Nov. 9, 1943. J. J. HICKEY 2,334,093

MACHINE FOR PLAYING SOLITAIRE

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Fig. 2.

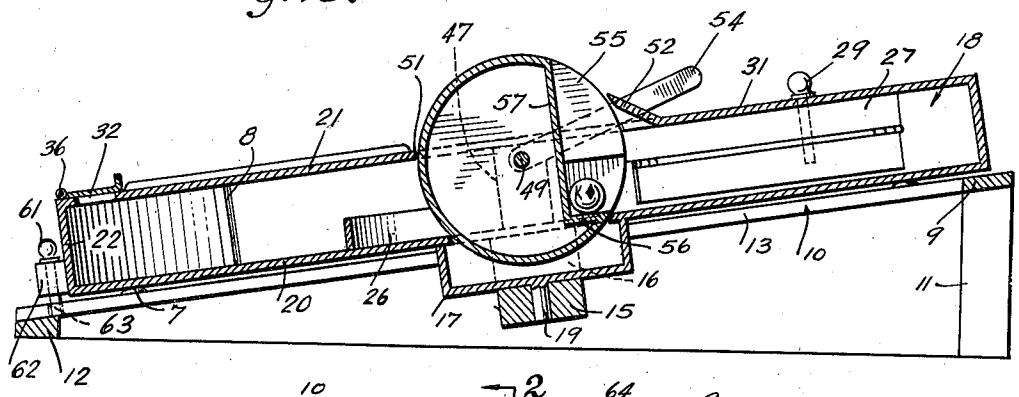


Fig. 1.

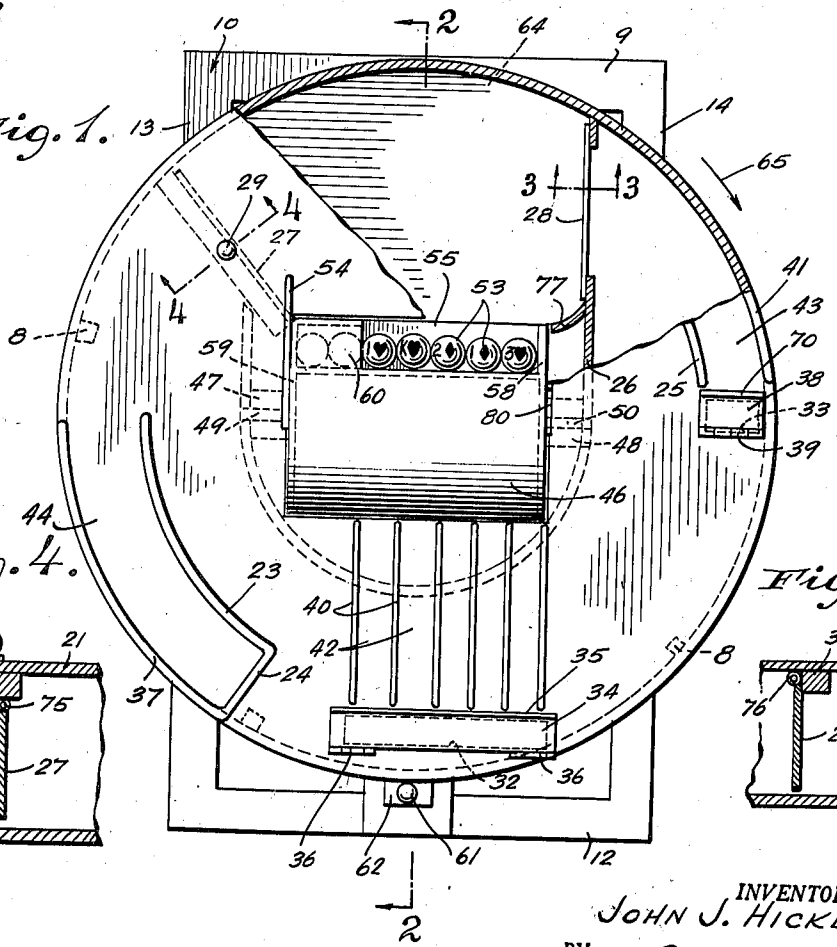


Fig. 4.

Fig. 3.

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Fig. 6.

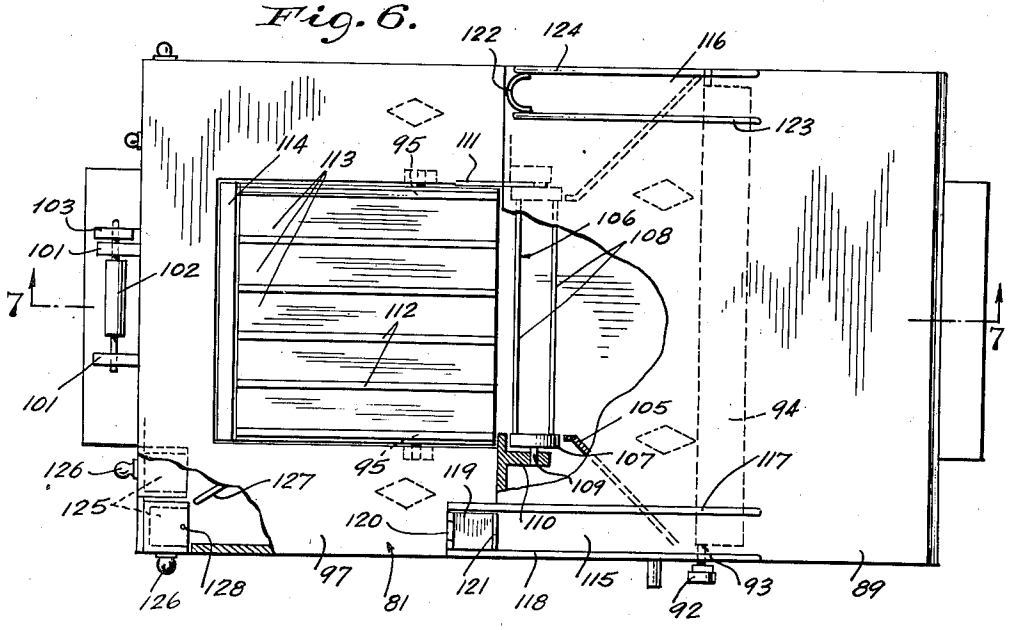


Fig. 7.

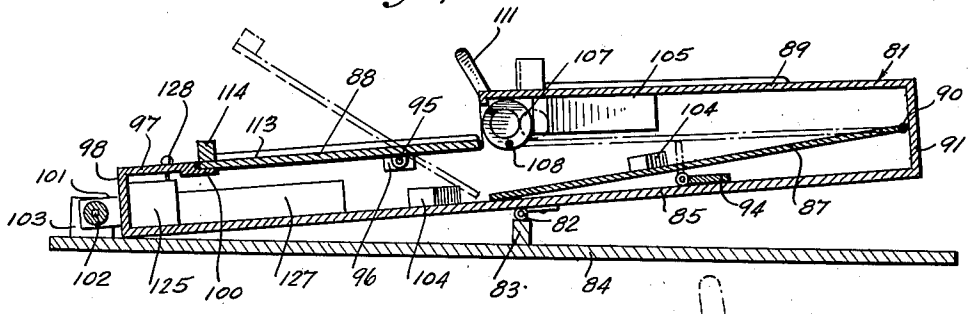


Fig. 8.

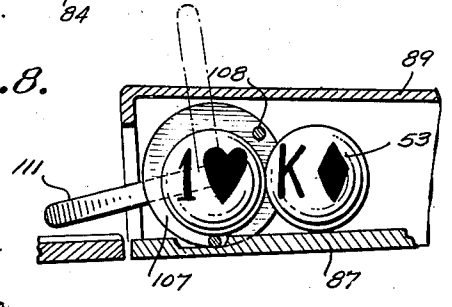
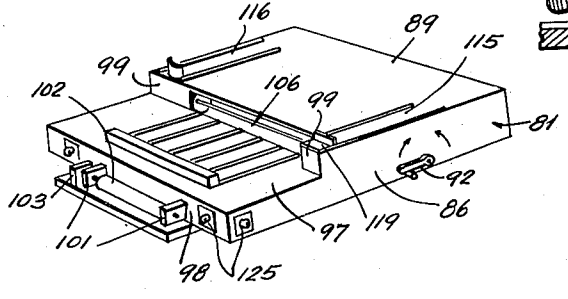


Fig. 5.



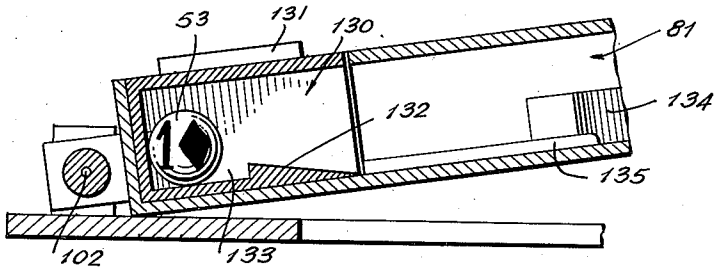
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Fig. 10.



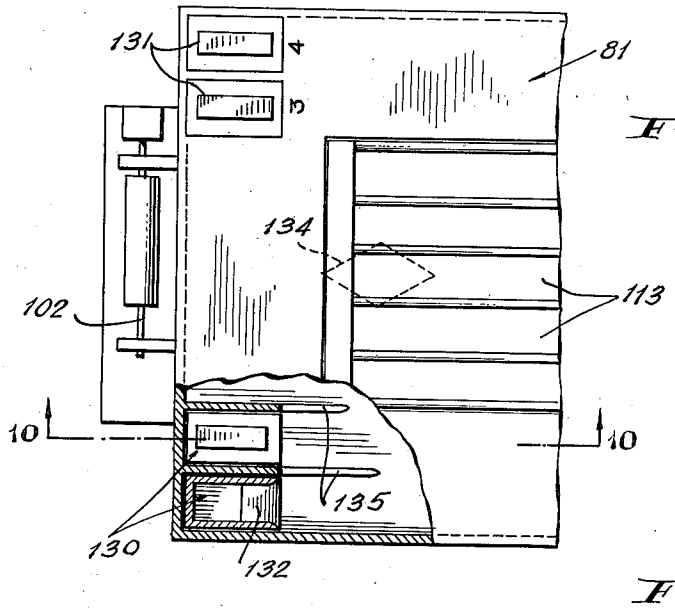
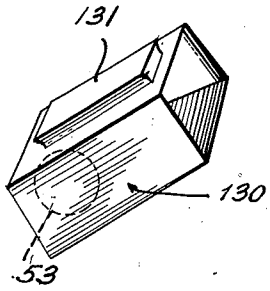
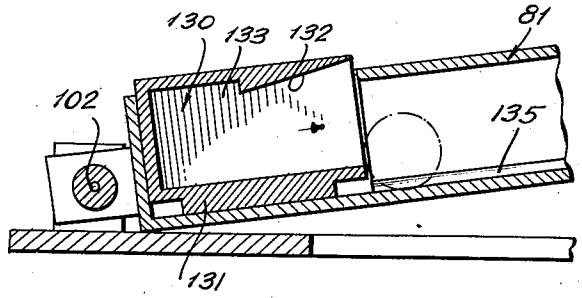


Fig. 9.

Fig. 11.

Fig. 12.





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UNITED STATES PATENT OFFICE

2,334,093

MACHINE FOR PLAYING SOLITAIRE

John J. Hickey, Arlington, N. J.

Application June 10, 1942, Serial No. 446,425

7 Claims. (Cl. 273—148)

This invention relates to games and refers more particularly to machines for playing solitaire and similar games which are usually played with a deck of 52 or 53 playing cards.

An object of the present invention is the provision of a game playing machine which can be conveniently used by crippled or aged persons, or persons afflicted with various nervous ailments, who are unable to hold, shuffle or deal cards, for the purpose of playing various games similar to those which are played by means of cards.

Another object is the provision of a novel and entertaining substitute for card games, consisting of a machine the operations of which replace various manipulations which must be carried out in the course of a card game.

A further object is to substitute playing cards by units which are not affected by ordinary winds, thus making it possible to play out-doors, for instance, on lawns, beaches and decks of moving steamships.

Yet another object is to eliminate slow and monotonous shuffling and dealing of playing cards, which afford undue advantages to players with long practice, and to substitute therefor a more rapid, efficient and uniform machine-shuffling and machine-dealing of playing units.

Other objects of the present invention will become apparent in the course of the following specification.

In accomplishing the objects of the present invention it was found desirable to provide a hollow drum or case which may be rocked or rotated on an inclined plane for the purpose of mixing balls or other rotary elements serving as a substitute for cards, this mixing being equivalent to the shuffling of cards. The rolling of the balls, which constitutes a most important feature of the games, is caused by gravity. The dealing of cards is most satisfactorily replaced by the guiding of playing balls to a swingable body which is situated substantially in the middle of the drum and which may be conveniently manipulated to elevate the balls from the interior of the drum to the upper surface thereof and upon guides carried by this upper surface. The upper surface is further provided with a number of channels or similar compartments for the balls. Openings provided with suitable covers or trap doors may be used for shifting the balls from the upper surface of the drum back to the interior thereof.

The machine is particularly adapted for playing with balls games similar to the games of solitaire which are played with cards. However, a variety of other games may be played by means of the same machine.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings showing, by way of example, preferred embodiments of the inventive idea.

In the drawings:

Figure 1 is a top view of a game-playing machine with some parts removed.

Figure 2 is a section along the line 2—2 of Figure 1.

Figure 3 is a detail section along the line 3—3 of Figure 1.

Figure 4 is a detail section along the line 4—4 of Figure 1.

Figure 5 is a perspective view of a differently constructed machine.

Figure 6 is a top view of the machine shown in Figure 5, with some parts removed.

Figure 7 is a section along the line 7—7 of Figure 6.

Figure 8 is a detail sectional view illustrating the dealing of the balls.

Figure 9 is a top view with some parts removed, of a somewhat differently constructed machine.

Figure 10 is a section along the line 10—10 of Figure 9.

Figure 11 is similar to Figure 10 and shows the ball-receiving drawers in an inoperative position.

Figure 12 is a perspective view of a ball receiving drawer.

The game playing machine shown in Figures 1 to 4 of the drawings comprises a supporting frame 10 having two parallel bars 13 and 14 and a connecting bar 9. The frame 10 is maintained in an inclined position by two upper legs 11 and a lower bar 12. A central bar 15 extends between the bars 13 and 14 and is suspended therefrom by downwardly extending pieces 16.

The inclined frame 10 serves as a support for a rotary circular case or drum 18. Round pins 7 carried by the frame facilitate the turning of the drum.

The drum 18 is constituted by a lower disc 20, an upper disc 21, an annular wall 22 extending between these discs and a downwardly projecting round portion 17 which carries a pivot 19 fitting into an opening provided in the central bar 15. An ear or projection 62 is firmly attached to the annular wall 22 of the drum. A locking pin 61 may extend through an opening 63 provided in the projection 62 and an underlying portion of the bar 12 to lock in place the drum 18.

The drum may be made of wood or plastic materials, or a combination of these and metal parts, and may be approximately seventeen inches in diameter and one and one-half inches high.

The interior of the drum 18 includes baffles 8 extending between the two discs and projecting inwardly about three-quarters of an inch.

The projecting portion 17 is enclosed within the drum by a U-shaped partition 26 the two ends of which are situated close to trap doors or walls 27 and 28, respectively. A partition 77 extends between the partition 26 and a cylinder 46. The doors 27 and 28 extend obliquely from the rim 22 of the drum toward the center thereof and are suspended upon hinges 75 and 76, respectively (Figs. 3 and 4). The door 28 opens one way, namely in the direction toward the door 27, due to the provision of a stop 30.

The door 27 is located close to a pin 29 which may be inserted by hand into an opening 79 extending through the disc 21 and also through a bar 78 which carries the hinge 75. The pin 29 is used to prevent the door 27 from swinging in one direction.

The interior of the drum 18 communicates with the upper surface 31 of the disc 21 through two openings 32 and 33. The opening 32 is of elongated form and is covered by a plate or trap door 34 having an upwardly projecting edge 35 and connected by hinges 36 to the upper disc 21.

The opening 33 is usually covered by a plate or trap door 38 which is hinged at 39 to the upper disc 21 and is provided with an upturned edge 70.

The disc 21 carries six parallel guides 40 which extend between the cylinder 46 and the upturned edge 35 of the plate or cover 34, so that five channels 42 are formed by these guides.

A playing channel 43 is formed upon the disc 21 by a curved wall or guide 25 and a peripheral guide 41 extending parallel to the guide 25. The playing channel 43 terminates at the raised edge 70 of the cover 38 and may hold about five balls.

Another channel 44 for so-called wild balls may be provided diametrically opposite the channel 43 and may be composed of a curved guide 23, a parallel peripheral guide 37 and an end wall 24. The channel 44 may hold about ten balls.

The cylinder 46 is provided with axle stubs 49 and 50 which are mounted in supports 47 and 48 situated within the drum 18 and extending between the discs 20 and 21 thereof. One part of the cylinder 46 extends into the projecting portion 17 of the drum while another part extends through an opening 51 provided in the upper disc 21. An inclined edge portion 52 of the disc 21 which is situated close to the cylinder 46, serves as a guide for the balls 53.

The cylinder 46 is provided with levers or handles 54 and 80 which extend above the disc 18 and which enable the user to turn the cylinder with his right hand or his left hand. The center of gravity of the cylinder 46 may be so located that the cylinder will return automatically to the position shown in the drawings as soon as the handle 54 or 80 is released.

The cylinder 46 serves for elevating the balls 53 from the interior of the drum 18 to the upper surface 31. For that purpose the cylinder 46 is provided with a slot or compartment 55 which is constituted by a floor 56 and a rear wall 57, as well as side walls 58 and 59. The compartment 55 may be made of a size to hold any suitable number of balls 53. In the example illustrated the compartment 55 will hold seven balls, but will discharge only five balls on the top surface 31, due to the provision of a partition 60 extending parallel to the floor 56. The two balls situated below the partition 60 fill gaps during the upward turning of the cylinder 46 and thereby insure the discharge of the other five balls.

Balls 53 used in the game may serve as substitute for playing cards and may be made of wood, ordinary or magnifying glass, porcelain, plastics, ivory, cement or any other suitable material. The balls may be made in convenient sizes ranging from three-quarters of an inch to one and one-half inches in diameter and may be of four colors which are a well recognized component of ordinary playing cards, namely, black for spades, blue for clubs, red for hearts and white or ivory for diamonds. The balls are numbered, lettered and decorated in a manner similar to that provided on playing cards, possibly with the addition of luminous markings and the effects of magnifying glass.

To mix the balls 53 situated within the drum 18, the pin 61 is removed from its locking position in the hole 62, and then the drum 18 is rotated by hand upon its pivot 19. The player may hold the pin 29 while turning the drum. The two pins 29 and 61 may be substituted by a single pin which is removed from the opening 63 and inserted into the opening 79. Due to the inclination of the frame 10, a revolution of the drum 18 lifts rows of balls to locations about one-half the distance toward the upper side of the drum, from where the balls roll or descend by gravity on the other balls at the lower side of the case. Thus the turning of the drum once or as many times as the player desires will thoroughly mix or shuffle the balls 53.

The balls will readily pass the swinging door 28 in the course of their rolling motions in directions opposed to that of the arrow 65.

Since the door 27 is prevented from turning outwardly by the pin 29, balls striking the door 27 during the rotation of the drum 18 will be guided by the door toward the compartment 55 of the cylinder 46. Since the door 28 swings only in the direction toward the door 27, the balls will be readily assembled in the space between the two doors 27 and 28. The drum 18 may be locked then by the insertion of the pin 61 into the opening 63.

The cylinder 46 may be swung by any one of the handles 54 or 80, so that it can be conveniently operated by either the right hand or the left hand of a player. The turning of the cylinder 46 counterclockwise (looking in the direction of Figure 2) will raise the balls located in the chamber 55 and when the wall 57 is moved to a position flush with the inclined surface 31, these balls will roll down the wall 57 and into the channels 42 carried by the upper surface 31. Due to the location of its center of gravity, the cylinder 46 will return automatically to the position shown in Figures 1 and 2, as soon as manual pressure upon its handles is released.

Balls rolling in the channels 42 will be halted by the raised edge 35 of the plate 34. This delivery of the balls serves as a substitute for the dealing of cards necessary in playing various games of solitaire.

Many different games of solitaire may be played by means of this apparatus through small changes in the equipment upon the top surface 31 of the drum 18, or through altered use of such equipment. The game which is described herein below is, therefore, given only by way of example.

The channels 42 are so arranged in relation to

the cylinder 46 that upon each upward revolution, cylinder 46 will discharge one ball into each channel 42. The balls roll to the outer ends of these channels where any left over or unplayed balls may be dropped through the opening 32 and into the interior of the drum 18 by raising the trap door 34.

The purpose of the game is to enable one player to play out all of the fifty-two balls which are the equivalent of the fifty-two cards in an ordinary deck of playing cards. The player must accomplish that end by utilizing only the upper row of five balls in the five channels 42; i. e., the player cannot dip down into the lower rows of balls to single out balls of his choice which have been succeeded by the following rows created by the turning of the cylinder 46. From the top row the player may play-off the balls in groups reflective of poker-hand values, i. e., a pair, three of a kind; a five ball straight; a five ball flush; or a five ball full-house. The player effects the play-off by transferring such two, three or five ball groups to the playing channel 43, from which the balls are discarded by being dropped through the opening 33 into the interior of the drum 18. The channel 44 may hold so called wild balls if the player, electing to use such playing units, adheres to the custom and practice of calling the joker, deuces, treys or other cards wild in playing certain games. Such use of wild playing units signifies that the player is privileged to use any one of the wild units to supply any playing unit which he desires. Balls are raised in groups of five until fifty balls have been transferred and the last two or three balls are removed.

When all fifty-two balls have been raised to the upper surface 31 of the drum, the player will win his game of solitaire if he succeeds in playing all the balls in the above-mentioned groups. However, the player loses his game if any of the balls remain unplayed, not having been absorbed in such groups.

Tests indicate that without using wild cards the player may be successful in one game in each thirty-one games played. When three wild units are utilized the player may win one out of each nineteen games played and when five wild units are used the player may win one out of each seven games played.

The described machine will enable a cripple who has the use of only two fingers on one hand, to play solitaire. Such a cripple cannot play solitaire with ordinary playing cards because he cannot shuffle, deal or play the cards.

The machine shown in Figures 5 to 12 of the drawings serves two purposes, it enables the playing of solitaire and also stud poker by means of balls 53 similar to those described. The machine comprises a casing 81 which is swingably mounted upon a pivot 82 carried by a column or pin 83. The pin 83 is mounted on a plate 84.

The casing 81 includes a bottom 85, side 86, an inner swingable platform 87, an outer swingable platform 88 and a fixed top platform 89. The platform 87 is attached by hinges 90 to a rear wall 91 of the casing 81. A lever or crank 92 situated outside the casing is connected by a rod 93 with an elongated support 94 used to maintain the platform 87 in a position in which it is in alignment with the platform 88. The swingable platform 88 is mounted on pivots carried by bearings, or supports, 96 which are firmly connected with an immovable platform 97. The platform 97 encloses the swingable platform 88 and is connected with the bottom 85 of the casing by a front wall 98. Vertical surfaces 99 extend between the platform 97 and the top platform 89. The platform 97 carries an inner stop 100 serving as a rest for an edge of the swingable platform 88.

The casing 81 carries a lock comprising two brackets 101 carrying a bolt 102. In the position shown in Figures 6 and 7, an end of the bolt 102 may be inserted into an opening provided in a bracket 103 carried by the bottom plate 84. Then the casing 81 is securely locked in the illustrated position.

Baffles 104 are carried by the bottom 85 and the platform 87 of the casing. Guides or partition walls 105 are suspended from the top platform 89 and extend toward a ball dispensing device 106.

The device 106 is used for transmitting balls from the interior if the casing to the platform 88; it comprises two discs 107 which are joined by two parallel wires or rods 108 and which carry pivots 109 mounted in inner brackets 110 constituting a part of the walls 99. As shown in Figures 7 and 8, the distance between the two rods 108 is smaller than the diameter of the balls 53. A lever 111 is connected to a disc 107 and is used for actuating the device.

The swingable platform 88 carries guides 112 constituting five channels 113 for the balls. A barrier 114 extends across the lower or outer ends of the channels 113.

The upper fixed platform 89 carries a playing channel 115 and a channel 116 for wild balls. The channel 115 is constituted by a guide 117 extending parallel to another guide 118 running along an edge of the platform 89. A trap door 119 is hinged at 120 to the platform 89 and covers an opening leading to the interior of the casing. A raised edge 121 of the trap door 119 faces the channel 115.

The channel 116 for wild balls includes a front wall 122 and a guide 123 extending parallel to a guide 124 running along an edge of the platform 89.

In playing solitaire, the machine is used in substantially the same manner as that previously described. Balls 53 may be introduced into the interior of the casing 81 by turning the platform 88 and then the balls are mixed by swinging or teetering the casing 81. When the casing is inclined in a direction opposed to that shown in the drawings, balls may be shifted into the upper part of the casing by actuating the lever 92 to raise the platform 87 into the position shown by broken lines in Figure 7. Then the casing 81 is inclined in the opposite direction, so that the balls will roll down the platform 87 and will be directed by guides 105 toward the dispensing device 106. The casing 81 is then locked by the bolt 102 in the illustrated position.

The wires 108 of the dispensing device 106 serve as a stop for the balls until the discs 107 are turned by actuating the lever 111. Each turning movement of the lever 111 will release a number of balls 53 which will roll downwardly in channels 113 until stopped by the barrier 114.

As already described, the balls 53 may be transferred in groups from the channel 113 to the playing channel 115 in the course of the game, with the possible addition of so-called wild balls from the channel 116 and balls situated in the drawers 125. Balls discarded from the channel 115 are returned to the casing 81 through the opening covered by the trap door 119, while balls in the channels 113 are returned to the casing by

raising that end of the platform 88 which carries the barrier 114.

When this machine is used to play stud poker, the five channels 113 will receive from the dispensing device and hold the unconcealed playing units of each player. As one of these channels may be assigned to each of the players he can therein receive his whole hand of five playing units unconcealed, as is customary in various games referred to as "show-downs," or the unconcealed part of his hand, generally four playing units, in the ordinary game of stud poker.

For the concealed units of the playing hand in stud poker drawers or boxes 125 having handles 126 are provided in the walls 86 and 98 of the casing. The balls enter the boxes by force of gravity and momentum upon the lowering of the section of the machine in which the boxes are located in the mixing phase. Each of the boxes is numbered to correspond with the numbered channel used for the unconcealed ball. The player to whom any numbered box is assigned can readily lift the box from the machine and examine or take possession of the ball entrapped in the well. The length of the box or drawer, for example a length of two and one-half inches holding a ball one inch in diameter in the well, will conceal the ball from all players except the one who lifts the box from the machine and closely examines its contents. Thus the concealed component of the stud poker hand is provided. The entrapping function of any of these boxes can be suspended by inserting a pin 128 into suitable openings which maintain a pin across an open side of each drawer.

Figures 9 to 12 illustrate ball-receiving drawers or boxes 130 of a different construction. The boxes 130 may be carried by a casing 81 of a solitaire playing machine which is similar to that illustrated in Figures 5 to 8 and which is provided with open channels 113 and a lock 102. Each of the boxes 130 may be provided with a handle 131. The floor of each box 130 may consist of an inclined portion 132 leading to a well 133 wherein a ball 53 which traversed the floor portion 132, will be entrapped. Balls 53 may be guided to the boxes 130 by a baffle 134 and guides 135 situated with the casing 81.

Balls may be prevented from penetrating into a box 130 by inserting that box upside down into the casing 81, as shown in Figure 11. Then the handle 131 will rest upon the floor of the casing and the inclined surface 132 will constitute the ceiling of the box. Any balls which may penetrate into the box despite the raising thereof caused by the handle 131, will roll out as soon as the casing is inclined in the opposite direction.

It is apparent that the illustrated machines have been given by way of illustration and not by way of limitation and that they are capable of wide variation and modification without departing from the scope or intent of the present invention. All of such variations and modifications are to be included within the scope of the present invention.

What is claimed is:

1. An apparatus simulating the playing of card games, wherein the cards are replaced by balls carrying card indicia, said apparatus comprising, in combination, a casing, means for moving said casing to mix balls situated within said casing, a dispensing device for transmitting balls from the interior of said casing to an outer surface thereof, means carried by said outer surface and constituting channels receiving balls transmitted by said dispensing device, means carried by said outer surface and constituting a playing channel, and a trap door carried by said casing and situated at one end of said playing channel.

2. An apparatus simulating the playing of card games, wherein the cards are replaced by balls carrying card indicia, said apparatus comprising, in combination, a drum-shaped casing, an inclined frame pivotally supporting said casing, whereby said casing may be rotated to mix balls situated within said casing, means carried upon said casing and constituting channels for said balls, and a dispensing device for transmitting balls from the interior of said casing to said channels.

3. An apparatus simulating the playing of card games, wherein the cards are replaced by balls carrying card indicia, said apparatus comprising, in combination, a casing, means for moving said casing to mix balls situated within said casing, means carried upon said casing and constituting channels for said balls, and a cylinder rotatably mounted within said casing and comprising partitions situated within the cylinder and constituting a chamber receiving balls within the casing in one position of the cylinder and transmitting said balls to said channel when said cylinder is rotated from said position to another position.

4. An apparatus simulating the playing of card games, wherein the cards are replaced by balls carrying card indicia, said apparatus comprising, in combination, a drum-shaped casing, an inclined frame pivotally supporting said casing, whereby said casing may be rotated to mix balls situated within said casing, a lock carried by said casing and said frame to lock said casing in an inclined playing position, means carried upon said casing and constituting channels for said balls, a cylinder rotatably mounted within said casing and comprising partitions situated within the cylinder and constituting a chamber receiving balls within the casing in one position of the cylinder and transmitting said balls to said channel when said cylinder is rotated from said position to another position and spaced partition walls extending within said casing in directions toward said cylinder and swingable toward each other, whereby said balls are collected between the partition walls and are guided toward said cylinder.

5. An apparatus simulating the playing of card games, wherein the cards are replaced by balls carrying card indicia, said apparatus comprising, in combination, a casing, means for moving said casing to mix balls situated within said casing, means carried upon said casing and constituting channels for said balls, discs mounted in said casing, rods carried by said discs and extending across an opening formed in said casing close to said channels to constitute a stop for said balls, and means for turning said rods to transmit said balls to said channels.

6. An apparatus simulating the playing of card games, wherein the cards are replaced by balls carrying card indicia, said apparatus comprising, in combination, a casing having an opening formed therein, an inner platform swingable toward and away from said opening, means carried by said casing for actuating said inner platform, an outer platform swingably mounted in said casing, means carried by said outer plat-

form and constituting channels for said balls extending toward said opening, a pivot swingably supporting said casing, discs mounted in said casing, rods carried by said discs and extending across said opening to constitute a stop for balls rolling upon said inner platform toward said opening, and means for turning said rods to transmit said balls to said channels.

7. An apparatus in accordance with claim 1, comprising a box carried by said casing and having means for retaining, concealing and displaying a ball penetrating into said box during the mixing of the balls.

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