Gateway
104
Payment Authorization Response
Payment info with electronic bill
Personal NFC device with wallet software
110
POS with contactless reader OR NFC device with SE (such as Mobile POS)
106
Signed electronic bill
Contactless smart card (or secure element in NFC devices) with smart bill applet
108
Electronic bill

FIG. 1

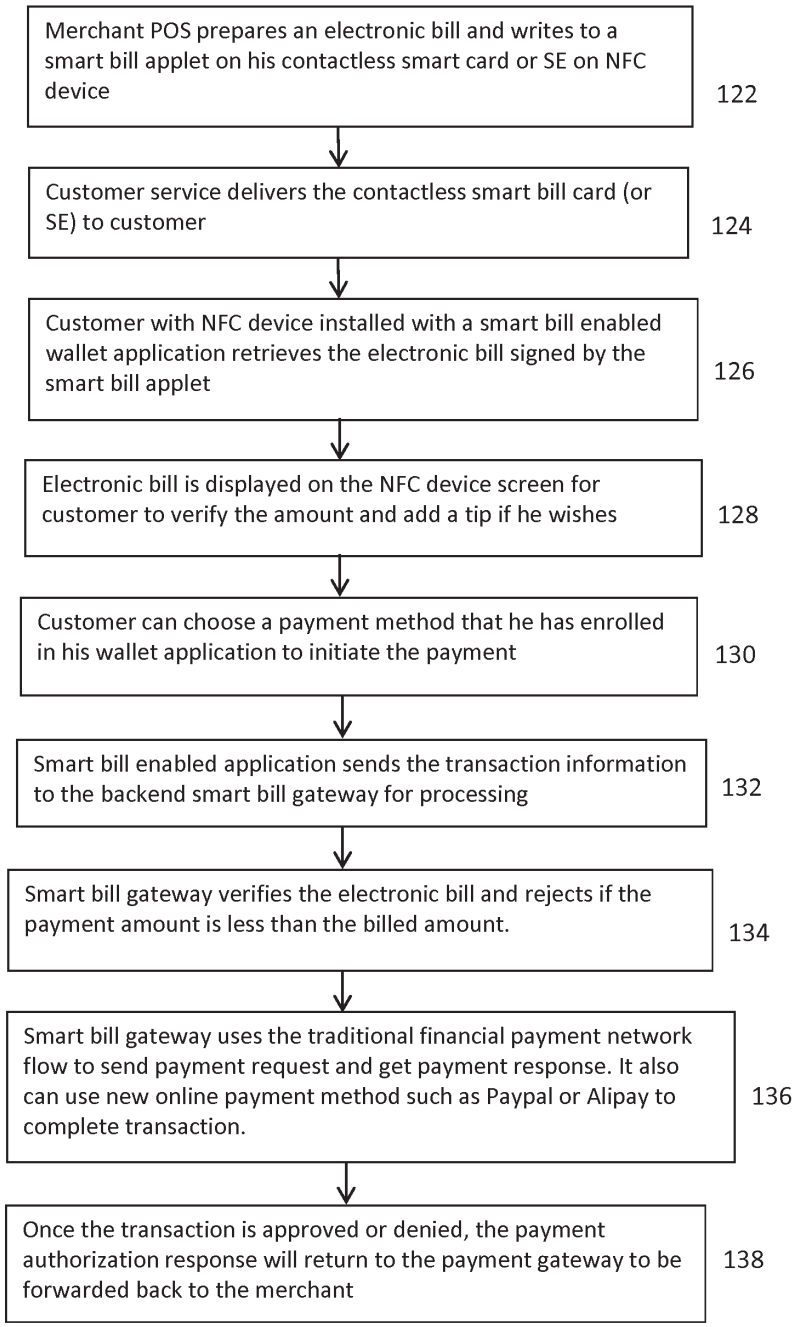

120
Merchant POS prepares an electronic bill and writes to a smart bill applet on his contactless smart card or SE on NFC device
122
Customer service delivers the contactless smart bill card (or SE) to customer
124
Customer with NFC device installed with a smart bill enabled wallet application retrieves the electronic bill signed by the smart bill applet
126
Electronic bill is displayed on the NFC device screen for customer to verify the amount and add a tip if he wishes
128
Customer can choose a payment method that he has enrolled in his wallet application to initiate the payment
130
Smart bill enabled application sends the transaction information to the backend smart bill gateway for processing
132
Smart bill gateway verifies the electronic bill and rejects if the payment amount is less than the billed amount.
134
Smart bill gateway uses the traditional financial payment network flow to send payment request and get payment response. It also can use new online payment method such as Paypal or Alipay to complete transaction.
136
Once the transaction is approved or denied, the payment authorization response will return to the payment gateway to be forwarded back to the merchant
138

FIG. 2

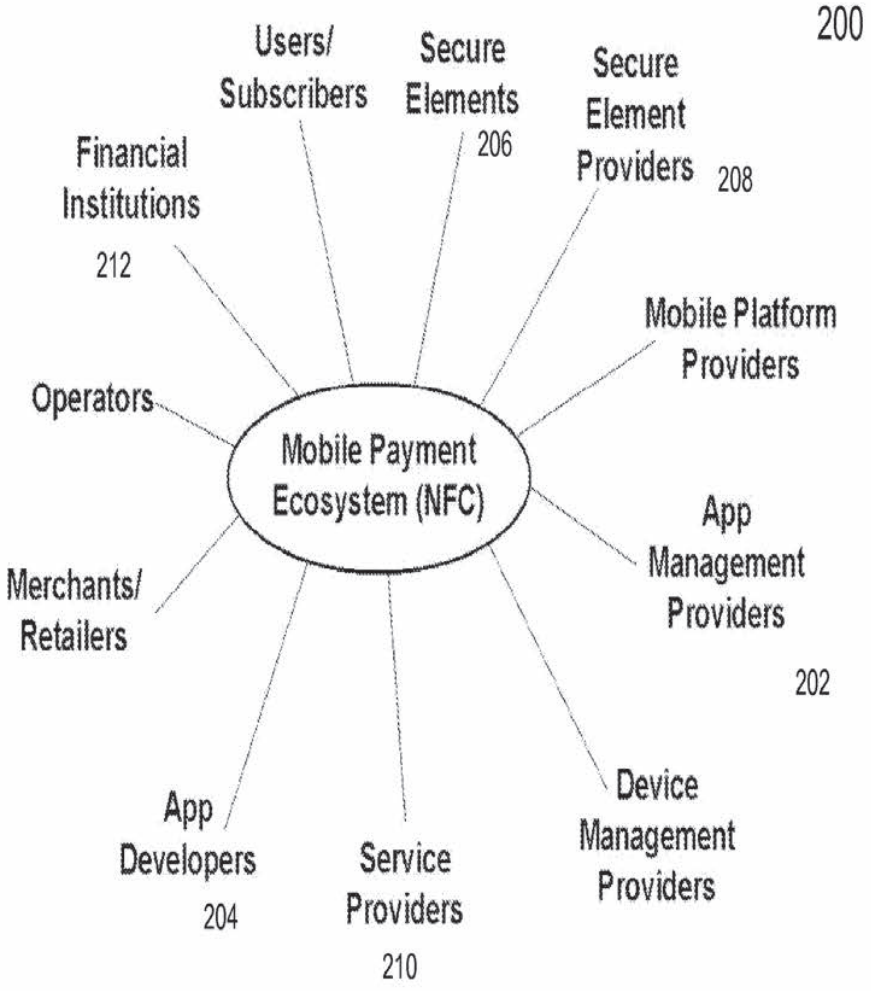

200
Users/
Subscribers
Secure
Elements
206
Secure
Element
Providers
208
Financial
Institutions
212
Mobile Platform
Providers
Operators
Mobile Payment
Ecosystem (NFC)
App
Management
Providers
202
Merchants/
Retailers
Device
Management
Providers
App
Developers
204
Service
Providers
210

FIG. 2A

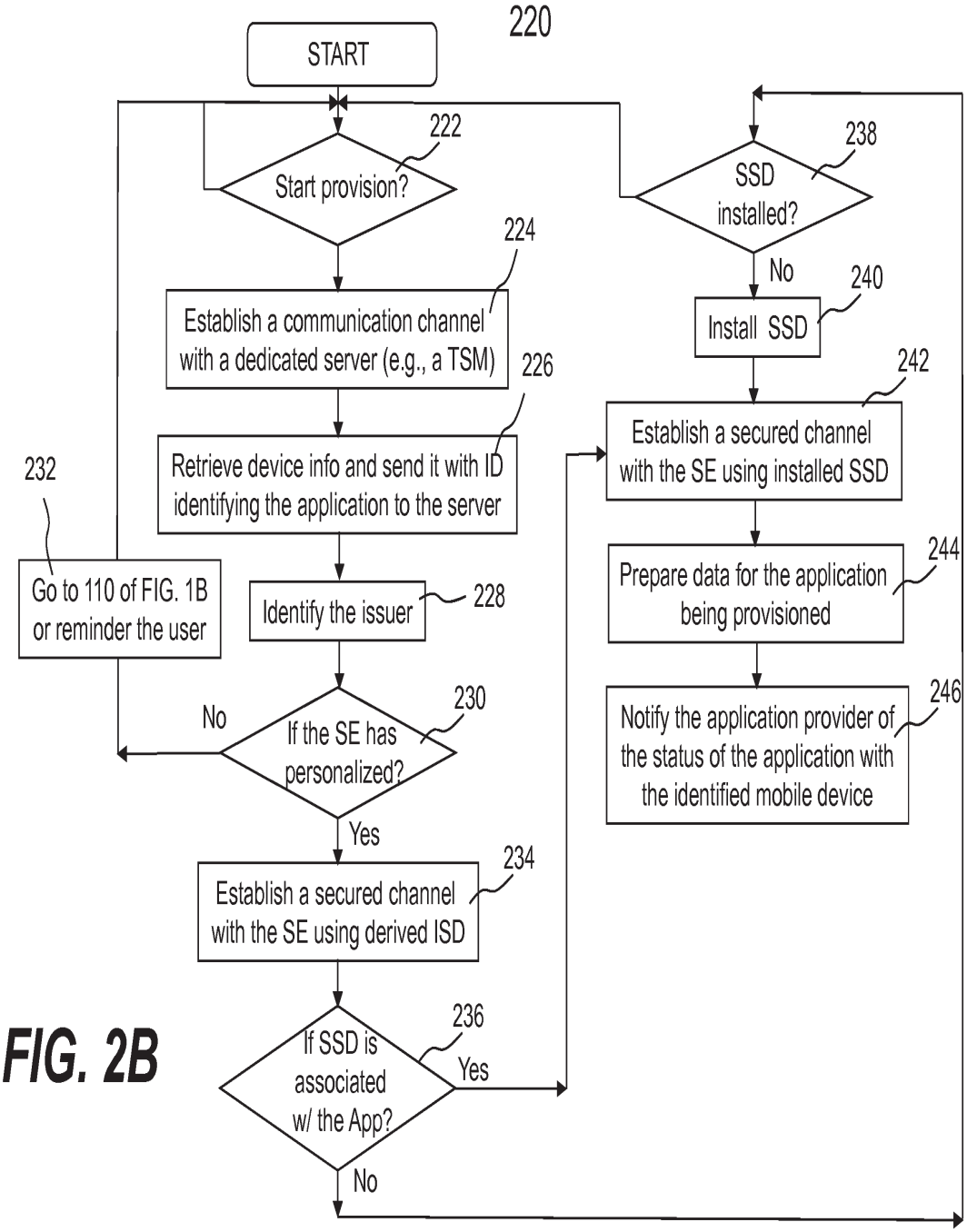

220
START
222
Start provision?
224
Establish a communication channel with a dedicated server (e.g., a TSM)
226
Retrieve device info and send it with ID identifying the application to the server
228
Identify the issuer
230
If the SE has personalized?
No
Yes
232
Go to 110 of FIG. 1B or reminder the user
234
Establish a secured channel with the SE using derived ISD
236
If SSD is associated w/ the App?
Yes
No
238
SSD installed?
No
240
Install SSD
242
Establish a secured channel with the SE using installed SSD
244
Prepare data for the application being provisioned
246
Notify the application provider of the status of the application with the identified mobile device

FIG. 2B

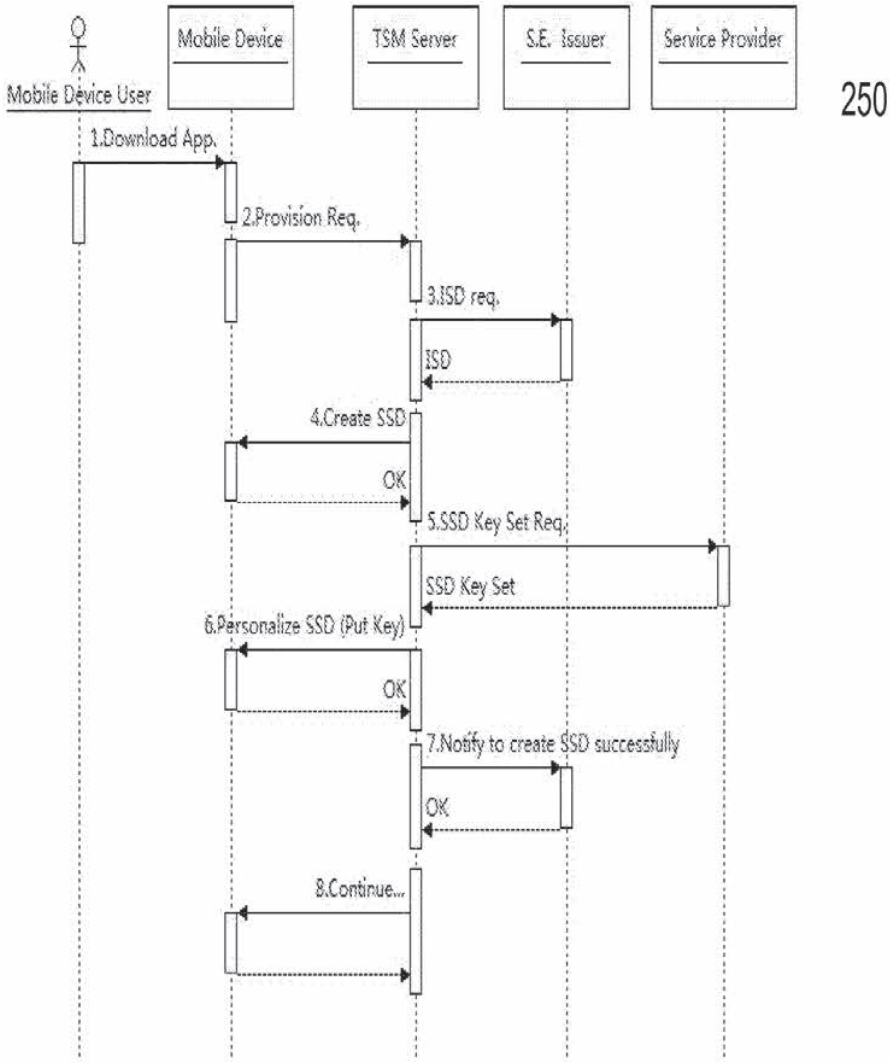
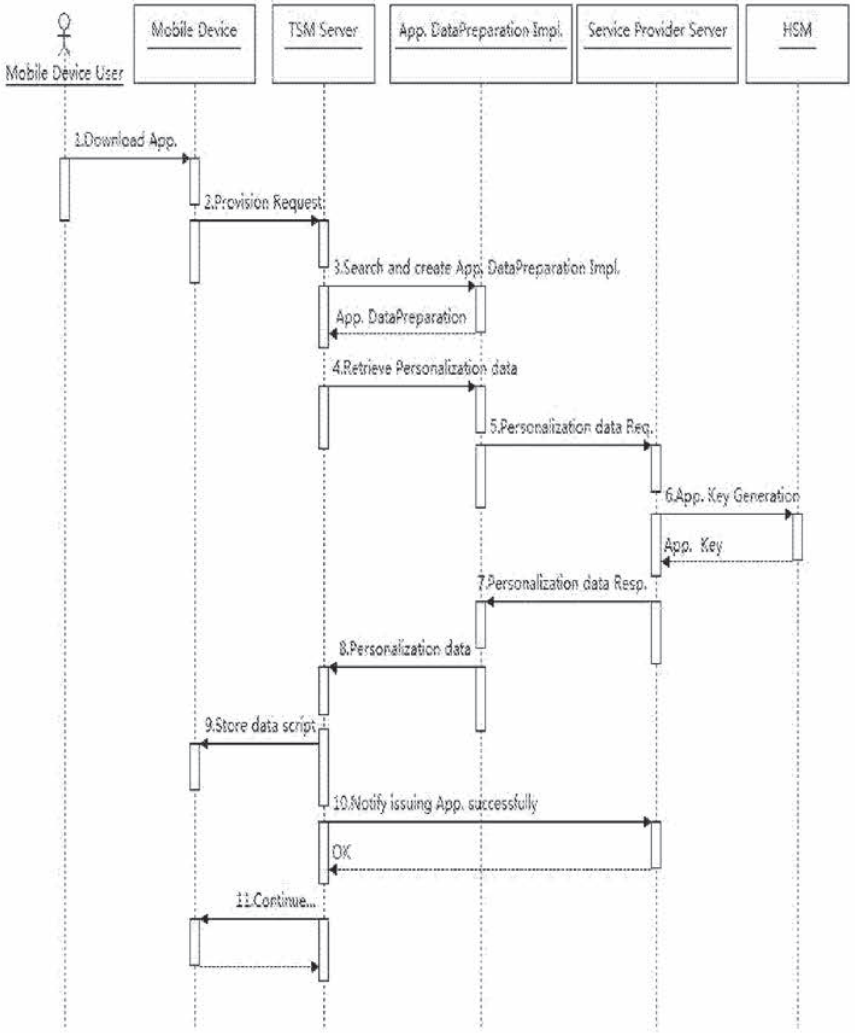

Mobile Device User
Mobile Device
TSM Server
S.E. Issuer
Service Provider
250
1.Download App.
2.Provision Req.
3.ISD req.
ISD
4.Create SSD
OK
5.SSD Key Set Req.
SSD Key Set
6.Personalize SSD (Put Key)
OK
7.Notify to create SSD successfully
OK
8.Continue...

FIG. 2C


Mobile Device User
Mobile Device
TSM Server
App. DataPreparation Impl.
Service Provider Server
HSM
1.Download App.
2.Provision Request
3.Search and create App. DataPreparation Impl.
App. DataPreparation
4.Retrieve Personalization data
5.Personalization data Req.
6.App. Key Generation
App. Key
7.Personalization data Resp.
8.Personalization data
9.Store data script
10.Notify issuing App. successfully
OK
11.Continue...

255

FIG. 2D

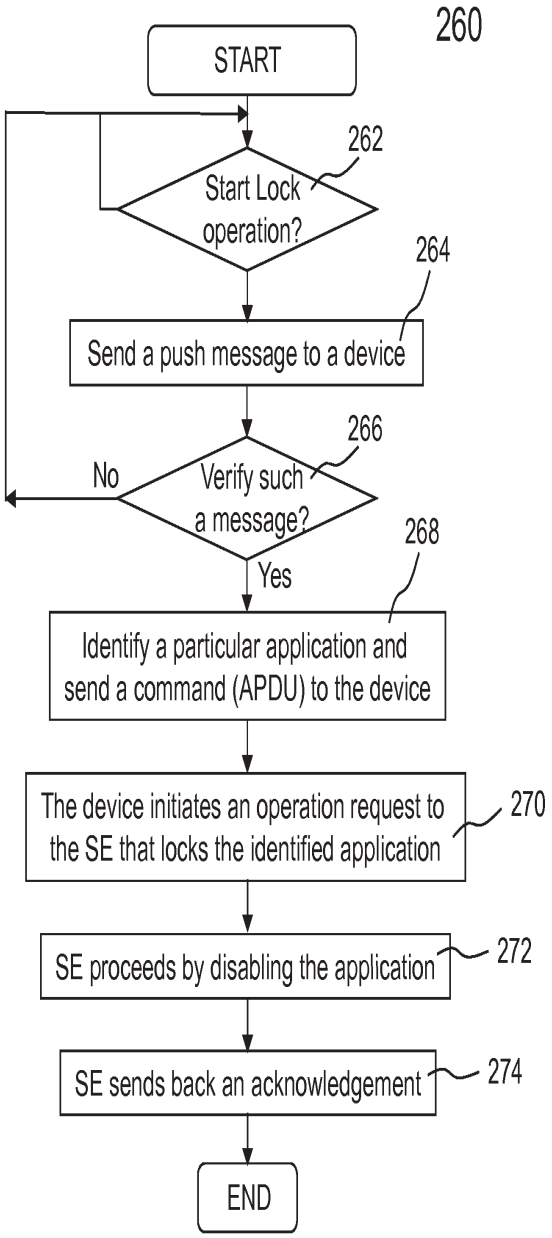

260
START
262
Start Lock operation?
264
Send a push message to a device
266
No
Verify such a message?
Yes
268
Identify a particular application and send a command (APDU) to the device
The device initiates an operation request to the SE that locks the identified application
270
SE proceeds by disabling the application
272
SE sends back an acknowledgement
274
END

FIG. 2E

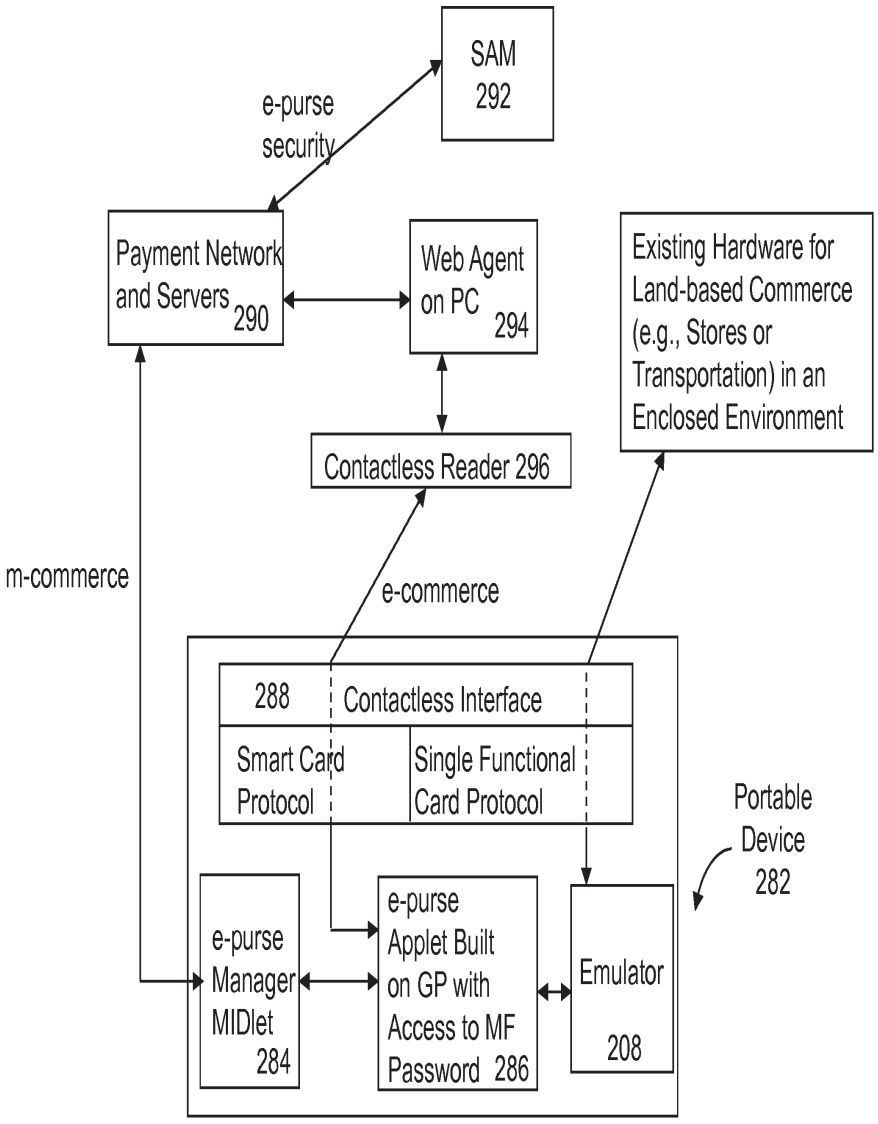

280
SAM
292
e-purse
security
Payment Network
and Servers
290
Web Agent
on PC
294
Existing Hardware for
Land-based Commerce
(e.g., Stores or
Transportation) in an
Enclosed Environment
Contactless Reader 296
m-commerce
e-commerce
288
Contactless Interface
Smart Card
Protocol
Single Functional
Card Protocol
Portable
Device
282
e-purse
Manager
MIDlet
284
e-purse
Applet Built
on GP with
Access to MF
Password 286
Emulator
208

FIG. 2F

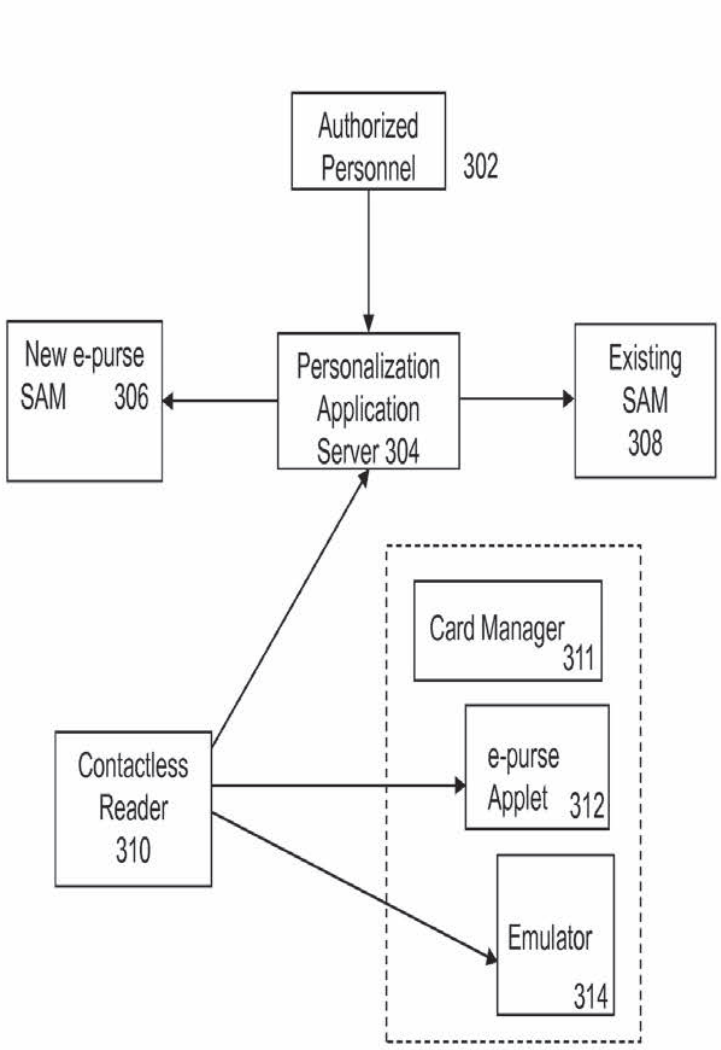

300
Authorized Personnel
302
New e-purse SAM
306
Personalization Application Server 304
Existing SAM
308
Card Manager
311
Contactless Reader
310
e-purse Applet
312
Emulator
314

FIG. 3A

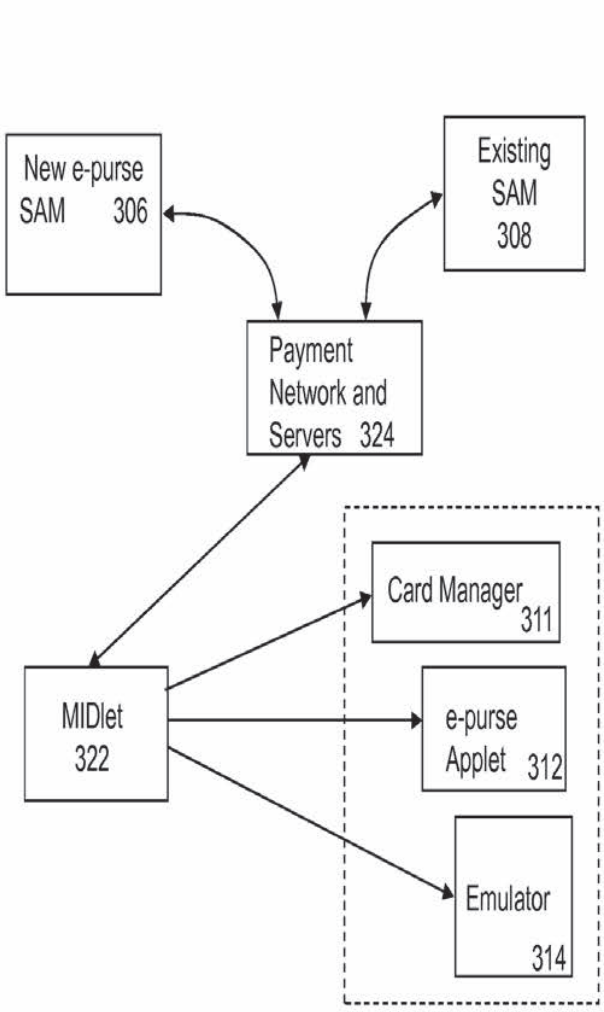

320
New e-purse SAM 306
Existing SAM 308
Payment Network and Servers 324
Card Manager 311
MIDlet 322
e-purse Applet 312
Emulator 314

FIG. 3B

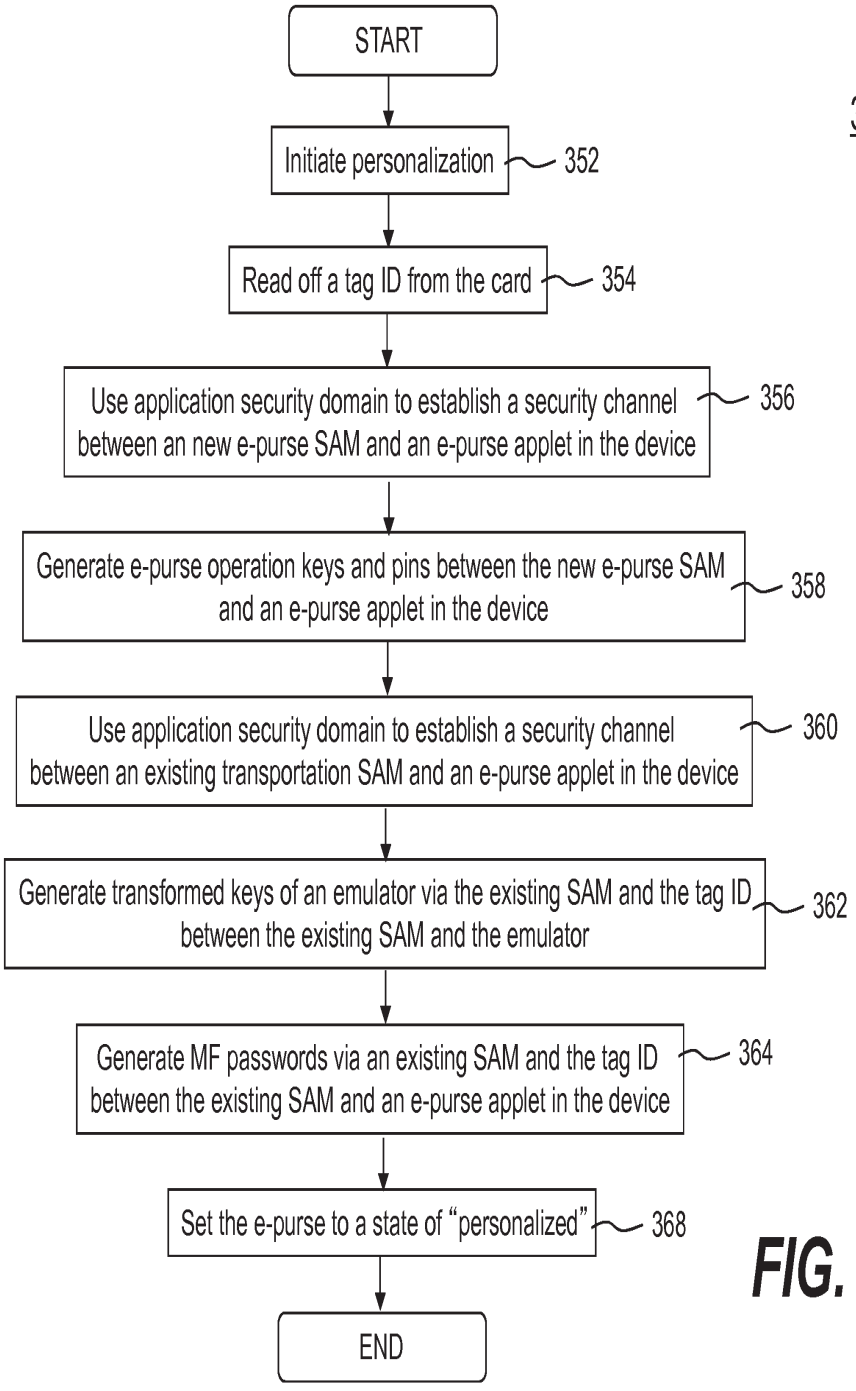

START
350
Initiate personalization
352
Read off a tag ID from the card
354
Use application security domain to establish a security channel between an new e-purse SAM and an e-purse applet in the device
356
Generate e-purse operation keys and pins between the new e-purse SAM and an e-purse applet in the device
358
Use application security domain to establish a security channel between an existing transportation SAM and an e-purse applet in the device
360
Generate transformed keys of an emulator via the existing SAM and the tag ID between the existing SAM and the emulator
362
Generate MF passwords via an existing SAM and the tag ID between the existing SAM and an e-purse applet in the device
364
Set the e-purse to a state of "personalized"
368
END

FIG. 3C

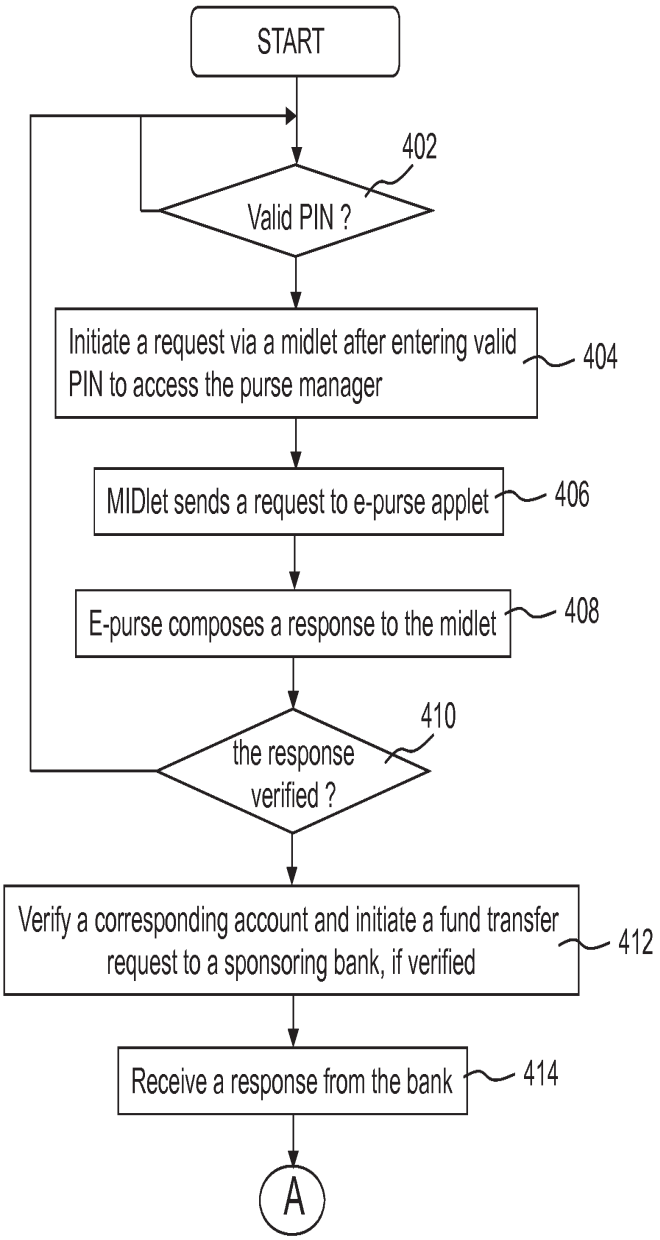

START
400
402
Valid PIN ?
Initiate a request via a midlet after entering valid PIN to access the purse manager
404
MIDlet sends a request to e-purse applet
406
E-purse composes a response to the midlet
408
410
the response verified ?
Verify a corresponding account and initiate a fund transfer request to a sponsoring bank, if verified
412
Receive a response from the bank
414
A

FIG. 4A

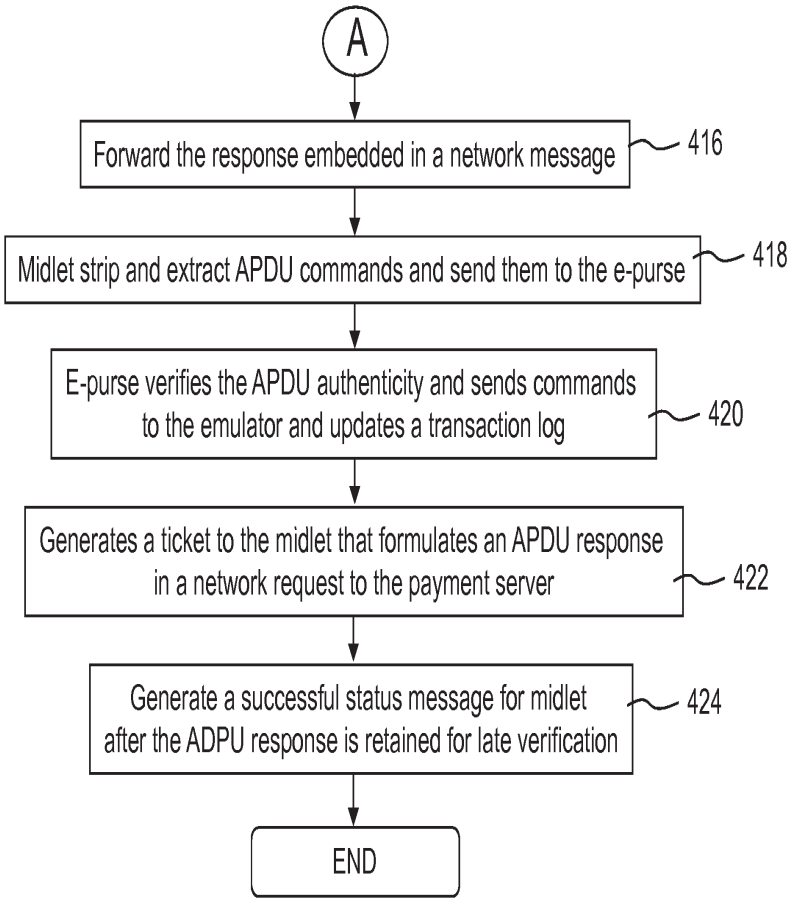

A
Forward the response embedded in a network message
416
Midlet strip and extract APDU commands and send them to the e-purse
418
E-purse verifies the APDU authenticity and sends commands to the emulator and updates a transaction log
420
Generates a ticket to the midlet that formulates an APDU response in a network request to the payment server
422
Generate a successful status message for midlet after the ADPU response is retained for late verification
424
END

FIG. 4B

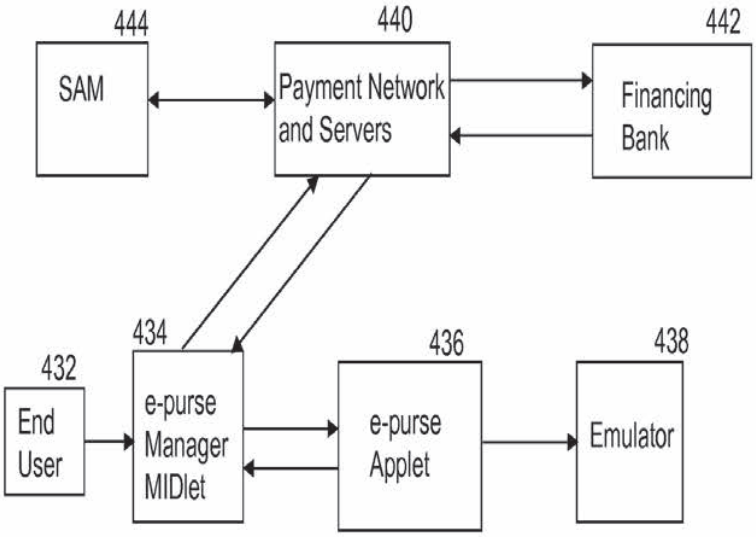

444
SAM
440
Payment Network and Servers
442
Financing Bank
434
432
End User
e-purse Manager MIDlet
436
e-purse Applet
438
Emulator

FIG. 4C

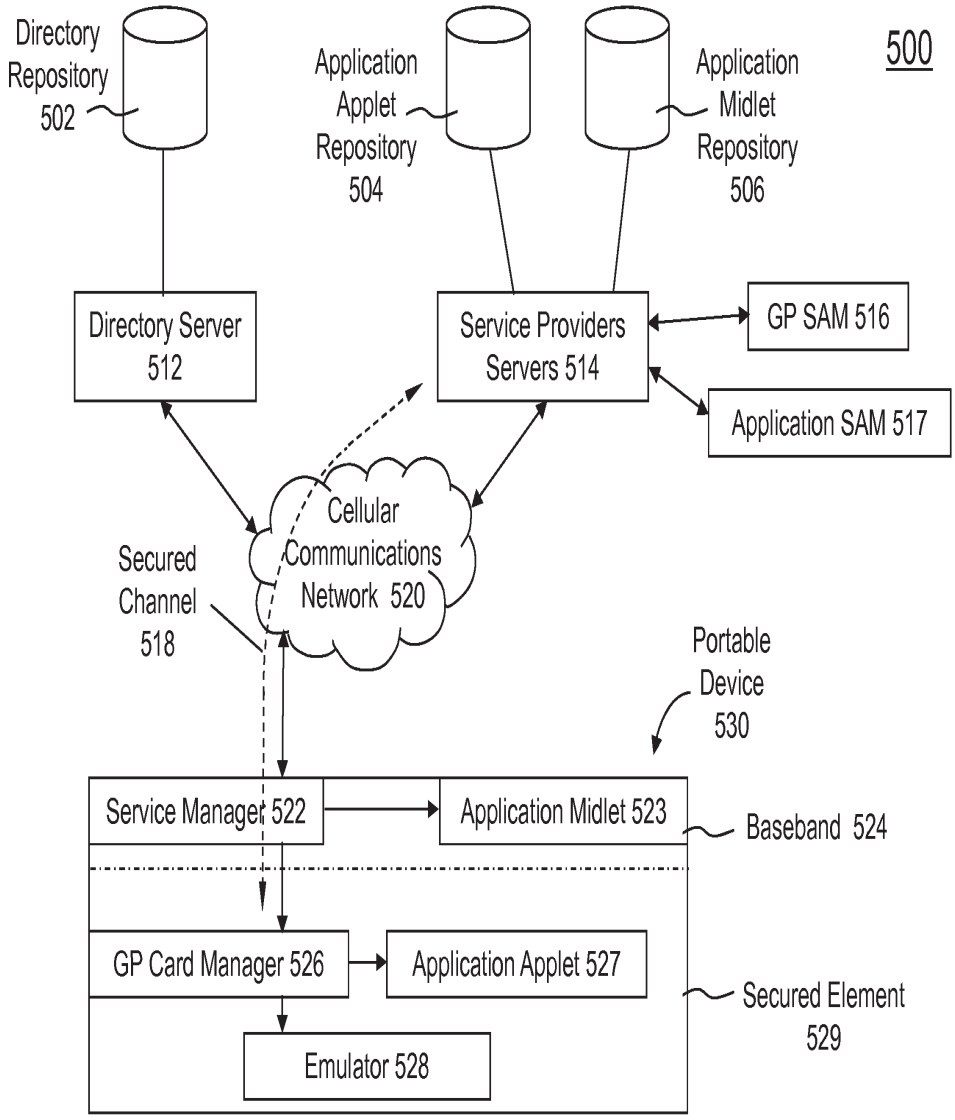

Directory Repository 502
Application Applet Repository 504
Application Midlet Repository 506
500
Directory Server 512
Service Providers Servers 514
GP SAM 516
Application SAM 517
Cellular Communications Network 520
Secured Channel 518
Portable Device 530
Service Manager 522
Application Midlet 523
Baseband 524
GP Card Manager 526
Application Applet 527
Secured Element 529
Emulator 528

FIG. 5A