



US00D792410S

(12) **United States Design Patent** (10) **Patent No.:** **US D792,410 S**  
**Beals et al.** (45) **Date of Patent:** **\*\* Jul. 18, 2017**

(54) **SMART CARD INTERFACE**  
(71) Applicant: **NagraStar LLC**, Englewood, CO (US)  
(72) Inventors: **William Michael Beals**, Englewood, CO (US); **Hervé Goupil**, Villars sous Yens (CH)  
(73) Assignee: **Nagrastar LLC**, Englewood, CO (US)  
(\*\*) Term: **15 Years**  
(21) Appl. No.: **29/567,135**  
(22) Filed: **Jun. 6, 2016**

**Related U.S. Application Data**

(62) Division of application No. 29/448,754, filed on Mar. 13, 2013, now Pat. No. Des. 759,022.  
(51) **LOC (10) Cl.** ..... **14-02**  
(52) **U.S. Cl.**  
USPC ..... **D14/436**; D14/437  
(58) **Field of Classification Search**  
USPC ..... D14/435-437, 478-480, 485-495, 474, D14/217; D13/182; 369/275.1-275.5, 369/44.26, 100, 52.1, 272, 273, 280-288; 283/81; 720/718; 435/6, 287.2; 604/891.1; 216/2; D11/80; 235/492, 235/488, 493, 487, 375, 379, 439, 440, 235/441, 451, 486; 361/737, 748-752; D19/9, 10; D9/457; 705/51; 257/707, 257/686; 340/5.52, 5.25, 5.74  
CPC ..... G06K 9/00973-9/00986; G06K 19/063-19/0701; G06K 19/0708-19/0712; G06K 19/0715-19/07771; G06K 19/083-19/18; G06K 21/00-21/06; G06K 2207/00-2207/1018; G06F 3/08; G06F 3/12; G06F 7/40; G06F 17/5068; G06F 21/00; G06F 21/30; G06F 21/31; G06F 21/34; G06F 21/45; G06F 21/77-21/80; Y10T 29/49018; Y10T 29/49124-29/4913; Y10T 29/49117;  
(Continued)

(56) **References Cited**  
U.S. PATENT DOCUMENTS

D54,610 S 3/1920 Evans et al.  
3,702,025 A 11/1972 Archer  
(Continued)

FOREIGN PATENT DOCUMENTS

CA 2318936 4/2004  
EP 740478 10/1996  
(Continued)

OTHER PUBLICATIONS

European Communication in 13878216.4, mailed Sep. 21, 2016, 7 pages.

(Continued)

*Primary Examiner* — Susan Moon Lee

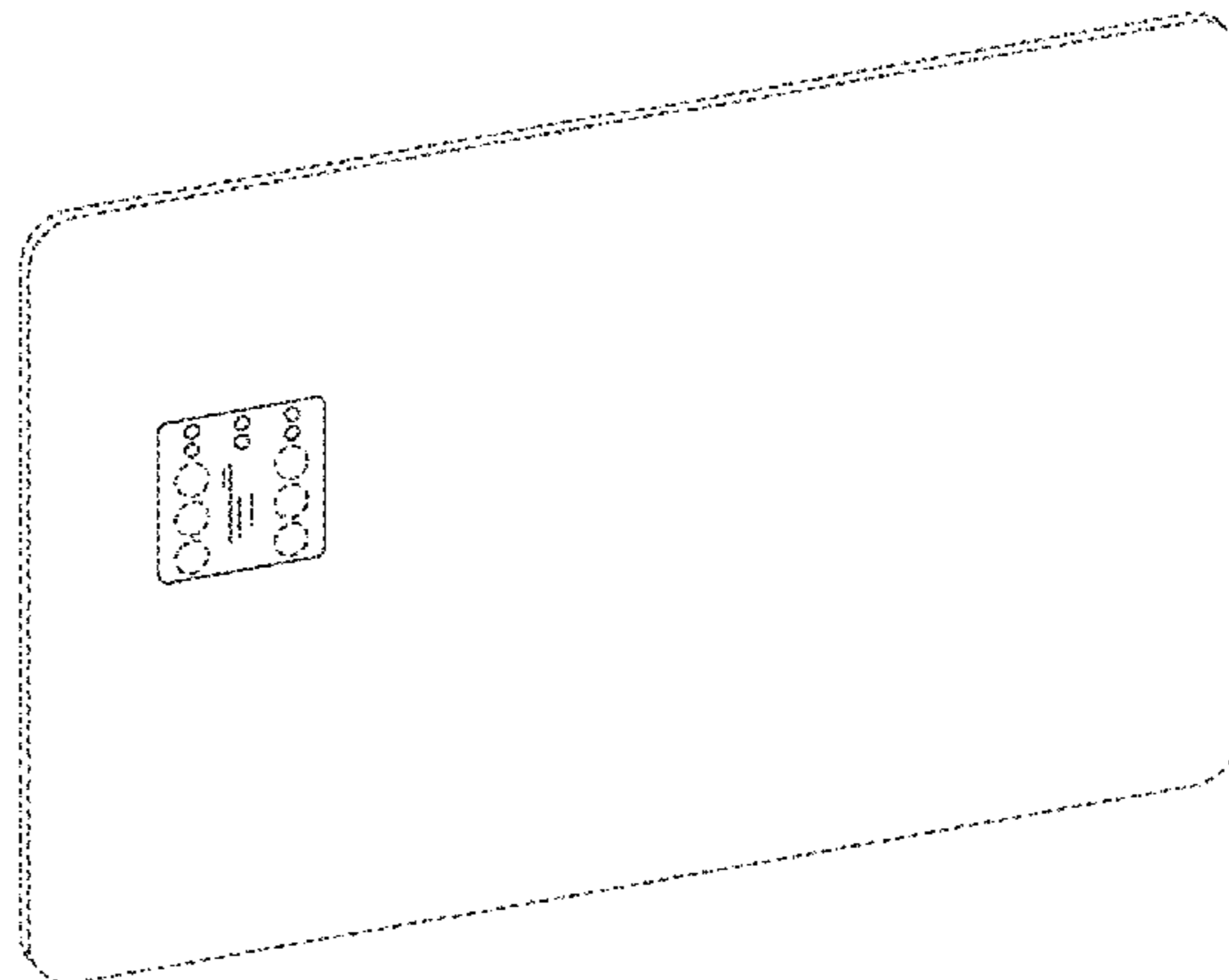
(57) **CLAIM**

The ornamental design for a smart card interface, as shown and described.

**DESCRIPTION**

FIG. 1 is a perspective view of a smart card interface; FIG. 2 is a top view thereof; FIG. 3 is an enlarged top view thereof; FIG. 4 is a perspective view of the smart card interface in accordance with a second embodiment; FIG. 5 is a top view thereof; and, FIG. 6 is an enlarged top view thereof. The illustrative broken line showing of a base surface throughout the drawing figures depicts an exemplary component to which the smart card interface might be applied and forms no part of the claimed design.

**1 Claim, 4 Drawing Sheets**



(58) **Field of Classification Search**

CPC ..... H01L 23/13; H01L 23/31; H01L 23/3128;  
 H01L 23/48; H01L 23/49541; H01L  
 23/498; H01L 23/49811; H01L 23/49816;  
 H01L 23/49833; H01L 23/49838; H01L  
 23/49844; H01L 23/4985; H01L  
 23/49855; H01L 23/49888; H01L 23/50;  
 H01L 23/522; H01L 23/528; H01L  
 23/5283; H01L 23/538; H01L 23/5386;  
 H01L 23/5388; H01L 23/5389; H01L  
 25/00; H01L 25/0655; H01L 27/0203;  
 H01L 27/0207; H01L 27/12; H01L  
 27/1218; H01L 27/1222; H01L 27/127;  
 H01L 24/0017; H01L 24/94-24/98; H01L  
 2224/01; H01L 2224/0501; H01L  
 2224/05013-2224/05017; H01L  
 2224/0555-2224/05557; H01L  
 2224/0612-2224/06189; H01L  
 2224/07-2224/09181

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,104,785 A 8/1978 Shiba et al.  
 4,264,917 A \* 4/1981 Ugon ..... G06K 19/07745  
 174/521  
 D267,094 S 11/1982 Doi  
 4,380,699 A \* 4/1983 Monnier ..... G06K 19/07745  
 235/443  
 4,394,654 A 7/1983 Hofmann-Cerfontaine  
 4,417,413 A 11/1983 Hoppe et al.  
 4,532,419 A 7/1985 Takeda  
 4,535,385 A \* 8/1985 August ..... H01L 23/36  
 257/E23.101  
 4,549,200 A 10/1985 Ecker et al.  
 4,549,247 A 10/1985 Hoppe et al.  
 4,575,621 A 3/1986 Dreifus  
 4,600,257 A 7/1986 Fushimoto  
 4,603,249 A 7/1986 Hoppe et al.  
 4,614,861 A 9/1986 Pavlov et al.  
 4,628,407 A \* 12/1986 August ..... H01L 23/36  
 257/E23.101  
 4,639,585 A 1/1987 Haghiri-Tehrani et al.  
 4,677,529 A 6/1987 Watanabe et al.  
 4,689,103 A 8/1987 Elarde  
 4,696,034 A 9/1987 Wiedemer  
 4,727,246 A 2/1988 Hara et al.  
 4,739,448 A \* 4/1988 Rowe ..... H01L 23/66  
 333/238  
 4,750,089 A \* 6/1988 Derryberry ..... H05K 3/303  
 165/185  
 4,754,319 A \* 6/1988 Saito ..... B32B 37/185  
 235/492  
 4,774,633 A 9/1988 Dehaine et al.  
 4,792,843 A 12/1988 Haghiri-Tehrani et al.  
 4,794,243 A \* 12/1988 Hamada ..... G06K 19/07743  
 235/492  
 4,795,895 A 1/1989 Hara et al.  
 4,797,542 A 1/1989 Hara  
 4,803,542 A 2/1989 Haghiri-Tehrani et al.  
 4,811,082 A \* 3/1989 Jacobs ..... H01L 23/538  
 174/261  
 4,814,943 A 3/1989 Okuaki  
 4,822,989 A 4/1989 Miyamoto et al.  
 4,825,283 A 4/1989 Shino  
 4,835,846 A 6/1989 Juan et al.  
 4,849,944 A 7/1989 Matsushita  
 4,868,376 A 9/1989 Lessin et al.  
 D304,826 S 11/1989 Sutoh  
 D305,023 S 12/1989 Suto  
 4,887,234 A 12/1989 Iijima  
 4,889,980 A 12/1989 Hara et al.

4,896,028 A \* 1/1990 Kushima ..... G06K 19/07743  
 235/492  
 4,897,534 A 1/1990 Haghiri-Tehrani  
 4,943,464 A \* 7/1990 Gloton ..... G06K 19/07745  
 174/535  
 4,980,802 A 12/1990 Champagne et al.  
 4,985,920 A 1/1991 Seki  
 4,990,759 A \* 2/1991 Gloton ..... G06K 19/07728  
 235/487  
 5,023,751 A \* 6/1991 Stampfli ..... B32B 38/1841  
 156/250  
 5,027,190 A 6/1991 Haghiri-Tehrani et al.  
 5,031,026 A 7/1991 Ueda  
 5,049,718 A 9/1991 Spletter et al.  
 5,049,728 A \* 9/1991 Rovin ..... G06K 19/072  
 235/487  
 5,055,913 A 10/1991 Haghiri-Tehrani  
 5,097,117 A 3/1992 Champagne et al.  
 5,122,860 A 6/1992 Kikuchi et al.  
 5,126,548 A 6/1992 Sekiguchi  
 D327,883 S 7/1992 Gloton  
 D328,599 S 8/1992 Gloton  
 5,134,773 A 8/1992 LeMaire et al.  
 5,155,068 A 10/1992 Tada  
 5,203,078 A 4/1993 Nakanishi et al.  
 5,208,450 A 5/1993 Uenishi et al.  
 5,216,278 A \* 6/1993 Lin ..... H01L 23/3121  
 174/538  
 5,220,598 A 6/1993 Böck  
 5,250,341 A 10/1993 Kobayashi et al.  
 5,255,430 A \* 10/1993 Tallaksen ..... G06K 19/07745  
 174/530  
 D342,728 S 12/1993 Gloton  
 5,276,311 A 1/1994 Hennige  
 5,276,317 A 1/1994 Ozouf et al.  
 D344,502 S 2/1994 Gloton  
 5,285,352 A \* 2/1994 Pastore ..... H01L 23/36  
 165/185  
 5,304,513 A 4/1994 Haghiri-Tehrani et al.  
 5,321,297 A \* 6/1994 Enomoto ..... H01L 27/14627  
 257/432  
 5,361,062 A 11/1994 Weiss et al.  
 5,362,955 A 11/1994 Haghiri-Tehrani  
 5,363,279 A 11/1994 Cha  
 D353,135 S 12/1994 Gloton  
 D353,136 S 12/1994 Gloton  
 5,375,037 A 12/1994 Le Roux  
 5,386,340 A 1/1995 Kurz  
 D357,909 S 5/1995 Gloton  
 D358,142 S 5/1995 Gloton  
 5,438,481 A \* 8/1995 Murphy ..... H01L 23/495  
 257/E23.031  
 5,444,301 A 8/1995 Song et al.  
 5,448,511 A 9/1995 Paurus et al.  
 5,457,590 A \* 10/1995 Barrett ..... G06F 21/80  
 235/492  
 5,463,210 A 10/1995 Imura  
 5,467,251 A \* 11/1995 Katchmar ..... H01L 23/3672  
 174/252  
 D365,092 S \* 12/1995 Mundigl ..... D14/437  
 5,486,687 A 1/1996 Le Roux  
 5,502,278 A \* 3/1996 Mabboux ..... H01L 23/49838  
 174/261  
 5,517,752 A \* 5/1996 Sakata ..... H01L 24/81  
 174/260  
 5,526,233 A 6/1996 Hayakawa  
 5,534,720 A \* 7/1996 Song ..... H01L 27/1462  
 257/232  
 5,543,585 A 8/1996 Booth et al.  
 5,544,014 A 8/1996 Atsumi  
 5,552,632 A \* 9/1996 Iwasaki ..... G06K 19/07743  
 257/679  
 5,563,400 A 10/1996 Le Roux  
 5,569,941 A \* 10/1996 Takahashi ..... H01L 29/0834  
 257/132  
 D375,303 S 11/1996 Gaumet  
 5,572,779 A \* 11/1996 Adelman ..... H01F 41/046  
 257/E23.061

(56)

## References Cited

## U.S. PATENT DOCUMENTS

- 5,579,207 A \* 11/1996 Hayden ..... H01L 25/0657  
174/261
- 5,581,065 A 12/1996 Nishikawa et al.
- 5,584,043 A \* 12/1996 Burkart ..... G06K 7/0013  
710/2
- 5,590,596 A \* 1/1997 Tani ..... B41F 15/0818  
101/115
- 5,594,275 A \* 1/1997 Kwon ..... H01L 23/3128  
257/685
- 5,604,330 A \* 2/1997 Hasan ..... H01L 23/49838  
174/261
- 5,604,379 A \* 2/1997 Mori ..... H01L 23/3157  
257/737
- 5,615,085 A 3/1997 Wakabayashi et al.
- 5,616,520 A \* 4/1997 Nishiuma ..... H01L 23/10  
228/180.22
- 5,623,552 A 4/1997 Lane
- 5,637,858 A 6/1997 Hoppe et al.
- 5,652,428 A \* 7/1997 Nishioka ..... B82Y 35/00  
250/306
- 5,655,917 A 8/1997 Kaneshige et al.
- 5,677,524 A 10/1997 Haghiri-Tehrani
- D387,746 S 12/1997 Ishihara
- D387,747 S 12/1997 Ishihara
- D388,066 S 12/1997 Ishihara
- D389,130 S 1/1998 Ishihara
- 5,724,545 A 3/1998 Skorski
- 5,729,000 A 3/1998 Sugimoto
- 5,736,969 A \* 4/1998 Kuga ..... G02B 27/2271  
239/18
- 5,739,515 A 4/1998 Takemura
- 5,742,680 A 4/1998 Wilson
- 5,745,988 A 5/1998 Hohmann et al.
- 5,752,857 A 5/1998 Knights
- 5,754,410 A \* 5/1998 Bardsley ..... G01R 31/2884  
174/260
- 5,764,522 A \* 6/1998 Shalev ..... G01G 13/16  
177/116
- 5,767,999 A \* 6/1998 Kayner ..... G06F 13/409  
398/164
- 5,780,836 A 7/1998 Iguchi et al.
- 5,780,837 A 7/1998 Garcia
- 5,786,988 A \* 7/1998 Harari ..... G06K 19/07728  
235/487
- 5,787,399 A \* 7/1998 Lee ..... G11C 7/16  
704/201
- 5,789,733 A 8/1998 Jachimowicz et al.
- 5,807,762 A \* 9/1998 Akram ..... H01L 23/5382  
257/E23.171
- 5,822,190 A 10/1998 Iwasaki
- 5,827,084 A \* 10/1998 Biernath ..... H01R 12/79  
29/829
- 5,834,747 A \* 11/1998 Cooper ..... G06K 19/06  
235/449
- 5,837,984 A \* 11/1998 Bleier ..... G06K 7/0021  
235/441
- 5,852,290 A 12/1998 Chaney
- 5,856,662 A \* 1/1999 Kohama ..... G06K 19/07703  
235/488
- 5,866,950 A \* 2/1999 Iwasaki ..... H01L 21/563  
257/780
- D407,392 S 3/1999 Kleineidam
- 5,877,488 A 3/1999 Klatt et al.
- 5,877,975 A 3/1999 Jigour et al.
- 5,900,655 A \* 5/1999 Shim ..... H01L 27/14627  
257/232
- 5,912,502 A \* 6/1999 Kano ..... G01R 31/2884  
257/207
- 5,932,866 A 8/1999 Terada et al.
- 5,933,328 A 8/1999 Wallace et al.
- 5,955,961 A 9/1999 Wallerstein
- 5,991,400 A 11/1999 Kamperman
- 5,993,261 A 11/1999 Klatt et al.
- 6,002,605 A \* 12/1999 Iwasaki ..... G06K 7/0021  
235/380
- 6,019,639 A \* 2/2000 Brunker ..... H01R 13/6464  
439/60
- 6,019,663 A \* 2/2000 Angell ..... B24B 19/16  
451/5
- 6,025,997 A 2/2000 Huber et al.
- 6,027,028 A 2/2000 Pieterse et al.
- 6,035,037 A 3/2000 Chaney
- 6,035,216 A \* 3/2000 Cheng ..... H04B 1/3816  
235/475
- 6,036,099 A 3/2000 Leighton
- 6,054,774 A 4/2000 Ohmori et al.
- D425,519 S 5/2000 Merlin et al.
- 6,062,887 A \* 5/2000 Schuster ..... G06K 7/0021  
439/218
- 6,065,681 A 5/2000 Trueggelmann
- 6,085,155 A \* 7/2000 Hayase ..... G01C 15/004  
702/40
- 6,089,451 A \* 7/2000 Krause ..... G06K 7/084  
235/380
- 6,097,605 A 8/2000 Klatt et al.
- 6,102,743 A 8/2000 Haffenden et al.
- 6,118,114 A \* 9/2000 Fujimoto ..... H04N 1/00002  
250/208.1
- 6,141,210 A 10/2000 Iwasaki
- D434,396 S 11/2000 Iwasaki
- D434,418 S 11/2000 Shinada
- 6,149,058 A \* 11/2000 Albaret ..... G06K 7/10297  
235/380
- 6,151,511 A 11/2000 Cruciani
- 6,170,116 B1 \* 1/2001 Mizuta ..... B08B 1/00  
134/42
- 6,188,580 B1 2/2001 Huber et al.
- 6,191,951 B1 2/2001 Houdeau et al.
- 6,195,183 B1 \* 2/2001 Fujimoto ..... H04N 1/486  
358/512
- 6,205,028 B1 \* 3/2001 Matsumura ..... H05K 1/0201  
174/252
- 6,209,790 B1 4/2001 Houdeau et al.
- 6,213,403 B1 4/2001 Bates, III
- 6,232,937 B1 \* 5/2001 Jacobsen ..... G02B 25/002  
345/100
- 6,241,557 B1 6/2001 Reichardt
- 6,257,486 B1 \* 7/2001 Teicher ..... G06K 7/0021  
235/380
- 6,281,450 B1 \* 8/2001 Urasaki ..... H01L 21/563  
174/258
- 6,285,559 B1 \* 9/2001 Fukiharu ..... H05K 1/0243  
257/E23.114
- 6,292,490 B1 9/2001 Gratacap et al.
- 6,296,552 B1 \* 10/2001 Boutaghou ..... B24B 39/06  
451/290
- 6,297,548 B1 \* 10/2001 Moden ..... H01L 23/13  
257/686
- 6,304,683 B1 \* 10/2001 Kiyohara ..... H04N 1/0402  
358/486
- 6,315,205 B1 11/2001 Bates, III
- 6,326,243 B1 \* 12/2001 Suzuya ..... H01L 23/49503  
257/E23.034
- 6,328,217 B1 \* 12/2001 Everett ..... G06K 19/0719  
235/380
- 6,329,228 B1 12/2001 Terashima
- 6,330,164 B1 \* 12/2001 Khandros ..... B23K 20/004  
257/724
- D452,864 S 1/2002 Wallace et al.
- 6,344,162 B1 2/2002 Miyajima
- D456,414 S 4/2002 Turin
- 6,369,795 B1 4/2002 Lester et al.
- 6,372,541 B1 \* 4/2002 Bouchez ..... G06K 19/07745  
438/106
- 6,378,774 B1 4/2002 Emori et al.
- 6,398,114 B1 6/2002 Nishikawa et al.
- 6,402,301 B1 \* 6/2002 Powers ..... B41J 2/1603  
347/63
- 6,407,933 B1 \* 6/2002 Bologna ..... H05K 7/1491  
174/168

(56)

## References Cited

## U.S. PATENT DOCUMENTS

6,409,089 B1	6/2002	Eskicioglu	6,945,712 B1 *	9/2005	Conn	G02B 6/3897 385/92
6,420,887 B1 *	7/2002	Kister	6,950,128 B1 *	9/2005	Sawada	H04N 1/00241 348/207.1
6,443,361 B1	9/2002	Klatt et al.	6,974,343 B2	12/2005	Zheng et al.	
6,460,772 B1	10/2002	Stahl	7,001,800 B2 *	2/2006	Cappelletti	H01L 27/0207 257/368
6,462,273 B1 *	10/2002	Corisis	7,005,955 B2 *	2/2006	Schumacher	H01F 17/0033 336/200
6,474,776 B1 *	11/2002	Murray	7,009,233 B2 *	3/2006	Uchiyama	G03F 9/7076 257/296
6,492,718 B2	12/2002	Ohmori	7,019,981 B2	3/2006	Heinemann et al.	
6,513,718 B1 *	2/2003	Bouchez	7,051,128 B2	5/2006	Bando	
			7,051,929 B2	5/2006	Li	
			7,061,263 B1 *	6/2006	Ong	G01R 31/2884 324/750.3
6,548,888 B1	4/2003	Fidalgo et al.	7,062,584 B1	6/2006	Worrell et al.	
6,561,432 B1	5/2003	Vedder et al.	7,063,267 B2	6/2006	Tsuchimoto	
6,568,600 B1 *	5/2003	Carpier	7,064,423 B2 *	6/2006	Okita	G06K 19/07728 174/250
6,570,768 B2 *	5/2003	Medina	7,064,431 B2 *	6/2006	Singh	H01L 23/49838 174/260
6,581,840 B2	6/2003	Takeda et al.	7,082,034 B2 *	7/2006	Tiwari	H01L 23/3675 165/185
6,592,031 B1	7/2003	Klatt				
6,592,044 B1	7/2003	Wong et al.	7,136,514 B1	11/2006	Wong	
6,594,361 B1	7/2003	Chaney et al.	7,140,550 B2	11/2006	Ramachandran	
6,613,610 B2 *	9/2003	Iwafuchi	7,184,093 B2	2/2007	Manning	
			D537,824 S *	3/2007	Day	D14/436
6,617,693 B2 *	9/2003	Hikita	7,207,662 B2 *	4/2007	Shin	B41J 2/1404 347/56
6,618,258 B2 *	9/2003	Goris	7,225,537 B2	6/2007	Reed	
			7,245,891 B2 *	7/2007	Hugunin	H04M 19/04 455/148
6,641,049 B2	11/2003	Luu	7,252,242 B2	8/2007	Ho	
6,646,957 B2	11/2003	Martin et al.	7,273,234 B1 *	9/2007	Collins	B42D 25/369 283/72
6,657,523 B2 *	12/2003	Tarui				
			7,293,716 B1 *	11/2007	Miks	H01L 21/561 235/451
6,693,315 B2 *	2/2004	Kuroda				
			7,294,918 B2	11/2007	Wada et al.	
D487,747 S	3/2004	Yu et al.	7,296,750 B2 *	11/2007	Wood	G02B 26/0833 235/462.36
6,705,520 B1	3/2004	Pitroda et al.				
6,719,206 B1	4/2004	Bashan et al.	7,305,535 B2	12/2007	Harari et al.	
D491,951 S	6/2004	Yu et al.	7,317,248 B2 *	1/2008	Poehmueller	G11C 5/04 257/713
D492,688 S	7/2004	Wallace et al.				
6,762,537 B1 *	7/2004	Kikushima	7,350,714 B2	4/2008	Wallace et al.	
			7,352,588 B2 *	4/2008	Nishizawa	G06K 19/07732 257/777
6,764,005 B2	7/2004	Cooper				
D493,798 S	8/2004	Yu et al.	7,360,688 B1 *	4/2008	Harris	G06K 7/0021 235/380
6,779,115 B1	8/2004	Naim				
6,787,469 B2 *	9/2004	Houston	D571,810 S	6/2008	Ikeda	
			7,384,294 B2	6/2008	Washino et al.	
6,809,932 B2 *	10/2004	Wu	7,385,169 B2 *	6/2008	Saitou	H04N 1/0318 250/208.1
6,811,082 B2	11/2004	Wong	7,416,132 B2	8/2008	Takiar et al.	
6,826,185 B1	11/2004	Montanaro et al.	7,446,352 B2 *	11/2008	Becker	H01L 27/0207 257/206
6,833,323 B2 *	12/2004	Yui				
			7,469,420 B2	12/2008	Duffield et al.	
6,836,138 B1 *	12/2004	Park	7,485,501 B2	2/2009	Takiar et al.	
			D588,133 S	3/2009	Nakamura	
6,847,265 B2 *	1/2005	Tanaka	D588,134 S	3/2009	Nakamura	
			7,508,942 B2	3/2009	Candelore	
6,848,617 B1	2/2005	Fries et al.	7,520,052 B2	4/2009	Takahashi et al.	
6,870,430 B2	3/2005	Nakamura et al.	7,530,495 B2	5/2009	Cooper	
6,882,537 B2 *	4/2005	Barcley	7,552,876 B2	6/2009	Nishizawa et al.	
			7,554,139 B2 *	6/2009	Inoue	H01L 21/76229 257/288
6,882,541 B2	4/2005	Maruyama et al.				
6,884,642 B2 *	4/2005	Farnworth	7,559,469 B2	7/2009	Noda et al.	
			7,577,846 B2	8/2009	Kudelski et al.	
6,896,189 B2	5/2005	Guion et al.	7,605,453 B2	10/2009	Stampka et al.	
6,903,935 B1 *	6/2005	Chen	7,615,858 B2 *	11/2009	Eun	H01L 23/24 257/686
6,913,198 B2 *	7/2005	Ruat	7,616,015 B2 *	11/2009	Lee	G01R 1/07307 324/756.03
6,922,780 B1	7/2005	Siegel	7,618,849 B2 *	11/2009	Khan	H01L 21/56 257/675
6,937,191 B2 *	8/2005	Puente Baliarda				
			7,630,203 B1 *	12/2009	Chen	G06K 19/077 235/492
6,937,206 B2 *	8/2005	Puente Baliarda				

(56)

References Cited

U.S. PATENT DOCUMENTS

7,647,641 B2	1/2010	Dubroeuq et al.	8,453,094 B2 *	5/2013	Kornachuk .....	G06F 17/5072 716/118
7,659,606 B2	2/2010	Klatt	8,456,850 B2	6/2013	Kang et al.	
7,673,805 B2	3/2010	Onishi et al.	8,456,852 B2	6/2013	Xiao et al.	
D615,506 S *	5/2010	Eide .....	8,469,271 B2 *	6/2013	DePaula .....	G06K 19/041 235/435
7,728,422 B2 *	6/2010	Kim .....	D685,375 S	7/2013	Steinberger	
			D686,214 S	7/2013	Maus et al.	
7,745,943 B2 *	6/2010	Haba .....	8,480,002 B2	7/2013	Poidomani et al.	
			8,490,127 B2 *	7/2013	Vantalou .....	H04N 7/17318 725/25
7,750,464 B2 *	7/2010	Yoshikawa .....	8,500,019 B2	8/2013	Poidomani et al.	
			8,505,064 B2	8/2013	Hildebrand et al.	
7,772,686 B2 *	8/2010	Ye .....	8,523,071 B2 *	9/2013	DePaula .....	G06K 19/041 235/435
			D691,101 S *	10/2013	Ishizawa .....	D13/182
7,784,693 B2	8/2010	Liao et al.	8,550,362 B2 *	10/2013	Cowcher .....	G06K 19/07327 235/379
7,793,848 B2	9/2010	Abe et al.	8,582,308 B2 *	11/2013	Sugimoto .....	H05K 3/284 174/520
7,808,788 B2 *	10/2010	Gertiser .....	8,588,561 B2 *	11/2013	Zbinden .....	G02B 6/4232 385/14
			D695,636 S	12/2013	Mullen et al.	
7,810,718 B2	10/2010	Bonneau et al.	8,608,082 B2	12/2013	Le Garrec et al.	
7,828,207 B2	11/2010	Cooper	8,618,669 B2	12/2013	Furuta	
7,864,540 B2	1/2011	Takiar	D699,201 S *	2/2014	Petsch .....	D13/182
7,871,007 B2	1/2011	Amiot et al.	8,647,110 B2	2/2014	Choi et al.	
7,871,011 B2	1/2011	Reignoux et al.	8,649,820 B2	2/2014	Schwandt et al.	
7,872,979 B1 *	1/2011	Liu .....	8,654,535 B2	2/2014	Lin et al.	
			8,658,542 B2 *	2/2014	Smayling .....	H01L 21/027 257/E21.517
7,880,286 B2 *	2/2011	Lee .....	8,679,729 B2 *	3/2014	Lee .....	G03F 1/144 430/319
			D701,864 S	4/2014	Lepp et al.	
7,903,422 B2 *	3/2011	Watanabe .....	D702,240 S	4/2014	Lepp et al.	
			D702,241 S	4/2014	Lepp et al.	
7,913,916 B2	3/2011	Musial et al.	D703,208 S	4/2014	Lepp et al.	
7,922,097 B2	4/2011	Yoshikawa et al.	8,684,267 B2 *	4/2014	Foo .....	G06K 19/06206 235/449
7,925,016 B2	4/2011	Candelore	8,690,283 B2	4/2014	Pomerantz et al.	
D638,810 S *	5/2011	Morikawa .....	8,700,833 B2	4/2014	Cedar et al.	
7,944,058 B2 *	5/2011	Ishihara .....	8,707,237 B2 *	4/2014	Chen .....	G06F 17/5068 716/123
			8,730,009 B2	5/2014	Barry	
7,954,705 B2	6/2011	Mullen et al.	D707,682 S	6/2014	Florek et al.	
7,967,214 B2 *	6/2011	Landau .....	8,746,579 B1	6/2014	Cloutier et al.	
			8,794,520 B2 *	8/2014	Wang .....	G06K 7/10732 235/454
D643,040 S	8/2011	Sedio et al.	8,814,053 B2	8/2014	Narendra et al.	
8,009,432 B2	8/2011	Su et al.	8,826,086 B2 *	9/2014	Hook .....	G11C 29/48 714/718
8,022,526 B2	9/2011	Chall et al.	8,936,199 B2	1/2015	Lepp et al.	
8,030,746 B2 *	10/2011	Tan .....	8,947,883 B2 *	2/2015	Upadhyayula ...	G06K 19/07732 361/737
			D727,861 S *	4/2015	Tang .....	D13/182
8,061,625 B2 *	11/2011	Yu .....	9,009,633 B2 *	4/2015	Wu .....	G06F 17/5081 430/4
			D729,808 S	5/2015	Beals et al.	
8,064,205 B2	11/2011	Farhan et al.	D730,304 S *	5/2015	Matsumoto .....	D13/182
8,079,528 B2	12/2011	Song	9,047,547 B2 *	6/2015	Okada .....	G06K 19/07743
8,093,502 B2 *	1/2012	Mikado .....	9,049,811 B2 *	6/2015	Subat .....	H05K 7/20445
			9,054,094 B2 *	6/2015	Anthony .....	H01L 23/49822
8,141,780 B2 *	3/2012	Lawson .....	9,064,195 B2 *	6/2015	Hartwick .....	G06K 19/06206
			9,101,048 B2 *	8/2015	Nakanishi .....	H05K 1/0201
8,181,879 B2 *	5/2012	Landau .....	9,136,212 B2 *	9/2015	Kato .....	H01L 23/49822
			9,170,482 B2 *	10/2015	Landis .....	G03F 1/36
D667,442 S	9/2012	Phelan	9,197,218 B2 *	11/2015	Kondo .....	H03L 1/028
D667,495 S *	9/2012	Bender .....	9,258,897 B2 *	2/2016	Ishihara .....	H05K 1/183
8,256,667 B2 *	9/2012	Poznansky .....	9,265,148 B2 *	2/2016	Lassmann .....	H05K 1/0206
			9,291,889 B2 *	3/2016	Yoshioka .....	G03F 1/70
D669,478 S	10/2012	Lepp et al.	D754,083 S *	4/2016	Vinciarelli .....	D13/182
D669,479 S	10/2012	Lepp et al.	9,330,992 B2 *	5/2016	Nakagawa .....	H01L 23/12
8,317,103 B1	11/2012	Foo et al.	D758,372 S	6/2016	Beals et al.	
8,349,709 B2 *	1/2013	Inoue .....	D759,022 S	6/2016	Beals et al.	
			9,455,517 B2 *	9/2016	Babu .....	H01R 13/26
8,350,158 B2 *	1/2013	Chung .....	D780,184 S *	2/2017	Beals .....	D14/436
			2001/0011944 A1	8/2001	Garrido-Gadea et al.	
8,353,728 B2 *	1/2013	Wang .....				
8,384,211 B2 *	2/2013	Soeno .....				
D681,640 S	5/2013	Aoki et al.				
8,448,102 B2 *	5/2013	Kornachuk .....				
8,449,783 B2 *	5/2013	Watanabe .....				
8,451,122 B2	5/2013	Narendra et al.				

# US D792,410 S

(56)

## References Cited

### U.S. PATENT DOCUMENTS

2001/0011962	A1 *	8/2001	Fletout .....	G06K 19/07745 343/767	2005/0048695	A1 *	3/2005	Chia .....	H01L 23/3114 438/106
2001/0012366	A1	8/2001	Van Rijnsoever et al.		2005/0061884	A1	3/2005	Stewart	
2001/0018984	A1	9/2001	Takeda et al.		2005/0076321	A1 *	4/2005	Smith .....	G03F 1/36 716/53
2001/0043075	A1 *	11/2001	Suzuki .....	G01R 1/07371 324/762.05	2005/0111280	A1	5/2005	Takiar	
2001/0050846	A1	12/2001	Cho		2005/0148121	A1	7/2005	Yamazaki et al.	
2002/0003168	A1	1/2002	Takabayashi		2005/0191787	A1 *	9/2005	Bolken .....	H01L 21/50 438/106
2002/0045106	A1 *	4/2002	Baselmans .....	G03F 1/36 430/5	2005/0197169	A1	9/2005	Son	
2002/0137502	A1	9/2002	Cronin et al.		2005/0212657	A1	9/2005	Simon	
2002/0145049	A1	10/2002	Lasch et al.		2005/0212690	A1	9/2005	Nishikawa	
2002/0186542	A1 *	12/2002	Choi .....	H01L 23/36 361/719	2005/0230853	A1 *	10/2005	Yoshikawa .....	H01L 24/32 257/81
2003/0002577	A1	1/2003	Pinder		2005/0231921	A1	10/2005	Noda et al.	
2003/0057537	A1 *	3/2003	Iwasaki .....	H01L 23/16 257/684	2005/0247784	A1	11/2005	Klatt	
2003/0058311	A1 *	3/2003	Chen .....	B41J 2/1753 347/86	2005/0252978	A1	11/2005	Nishizawa et al.	
2003/0059047	A1	3/2003	Iwamura		2006/0026295	A1	2/2006	Iwamura	
2003/0085287	A1	5/2003	Gray		2006/0040189	A1 *	2/2006	Yang .....	G03F 1/36 430/5
2003/0091160	A1	5/2003	Enbom et al.		2006/0043202	A1	3/2006	Kim et al.	
2003/0099118	A1 *	5/2003	Saitoh .....	G02B 6/0016 362/561	2006/0058065	A1	3/2006	Shen et al.	
2003/0132284	A1 *	7/2003	Reynolds .....	G06Q 20/341 235/380	2006/0059391	A1	3/2006	Park et al.	
2003/0153356	A1	8/2003	Liu		2006/0072293	A1	4/2006	Peele	
2003/0163508	A1	8/2003	Goodman		2006/0112197	A1 *	5/2006	Yao .....	G06F 13/409 710/15
2003/0169575	A1 *	9/2003	Ikuta .....	H01L 23/3677 361/761	2006/0131396	A1	6/2006	Blossom	
2003/0179910	A1	9/2003	Wong		2006/0133051	A1	6/2006	Calvas et al.	
2003/0194091	A1	10/2003	Wajs		2006/0155913	A1	7/2006	Nishikawa et al.	
2003/0213849	A1	11/2003	Luu		2006/0208077	A1	9/2006	Hirata	
2004/0001591	A1	1/2004	Mani et al.		2006/0283946	A1	12/2006	Riester et al.	
2004/0009409	A1 *	1/2004	Hwang .....	G03F 1/36 430/5	2006/0286847	A1	12/2006	Zuo et al.	
2004/0016804	A1 *	1/2004	Namaky .....	G07C 5/0816 235/435	2007/0018313	A1 *	1/2007	Gomyo .....	H01L 21/568 257/723
2004/0066693	A1 *	4/2004	Osako .....	B29C 45/14655 365/222	2007/0028260	A1	2/2007	Williams et al.	
2004/0111693	A1 *	6/2004	Lin .....	G03F 1/36 716/52	2007/0033606	A1 *	2/2007	Yamada .....	G11B 23/0316 720/725
2004/0124246	A1	7/2004	Allen et al.		2007/0035002	A1 *	2/2007	Moto .....	H01L 24/48 257/686
2004/0129785	A1	7/2004	Luu		2007/0035031	A1 *	2/2007	Jessen .....	G03F 1/36 257/774
2004/0133787	A1 *	7/2004	Doughty .....	G06Q 20/327 713/186	2007/0042613	A1 *	2/2007	Yoda .....	B41J 2/14233 439/34
2004/0135645	A1 *	7/2004	Koyama .....	H03H 9/1021 331/158	2007/0060198	A1	3/2007	Kuo	
2004/0139412	A1 *	7/2004	Ito .....	G06F 17/5068 716/55	2007/0067820	A1	3/2007	Cha	
2004/0143716	A1	7/2004	Hong		2007/0085187	A1 *	4/2007	Sun .....	H01L 23/3677 257/686
2004/0152392	A1	8/2004	Nakamura		2007/0090534	A1 *	4/2007	Iwasaki .....	H01L 23/5385 257/777
2004/0155715	A1 *	8/2004	Nakamura .....	H03B 5/36 331/158	2007/0117550	A1	5/2007	Boris et al.	
2004/0171192	A1	9/2004	Morimura et al.		2007/0121008	A1	5/2007	Kanoh	
2004/0181800	A1	9/2004	Rakib et al.		2007/0125855	A1	6/2007	Jiang et al.	
2004/0185763	A1 *	9/2004	Ishizaki .....	B24D 18/00 451/541	2007/0127185	A1	6/2007	Watanabe	
2004/0229135	A1 *	11/2004	Wang .....	G03F 7/70466 430/5	2007/0138301	A1	6/2007	Cinkler	
2004/0238210	A1 *	12/2004	Droz .....	G06K 19/02 174/258	2007/0145133	A1 *	6/2007	Jolivet .....	G06K 7/0008 235/441
2004/0245891	A1 *	12/2004	Kawachi .....	H03H 3/08 310/313 R	2007/0146542	A1	6/2007	Strasser	
2004/0256150	A1	12/2004	Barchmann et al.		2007/0153487	A1	7/2007	Frallicciardi et al.	
2004/0260823	A1	12/2004	Tiwari et al.		2007/0176622	A1	8/2007	Yamazaki	
2005/0005287	A1	1/2005	Claussen		2007/0228536	A1 *	10/2007	Aoki .....	G06K 19/077 257/678
2005/0011671	A1 *	1/2005	Takiar .....	G06K 13/0825 174/256	2007/0235545	A1	10/2007	Martinez et al.	
2005/0017336	A1 *	1/2005	Kung .....	H01L 25/0652 257/685	2007/0237243	A1	10/2007	Fagan	
2005/0023361	A1	2/2005	Ikefuji et al.		2007/0243661	A1 *	10/2007	Jackson .....	H01L 23/5389 438/106
2005/0033688	A1	2/2005	Peart et al.		2007/0246536	A1	10/2007	Tuin	
					2007/0250872	A1	10/2007	Dua	
					2007/0262156	A1	11/2007	Chen et al.	
					2007/0266182	A1	11/2007	Lanning	
					2008/0012860	A1 *	1/2008	Klevenz .....	G06K 9/0061 345/441
					2008/0020800	A1	1/2008	Xu	
					2008/0041952	A1	2/2008	Kang	
					2008/0062066	A1	3/2008	Arai	
					2008/0079565	A1	4/2008	Koyama	
					2008/0083831	A1	4/2008	Lafuente et al.	
					2008/0094788	A1	4/2008	Choe	
					2008/0096317	A1	4/2008	Middlekauff et al.	

(56)		References Cited			
U.S. PATENT DOCUMENTS					
2008/0099559	A1	5/2008	Lo et al.	2010/0172112	A1* 7/2010 Okada ..... G06K 19/07732 361/782
2008/0111254	A1*	5/2008	Park ..... H01L 21/486 257/786	2010/0176207	A1 7/2010 Yoshikawa et al.
2008/0122894	A1	5/2008	Lee et al.	2010/0191976	A1* 7/2010 Chu ..... G06F 21/10 713/176
2008/0135626	A1	6/2008	Reignoux et al.	2010/0205439	A1* 8/2010 Chu ..... H04L 9/3273 713/169
2008/0164893	A1*	7/2008	Lee ..... G01R 1/07342 324/754.07	2010/0272257	A1 10/2010 Beals
2008/0165962	A1	7/2008	Kawano et al.	2010/0318627	A1 12/2010 Edwards et al.
2008/0174408	A1	7/2008	Takahashi	2010/0327467	A1 12/2010 Hirabayashi
2008/0186337	A1*	8/2008	Hammond ..... B41J 2/17546 347/6	2011/0003493	A1* 1/2011 Mo ..... H01R 27/00 439/81
2008/0211074	A1	9/2008	Osako et al.	2011/0010734	A1 1/2011 Newell
2008/0211302	A1	9/2008	Hirota et al.	2011/0012960	A1* 1/2011 Sakuma ..... B41J 2/1404 347/44
2008/0223937	A1	9/2008	Preta et al.	2011/0028184	A1 2/2011 Cooper
2008/0228973	A1*	9/2008	Lee ..... G06F 13/385 710/105	2011/0042125	A1* 2/2011 Lee ..... C23C 18/08 174/250
2008/0257967	A1	10/2008	Nishizawa et al.	2011/0063066	A1* 3/2011 Choi ..... H01F 27/2804 336/200
2008/0257968	A1	10/2008	Nishizawa et al.	2011/0076867	A1* 3/2011 Achsaf ..... G06K 19/077 439/131
2008/0279379	A1	11/2008	Muijen	2011/0138088	A1 6/2011 Sirio et al.
2008/0314983	A1	12/2008	Capurso et al.	2011/0161583	A1* 6/2011 Youn ..... G11C 7/02 711/115
2009/0011538	A1	1/2009	Masumoto et al.	2011/0182040	A1* 7/2011 Ellul ..... G06K 19/077 361/737
2009/0032593	A1	2/2009	Ljungcrantz	2011/0205412	A1* 8/2011 Miyazaki ..... H01L 27/14621 348/294
2009/0040695	A1	2/2009	Fidalgo et al.	2011/0221014	A1* 9/2011 Nakatani ..... B81C 1/00158 257/417
2009/0057417	A1	3/2009	Shinohara et al.	2011/0259966	A1 10/2011 Phillips
2009/0066350	A1*	3/2009	Lee ..... G01R 31/3025 324/754.07	2011/0315779	A1 12/2011 Bidin et al.
2009/0101933	A1*	4/2009	Takao ..... H01L 33/0079 257/99	2012/0007096	A1 1/2012 Yamazaki
2009/0108993	A1*	4/2009	Forster ..... G06K 17/0025 340/10.1	2012/0018522	A1* 1/2012 Le Garrec ..... G06K 19/07749 235/492
2009/0131028	A1*	5/2009	Horodezky ..... H04M 1/274516 455/418	2012/0048948	A1 3/2012 Bertin et al.
2009/0140415	A1	6/2009	Furuta	2012/0079692	A1* 4/2012 Sinha ..... H03H 3/04 29/25.35
2009/0144456	A1	6/2009	Gelf et al.	2012/0138690	A1 6/2012 Bosquet et al.
2009/0153622	A1*	6/2009	Guan ..... B41J 2/14072 347/59	2012/0140420	A1* 6/2012 Soyano ..... H01L 23/3672 361/715
2009/0155953	A1*	6/2009	Saeki ..... H01L 24/75 438/106	2012/0168517	A1 7/2012 Lee
2009/0156254	A1	6/2009	Montes	2012/0193435	A1 8/2012 Hanaoka et al.
2009/0166894	A1*	7/2009	Azumai ..... H01L 27/0207 257/786	2012/0200366	A1* 8/2012 Nishiyama ..... H03H 9/13 331/158
2009/0168322	A1*	7/2009	Okada ..... H05K 1/181 361/679.32	2012/0231650	A1 9/2012 Tian et al.
2009/0181314	A1*	7/2009	Shyu ..... G03F 1/36 430/5	2012/0248201	A1 10/2012 Sutera
2009/0199283	A1	8/2009	Jain	2012/0267438	A1 10/2012 Kato et al.
2009/0228853	A1*	9/2009	Hong ..... G06F 17/5068 716/119	2012/0289196	A1 11/2012 Tan et al.
2009/0232384	A1*	9/2009	Tu ..... G03F 1/84 382/144	2012/0292395	A1 11/2012 Huang et al.
2009/0244858	A1	10/2009	Di Sirio et al.	2012/0299444	A1* 11/2012 Yokoyama ..... H03H 9/13 310/326
2009/0273100	A1*	11/2009	Aton ..... H01L 21/31144 257/786	2013/0008968	A1 1/2013 Launay et al.
2009/0275170	A1	11/2009	Chen	2013/0015441	A1 1/2013 Takayama et al.
2009/0279243	A1*	11/2009	Amidi ..... G11C 5/04 361/679.31	2013/0099118	A1* 4/2013 Tomioka ..... G01J 5/0862 250/332
2010/0006322	A1	1/2010	Cheng	2013/0112757	A1 5/2013 Lee
2010/0019038	A1	1/2010	Puente Baliarda et al.	2013/0134227	A1 5/2013 De Maquille et al.
2010/0025480	A1	2/2010	Nishizawa et al.	2013/0161390	A1 6/2013 Rodriquez
2010/0072284	A1	3/2010	Nishizawa et al.	2013/0175346	A1 7/2013 Jenni
2010/0085338	A1*	4/2010	Miguchi ..... G02F 1/133609 345/207	2013/0185566	A1 7/2013 Pang
2010/0109141	A1*	5/2010	Nishiyama ..... H01L 24/48 257/690	2013/0193534	A1* 8/2013 Nakatani ..... G01L 1/148 257/417
2010/0117800	A1	5/2010	Li et al.	2013/0207781	A1 8/2013 Pagani et al.
2010/0124344	A1*	5/2010	Mizutani ..... H04R 1/04 381/190	2013/0219097	A1* 8/2013 Wang ..... G06F 1/185 710/301
2010/0136816	A1	6/2010	Ahn	2013/0222484	A1* 8/2013 Yokoyama ..... B41J 2/14201 347/70
2010/0138857	A1	6/2010	Gondkar	2013/0254445	A1* 9/2013 Burns ..... H05K 5/0265 710/301
2010/0165581	A1*	7/2010	Ziglioli ..... B81B 7/007 361/730	2013/0277434	A1 10/2013 Lin
2010/0165589	A1	7/2010	Zhou	2013/0286603	A1* 10/2013 Okada ..... H05K 7/02 361/746
2010/0169940	A1	7/2010	Howarter et al.	2013/0287267	A1 10/2013 Varone
				2013/0320088	A1 12/2013 Lin et al.
				2013/0334320	A1 12/2013 Thill et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2014/0021264	A1	1/2014	Pueschner et al.
2014/0042230	A1	2/2014	Pueschner et al.
2014/0061316	A1	3/2014	Narayanaswami et al.
2014/0158340	A1*	6/2014	Dixler ..... F28F 27/00 165/287
2014/0166759	A1*	6/2014	Liu ..... G06K 7/1098 235/462.21
2014/0193988	A1*	7/2014	Ma ..... H01R 12/7082 439/83
2014/0253767	A1*	9/2014	Kato ..... H01L 27/14625 348/280
2014/0256069	A1*	9/2014	Kishimoto ..... B41J 2/1628 438/21
2014/0264029	A1*	9/2014	Tomioka ..... G01J 3/42 250/338.3
2014/0282685	A1	9/2014	Beals et al.
2014/0292941	A1*	10/2014	Kobayashi ..... B06B 1/0629 347/68
2014/0299667	A1*	10/2014	Baek ..... G06K 19/07722 235/492
2014/0304445	A1*	10/2014	Gervasi ..... G06F 13/4068 710/301
2014/0313261	A1*	10/2014	Nagai ..... B41J 2/1433 347/40
2014/0328023	A1*	11/2014	Choi ..... H01L 23/552 361/715
2015/0016607	A1	1/2015	Beals et al.
2015/0049142	A1*	2/2015	Hager ..... B41J 2/0453 347/60
2015/0092357	A1*	4/2015	Yoshikawa ..... H01L 25/00 361/746
2015/0113585	A1	4/2015	Beals et al.
2015/0143105	A1	5/2015	Beals et al.
2015/0147914	A1*	5/2015	Gao ..... H01R 12/716 439/638
2015/0178584	A1*	6/2015	Aller ..... G06K 9/3216 382/165
2015/0320506	A1*	11/2015	Sayles ..... A61B 90/98 235/385
2015/0366061	A1*	12/2015	Noda ..... H01L 23/13 361/803
2016/0132761	A1*	5/2016	Hanmer ..... G06Q 20/3572 235/492
2016/0140433	A1	5/2016	Alcaide
2016/0157346	A1*	6/2016	Wu ..... H05K 1/113 174/251
2016/0165731	A1*	6/2016	Hurwitz ..... H05K 1/183 361/761

FOREIGN PATENT DOCUMENTS

EP	1463322	9/2004
EP	1662361	5/2006
EP	1765013	3/2007
EP	2204997	7/2010
EP	2541959	1/2013
KR	3004415620000	2/2007
KR	3006175300000	10/2011
WO	2007072211	6/2007
WO	2011120901	10/2011

OTHER PUBLICATIONS

U.S. Appl. No. 14/499,956, Amendment and Response filed Sep. 23, 2016, 12 pages.  
 U.S. Appl. No. 14/500,037, Amendment and Response filed Sep. 26, 2016, 11 pages.  
 U.S. Appl. No. 14/500,113, Amendment and Response filed Sep. 28, 2016, 12 pages.  
 U.S. Appl. No. 29/521,234, Notice of Allowance mailed Oct. 14, 2016, 5 pages.

U.S. Appl. No. 29/521,236, Notice of Allowance mailed Oct. 17, 2016, 5 pages.  
 U.S. Appl. No. 13/799,891, Office Action mailed Dec. 30, 2016, 12 pages.  
 U.S. Appl. No. 14/608,900, Notice of Allowance mailed Jan. 3, 2017, 8 pages.  
 U.S. Appl. No. 13/799,891, Amendment and Response filed Nov. 18, 2016, 17 pages.  
 U.S. Appl. No. 14/499,956, Office Action mailed Nov. 8, 2016, 10 pages.  
 U.S. Appl. No. 14/500,037, Office Action mailed Nov. 10, 2016, 9 pages.  
 U.S. Appl. No. 14/500,113, Office Action mailed Nov. 28, 2016, 10 pages.  
 U.S. Appl. No. 14/608,900, Amendment and Response filed Dec. 5, 2016, 17 pages.  
 Chinese Patent Application No. 201330395635.2, Notice of Allowance, mailed Dec. 2, 2013.  
 Chinese Patent Application No. 201330395780.0, Notice of Allowance mailed Jan. 10, 2014.  
 Chinese Patent Application No. 201330395895.X, Notice of Allowance mailed Nov. 19, 2013.  
 European Patent Application No. 15184485.9, EESR mailed Mar. 3, 2016, 9 pages.  
 International Standard (1999) "Information technology—Identification cards—Integrated circuit(s) cards with contacts—Part 2: Dimensions and location of the contacts" Reference No. ISO/IEC 7816-2: 1999E, 11 pages.  
 PCT International Search Report and Written Opinion for PCT/US2013/039803, mailed Jan. 23, 2014, 13 pages.  
 Smart Card Module Poster complied by Endre Nagy of Hungary 1 page poster, edition Mar. 2004, www.wrankl.de/Uthings/Training.html.  
 TW Patent Application No. 102304015, Office Action mailed Mar. 24, 2014, 3 pages. (English Translation).  
 TW Patent Application No. 102304016, Office Action mailed Mar. 24, 2014, 3 pages. (English Translation).  
 TW Patent Application No. 102304017, Office Action mailed Mar. 24, 2014, 3 pages. (English Translation).  
 U.S. Appl. No. 13/799,891, Amendment and Response filed Dec. 1, 2014, 8 pages.  
 U.S. Appl. No. 13/799,891, Amendment and Response filed Dec. 10, 2015, 14 pages.  
 U.S. Appl. No. 13/799,891, Amendment and Response filed Jul. 6, 2015, 13 pages.  
 U.S. Appl. No. 13/799,891, Amendment and Response filed Jun. 14, 2016, 16 pages.  
 U.S. Appl. No. 13/799,891, Office Action mailed Aug. 10, 2015, 14 pages.  
 U.S. Appl. No. 13/799,891, Office Action mailed Feb. 3, 2015, 22 pages.  
 U.S. Appl. No. 13/799,891, Office Action mailed Jan. 14, 2016, 10 pages.  
 U.S. Appl. No. 13/799,891, Office Action mailed Jul. 18, 2016, 12 pages.  
 U.S. Appl. No. 14/499,956, Amendment and Response filed May 31, 2016, 11 pages.  
 U.S. Appl. No. 14/499,956, Amendment and Response filed Nov. 30, 2015, 7 pages.  
 U.S. Appl. No. 14/499,956, Office Action mailed Jan. 29, 2016, 8 pages.  
 U.S. Appl. No. 14/499,956, Office Action mailed Jul. 30, 2015, 23 pages.  
 U.S. Appl. No. 14/499,956, Office Action mailed Jun. 17, 2016, 10 pages.  
 U.S. Appl. No. 14/500,037, Amendment and Response filed Dec. 10, 2015, 8 pages.  
 U.S. Appl. No. 14/500,037, Amendment and Response filed Jun. 16, 2016, 12 pages.  
 U.S. Appl. No. 14/500,037, Office Action mailed Aug. 10, 2015, 20 pages.  
 U.S. Appl. No. 14/500,037, Office Action mailed Feb. 16, 2016, 9 pages.



(56)

**References Cited**

OTHER PUBLICATIONS

U.S. Appl. No. 14/500,037, Office Action mailed Jun. 24, 2016, 10 pages.  
U.S. Appl. No. 14/500,113, Amendment and Response filed Dec. 14, 2015, 8 pages.  
U.S. Appl. No. 14/500,113, Amendment and Response filed Jun. 17, 2016, 12 pages.  
U.S. Appl. No. 14/500,113, Office Action mailed Aug. 12, 2015, 21 pages.  
U.S. Appl. No. 14/500,113, Office Action mailed Feb. 17, 2016, 8 pages.  
U.S. Appl. No. 14/500,113, Office Action mailed Jun. 28, 2016, 10 pages.  
U.S. Appl. No. 14/608,900, Amendment and Response filed Jun. 21, 2016, 17 pages.  
U.S. Appl. No. 14/608,900, Office Action mailed Aug. 5, 2016, 14 pages.  
U.S. Appl. No. 14/608,900, Office Action mailed Mar. 21, 2016, 12 pages.  
U.S. Appl. No. 29/448,754, Amendment and Response filed Apr. 15, 2015, 10 pages.  
U.S. Appl. No. 29/448,754, Amendment and Response filed Dec. 10, 2014, 5 pages.  
U.S. Appl. No. 29/448,754, Amendment and Response filed Dec. 30, 2015, 7 pages.  
U.S. Appl. No. 29/448,754, Notice of Allowance mailed Jan. 29, 2016, 6 pages.  
U.S. Appl. No. 29/448,754, Office Action mailed Apr. 1, 2015, 11 pages.  
U.S. Appl. No. 29/448,754, Office Action mailed Jul. 31, 2015, 8 pages.  
U.S. Appl. No. 29/448,754, Office Action mailed Sep. 10, 2014, 26 pages.  
U.S. Appl. No. 29/448,761, Amendment and Response filed Apr. 20, 2015, 9 pages.  
U.S. Appl. No. 29/448,761, Amendment and Response filed Dec. 10, 2014, 6 pages.  
U.S. Appl. No. 29/448,761, Amendment and Response filed Dec. 30, 2015, 8 pages.  
U.S. Appl. No. 29/448,761, Notice of Allowance mailed Jan. 22, 2016, 6 pages.

U.S. Appl. No. 29/448,761, Office Action mailed Aug. 14, 2015, 7 pages.  
U.S. Appl. No. 29/448,761, Office Action mailed Mar. 26, 2015, 12 pages.  
U.S. Appl. No. 29/448,761, Office Action mailed Sep. 10, 2014, 26 pages.  
U.S. Appl. No. 29/448,766, Notice of Allowance mailed Apr. 22, 2015, 5 pages.  
U.S. Appl. No. 29/448,766, Notice of Allowance mailed Jan. 12, 2015, 36 pages.  
U.S. Appl. No. 29/448,766, Notice of Allowance mailed Sep. 18, 2014, 28 pages.  
U.S. Appl. No. 29/521,234, Notice of Allowance mailed Sep. 8, 2016, 26 pages.  
U.S. Appl. No. 29/521,236, Notice of Allowance mailed Sep. 12, 2016, 26 pages.  
Chinese Notice of Allowance in 201530425865.8 mailed Jun. 7, 2016, 4 pages.  
Taiwanese Office Action in 104306112 mailed Jun. 23, 2016, 9 pages.  
U.S. Appl. No. 14/499,956, Amendment and Response filed Mar. 8, 2017, 12 pages.  
U.S. Appl. No. 14/500,037, Amendment and Response filed Mar. 10, 2017, 11 pages.  
U.S. Appl. No. 29/567,139, Notice of Allowance mailed Mar. 10, 2017, 28 pages.  
U.S. Appl. No. 29/525,632, Office Action mailed Mar. 2, 2017, 17 pages.  
U.S. Appl. No. 13/799,891, Amendment and Response filed Mar. 30, 2017, 15 pages.  
U.S. Appl. No. 14/500,113, Office Action mailed Apr. 6, 2017, 10 pages.  
U.S. Appl. No. 14/608,900, Notice of Allowance mailed Apr. 12, 2017, 2 pages.  
U.S. Appl. No. 29/567,139, Notice of Allowance mailed Apr. 3, 2017, 2 pages.  
Taiwanese Notice of Allowance in Application 104306112, mailed Feb. 10, 2017, 5 pages.  
European Search Report in Application 13878216.4, mailed Jan. 13, 2017, 16 pages.

\* cited by examiner

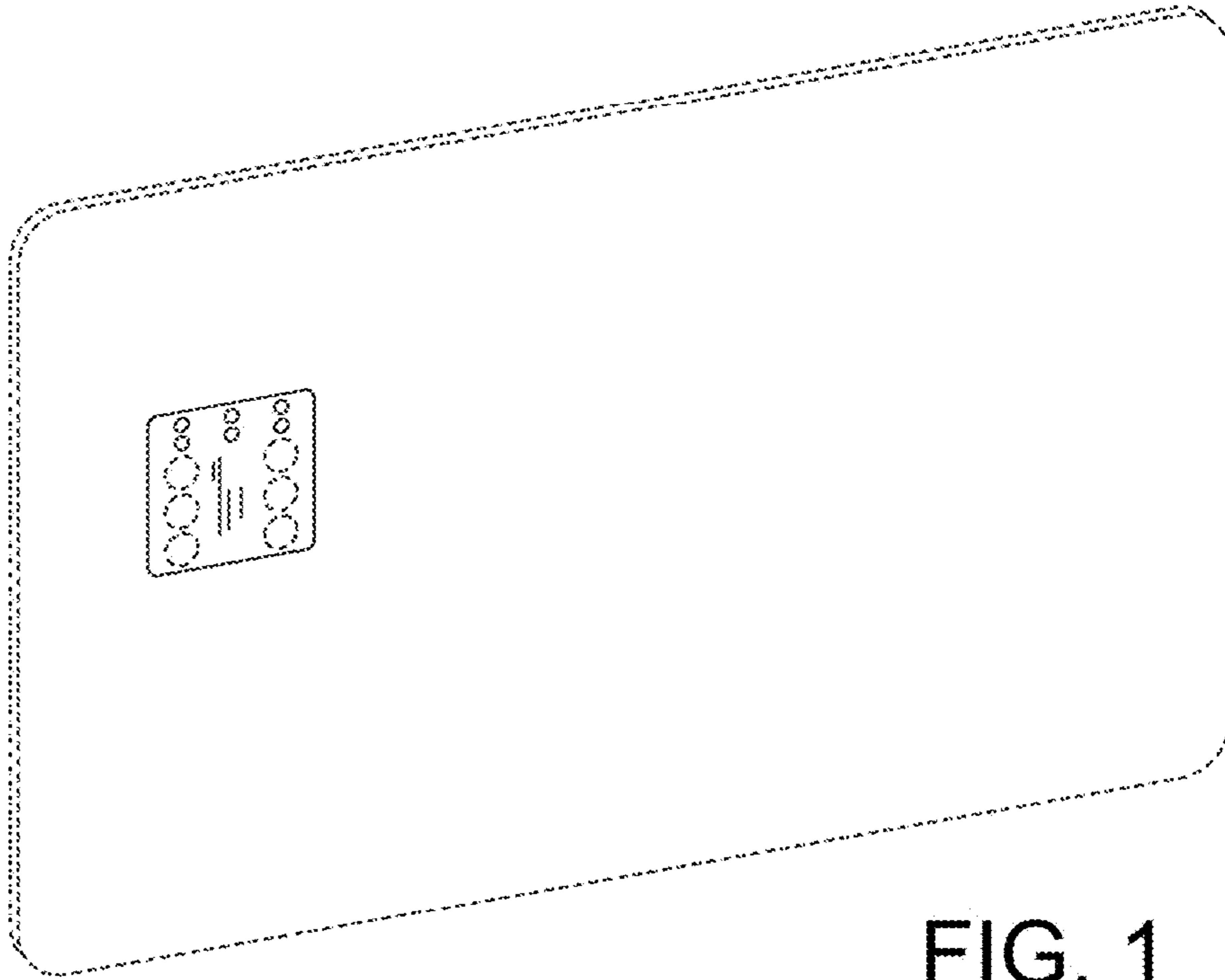


FIG. 1

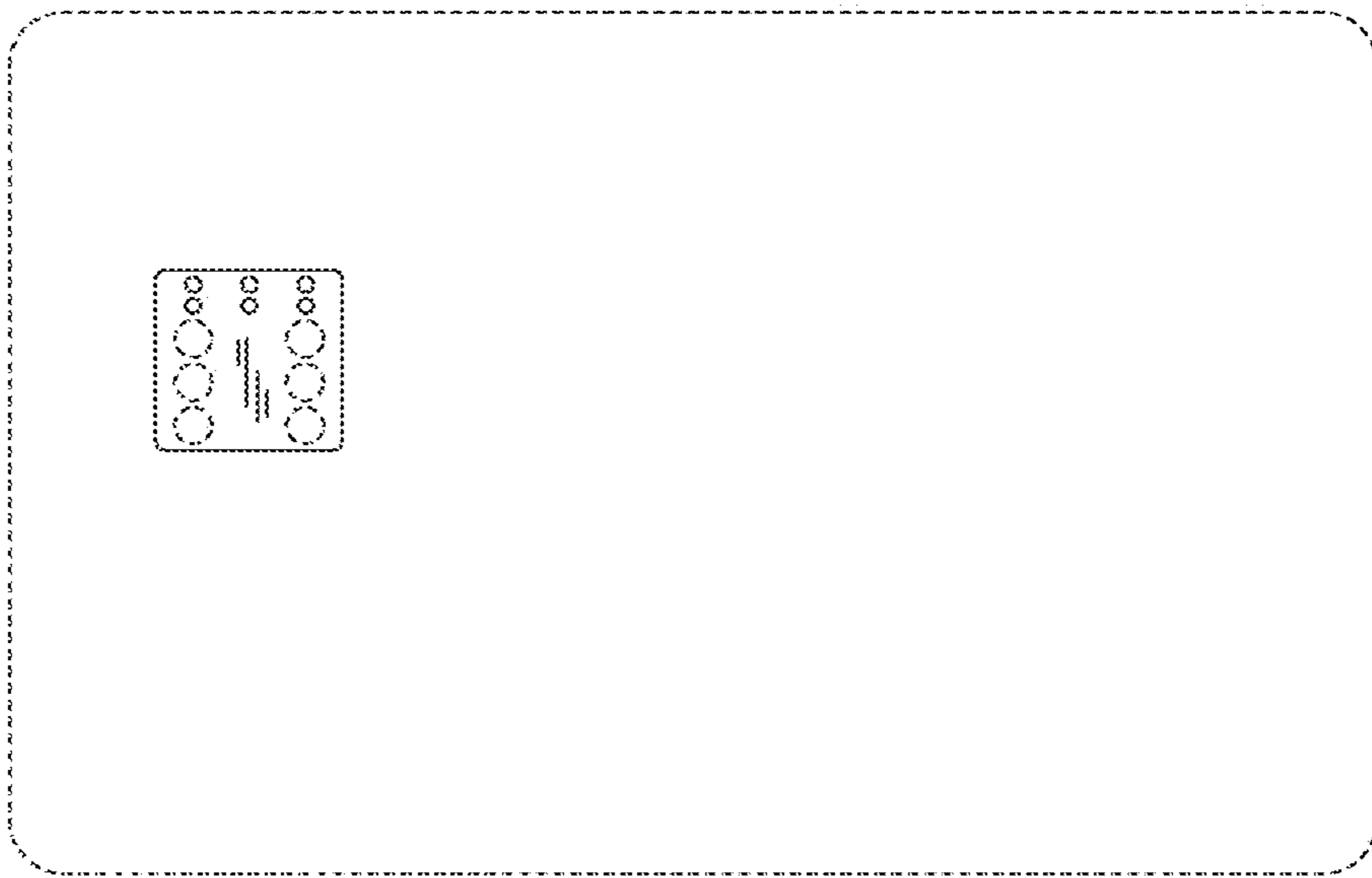


FIG. 2

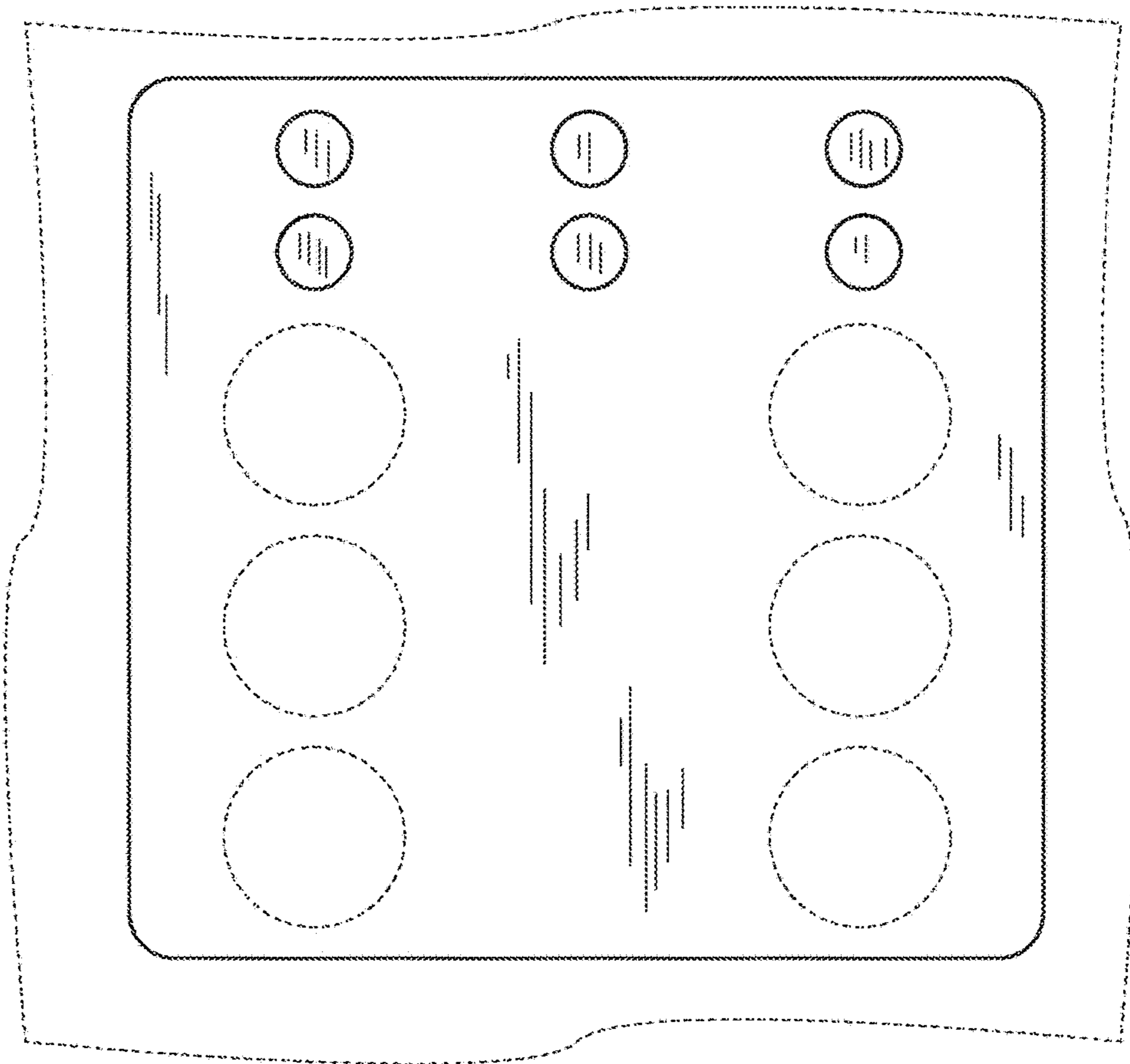


FIG. 3

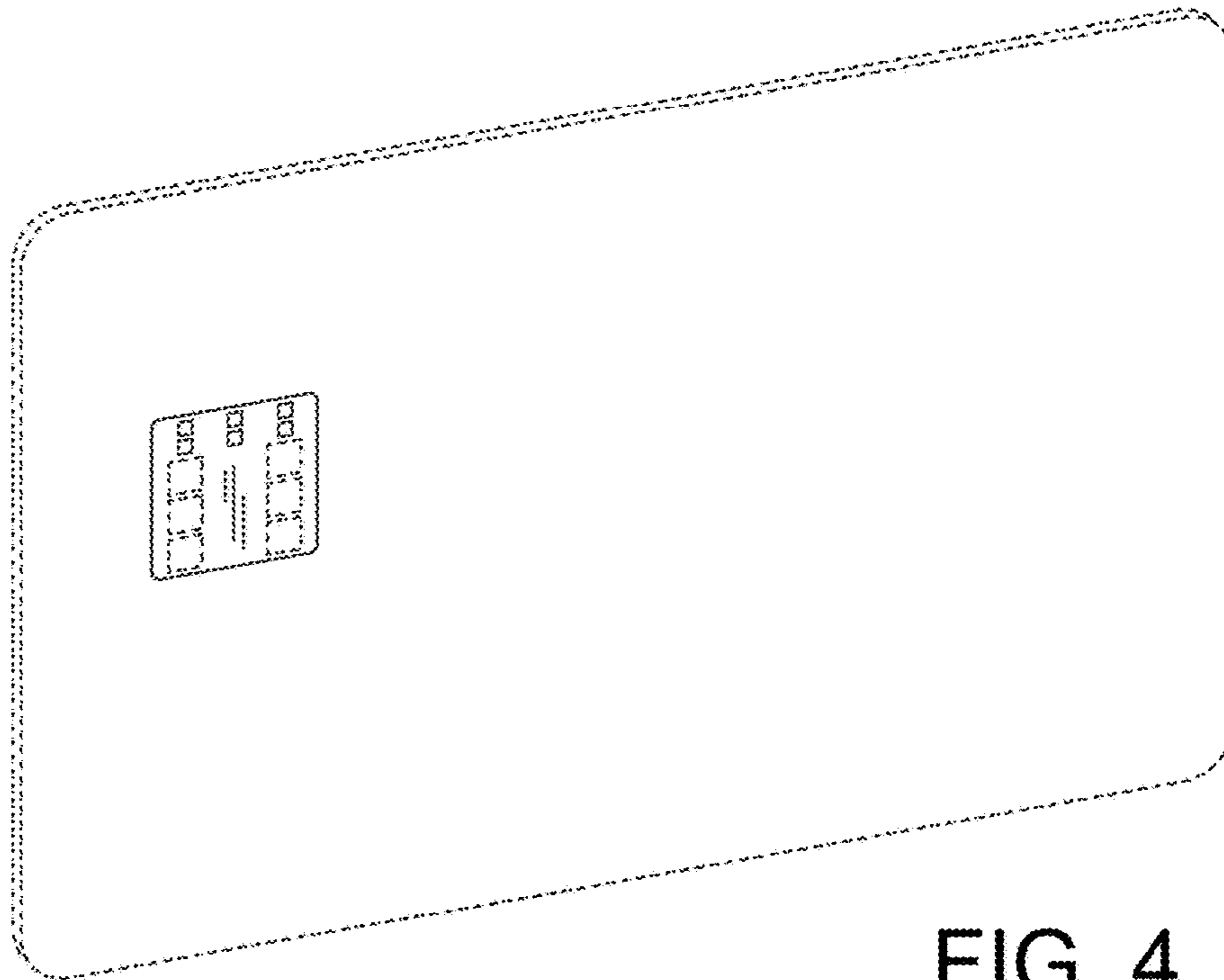


FIG. 4

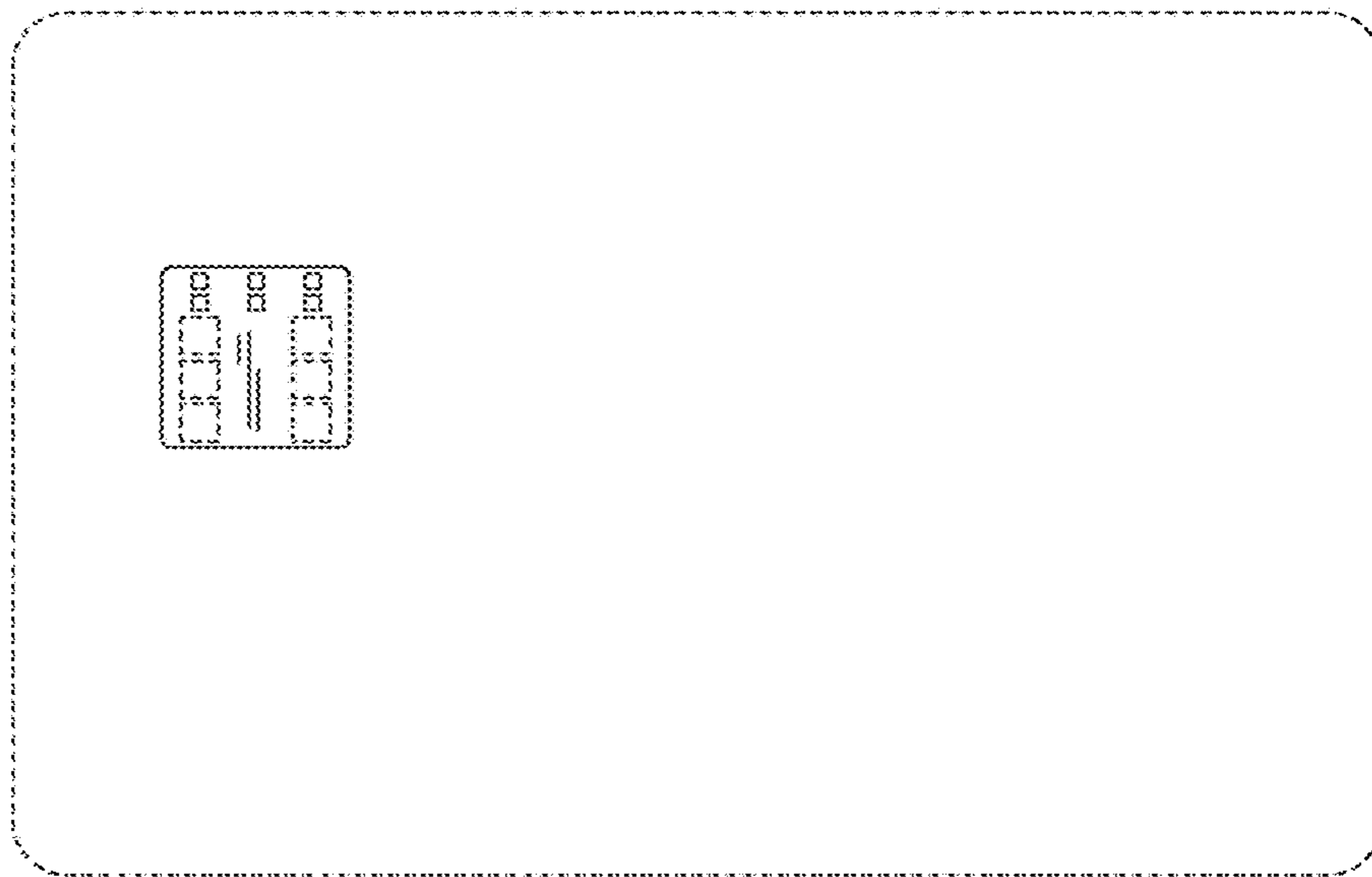


FIG. 5

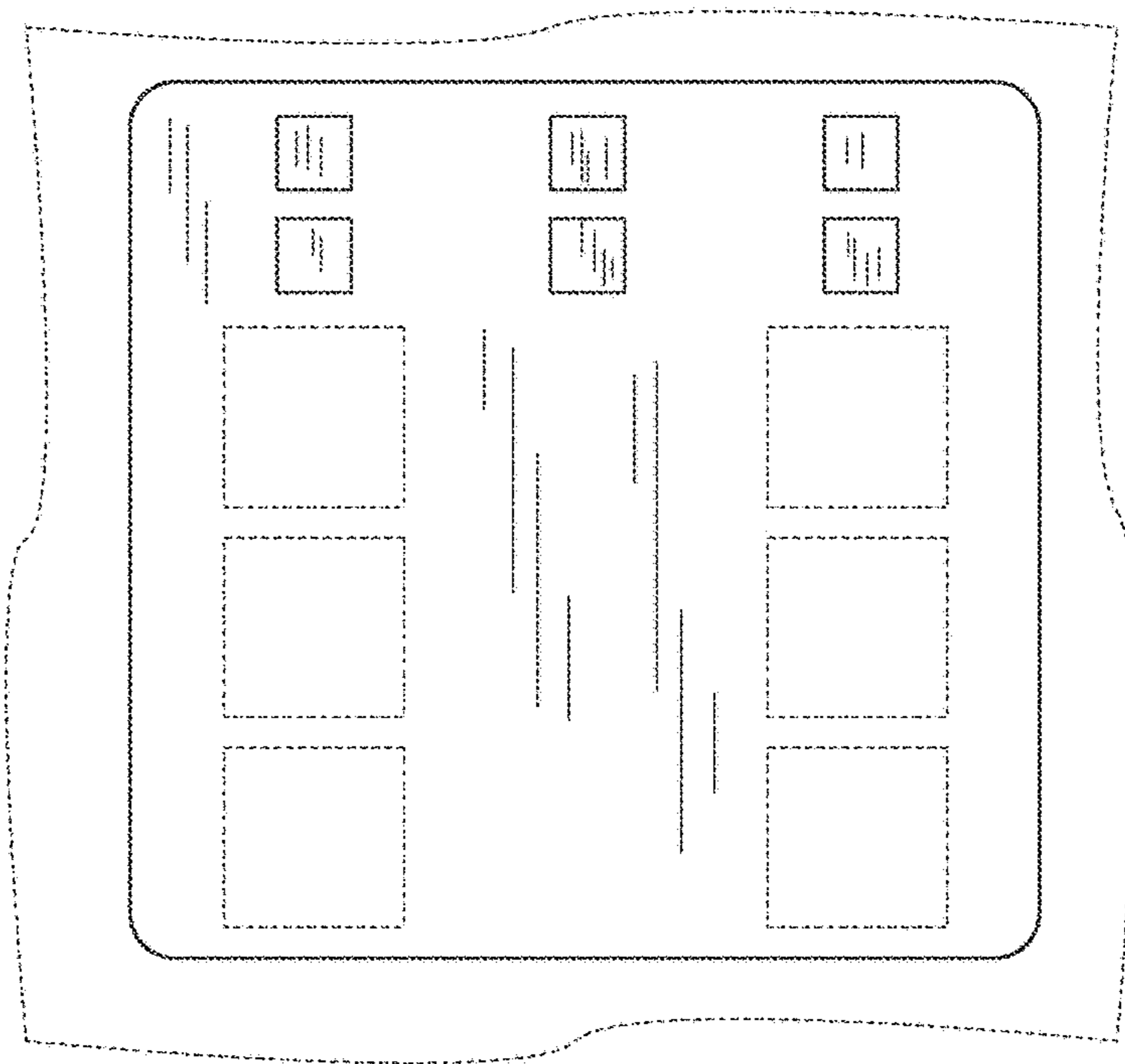


FIG. 6