(12) **United States Patent**
Aabye et al.

(10) **Patent No.: US 8,601,266 B2**
(45) **Date of Patent: Dec. 3, 2013**

(54) **MUTUAL MOBILE AUTHENTICATION USING A KEY MANAGEMENT CENTER**

(75) Inventors: **Christian Aabye**, Foster City, CA (US); **Sasikumar Kannappan**, Foster City, CA (US)

(73) Assignee: **Visa International Service Association**, San Francisco, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 60 days.

(21) Appl. No.: **13/075,592**

(22) Filed: **Mar. 30, 2011**

(65) **Prior Publication Data**

US 2011/0247063 A1 Oct. 6, 2011

Related U.S. Application Data

(60) Provisional application No. 61/319,698, filed on Mar. 31, 2010.

(51) **Int. Cl.**
H04L 29/06 (2006.01)

(52) **U.S. Cl.**
USPC **713/168**; 380/279

(58) **Field of Classification Search**
USPC 713/153, 168, 170; 380/277, 278, 279, 380/286; 705/61, 65, 66
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,805,702	A *	9/1998	Curry et al.	.... 705/66
6,327,578	B1 *	12/2001	Linehan	.... 705/65
7,389,531	B2	6/2008	Fransdonk	
2009/0119504	A1 *	5/2009	van Os et al.	.... 713/153
2010/0211507	A1	8/2010	Aabye et al.	

FOREIGN PATENT DOCUMENTS

KR 10-2005-0103681 A 11/2005

OTHER PUBLICATIONS

Sankar, K., et al., "Cisco Wireless LAN Security," Cisco Press, 2004, ISBN 1-58705-154-0, pp. 157-192.
Menezes, A., et al, "Handbook of Applied Cryptography," CRC Press, 1996, pp. 36-37, 546-547 and figs 1.16 and 13.1.
PCT Search Report and Written Opinion, PCT/US2011/030766, mailed Nov. 8, 2011, 11 pages.
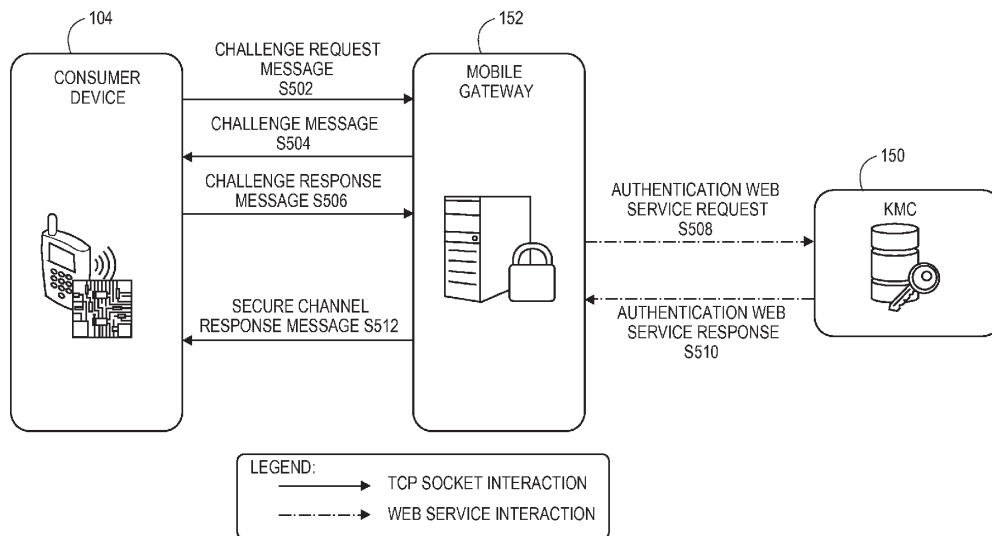
* cited by examiner

Primary Examiner — Edward Zee
(74) *Attorney, Agent, or Firm* — Kilpatrick Townsend & Stockton LLP

(57) **ABSTRACT**

A system, method, and server computer configured to authenticate a consumer device. The consumer device is authenticated via a mobile gateway using challenge-response authentication. If the consumer device is successfully authenticated, a secure channel is established between the consumer device and a first entity. The secure channel allows for secure communication between the consumer device and the first entity.
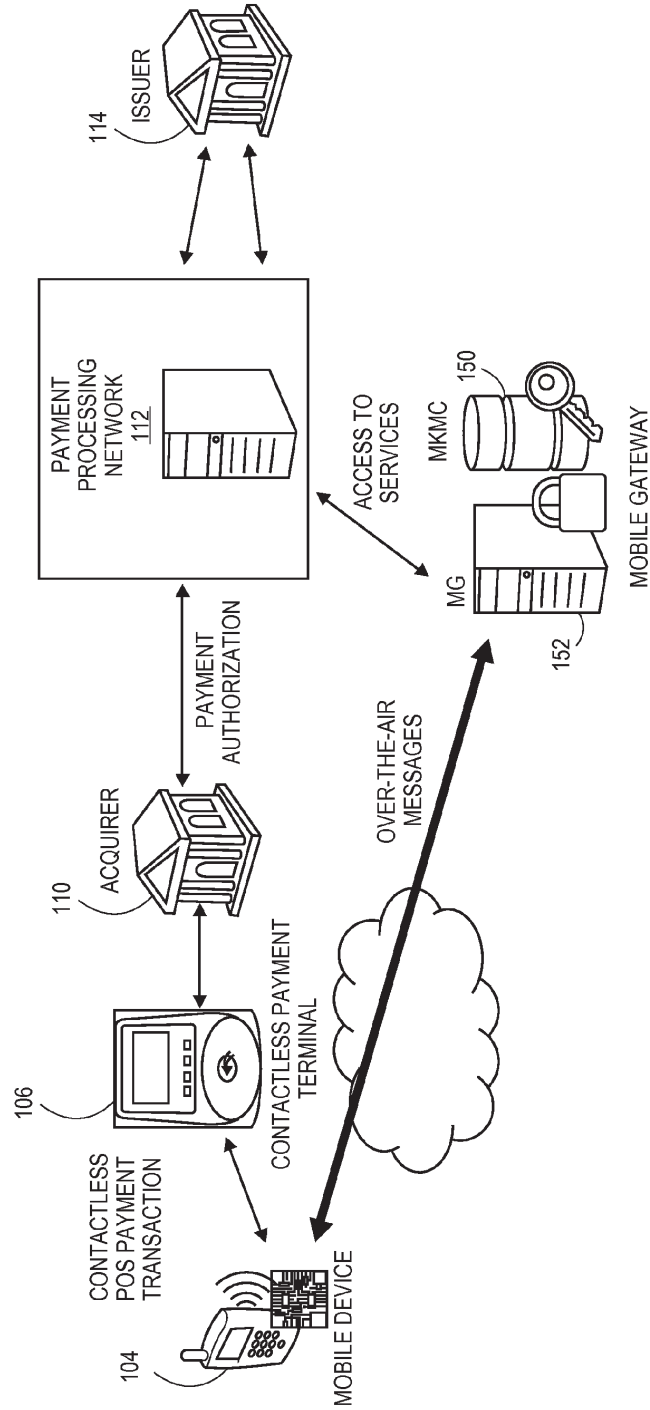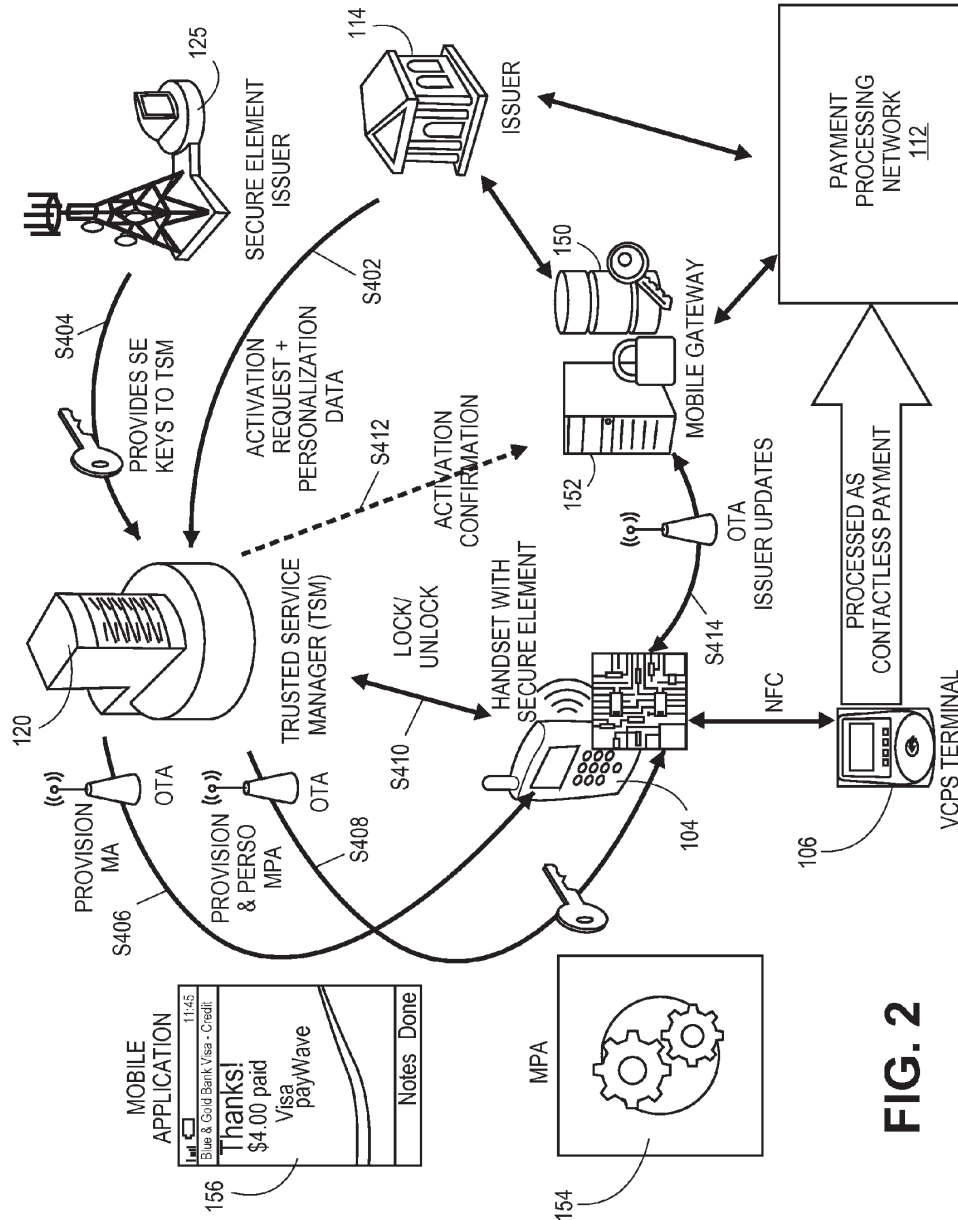
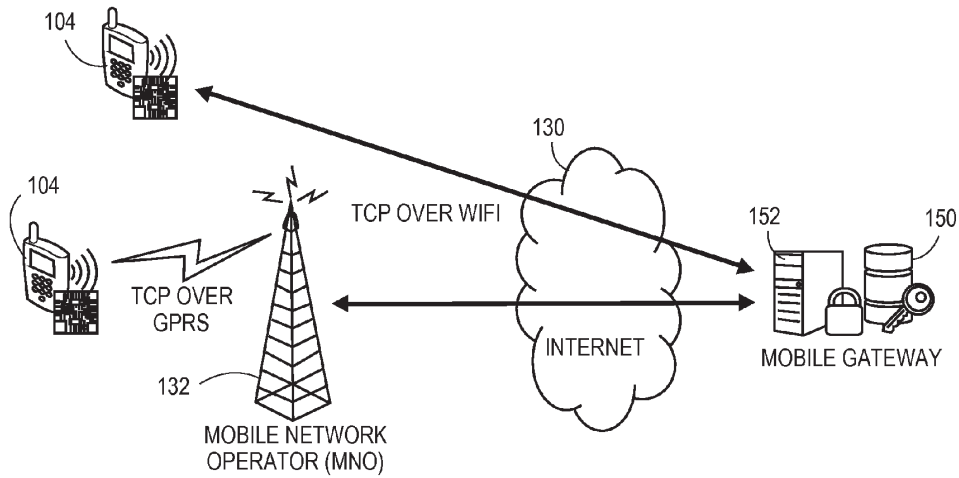**21 Claims, 9 Drawing Sheets**

FIG. 1

FIG. 2

104

130

152

150

TCP OVER WIFI

TCP OVER
GPRS

132

INTERNET

MOBILE GATEWAY

MOBILE NETWORK
OPERATOR (MNO)

FIG. 3

Antenna
104(a)

Microphone
104(i)

Computer
Readable
Medium
104(b)

Display
104(d)

Processor
104(c)

Input
Elements
104(e)

Speaker
104(f)

SE
104(j)

Contactless
Element
104(g)

104(h)

FIG. 4

FIG. 5

DOCKET ALARM
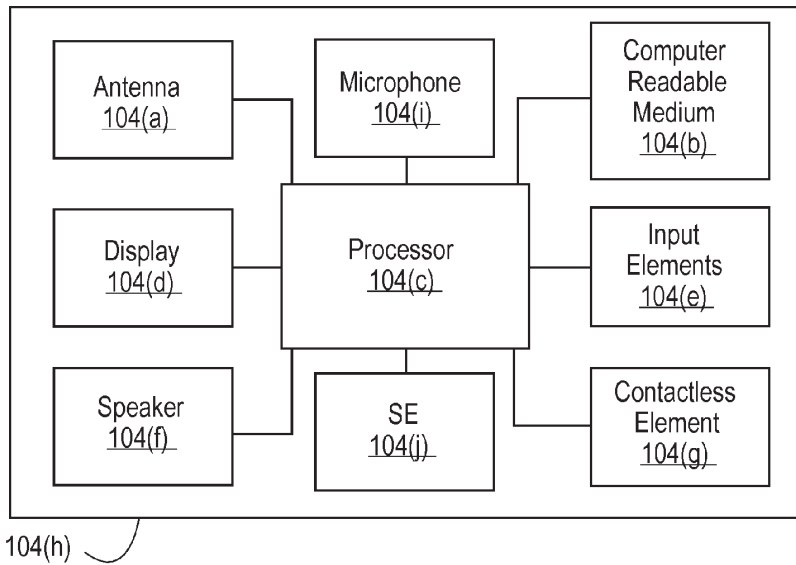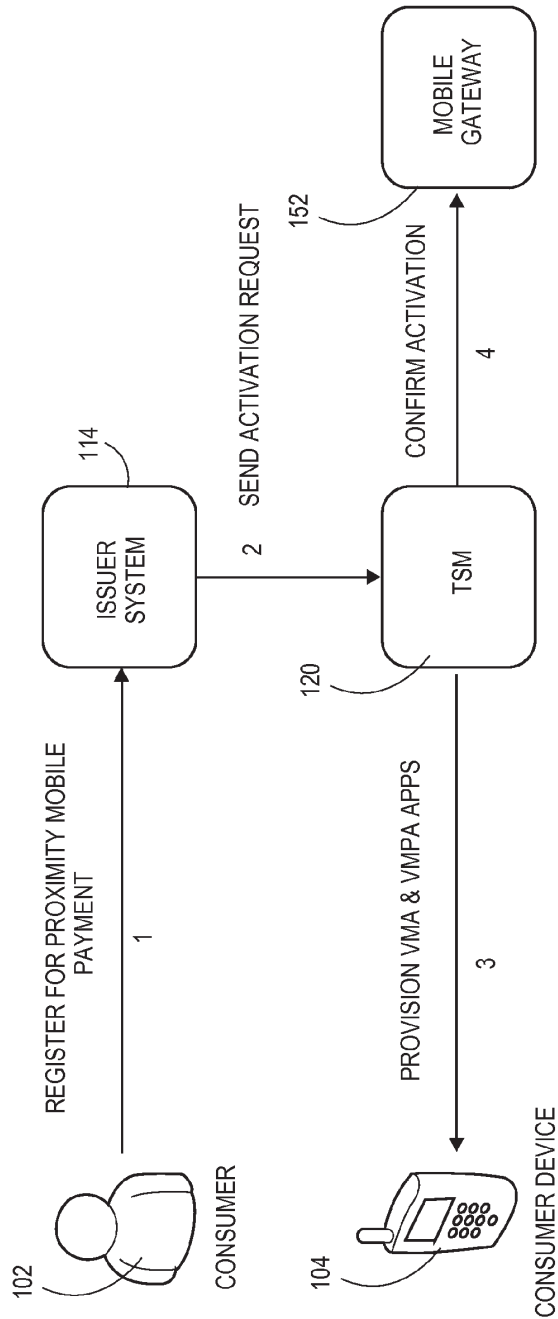
Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

fastcase
Smarter legal research.