(51) International Patent Classification:
A63F 1/14 (2006.01) A63F 1/18 (2006.01)

(21) International Application Number:
PCT/JP2014/001584

(22) International Filing Date:
19 March 2014 (19.03.2014)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2013024282 12 April 2013 (12.04.2013) AU


(72) Inventor: SHIGETA, Yasushi; c/o ANGEL PLAYING CARDS CO., LTD., 614 Higashi Shiokoji-cho, Shiokoji-dori Karasuma Nishi-ku, Shimogyo-ku, Kyoto-shi, Kyoto, 6008216 (JP).


(85) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published: — with international search report (Art. 21(3))

(54) Title: CARD GAME SYSTEM AND A METHOD OF A TABLE GAME

(57) Abstract: A table game system capable of providing a table game to provide a chance to bet more higher paid off odds and additional wagering opportunities during the play in a way that is not complicated is provided. The set of shuffled decks of playing cards 1s has a different card arrangement orders due to shuffling, and thus, each set is unique. Therefore, in order to identify each set, an ID code is used in the form of a bar code 5 or a QR (quick response) code. The set of shuffled decks of playing cards 1s has a special card 1a which has been packaged together with other normal cards 1 of the shuffled decks of playing cards 1s in one package in a factory (see Fig. 1(b)). Fig. 1(b) shows a state in which the packing box 4 is exposed partially and contains a special card 1a.
Description

Title of Invention: CARD GAME SYSTEM AND A METHOD OF A TABLE GAME

Technical Field

[0001] The present invention relates to a table game system and a method for playing the Baccarat game, in which a bettor makes a wager that either a Banker hand or a Player hand will win.

[0002] Baccarat is one of the many live table games played in casinos or gaming establishments. Baccarat uses a standard deck of 52 playing cards and is usually dealt from a shoe having multiple decks that have been shuffled together prior to the beginning of play.

[0003] A multiple number of decks of standard playing cards, 52 in number, are used; typically eight decks or six decks are shuffled together preliminary and placed in a shoe from which the cards are dealt during the play of the game. Prior to the deal, each bettor can make one of three wagers: 1) that the Bank hand will win; 2) that the Player hand will win; or 3) that the Bank hand and the Player hand will tie. Wagering locations are provided on the Baccarat table layout. Whichever of the Bank hand or the Player hand is closest to a total on nine is the winner.

[0004] The General method of playing the conventional manner of play of Baccarat comprising:

a) dealing two cards comprising the Bank hand and dealing two cards comprising the Player hand,

b) dealing an additional card to the Player hand and an additional card to the Bank hand if required according to the rule of play of Baccarat. When the rules of Baccarat require a third card for the player hand, the rule requests a "card for the Player." After the Player hand is completed, the Banker hand is completed in the same fashion,

c) determining a winning hand and a losing hand according to the conventional manner of rule of play of Baccarat,

d) paying off the bettor a predetermined amount if the bettor has wagered on the winning hand and collecting the amount wagered on the losing hand.

[0005] Winning Bank hand wagers are paid off at odds of one-to-one and the house charges a five percent (5%) commission on the amount won by the bettor. A winning Player hand wagers are paid off at odds of one-to-one and the bettor is not charged any commission on the amount of his winnings or his wager. Winning wagers on the Tie hand bet are paid off at odds of nine-to-one or eight-to-one (depending on the gaming establishment) and the bettor is not charged any commission on the amount of his
winnings or his wager.

[0006] After all wagers are made, cards are dealt from a card shooter apparatus shoe by a dealer according to the Baccarat game rule to the Bank position and to the Player position on the table layout. The card shooter apparatus that is put on a game table and has a card reading function that reads the number of the card from the code printed on each card. The card shooter apparatus have a processing function of determining whether a winning hand is the Banker or the Player according to the Baccarat game rule based on information of numbers of the cards sequentially read by the card reading unit. These card shooter apparatus is disclosed in Patent Literature 1. (USP 7762889 (column 8. L.25-53, Fig.1, 12)).

Citation List

Patent Literature

[0007] PTL 1: USP 7762889 (column 8. L.25-53, Fig.1 and 12)

Summary of Invention

Technical Problem

[0008] A conventional Baccarat game there is no bigger odds than of nine-to-one winning wagers on the Tie hand. There is a need for a better to bet more higher paid off odds or additional wagering opportunities during the play.

[0009] The present invention has been made in view of the above problem, and aims to provide a table game system with which it is possible to provide a chance to bet more higher paid off odds and additional wagering opportunities during the play in a way that is not complicated rules.

[0010] Traditionally, each bettor who has made the largest wager is given honor to turn cards faces up. The present invention also provides a table game system to prevent a fraudulent act such as changing a cards during facing us in the card game.

Solution to Problem

[0011] To solve the above conventional problems, the present invention provides a card game system for playing the Baccarat game,

comprising:

shuffled decks of playing cards being preliminary shuffled at random, a code being printed invisible under normal conditions on each card thereof and representing the number (rank) of a card,

and

a card shooter apparatus that is put on a game table and has a card reading function that reads the number of the card from the code;

the card shooter apparatus comprises:

a card reading unit that read the code representing the number of the card from the
a control unit having a processing function to determine win or lose of the card game based on information about the number of the cards sequentially read by the card reading unit;
wherein a special card has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, and the special card is different from other normal cards of card deck and has special invisible code being different from the codes of the other cards and the code representing that the card is the special card among shuffled decks of playing cards;
the control unit having a processing function to determining each card to be received the Banker or the Player, storing the number of the card read for the player or the banker and determining whether a winning hand of the Banker or the Player hand contains the special card, and
the method has following further steps;
  a) a bettor makes a wager that either a Bank hand or a Player hand will win and a side bet wager whether the winning hand contains the special card,
  b) determining whether a winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand,
  c) treating the winning hand as a special win when the winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand.

**Brief Description of Drawings**

[0012] [fig.1]Fig. 1 (a) is a perspective view showing a state in which a package of shuffled playing cards, Fig. 1 (b) is a perspective view showing a state in which a package of shuffled playing cards which is partially broken to show a portion of the cards.
[fig.2]Fig. 2 shows an example of a card according to the embodiment of the present invention, Fig. 2(a) shows an example of a normal card 1 and Fig. 2(b) shows an example of a special card 1a as a special Ace, Fig. 2(c) shows another example of a special card different from any of other normal cards, Fig. 2(d) shows further example of a special card as cut card 1c according to the embodiment of the present invention.
[fig.3]Fig. 3 is a schematic diagram showing a state in which the shuffled playing cards are housed in a card shoe apparatus.
[fig.4]Fig. 4 is a side view showing a state in which the cut card is inserted to the shuffled playing cards.
[fig.5]Fig. 5 is a plan view of a table used in an embodiment of the present invention,
[fig.6]Fig. 6 is a block diagram illustrating the entirety of a card shoe apparatus of card Game system according to an embodiment of the present invention.
Fig. 7 is a plan view of a main portion of a card guide of the card shoe apparatus, with the card guide partially broken.

Fig. 8 is a side view of a main portion of a card guide of the card shoe apparatus, with partially broken.

Fig. 9 is a diagram illustrating the relation between output waves from sensors and marks with the card shoe apparatus.

Fig. 10 is a diagram illustrating the shuffle machine to make and shuffle the shuffled playing cards of card Game system according to an embodiment of the present invention.

Description of Embodiments

Embodiment 1 of the present invention will be described with reference to the attached drawings. Embodiment 1 of the present invention provides a card game system for playing the Baccarat game. In Fig. 1, the shuffled decks of playing cards I is are preliminary shuffled at random in a factory. The shuffled decks of playing cards I is are made up of a predetermined number of decks, for example, in the case of eight decks of playing cards I is, there are 416 cards. The shuffled decks of playing cards I is are shuffled by a card shuffling device (will be shown after) in advance in order for them to be arranged in a random order, housed in one package 2 that encases the shuffled decks of playing cards I is, sealed with a sealing material or a shrink packaging material, and then supplied to casinos.

Note that Fig. 1(a) shows a state in which the packing box 4 houses the shuffled decks of playing cards I is and each being attached thereon a bar code 5, the bar codes 5 having each different ID code (identification code). The set of shuffled decks of playing cards I is has a different card arrangement orders due to shuffling, and thus, each set is unique. Therefore, in order to identify each set, an ID code is used in the form of a bar code 5 or a QR (quick response) code. The set of shuffled decks of playing cards I is has a special card 1a which has been packaged together with other normal cards 1 of the shuffled decks of playing cards I is in one package in a factory (see Fig. 1(b)). Fig. 1(b) shows a state in which the packing box 4 is exposed partially and contains a special card 1a.

Fig. 2(a) shows an example of a normal card 1 and Fig. 2(b) shows an example of a special card 1a as a special Ace, Fig. 2(c) shows another example of a special card different from any of other normal cards, Fig. 2(d) shows further example of a special card as cut card 1c according to the embodiment of the present invention. As shown in the example of Fig. 2(a), a code 6 being printed invisible under normal conditions on each card 1 thereof and representing the number (rank) of a card 1. Marks M are arranged by printing or the like so as to be invisible to the naked eye, using, for
example, ultraviolet reactive ink. Marks M are arrayed on both edges of a card 1 and a
code 6 is composed with the marks M suitably provided in a region where a picture or
suit mark 101 is not provided as shown. The special card 1a is different from other
normal cards 1 of a card deck and has a special code 6s (arrangements of invisible
mark(s) M) being different from the codes 6 of the other cards 1. As described above,
in the present embodiment, marks M or special code 6s are suitably arrayed on each
edge of a card 1 or 1a.

[0016] As for the association between code 6 (a mark arrangement) and number of a card, a
combination of two rows of mark M may be associated with the number (rank 1 to 9
and 0) of a card or each special invisible code 6s. Moreover, one of the rows may be
associated with a number of the card and the other row may be associated with a suit of
the card. In addition, Fig. 2(a) is just illustrative, and the number of mark rows is not
limited to two, but the number of rows may be one or three or more. However, actual
marks are printed using UV ink and not usually visible.

[0017] Next, with reference to Fig. 3, a method of housing the shuffled decks of playing
cards Is in a card shooter apparatus 15 that is used in a casino or the like will be
described. When the shuffled decks of playing cards Is are housed in the card shooter
apparatus 15 to be used in a casino or the like, the packing box 4 is removed partially,
thereafter, the shuffled decks of playing cards Is are held and lifted, then housed in a
card housing portion 15h of the card shooter apparatus 15 as shown in Fig. 3 and the
rest 4r of the packing box 4 is removed thereafter to use the shuffled decks of playing
cards Is for a new card games.

[0018] In most casinos a card cut step of inserting a cut card 1c into the shuffled decks of
playing cards Is, which may be used in most casinos in order to stop the use of the
now using shuffled decks of playing cards Is in the middle of a game as appropriate as
shown by Fig. 4. Customer(s) of the casino is requested to insert the cut card 1c into
the shuffled decks of playing cards Is. There may be a chance of cheating if indexes
102 of a shuffled playing card Is at the place of insertion are seen when inserting the
cut card 1c. It is important that an operator of casinos must show the backside of the
shuffled decks of playing cards Is not to show the index 102 of the cards. In another
case, a cut card 1c together with the shuffled decks of playing cards Is may be
packaged in the packing box 4 in advance in a factory as a package 2.

[0019] Next, with reference to Fig. 5, a new Baccarat game using our new table game
system of this invention will be described. The shuffled decks of playing cards Is with
special cards 1a (from 0 to 8 special cards are inserted in the shuffled decks of playing
cards Is ) shown in Fig. 2(b), 2(c). The card shooter apparatus 15 is used on a table 7
in a casino to deliver each card 1 on the table 7. A multiple number of decks of
standard playing cards, (52 in number for ldeck), are used; typically eight decks or six
decks are shuffled together preliminary and placed in a card shooter apparatus 15 from which the cards are dealt during the play of the game. Prior to the deal, eachbettor can make one of three wagers: 1) that the Bank hand will win at position B; 2) that the Player hand will win at position P; or 3) that the Bank hand and the Player hand will tie at the position T. Wagering locations are provided on the Baccarat table layout 16. Whichever of the Bank hand 17 or the Player hand 18 is closest to a total on nine is the winner.

[0020] The game rule for this invention has further rules for following further step that a bettor makes a wager that either a Bank hand or a Player hand will win together with a side bet wager at betting spots 19 whether the winning hand or Tie hands contain the special card 1a. A control apparatus of this invention has further rule (programmed) for determining whether a winning hand of the Banker or the Player hand contains the special card 1a. The game rule for this invention has further rules for treating the winning hand as a special win when the winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand. When the winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand will be paid off at odds of one-to-fifty (50).

[0021] An embodiment of a table game system of the present invention will be described below in detail with Fig. 6. Fig. 6 is a block diagram illustrating a card shoe apparatus, generally designated by reference number 15, for use in a table game system according to an exemplary embodiment of the present invention. The card shoe apparatus 15 includes a card guide unit 307 that guides cards 1 that are manually drawn out one by one from a card housing unit 305 onto a game table 306, a code reading unit 308 that reads, when a card 1 is manually drawn out from the card housing unit 305 by a dealer or the like of a casino, the code 6,6s that indicates a figure (number, rank) of that card 1 or special card, a winning/losing determination unit 310 that determines the winning/losing of the card game based on the numbers of the cards 1 sequentially read by the code reading unit 308, and an output means 311 that outputs the result of the determination made by the winning/losing determination unit 310.

[0022] Next, the code reading unit 308 that reads, from a card 1, the code 6,6s that indicates a figure (number, rank) of the card 1 when the card 1 is manually drawn out from the card housing unit 305 will be described in detail with reference to Fig. 5. The code reading unit 308 is provided in the card guide unit 307 that guides the cards 1 manually taken out one by one from an opening 313 onto the game table 306, with the opening 313 provided in a front portion of the card housing unit 305. The card guide unit 307 includes an inclined surface and a card guide 314 attached at an edge portion of each of both sides of the inclined surface, with the card guide 314 also serving as a sensor
cover. The card guide 314 is configured to be attachable/detachable with screws or the like (not shown) so as to be replaceable. When a card guide 314 is removed, a sensor group 315 of the code reading portion 308 is exposed. The sensor group 315 is composed of four sensors, including two ultraviolet reactive sensors (UV sensors) 320 and 321, and object detection sensors 322 and 323.

[0023] The object detection sensors 322 and 323 are optical fiber sensors that each detect the presence of the card 1, and are capable of detecting movement of the card 1. The object detection sensor 322 is placed in the upstream side of the card guide unit 307 with respect to the travel direction of the card 1 (indicated by the arrow S in FIG. 6), and the object detection sensor 323 is placed in the downstream side of the card guide unit 307 with respect to the travel direction of the card 1. As shown in Fig. 6, the object detection sensors 322 and 323 are respectively provided in the upstream side and the downstream side of the UV sensors 320 and 321. The UV sensors 320 and 321 each include an LED (UV LED) that emits an ultraviolet ray and a detector. The marks M are printed on the card 1 in UV luminescent ink that emits color when UV ray is applied. The card 1 is irradiated with the UV ray (black light) or UR ray (ultra red) may be used, and the detector detects the light reflected by the marks M of the code 6,6s of the card 1. The UV sensors 320 and 321 are connected to a control apparatus 312 of the code reading unit 308 via a cable. In the code reading unit 308, the arrangement patterns of the marks M are determined based on the output signals from the detectors of the UV sensors 320 and 321, such that the number (rank) corresponding to the code 6,6s is determined.

[0024] In the code reading unit 308, the start and end of the reading performed by the UV sensors 320 and 321 are controlled by the control apparatus 312 based on the detection signals from the object detection sensors 322 and 323. Also, the control apparatus 312 determines whether the card 1 has normally passed through the card guide unit 307 based on the detection signals from the object detection sensors 322 and 323. As shown in Fig. 2(a), the rectangular marks M are arranged within a framework of two rows with four columns on each of the upper and bottom edges of a card 1, and the arrangement of such marks indicates the rank (number) and the suit (Heart, Spade or the like) of the card. According to an exemplary embodiment, for each card, a mark M or code 6s may either be present or absent at each of the predetermined locations within the framework of rows and columns depending on the particular mark and suit to be encoded. When the UV sensor(s) 320 and/or 321 detect(s) a mark M that is filled in, such UV sensor(s) output(s) an on signal, and when the UV sensor(s) 320 and/or 321 do not detect a mark M, an on signal is not generated. In this way, the code reading unit 308 identifies the code 6 or 6s based on the relative difference or the like between the two marks M detected by the two UV sensors 320 and 321, thereby identifying the
number (rank) and the type (suit) of the corresponding card 1 or the special card la, lc.

According to an exemplary embodiment, for each card, a mark M may either be present or absent at each of the predetermined locations within the framework of rows and columns depending on the particular mark and suit to be encoded. The relation between the code 302 and the output of the on signals from the two UV sensors 320 and 321 are shown in Fig. 9. It is possible to identify a predetermined arrangement pattern of the marks M based on the comparison results of the relative changes in the output of the on signals from the UV sensors 320 and 321. As a result, in two rows (the upper and lower rows), four types of arrangement patterns of the mark M are possible, and since patterns are printed in four columns, it is possible to form 256 types of codes (4 x 4 x 4 x 4). Fifty two (52) playing cards and the special cards la, lc are each assigned to one of the 256 codes, and the relations of such assignment are stored in memory 12M as an association table.

The special card la is different from other normal cards 1 of a card deck and has a special code 6s (arrangements of invisible mark(s) M) being different from the codes 6 of the other cards 1. As described above, in the present embodiment, the special code 6s is selected from 256 types of codes but different from codes of normal cards and this relations of such assignment of the special cards are also stored in memory 12M as an association table for the special cards la, lc.

The special code 6s is also suitably arrayed on each edge of a card la and configuration thereof is thereby adopted in which the card reading unit 308 can, by identifying the code 6s, identify a card is the special card la based on that predetermined association table (not shown). It should be noted that the assignment of a specific code from 256 codes to each playing card or the special card la does not need to be fixed, and in other exemplary embodiments of the invention each of the 52 cards and several special cards can be freely associated with codes out of the 256 codes to be stored in the association table. Therefore, it is possible to change the associations between the 256 codes and 52 cards and the special cards would be depending on the situation or places to be used. Preferably, the code is printed with a paint material that becomes visible when irradiated with UV ray, and placed in a position where it does not overlap the indications of the card types or indexes 102.

An association table may be prepared by freely out of the 256 codes, and a plurality of different association tables (ex. 1 to 10 or more tables) may be prepared in advance. If the code 6s do not match the code defined in the applicable association table, an error is detected and it is determined that cheating may have occurred.

Next, the configuration of the control apparatus 312 will be described. The control apparatus 312, the code reading unit 308, the winning/losing determination unit 310 and the like are realized by a computer apparatus, and in particular a computer
apparatus including at least a memory, at least a processor, and at least a non-transitory computer readable medium on which may be stored instructions that are read by the at least one processor to perform algorithms according to various exemplary embodiments of the present invention. The numbers of cards sequentially taken out onto the game table 306 are acquired using the UV sensors 320 and 321 in the code reading unit 308, and the numbers of cards thus acquired are sequentially stored in a memory. Conventional recognition technology that can read the number of the card directory from the surface of cards may be used to read the number of each card.

[0030] At this time, information on which card 1 is dealt to which player is also stored (to the Bank hand 17 or the Player hand 18). The number of each card is stored in association with the player to whom that card was dealt (to the Bank hand 17 or the Player hand 18). In baccarat, there is a player and a banker. The rank (number) of the card dealt is stored in the memory in association with the Bank hand or the Player hand to whom it was dealt, and the ranks (number) of the cards dealt are added for each player (the Bank hand and the Player hand). The dealing of each card and an additional card to the Player hand and an additional card to the Bank hand are determined according to the rule of play of Baccarat stored in the control apparatus 312. When the rules of Baccarat require a third card for the player hand, the rule requests a "card for the Player." After the Player hand is completed, the Banker hand is completed in the same fashion. Then the winner is determined based on the programmed rules. A "tie" is also judged. The winning/losing determination unit 310 determines the winning/losing of the card game based on the numbers of the cards 1 sequentially read by the code reading unit 308 and whether the game of this round is over.

[0031] When the game of this round is over, an operator or dealer is required to push a result key 360 on the side of a card shoe apparatus 304 to let the output means 311 output the result, the winning/losing of each card game. The operator or dealer will pay off the bettor a predetermined amount if the bettor has wagered on the winning hand and collecting the amount wagered on the losing hand.

[0032] The game rule for this invention has further rules for following further step that a bettor makes a wager that either a Bank hand or a Player hand will win together with a side bet wager whether the winning hand contains the special card. The control apparatus 312 has further program for determining whether a winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand. The game rule for this invention has further rules for treating the winning hand as a special win when the winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand.

When the winning hand of the Banker or the Player hand contains the special card
and the bettor having made the side bet wager for the winning hand will be paid off at
odds of one-to-fifty (50).

[0033] The control apparatus 312 has a processing function to determine win or lose of the
card game based on information about the number of the cards sequentially read by the
card reading unit and further has a processing function that determine each card shall
be received by which hand, the Banker or the Player, and storing the number of the
card read for the player and the banker. The control apparatus 312 further determines
whether a winning hand of the Banker or the Player hand contains the special card.

[0034] The shuffled decks of playing cards I is are shuffled by a card shuffling device (as
manufacturing line) as shown Fig. 10 in a random order. One or more special cards 1a,
1c also have been packaged together with the shuffled decks of playing cards by a card
shuffling device (as manufacturing line) as shown Fig. 10. The number of the special
card 1a, 1c to be inserted into the shuffled decks I is of playing cards I is determined by
at random number from zero (0) to ten (10) or more by a special card exchanger
system 500 (a certain manipulation robot etc.). The special card exchanger system 500
is controlled by computer program and determines the number of the special cards 1a,
1c from zero to ten or more to be inserted in each the shuffled decks of playing cards
I is. The number of the special cards 1a 1c to be inserted differs from 0 to ten by each
shuffled decks of playing cards I is at random by randomizing program and according
to the program the special card exchanger system 500 withdraw certain number of the
normal cards (ex. Ace of spades) and insert the same number or more special cards (it
may be the same suite and rank but different color of ex. Ace of spades or simply ad-
ditional special cards) 1a,1c by the predetermined number according to the random
order program by the number from zero (0) to ten (10) or more.

[0035] Figure 10 is a diagram showing a schematic configuration of a shuffling machine 400
used to shuffle playing cards I together with the special cards 1a,1c in the manu-
facturing process of the shuffled decks of playing cards I is according to the present em-
bodiment. As shown in Figure 10, the shuffling machine 400 includes card stack
holders 401, card feeders 402, slide rails 403, feeder travel rollers 404, a card delivery
roller 405, a camera 406 (or a card sensor 409 described later), and an image
processing unit 408. The card stack holder 401 has multiple pockets 401a to 401g. In-
cidentally, the card stack holder 401 has seven pockets, the card stack holder 401 may
have any number of pockets. Movable partition plates 407a to 407f are installed
between the pockets. The card feeder 402 is designed such that when all the playing
cards (including several numbers of the special cards 1a) to be shuffled are placed on
the card feeder 402, the card delivery roller 405 on the bottom rotates, sending out a
card 1 from the lowermost part of the card feeder 102 toward the card stack holder 401
through a card delivery port provided in a lower flank of the card feeder 402. Also, the
card feeder 402 is configured to be movable in a vertical (up and down) direction along the slide rail 403 by means of the feeder travel rollers 404 driven by drive means such as a motor (not shown).

With the configuration described above, the shuffling machine 400 alternately slides the card feeder 402 to a position facing any of the pockets 401a to 401g and sends out the card 1 from the card feeder 402 to the pocket. Incidentally, the shuffling machine 400 determines the position to move the card feeder 402 to, i.e., the position facing one of the pockets 401a to 401g, at random using a random number generator program or the like. Consequently, the cards (including several numbers of the special cards lala,lc) loaded in the card feeder 402 is sent out one by one in a random order to the pockets 401a to 401g of the card stack holder 401. When all the cards loaded in the card feeder 402 are sent out to the card stack holder 401, the partition plates 407a to 407f recede from the inside of the card stack holder 401 and consequently cards sorted into the pockets 401a to 401g of the card stack holder 401 are taken out of the shuffling machine 400 as a single stack. Wherein one or more special cards ls,lc have (has) been shuffled and will be packaged (see Fig. 1) together with the shuffled decks of playing cards in one package by the shuffling machine 400 and packaging machine (not shown) in a manufacturing factory. In this way the special card 1a,lc that is different from other normal card set of card deck 1s and the special card ls 1c is shuffled at random position in the shuffled decks of playing cards 1s together with the other normal cards in the factory.

The receding of the pockets 401a to 401g is not absolutely necessary, and any alternative means may be used. For example, the cards may be taken out of the pockets 401a to 401g using a robot arm or the like. The manufacturing line includes multiple shuffling machines 400 configured as described above and arranged in a sequence. With two shuffling machines 400 shown as an example in Figure 10 after going through the shuffling process, a set of playing cards (including several numbers of the special cards lala,lc) loaded in the card feeder 402 are shuffled. If the card feeder 402 is controlled so as to slide in a highly random manner, a set of playing cards 1 loaded in the card feeder 402 can be shuffled sufficiently randomly after the shuffling machine 400 performs the shuffling process twice. As shown by fig. 10, multiple shuffling machines 400 performing such a shuffling process are used to perform the shuffling process in sequence, the shuffled playing cards are shuffled and ordered more randomly.

The playing cards are loaded in the card feeder 402 with the face (side on which suit and rank are printed) down (to the side of the camera 406). Each time a card 1 is sent out from the card feeder 402 to the card stack holder 401, the camera 406 shoots an image of the card 1. The resulting image is sent to the image processing unit 408.
Functions of the camera 406 and image processing unit 408 vary among the shuffling machines 400 depending on the position of the shuffling machines 400 on a manufacturing line.

Figure 10 is a schematic diagram showing part of a manufacturing line for the shuffled decks of playing cards. Is according to the present embodiment. The number of shuffling machines 400 is not limited to this and may be more than two. The shuffling machine 400 is configured as shown in Figure 10, the machine 400 is equipped with a card sensor 409 instead of the camera 406. The card sensor 409 has the capability to count the number of cards passing above the sensor.

An image of a card surface shot by the camera 106 on the shuffling machine 400 is subjected to an image analysis process by the image processing unit 408 of the process control system which manages the manufacturing line including the shuffling machines 400 and consequently the suit and rank are detected on the card sent out from the card feeder 402 to the card stack holder 401. That is, on the shuffling machine 400, each time a card is sent out from the card feeder 402 to the card stack holder 401, the rank and suit on the card are detected, and when the entire set of cards (including several numbers of the special cards la,lc) loaded in the card feeder 402 is sent out to the card stack holder 401, it is checked whether or not there is any excess or deficiency in the rank and suit (including several numbers of the special cards la,lc) combinations contained in the set of cards (including several numbers of the special cards). For example, a set of cards made up of six decks (including several numbers of the special cards) should contain six each of identical cards and the special cards in terms of the rank and suit combination. If there is any excess or deficiency in the rank and suit combinations or several numbers of the special cards, the set of cards is discarded as a defective item. In addition to the rank and suit checking, the image processing unit 408 inspects each card for any smudge and inspects a pattern of a back design and the like as well as inspects whether or not the cards have been properly shuffled and whether or not each card complies with predetermined standards or predetermined special cards. Any set of cards containing defects is discarded.

Being installed on the shuffling machine 400 which performs the shuffling process the second time, the card sensor 409 counts the number of cards passing above the card sensor 409. In this way, the shuffling machine 400 checks the number of cards in the set of cards and several numbers of the special cards to be shuffled and thereby inspects the final product for excess or deficiency of cards. On the shuffling machine 400 which performs the shuffling process the first time, preferably both sides of the card is inspected simultaneously by installing a mirror (not shown in Figure 10) so that the back side (patterned side) of the card will face the camera 406 or by installing another camera (not shown) which will photograph the back side of the card.
When the shuffling machine 400 which performs the final shuffling process finishes shuffling, the shuffling machine 400 outputs a shuffle-complete signal. Upon detection of the shuffle-complete signal, the process control system 408 generates a shuffled card ID (5) to be assigned to the set of shuffled playing cards Is completed through the final shuffling process. The shuffled card ID is generated as a unique ID for each shuffled decks of playing cards Is. The process control system associates the generated shuffled card ID with predetermined information out of production information stored in the database of the process control system 408. Any desired type and volume of such information may be used, but information which identifies the manufacturing line or shuffling machines involved in the shuffling process is particularly important.

Upon generation of a shuffled card ID, the process control system 408 registers the generated shuffled card ID in the database by associating the shuffled card ID with the manufacturing line ID of the manufacturing line involved in the manufacture of the shuffled playing cards. However, IDs are not limited to such manufacturing line-related IDs. Alternatively, a shuffling machine ID may be assigned to each shuffling machine in advance and the shuffled card ID may be registered in the database by being associated with all the shuffling machine IDs involved in the shuffling process. Incidentally, the database may be provided either in or outside the process control system.

The generated shuffled card ID is printed on the adhesive label as a bar code by a printing machine and the bar code 5 of the shuffled card ID is attached to the packing box 4 as shown in Figure 1(a). The preferred embodiment of the invention has been described hitherto. However, it is natural that the invention is not limited to the above-described embodiment, but persons skilled in the art can alter the above-described embodiment within the scope of the invention.

The special card 1a, 1c is (are) shuffled at random position in the shuffled decks of playing cards together with the other normal cards 1 in the factory, wherein the number and sorts or types of the special card 1a or 1c to be included in the shuffled decks of playing cards 1 are determined by a control system 600 of the shuffling machine 400. The number and sorts or types of the special card 1a or 1c to be included in the shuffled decks of playing cards 1 are determined at random number from 0 to ten by the control system 600. The special card 1a or 1c may be shuffled at random position together with the other normal cards 1 in the factory.

The other special card exchanger system 700 (a certain manipulation robot etc.) may be used wherein the positions of the special card to be included in the shuffled decks of playing cards is (are) determined and inserted by the special card exchanger system 700 to the shuffled decks of playing cards at random after going through the shuffling process (after the shuffling machine 400 performs the shuffling process twice or
multiple shuffling machines 400) in the factory.

The positions of the special card la,lc to be included in the shuffled decks of playing cards may be inserted by the other special card exchanger system 700 at the last position or the first position of the other normal cards in the factory. The special card as cut card 1c may be inserted at random position between the last position to several to 50 sheets from the last but at random the other special card exchanger system 700.

Annex 1:
A card game system for playing the Baccarat game, in which a bettor makes a wager that either a Banker hand or a Player hand will win, comprising:
shuffled decks of playing cards being preliminary shuffled at random, a code being printed invisible under normal conditions on each card thereof and representing the number (rank) of a card,
and a card shooter apparatus that is put on a game table and has a card reading function that reads the number of the card from the code;
the card shooter apparatus comprises:
a card reading unit that reads the code representing the number of the card,
and a control unit having a processing function of determining whether a winning hand is the Banker or the Player according to the Baccarat game rule based on information of numbers of the cards sequentially read by the card reading unit;
wherein a special card has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, and the special card is different from other normal cards of card deck and has special invisible code being different from the codes of the other cards and the code representing that the card is the special card;
the improvement comprising:
the card reading unit has a reading function to read the code of the special card and the control unit having a processing function to determining each card is to be received by the Banker or by the Player, storing the number of the card read for the player or the banker and determining whether a winning hand is a special win which contains the special card in the winning hand or not, wherein,
the card shooter apparatus has special-win output means which outputs the winning hand of the Banker or the Player and the special win of the winning.

Annex 2:
The card game system wherein the special card is one of the Ace of spade which has a different color or shape of Ace from other Aces of spade in the decks. The card game system wherein the special card is not any one of 52 standard playing cards of a deck and has no value or number of the card. The card game system, wherein the package of the shuffled decks of playing cards contains (1-8) one to eight special cards.
Annex 3:

An improved method of playing the Baccarat game, in which a bettor makes a wager that either a Banker hand or a Player hand will win, using:

shuffled decks of playing cards being preliminary shuffled at random, a code being printed invisible under normal conditions on each card thereof and representing the number (rank) of a card,
and a card shooter apparatus that is put on a game table and has a card reading function that reads the number of the card from the code;
the method comprises:
a reading step of the code representing the number of the card,
and determining step whether a winning hand is the Banker or the Player according to the Baccarat game rule based on information of numbers of the cards sequentially read by the card reading unit;

wherein a special card has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, and the special card is different from other normal cards of card deck and has special invisible code being different from the codes of the other cards and the code representing that the card is the special card;
the control unit processing to determining each card to be received the Banker or the Player, storing the number of the card read for the player or the banker and determining whether a winning hand of the Banker or the Player hand contains the special card or not,

and the method has following further steps;

a) a bettor makes a wager that either a Bank hand or a Player hand will win and a side bet wager whether the winning hand contains the special card,
b) determining whether a winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand,
c) treating the winning hand as a special win when the winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand.

Annex 4:
The method of playing the Baccarat game wherein the special card is one of the Ace of spade which has a different color or shape than other Aces of spade of the decks.
The method of playing the Baccarat game wherein the special card is not any one of 52 standard playing cards of a deck and has no value or number of the card. The method of playing the Baccarat game wherein the package of the shuffled decks of playing cards contains (1-8) one to eight special cards.
Claims

[Claim 1] A card game system for playing the Baccarat game, in which a bettor makes a wager that either a Banker hand or a Player hand will win, comprising:
shuffled decks of playing cards being preliminary shuffled at random, a code being printed invisible under normal conditions on each card thereof and representing the number (rank) of a card,
and a card shooter apparatus that is put on a game table and has a card reading function that reads the number of the card from the code;
the card shooter apparatus comprises:
a card reading unit that reads the code representing the number of the card,
and a control unit having a processing function of determining whether a winning hand is the Banker or the Player according to the Baccarat game rule based on information of numbers of the cards sequentially read by the card reading unit;
wherein one or more special cards has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, and the special card is different from other normal cards of card deck and has special invisible code being different from the codes of the other cards and the code representing that the card is the special card;
the improvement comprising:
the card reading unit has a reading function to read the code of the special card and
the control unit having a processing function to determining each card is to be received by the Banker or by the Player, storing the number of the card read for the player or the banker and determining whether a winning hand is a special win which contains the special card in the winning hand or not, wherein,
the card shooter apparatus has special-win output means which outputs the winning hand of the Banker or the Player and the special win of the winning.

[Claim 2] The card game system according to Claim 1, wherein the special card is one of the Ace of spade which has a different color or shape of Ace from other Aces of spade in the decks.

[Claim 3] The card game system according to Claim 1, wherein the special card is not any one of 52 standard playing cards of a deck and has no value or
Claim 4] The card game system according to Claim 1, wherein the package of the shuffled decks of playing cards contains (1-8) one to eight special cards.

Claim 5] An improved method of playing the Baccarat game, in which a bettor makes a wager that either a Banker hand or a Player hand will win, using:

- shuffled decks of playing cards being preliminary shuffled at random, a code being printed invisible under normal conditions on each card thereof and representing the number (rank) of a card, and
- a card shooter apparatus that is put on a game table and has a card reading function that reads the number of the card from the code; the method comprises:

  - determining step whether a winning hand is the Banker or the Player according to the Baccarat game rule based on information of numbers of the cards sequentially read by the card reading unit;
  - wherein one or more special cards has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, and
  - the special card is different from other normal cards of card deck and has special invisible code being different from the codes of the other cards and the code representing that the card is the special card;
  - the control unit processing to determining each card to be received the Banker or the Player, storing the number of the card read for the player or the banker and determining whether a winning hand of the Banker or the Player hand contains the special card or not,
  - and the method has following further steps:

a) a bettor makes a wager that either a Bank hand or a Player hand will win and a side bet wager whether the winning hand contains the special card, 

b) determining whether a winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand, 

c) treating the winning hand as a special win when the winning hand of the Banker or the Player hand contains the special card and the bettor having made the side bet wager for the winning hand.

[Claim 6] The method of playing the Baccarat game according to Claim 5, wherein the special card is one of the Ace of spade which has a
different color or shape than other Aces of spade of the decks.

[Claim 7] The method of playing the Baccarat game according to Claim 5, wherein the special card is not any one of 52 standard playing cards of a deck and has no value or number of the card.

[Claim 8] The method of playing the Baccarat game according to Claim 5, wherein the package of the shuffled decks of playing cards contains (1-8) one to eight special cards.

[Claim 9] A card game system for playing the Baccarat game, in which a bettor makes a wager that either a Banker hand or a Player hand will win, comprising:
shuffled decks of playing cards being preliminary shuffled at random, a code being printed invisible under normal conditions on each card thereof and representing the number (rank) of a card , and
a card shooter apparatus that is put on a game table and has a card reading function that reads the number of the card from the code;
the card shooter apparatus comprises:
a card reading unit that read the code representing the number of the card from the card, and
a control unit having a processing function to determine win or lose of the card game based on information about the number of the cards sequentially read by the card reading unit,
wherein one or more special cards has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, and the special card is different from other normal cards of card deck and has special invisible code being different from the codes of the other cards and the code representing that the card is the special card;

[Claim 10] The card game system according to Claim 9, wherein the special card is a cut card for indication to use a new set of shuffled decks of playing cards.

[Claim 11] The card game system according to Claim 9, wherein the special card is a special chance or bonus card for an exceptional award to the winner of the game.

[Claim 12] The card game system according to Claim 9, wherein there are two types of the packages of shuffled decks of playing cards that one has the special card and the other does not have the special card.

[Claim 13] The card game system according to Claim 9, wherein there is the package of shuffled decks of playing cards that has the cut card upper
side or lower side of the shuffled decks of playing cards and has been packaged in one package in a factory.

[Claim 14] The card game system according to Claim 9, wherein there is the package of shuffled decks of playing cards that has the cut card in between 100 cards from the end for the shuffled decks of playing cards and has been packaged in one package in a factory.

[Claim 15] The card game system according to Claim 9, wherein the special card is shuffled at random together with the other playing cards of the shuffled decks and has been packaged in a package in a factory.

[Claim 16] A shuffled decks of playing cards being preliminary shuffled at random, with each card thereof on which a code is printed invisible under normal conditions and representing the number of a card, wherein one or more special cards has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, the special card being different from other 52 normal card set of card deck and has special invisible code being read by the card reading unit and different from those codes of the shuffled decks of playing cards, the special card is shuffled at random position together with the other normal cards in the factory.

[Claim 17] The shuffled decks of playing cards according to Claim 16, wherein the special card is a cut card for indication to use a new set of shuffled decks of playing cards.

[Claim 18] The shuffled decks of playing cards according to Claim 16, wherein the special card is a special chance or bonus card for an exceptional award to the winner of the game.

[Claim 19] The shuffled decks of playing cards according to Claim 16, wherein the number of the special card to be inserted into the shuffled decks of playing cards is determined by at random number from 0 to 10 and having been shuffled at random position together with the other normal cards in the factory.

[Claim 20] The shuffled decks of playing cards according to Claim 16, wherein there is the package of shuffled decks of playing cards that has the cut card at least upper side or lower side of the shuffled decks of playing cards.

[Claim 21] The shuffled decks of playing cards according to Claim 16, wherein there is the package of shuffled decks of playing cards that has the cut card in between 100 cards from the end for the shuffled decks of playing cards and has been packaged in one package in a factory.
[Claim 22] The shuffled decks of playing cards according to Claim 16, wherein the special card is shuffled at random together with the other playing cards of the shuffled decks and has been packaged in a package in a factory.

[Claim 23] A card game system for playing the Baccarat game, in which a bettor makes a wager that either a Banker hand or a Player hand will win, comprising:
shuffled decks of playing cards being preliminary shuffled at random and
a card shooter apparatus that is put on a game table and has a card reading function that reads the number of the card;
the card shooter apparatus comprises:
a card reading unit that read the number of the card from the card, and
a control unit having a processing function to determine win or lose of the card game based on information about the number of the cards sequentially read by the card reading unit;
wherein one or more special cards has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, and the special card is different from other normal cards of card deck by color or shape of a mark thereof.

[Claim 24] The card game system for playing the Baccarat game according to Claim 23, wherein the special card is a cut card for indication to use a new set of shuffled decks of playing cards.

[Claim 25] The card game system for playing the Baccarat game according to Claim 23, wherein the special card is a special chance or bonus card for an exceptional award to the winner of the game.

[Claim 26] The card game system for playing the Baccarat game according to Claim 23, wherein there are two types of the packages of shuffled decks of playing cards that one has the special card and the other does not have the special card.

[Claim 27] The card game system for playing the Baccarat game according to Claim 23, wherein there is the package of shuffled decks of playing cards that has the cut card upper side or lower side of the shuffled decks of playing cards and has been packaged in one package in a factory.

[Claim 28] The card game system for playing the Baccarat game according to Claim 23, wherein there is the package of shuffled decks of playing cards that has the cut card in between 100 cards from the end for the shuffled decks of playing cards and has been packaged in one package
in a factory.

[Claim 29] The card game system for playing the Baccarat game according to Claim 23, wherein the special card is shuffled at random together with the other playing cards of the shuffled decks and has been packaged in a package in a factory.

[Claim 30] A shuffled decks of playing cards being preliminary shuffled at random, wherein one or more special cards has been packaged together with the shuffled decks of playing cards in one package in a factory and sealed, the special card being different from other 52 normal card set of card deck.

[Claim 31] The shuffled decks of playing cards according to Claim 30, wherein the special card is shuffled at random position in the shuffled decks of playing cards together with the other normal cards in the factory.

[Claim 32] The shuffled decks of playing cards according to Claim 30 or 31, wherein the number of the special card to be included in the shuffled decks of playing cards is determined by at random number from 0 to ten and having been shuffled at random position together with the other normal cards in the factory.

[Claim 33] The shuffled decks of playing cards according to Claim 30 or 31, wherein the positions of the special card to be included in the shuffled decks of playing cards is( are) determined at random in the factory.

[Claim 34] The shuffled decks of playing cards according to Claim 30 or 31, wherein the positions of the special card to be included in the shuffled decks of playing cards is the last position or the first position of the other normal cards in the factory.
<table>
<thead>
<tr>
<th></th>
<th>Marks</th>
<th>Outputs of sensors</th>
</tr>
</thead>
</table>
| 1 | ![Blank] ![Blank] | 320 **OFF**  
    |      | 321 **OFF**       |
| 2 | ![Blank] ![Mark] | 320 **OFF**  
    |      | 321 **ON** ![OFF] |
| 3 | ![Mark] ![Blank] | 320 **ON** ![OFF]  
    |      | 321 **OFF**       |
| 4 | ![Mark] ![Mark] | 320 **ON** ![OFF]  
    |      | 321 **ON** ![OFF] |
A. CLASSIFICATION OF SUBJECT MATTER

INV. A63F1/14  A63F1/18

ADD.

According to International Patent Classification (IPC) into both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A63F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>US 8 371 583 B2 (SHIGETA YASUSHI [JP]) 12 February 2013 (2013-02-12) column 2, line 48 - column 3, line 6; figures</td>
<td>16-24, 30-34</td>
</tr>
<tr>
<td>X</td>
<td>AU 2011 303 293 AI (ANGEL PLAYING CARDS CO LTD) 11 April 2013 (2013-04-11) paragraph [0017] - paragraph [0045]; figures</td>
<td>1-4,9-34</td>
</tr>
<tr>
<td>A</td>
<td>CN 103 007 527 A (XI E XIANG) 3 April 2013 (2013-04-03) abstract; figures</td>
<td>1-4,9-34</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:
  *A* document defining the general state of the art which is not considered to be of particular relevance
  *E* earlier application or patent but published on or after the international filing date
  *L* document which may throw doubts on priority claim(s) one which is cited to establish the publication date of another citation or other special reason (as specified)
  *O* document referring to an oral disclosure, use, exhibition or other means
  *P* document published prior to the international filing date but later than the priority date claimed
  *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  *X* document of particular relevance; the claimed invention cannot be considered a novel or cannot be considered to involve an inventive step when the document is taken alone
  *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  *Z* document member of the same patent family

Date of the actual completion of the international search: 18 June 2014

Date of mailing of the international search report: 27/06/2014

Name and mailing address of the ISA:

European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040;
Fax. (+31-70) 340-3016

Authorized officer:

Lucas, Peter
INTERNATIONAL SEARCH REPORT

Box No. II  Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [X] Claims Nos.: 5-8
   because they relate to subject matter not required to be searched by this Authority, namely:
   Rule 39.1(iii) PCT - Scheme, rules and method for playing games

2. [ ] Claims Nos.: 
   because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. [ ] Claims Nos.: 
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III  Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. [ ] As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. [ ] No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

No protest accompanied the payment of additional search fees.
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 200926597</td>
<td>19-11-2009</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>US 8371583</td>
<td>12-02-2013</td>
<td>AU 2008330607 AI</td>
<td>04-06-2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN 101873880 A</td>
<td>27-10-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN 101890226 A</td>
<td>24-11-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN 102940964 A</td>
<td>27-02-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN 103143162 A</td>
<td>12-06-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN 103287637 A</td>
<td>11-09-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 2228106 AI</td>
<td>15-09-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 2489419 A2</td>
<td>22-08-2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 2583726 AI</td>
<td>24-04-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 2722082 AI</td>
<td>23-04-2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EP 2722083 AI</td>
<td>23-04-2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ES 2409217 T3</td>
<td>25-06-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HK 1147709 AI</td>
<td>25-10-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HK 1150988 AI</td>
<td>02-08-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP 2011024603 A</td>
<td>10-02-2011</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KR 20100098428 A</td>
<td>06-09-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KR 20100109548 A</td>
<td>08-10-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PT 2228106 E</td>
<td>10-05-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SG 163582 AI</td>
<td>30-08-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SG 183728 AI</td>
<td>27-09-2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SG 187499 AI</td>
<td>28-02-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SG 192434 AI</td>
<td>30-08-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 2010327525 AI</td>
<td>30-12-2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wo 2009069708 AI</td>
<td>04-06-2009</td>
</tr>
<tr>
<td>AU 2011303293</td>
<td>11-04-2013</td>
<td>AU 2011303293 AI</td>
<td>11-04-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CN 103180018 A</td>
<td>26-06-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>JP 2012061023 A</td>
<td>29-03-2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SG 188986 AI</td>
<td>31-05-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>US 201303277 AI</td>
<td>14-11-2013</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wo 2012035742 AI</td>
<td>22-03-2012</td>
</tr>
<tr>
<td>CN 103007527</td>
<td>03-04-2013</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>