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(12) **United States Patent**  
**Hoffman**

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(54) **TOKENLESS IDENTIFICATION SYSTEM FOR AUTHORIZATION OF ELECTRONIC TRANSACTIONS AND ELECTRONIC TRANSMISSIONS**

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**G06F 17/60** (2006.01)  
**G06K 5/00** (2006.01)

(52) **U.S. Cl.** ..... **705/43; 705/44; 705/45; 705/50; 235/379; 235/380; 235/382**

(58) **Field of Classification Search** ..... **705/43-45, 705/50; 235/379, 380, 382**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,564,132 A 2/1971 Baker

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0581421 A1 2/1994

(Continued)

OTHER PUBLICATIONS

Mark Rechtin (Fingerprint Technology for Best ID System, Orange County Business Journal, May 14, 1990).\*

(Continued)

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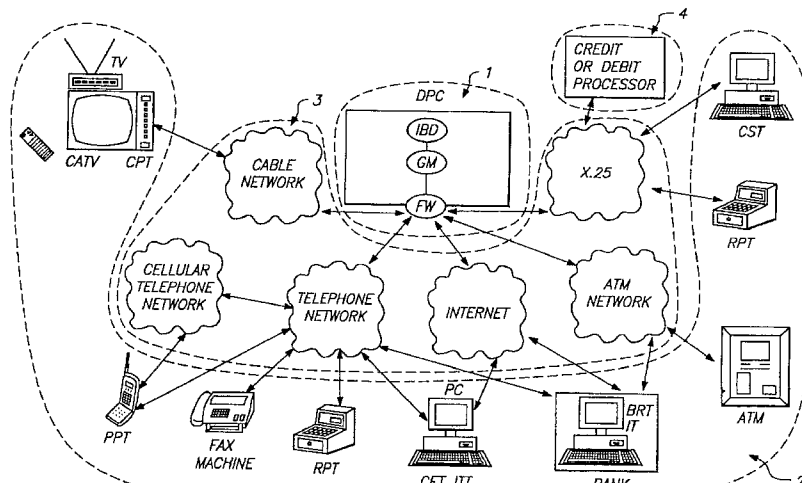
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(57) **ABSTRACT**

A tokenless identification system and method for authorization of transactions and transmissions. The tokenless system and method are principally based on a correlative comparison of a unique biometrics sample, such as a finger print or voice recording, gathered directly from the person of an unknown user, with an authenticated biometrics sample of the same type obtained and stored previously. It can be networked to act as a full or partial intermediary between other independent computer systems, or may be the sole computer systems carrying out all necessary executions. It further contemplates the use of a private code that is returned to the user after the identification has been complete, authenticating and indicating to the user that the computer system was accessed. The identification system and method of additionally include emergency notification to permit an authorized user to alert authorities an access attempt is coerced.

**11 Claims, 14 Drawing Sheets**



U.S. PATENT DOCUMENTS	
3,588,449 A	6/1971 Paterson
3,675,616 A	7/1972 Bourke, II et al.
3,705,384 A	12/1972 Wahlberg
3,718,908 A	2/1973 Bloomstein
3,798,603 A	3/1974 Walberg
3,833,885 A	9/1974 Gentile et al.
3,876,864 A	4/1975 Clark et al.
3,896,266 A	7/1975 Waterbury
3,914,579 A	10/1975 Shigemori et al.
3,937,925 A	2/1976 Boothroyd
3,943,335 A	3/1976 Kinker et al.
3,970,992 A	7/1976 Boothroyd et al.
4,025,758 A *	5/1977 Hatanaka et al. .... 221/9
4,100,370 A	7/1978 Suzuki et al.
4,109,238 A	8/1978 Creekmore
4,187,498 A	2/1980 Creekmore
4,205,780 A	6/1980 Burns et al.
4,249,163 A	2/1981 Maurer et al.
4,264,808 A	4/1981 Owens et al.
4,317,957 A	3/1982 Sendrow
4,321,672 A	3/1982 Braun ..... 364/408
4,357,597 A	11/1982 Butler
4,390,968 A	6/1983 Hennessy ..... 364/900
4,404,649 A	9/1983 Nunley et al.
4,449,189 A	5/1984 Feix et al.
4,461,028 A	7/1984 Okubo
4,484,328 A	11/1984 Schlafly ..... 370/394
4,523,330 A	6/1985 Cain
4,580,040 A	4/1986 Granzow et al.
4,617,457 A	10/1986 Granzow et al.
4,641,239 A	2/1987 Takesako
4,669,487 A	6/1987 Frieling
4,672,377 A	6/1987 Murphy et al.
4,675,815 A	6/1987 Kuroki ..... 364/900
4,727,243 A	2/1988 Savar
4,729,128 A	3/1988 Grimes et al.
4,734,858 A	3/1988 Schlafly ..... 705/26
4,752,676 A	6/1988 Leonard et al.
4,799,156 A	1/1989 Shavit ..... 364/401
4,810,866 A	3/1989 Lord, Jr.
4,821,118 A	4/1989 Lafreniere ..... 358/108
4,837,422 A	6/1989 Dethloff et al. .... 364/408
4,845,636 A	7/1989 Walker
4,916,435 A	4/1990 Fuller
4,922,419 A	5/1990 Ohashi et al.
4,926,480 A	5/1990 Chaum ..... 380/23
4,947,028 A	8/1990 Gorog ..... 235/380
4,961,142 A	10/1990 Elliott et al. .... 364/408
4,975,969 A	12/1990 Tal
4,975,978 A	12/1990 Ando et al.
4,991,008 A	2/1991 Nama
4,993,068 A	2/1991 Piosenka et al. .... 380/23
4,995,086 A *	2/1991 Lilley et al. .... 382/124
4,998,279 A *	3/1991 Weiss ..... 380/23
5,023,782 A	6/1991 Lutz et al.
5,036,461 A *	7/1991 Elliott et al. .... 705/44
5,040,226 A	8/1991 Elischer et al.
5,053,607 A	10/1991 Carlson et al.
5,054,089 A	10/1991 Uchida et al. .... 382/4
5,056,147 A	10/1991 Truner et al.
5,095,194 A	3/1992 Barbanell ..... 235/380
5,109,427 A	4/1992 Yang ..... 382/4
5,109,428 A	4/1992 Igaki et al. .... 382/5
5,144,680 A	9/1992 Kobayashi ..... 250/556
5,145,102 A	9/1992 Higuchi et al. .... 382/4
5,146,102 A	9/1992 Higuchi et al. .... 250/556
5,163,094 A	11/1992 Prokoski et al.
5,168,520 A	12/1992 Weiss ..... 380/23
5,177,342 A	1/1993 Adams
5,210,588 A *	5/1993 Lee ..... 356/71
5,210,797 A	5/1993 Usui et al. .... 382/4
5,220,501 A	6/1993 Lawlor et al.
5,222,152 A *	6/1993 Fishbine et al. .... 382/127
5,224,164 A	6/1993 Eisner ..... 380/44
5,224,173 A	6/1993 Kuhns et al.
5,229,764 A *	7/1993 Matchett et al. .... 340/5.52
5,230,025 A *	7/1993 Fishbine et al. .... 382/127
5,237,620 A	8/1993 Deaton et al.
5,239,583 A	8/1993 Parrillo ..... 380/23
5,241,606 A	8/1993 Horie ..... 382/4
5,251,259 A	10/1993 Mosley ..... 380/23
5,265,008 A	11/1993 Benton et al.
5,265,162 A	11/1993 Bush et al. .... 380/24
5,274,695 A	12/1993 Green ..... 379/88
5,276,314 A	1/1994 Martino et al. .... 235/380
5,280,527 A *	1/1994 Gullman et al. .... 380/23
5,291,560 A	3/1994 Daugman
5,305,196 A	4/1994 Deaton et al.
5,321,242 A *	6/1994 Heath, Jr. .... 235/382
5,325,442 A *	6/1994 Knapp ..... 382/124
5,335,288 A *	8/1994 Faulkner ..... 382/115
5,341,428 A	8/1994 Schatz
5,343,529 A *	8/1994 Goldfine et al. .... 380/23
5,347,580 A	9/1994 Molva et al.
5,351,303 A *	9/1994 Willmore ..... 382/115
5,354,974 A	10/1994 Eisenberg ..... 235/379
5,359,669 A *	10/1994 Shanley et al. .... 382/117
5,383,113 A	1/1995 Kight et al. .... 705/40
5,386,103 A	1/1995 DeBan et al.
5,386,104 A	1/1995 Sime ..... 235/379
5,408,536 A	4/1995 Lemelson
5,412,190 A	5/1995 Josephson et al.
5,412,738 A	5/1995 Brunelli et al. .... 382/115
5,448,471 A	9/1995 Deaton et al.
5,457,747 A *	10/1995 Drexler et al. .... 705/50
5,465,303 A	11/1995 Levison et al. .... 382/124
5,469,506 A	11/1995 Berson et al.
5,485,510 A	1/1996 Colbert ..... 379/145
5,499,288 A	3/1996 Hunt ..... 379/266
5,502,774 A	3/1996 Bellegarda et al.
5,506,691 A	4/1996 Bednar et al.
5,513,272 A	4/1996 Bogosian, Jr.
5,534,682 A	7/1996 Graef et al.
5,546,471 A	8/1996 Merjanian
5,546,523 A	8/1996 Gatto ..... 395/156
5,550,359 A	8/1996 Bennett
5,557,686 A	9/1996 Brown et al.
5,559,504 A	9/1996 Itsumi et al.
5,561,711 A	10/1996 Muller ..... 379/266
5,566,230 A	10/1996 Cairo
5,570,465 A	10/1996 Tsakanikas
5,581,630 A	12/1996 Bonneau, Jr.
5,592,377 A	1/1997 Lipkin
5,594,226 A	1/1997 Steger
5,594,806 A	1/1997 Colbert
5,600,114 A	2/1997 Dunlap et al.
5,602,933 A	2/1997 Blackwell et al.
5,604,802 A	2/1997 Holloway ..... 380/24
5,613,012 A	3/1997 Hoffman et al. .... 382/115
5,615,277 A	3/1997 Hoffman ..... 382/115
5,636,282 A	6/1997 Holmquist ..... 380/25
5,649,117 A	7/1997 Landry
5,650,604 A	7/1997 Marcous et al.
5,663,546 A	9/1997 Cucinotta et al.
5,703,344 A	12/1997 Bezy et al.
5,719,950 A	2/1998 Osten et al. .... 382/115
5,745,555 A *	4/1998 Mark ..... 379/95
5,757,917 A	5/1998 Rose et al.
5,764,789 A	6/1998 Pare, Jr. et al. .... 382/115
5,774,663 A	6/1998 Randle et al.

5,802,199	A	9/1998	Pare, Jr. et al. ....	382/115
5,805,719	A	9/1998	Pare, Jr. et al. ....	382/115
5,809,116	A	9/1998	Cairo	
5,815,555	A	9/1998	Cairo	
5,826,241	A	10/1998	Stein et al. ....	705/26
5,826,245	A	10/1998	Sandberg-Diment .....	705/44
5,832,464	A	11/1998	Houvener et al.	
5,838,812	A	11/1998	Pare, Jr. et al. ....	705/44
5,870,723	A	2/1999	Pare, Jr. et al. ....	705/39
5,875,236	A	2/1999	Jankowski et al.	
5,892,824	A	4/1999	Beatson et al. ....	380/25
5,897,625	A	4/1999	Gustin et al.	
5,930,804	A	7/1999	Yu et al. ....	707/104
5,940,811	A	8/1999	Norris	
5,956,154	A	9/1999	Cairo	
5,956,700	A	9/1999	Landry .....	705/40
5,958,014	A	9/1999	Cave	
6,011,858	A *	1/2000	Stock et al. ....	340/5.53
6,012,039	A	1/2000	Hoffman et al. ....	705/14
6,016,476	A	1/2000	Maes et al. ....	705/1
6,023,688	A	2/2000	Ramachandran et al. ....	705/44
6,028,950	A	2/2000	Merjanian .....	382/126
6,029,195	A *	2/2000	Herz .....	707/1
6,040,783	A	3/2000	Houvener et al. ....	340/825.31
6,072,894	A *	6/2000	Payne .....	382/118
6,081,792	A *	6/2000	Cucinotta et al. ....	705/43
6,105,006	A *	8/2000	Davis et al. ....	705/35
6,105,010	A	8/2000	Musgrave .....	705/44
6,119,096	A *	9/2000	Mann et al. ....	235/384
6,119,931	A *	9/2000	Novogrod .....	235/379
6,182,076	B1	1/2001	Yu et al. ....	707/10
6,202,151	B1	3/2001	Musgrave et al. ....	713/186
6,233,618	B1 *	5/2001	Shannon .....	713/182
6,256,737	B1 *	7/2001	Bianco et al. ....	709/229
6,286,756	B1 *	9/2001	Stinson et al. ....	235/379
6,310,966	B1	10/2001	Dulude et al. ....	382/115
2001/0000045	A1	3/2001	Yu et al. ....	707/9
2002/0109595	A1	8/2002	Cairo	

FOREIGN PATENT DOCUMENTS

EP	0598469	A2	5/1994
EP	0651357	A1	3/1995
EP	0823701	A2	2/1998
EP	0878780	A2	11/1998
WO	WO/95/13591		5/1995
WO	WO 98/15924	*	9/1997
WO	98/15924		4/1998
WO	WO/98/25227		6/1998
WO	WO 98/35298		8/1998
WO	WO98/50875		11/1998

OTHER PUBLICATIONS

"A Neural Net that Knows Faces", <http://www.byte.com/art/9502/sec10/art4.html>, Feb. 1995, 1 page.\*  
 Anderson et al., *Security Management*, American Society for Industrial Security v.37, n.11, 17-19 (Nov. 1993).  
 Radcliff, *When Data Warehouse become Open House*, Software Management, v.16 n.11 (Nov. 26, 1996).  
 Anonymous, *A Credit Union Points a Finger at Biometrics*, Bank Network News, v.15 n.16 (Jan. 13, 1997).  
 Hall, J., *Scanning Lets Fingerprints Do Talking*, Toronto Star, PA6 (May 15, 1997).  
 Scally, R., *CompUSA Tests Fingerprints to Help Secure Transactions*, Discount Store News, v.36 n.10 (May 19, 1997).  
 Anonymous, "No Longer On the Fringe? (While the total number of rent-to-own stores has dropped slightly in the last two years, there are still 7,500 of them)", *Collections & Credit Risk*, p. 53+, vol. 1, No. 7, Jul. 1996.

J.L. Griffin, "Cash Store Finds Blank in Joplin," Joplin Globe, p. 1E, Joplin, MO, Dec. 22, 1996.  
 Woods, Bob, "CyberWatch Security with Face Recognition," Newsbytes, Aug. 7, 1996, 1 page.  
 "TrueFace Products", <http://www.MIROS.COM/Products.html>, Wellesley, MA, downloaded Dec. 6, 1996, 1 page.  
 Judge, Paul, "A Gatekeeper That Takes You at Face Value", <http://www.Businessweek.com/1996/36/b3491101.html>, Nov. 25, 1996, 1 page.  
 "TrueFace Access System", [http://www.MIROS.COM/access\\_system.htm](http://www.MIROS.COM/access_system.htm), Wellesley, MA, downloaded Dec. 6, 1996, 1 page.  
 Harry Katzan, Jr., "Distributed Information Systems", Petrocelli Books, 1979, pp. 101-112 and 157-167.  
 Ruiz-Mezcua, Belén, et al., "Biometrics verification in a real environment," IEEE 0-7803-5247-5/99.  
 Higgins, GRL "Electronic Cash in a Global World," NatWest Development Team, National Westminster Bank PLC, 1996.  
 Walsh, Bob, "Internet security: A technical report," Texas Banking, V86n5 pp. 16-17, May 1997.  
 Gale Group, "Biometric Systems Open the Door," Mechanical engineering-CIME, Nov. 1990, p. 58.  
 Yamada, Ken, "ID at touch of a finger," Computer Reseller News, n. 713, pp. 93-95, Dec. 2, 1996.  
 Dennis, Sylvia, "LCI Intros SMARTpen Biometric Signature Authentication," Newsbytes News Network, May 24, 1999.  
 Holmes et al., *A Performance Evaluation of Biometric Identification Devices*, Sandia National Laboratories, Albuquerque, NM, Jun. 1991.  
 Jeff McKinney, "The Price of Convenience," Cincinnati Globe, p. E1, Cincinnati, OH, Jul. 14, 1996.  
 Programmer's Manual for TrueFace.TM. Version 2, Miro, Inc., Wellesley, MA, 1995.  
 "TrueFace CyberWatch", advertising brochure, Miro, Inc., Wellesley, MA, date unknown, 2 pages.  
 "Let Your Face Be Your Key", <http://www.MIROS.COM/>, Wellesley, MA, downloaded Dec. 6, 1996, 1 page.  
 "TrueFace in the News", [http://www.MIROS.COM/In\\_the\\_news.html](http://www.MIROS.COM/In_the_news.html), Wellesley, MA, downloaded Dec. 6, 1996, 2 pages.  
 "Facing a new era of data security", <http://www.pcweek.com/archive/1334/pcwk0051.html>, downloaded Dec. 6, 1996, 1 page.  
 "Face Recognition for Security Data", <http://www.MIROS.COM/CyberWatch.html>, Wellesley, MA, downloaded Dec. 6, 1996, 1 page.  
 "Customizing TrueFace", [http://www.MIROS.COM/TrueFace\\_engine.html](http://www.MIROS.COM/TrueFace_engine.html), Wellesley, MA, downloaded Dec. 6, 1996, 2 pages.  
 "The Ultimate in Personal ID", [http://www.MIROS.COM/Face\\_apps.html](http://www.MIROS.COM/Face_apps.html), Wellesley, MA, downloaded Dec. 6, 1996, 3 pages.  
 "About Miro", [http://www.MIROS.COM/About\\_Miro.htm](http://www.MIROS.COM/About_Miro.htm), Wellesley, MA, downloaded Dec. 6, 1996, 1 page.  
 "Frequently Asked Questions", <http://www.MIROS.COM/FAQ.htm>, Wellesley, MA, downloaded Dec. 6, 1996, 3 pages.  
 "Service Center", advertising brochure, Mr. Payroll Corporation, Ft. Worth, Texas, date unknown, 1 page.  
 "AT&T Document Processing ATM(DP-ATM)", AT&T Global Information Solutions Company, 1994, 4 pages.  
 "Check-Control", advertising brochure by BMC Associates, Woodbury, New Jersey, date unknown, 1page.  
 Jeff McKinney, "The Price of Convenience", Cincinnati Enquirer, Jul. 1996, p. E1.

\* cited by examiner

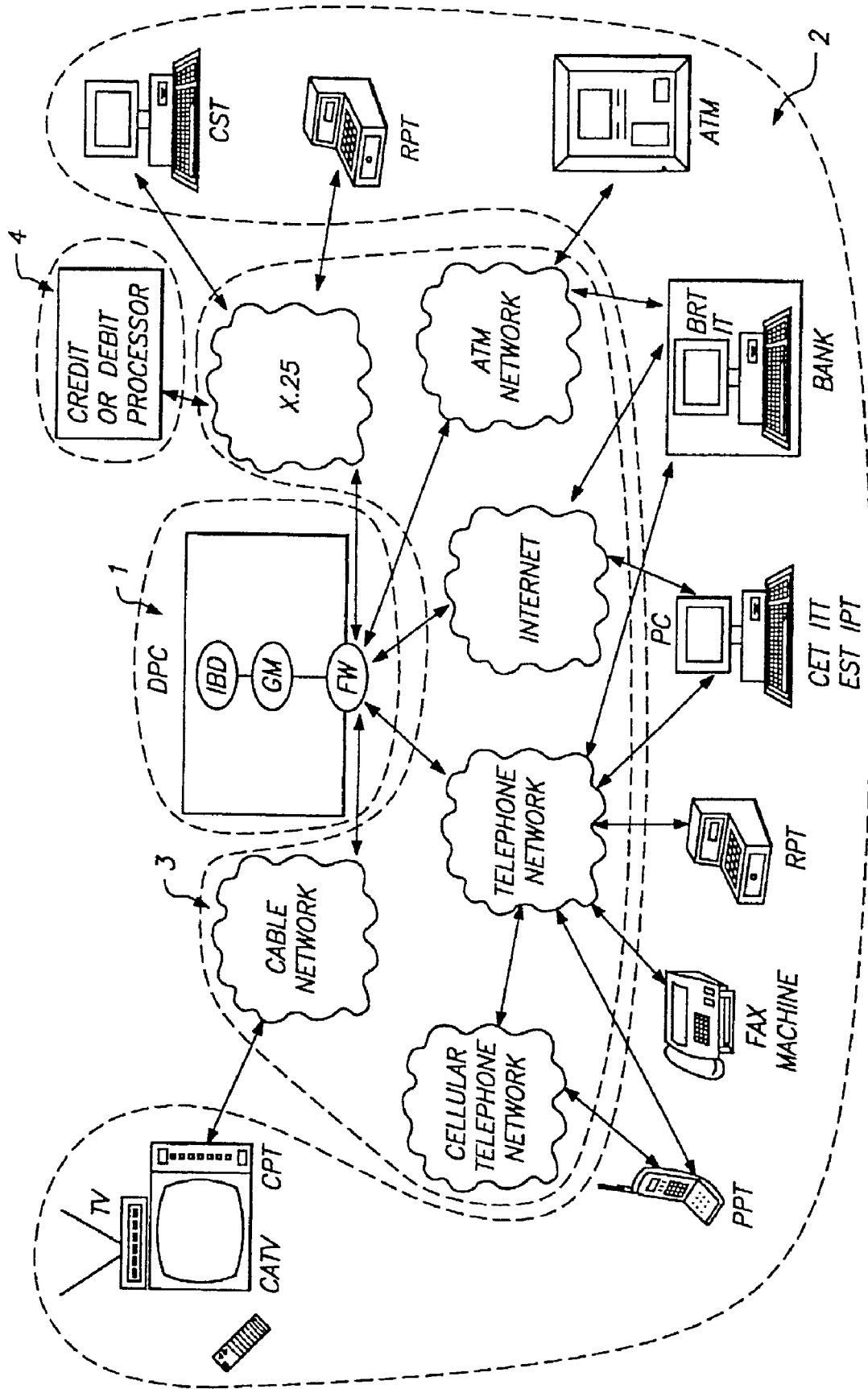


FIG. 1

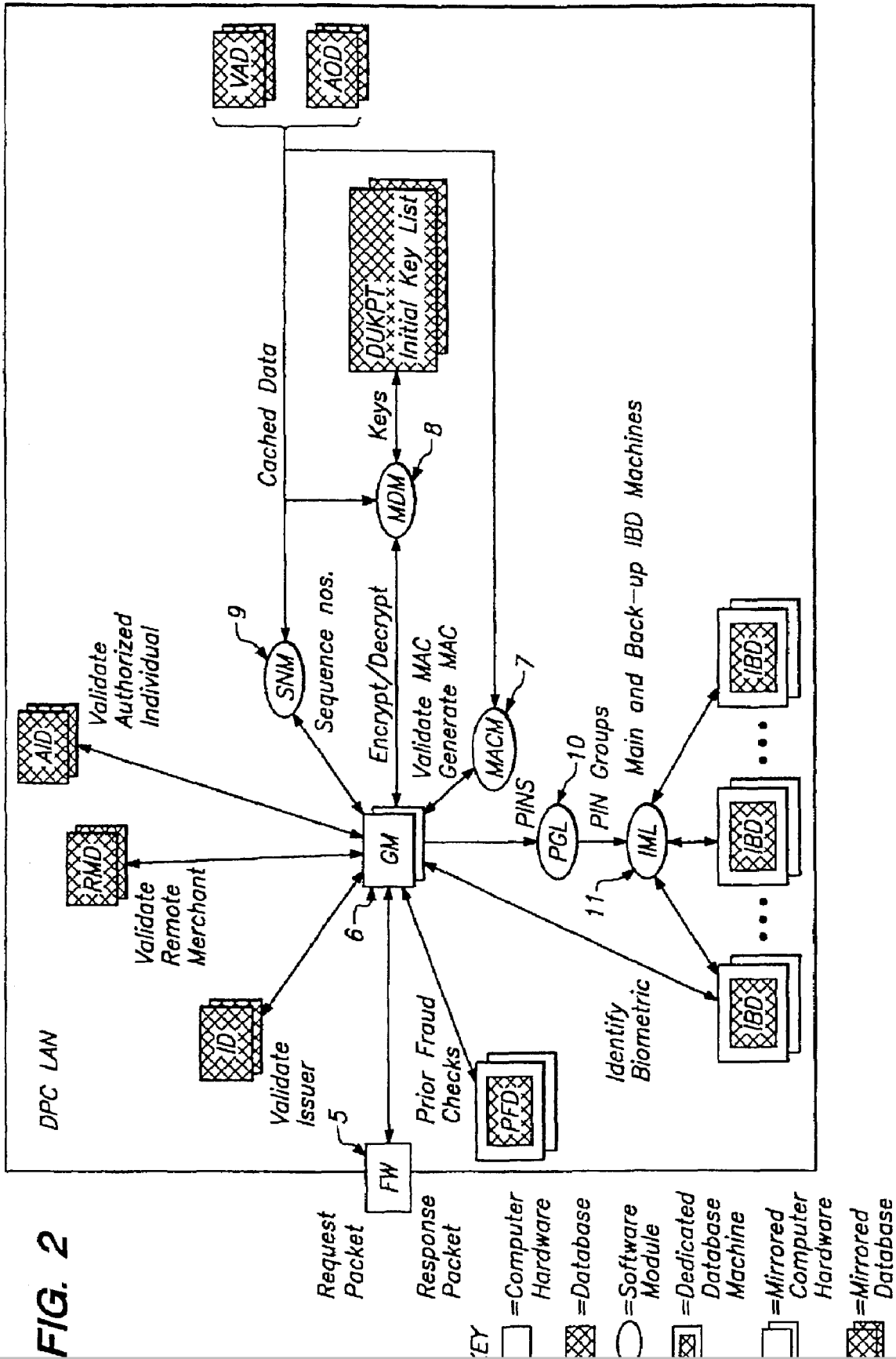


FIG. 2

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