

Nov. 1, 1932.

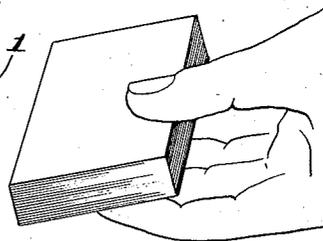
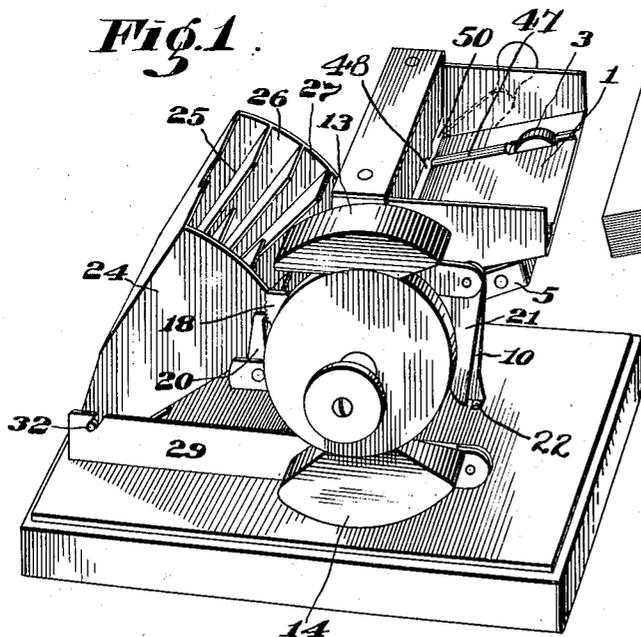
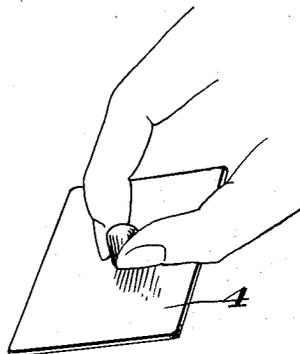
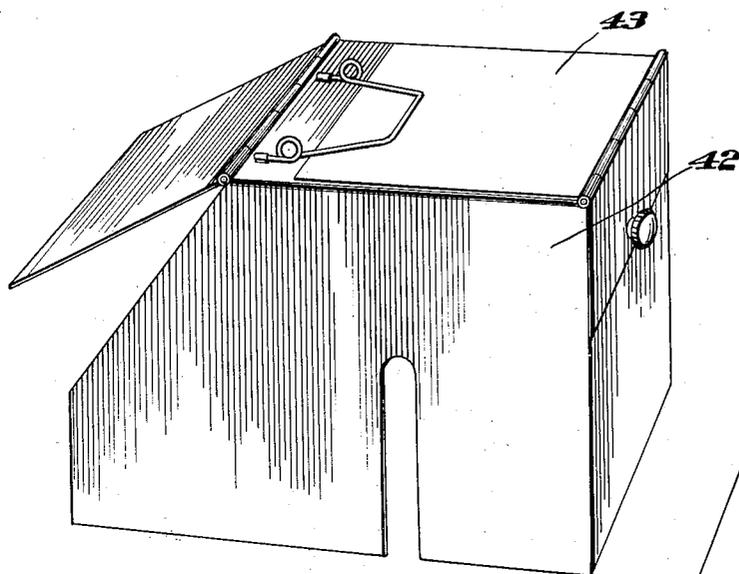
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1,885,276

AUTOMATIC CARD SHUFFLER AND DEALER

Filed Jan. 22, 1931

3 Sheets-Sheet 1



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3 Sheets-Sheet 3

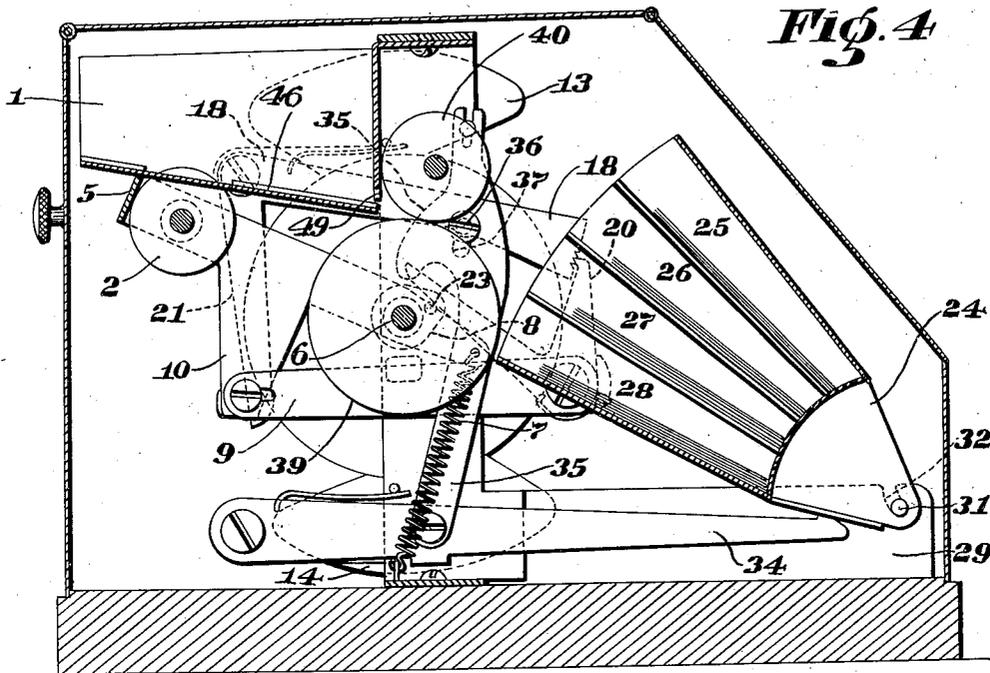


Fig. 4

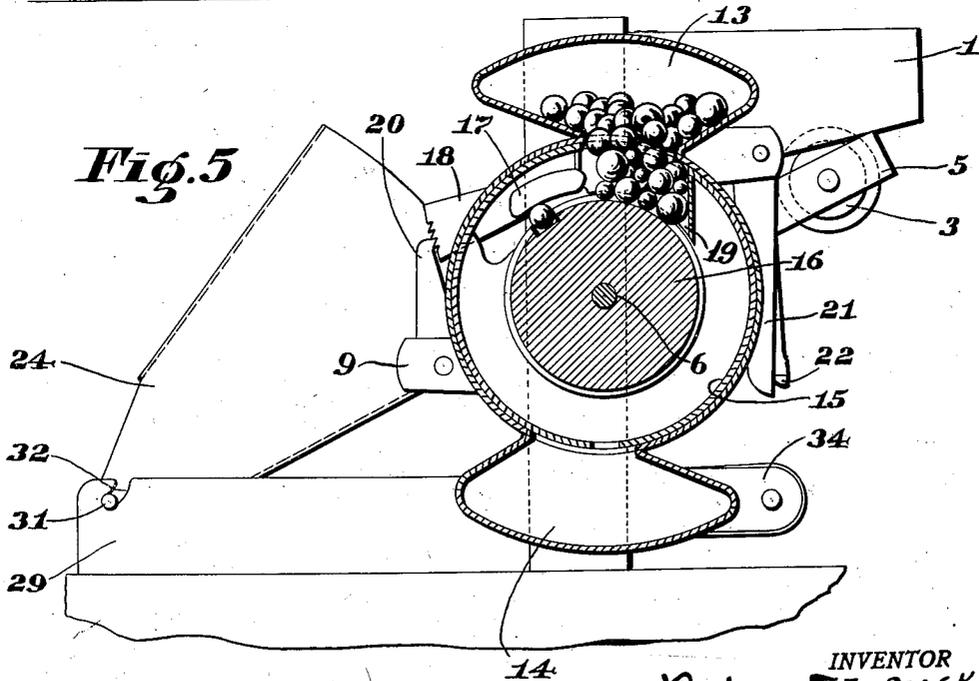


Fig. 5

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# UNITED STATES PATENT OFFICE

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AUTOMATIC CARD SHUFFLER AND DEALER

Application filed January 22, 1931. Serial No. 510,365.

This invention relates to apparatus for shuffling articles and dealing them indiscriminately. It will be herein disclosed as embodied in a machine designed particularly for shuffling and dealing playing cards.

In playing various card games it is necessary to shuffle the cards in the pack and then to deal the "hands" to the players. A fair deal requires a very thorough shuffling of the cards. It is an important object of the present invention to devise a machine or apparatus for performing the function of shuffling the cards and dealing them indiscriminately to provide the desired number of "hands". While the invention will be herein disclosed as embodied in a machine designed especially for shuffling a pack of cards and dealing the pack into four hands, it will be evident that minor modifications only would be required to adapt the machine for dealing a different number of hands, and that essentially the same principles could also be used in shuffling and dealing other articles.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views and in which:

Figure 1 is a perspective view of the device with the casing lifted off to disclose the mechanism;

Figure 2 is a plan view;

Figure 3 is a side view;

Figure 4 is a section on line 4—4 of Figure 2; and

Figure 5 is a section on line 5—5 of Figure 2.

Preliminary to a detailed description of the machine shown in the drawings, it may be

stated that the machine comprises a container or magazines for holding a pack of cards, mechanism for feeding the cards one at a time out of the magazine, sorting mechanism for distributing the cards to divide the entire pack into four hands, selectors which control the sorting operation, and means for selecting or choosing the selectors indiscriminately. In this particular machine one selector is provided for each card and the selectors are divided into four groups, the individuals of each group differing from those of the other groups. Since the selectors which control the sorting of the successive cards are chosen indiscriminately, the final distribution of the cards is made indiscriminately and is determined simply by chance.

The device comprises a container or magazine 1 for holding a pack of cards, consisting of a rectangular box with one side open for the insertion of the cards. The bottom inclines slightly downward toward the front and is slotted to permit the rubber tired wheels 2 and 3 to enter and push the bottom card forward. In line with the slots 44 and 45 are two beads 46 and 47 designed to place the most friction where the moving force is being applied. The front of the container has a horizontal slot 48 with two fingers 49 and 50 extending downward opposite the beading on the bottom, leaving a distance less than the width of two cards between the fingers and the beading so not more than one card can be forced out of the container at one time. The cover 4 fits inside the walls of the container and is of sufficient weight to apply a constant pressure on the cards. The bottom of the cover is also beaded to correspond to the bottom of the container.

The rubber tired wheels 2 and 3 rotate on a shaft in the frame 5 which is pivoted on the main shaft 6 and held with the wheels pressing upward by coil spring 7 attached to a prolongation of one side of the frame

over the shaft 6. The frame 5 is pulled downward, bringing the rubber tired wheels out of contact with the cards by the cam 8 forcing down the lever 9 which is attached to arm 10 of frame 5. The cam 8 is arranged so it will allow the frame 5 to return and permit the rubber tired wheels to force out one card at each revolution of the shaft 6 unless stopped by the failure of a ball to come out of the hopper, as will be explained later. The shaft holding the rubber tired wheels 2 and 3 is rotated by gears 11 and 12.

A series of fifty-two balls is provided divided into four sets of different sizes with thirteen of each size. The balls are contained in the hoppers 13 and 14 which are fastened together by a circular casing fitting over the circular casing 15 which surrounds the wheel 16. The casing 15 has a slot to admit the arm 17 of lever 18. This arm normally rests in a groove 51 in wheel 16. This casing 15 also has a chute 19 open at the top which corresponds with a similar opening in the hoppers 13 and 14 and permits the balls to fall out of the upper hopper 13 and rest on the wheel 16. As the wheel 16 is rotated, a ball falls into the indentation of the wheel and is forced out through an opening in the chute under arm 17 of lever 18. This lever operates to prevent more than one ball being delivered at each turn of the wheel 16. It should also be noted that the diameter of the balls is so arranged that the largest ball is less than twice the diameter of the smallest ball and that the indentation in wheel 16 is of a size to admit the largest ball, but not large enough to allow two of the smallest balls to lie side by side in the bottom of the indentation and so pass out at one revolution of the wheel 16. Having passed under the arm 17, the ball falls into the lower hopper 14 through an opening in the bottom of casing 15. After all the balls have been carried out of hopper 13, the position of the hoppers can be reversed by turning the hoppers half way around, which brings hopper 14, containing all the balls, on top.

As a ball is forced out under arm 17 of lever 18, lever 18 is raised to a height corresponding to the size of the ball delivered and the latch 20 catches in the notch at the end of lever 18 and holds it in substantially the position to which it has been moved by the ball. The raising of lever 18 by the ball also moves the lower end of arm 21 inwardly and permits frame 5 to move upward under the force of spring 7 and start the delivery of a card. Arm 10 has a small projection 22, Fig. 1, which is caught by arm 21, preventing the rubber tired wheels 2 and 3 from coming in contact with the cards except when a ball is delivered. The latch 20 is released by the pin 23 inserted in cam 8 just prior to

the time the wheel 16 starts to force another ball under the arm 17.

A receiver 24 with four compartments, 25, 26, 27 and 28, is provided detachable from the rest of the mechanism. When the machine is in use, however, it is inserted by sliding along frame 29 until the lugs 30 and 31 fall into the slots 32 and 33. The receiver then rests on lever 34. The arm 35 is attached firmly to lever 34 and is slidably mounted on the vertical arm of frame 29 and projects over the cam 8. It is also attached to lever 18 by means of screw 36 passing through slot 37. Slot 37 is arranged so arm 35 can be raised or lowered without interfering with lever 18. If a ball has been delivered, however, and lever 18 held in any of the four positions by latch 20, then arm 35 will be held by lever 18 and will not be allowed to follow the cam 8 down. As the cam 8 is rotated, the arm 35 raises the lever 34 which moves the receiver 24 in an arc in front of the rubber tired wheels 38, 39, 40 and 41. At the top of the arc the compartment 28 of receiver 24 is slightly above the place where a card would be delivered by the rubber tired wheels 38 and 39. At the bottom of the arc the compartment 25 of receiver 24 will be slightly below the place where a card would be delivered by the rubber tired wheels 38 and 39. The levers and the notches in the end of lever 18 are so arranged, however, that lever 18 will stop the receiver 24 on its downward swing so that the compartment in the receiver corresponding to the size of the ball which raised lever 18 will be held in position to receive the card.

The rubber tired wheels 38 and 39 are mounted on shaft 6 and the rubber tired wheels 40 and 41 are mounted on another shaft immediately above in such a position that a card forced out of container 1 comes between wheels 39 and 40 on one side and 38 and 41 on the other and is delivered regularly to the compartment of the receiver corresponding to the size of the ball which permitted the delivery of the card to be started.

The device is operated by placing a deck of fifty-two playing cards in the container 1, placing the cover 4 on the cards and turning the hoppers 13 and 14 so the hopper containing the balls is on top. As the main shaft 6 is rotated by the hand crank, all the rubber tired wheels are rotated as well as wheel 16 and cam 8. The position of the indentation in wheel 16 is located so the cam 8 has raised the receiver 24 to the top of its arc and permitted the frame 5 to rise to a position where the rubber tired wheels 2 and 3 come in contact with the cards at the moment a ball is forced under arm 17. The raising of lever 18 by the ball permits a card to be forced out by the rubber tired wheels 2 and 3. The cam 8 is so arranged that as soon as the card has

started between the rubber tired wheels 38, 39, 40 and 41, the frame 5 is drawn down, thus preventing the starting of another card from container 1 until the cam 8 has completed its revolution. Lever 18 has also been held in the position placed by the ball by latch 20. This holds arm 35 from following the cam down and arm 35 holds lever 34 which stops receiver 24 in its downward arc and holds it in a position to receive the card in the compartment corresponding to the size of the ball. The size of the rubber tired wheels 38, 39, 40 and 41 is so arranged that they will deliver the card before the cam 8 starts raising the receiver and before the pin 23 releases the latch. It will be apparent that a card is delivered at each revolution of the shaft 6 and that the receiver 24 will have been stopped in position to receive thirteen cards in each compartment in fifty-two revolutions of shaft 6. The order in which it has stopped at the various compartments will, however, depend on the order in which the various sizes of balls are taken out by the wheel 16.

It will thus be evident that in this machine the distribution of successive cards into the several compartments of the receiver 24 is controlled by the size of the particular ball selected or picked by the wheel 16 from the mass of balls in the upper hopper during the feeding of each card. Since this picking or choosing of the selectors for each card is made indiscriminately and is entirely a matter of random or chance, the sorting of the cards into the four compartments of the receiver is made indiscriminately and is controlled simply by chance. The shuffling of the cards, therefore, occurs automatically in connection with the dealing of them and a fair deal is always ensured.

A casing 42 is provided to cover the mechanism with a top suitable for holding a score pad 43 for recording the results of the game.

While I have herein shown and described one embodiment of my invention, it will be evident that the invention may be embodied in a great variety of other forms without departing from the spirit or scope thereof. For example, selectors of other constructions can be used. Also, the organization and arrangement of the elements of the machine necessarily will depend upon the nature of the articles which it handles, the requirements of the game in which such articles are to be used, and the particular use to be made of the machine.

This application is a continuation, in part, of my copending application Serial No. 282,609 filed June 4, 1928.

What I claim is:

1. A device for shuffling objects comprising a container for a group of objects, means for feeding the objects one by one from the container, a series of selectors differential with respect to each other, means for select-

ing said selectors indiscriminately and means controlled by said selectors for variably delivering the objects according to the differential characteristics of the selectors.

2. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of selectors differential with respect to each other, means for selecting said selectors indiscriminately and means controlled by said selectors for variably delivering the cards according to the differential characteristics of the selectors.

3. A machine of the character described comprising a magazine for holding a pack of cards, mechanism for feeding the cards one at a time from said magazine, a series of selectors differing from each other, means operable to choose at random a selector for each card so fed, and means for distributing the successive cards in accordance with the characteristics of the respective selectors so chosen.

4. A card shuffling device comprising a container for a pack of cards, a receiver, means for feeding the cards one by one from the container, a series of individual selectors differential with respect to each other, means for selecting and moving said selectors indiscriminately and means operated by the moving selectors for variably delivering said cards to the receiver.

5. A machine of the character described comprising a magazine for holding a pack of cards, mechanism for feeding the cards one at a time from said magazine, a series of selectors differing from each other, means for selecting said selectors indiscriminately during the feeding of successive cards, and means for sorting the cards according to the differential characteristics of the selectors associated with the feeding of the respective cards.

6. A machine of the character described comprising a magazine for holding a pack of cards, mechanism for feeding the cards one at a time from said magazine, means for sorting the cards so fed, a series of selectors differing from each other, and means for selecting said selectors indiscriminately one at a time in connection with the feeding of successive cards and causing the selectors to control the sorting of the cards in accordance with the differential characteristics of the selectors.

7. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of selectors arranged in sets of different sizes, means for selecting and moving said selectors indiscriminately and means operated by the moving selectors for variably delivering said cards according to the sizes of the selectors.

8. A machine of the character described 130

comprising a magazine for holding a pack of cards, mechanism for feeding the cards one at a time from said magazine, a series of selectors arranged in sets of different sizes, means for selecting said selectors indiscriminately one at a time in connection with the feeding of successive cards, and means for sorting said cards according to the sizes of the respective selectors used in feeding successive cards.

9. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of balls arranged in sets of different sizes, means for selecting and moving said balls indiscriminately and means operated by said balls for variably delivering the cards according to the size of the balls.

10. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of fifty-two balls arranged in four sets of different sizes with thirteen balls in each set, means for selecting and moving said balls indiscriminately and means operated by said balls for variably delivering the cards according to the size of the balls.

11. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of selectors differential with respect to each other, a receiver with the same number of compartments as there are sets of selectors with differential characteristics, means for selecting and moving said selectors indiscriminately and means operated by said selectors for delivering said cards to the compartments in the receiver according to the differential characteristics of the selectors.

12. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of selectors differential with respect to each other, means for selecting and moving said selectors indiscriminately, means controlled by the moving selectors for starting the delivery of each card from the container and means operated by the moving selectors for variably delivering said cards according to the differential characteristics of the selectors.

13. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of selectors differential with respect to each other, means for selecting and moving said selectors indiscriminately, a receiver with the same number of compartments as there are sets of selectors with differential characteristics, means for moving said receiver in an arc opposite the place where the cards are delivered from the container and means operated by the moving selectors for stopping the receiver so the cards are delivered to the various compartments according

to the differential characteristics of the selectors.

14. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of balls arranged in sets of different sizes, two containers for said balls of sufficient size to enable the balls to mix freely arranged opposite one another on a vertical axis, means for selecting and moving said balls indiscriminately, means operated by said balls for variably delivering said cards according to the size of the balls, means for guiding said balls to the lower ball container after they have performed their selective function and means for reversing the position of the ball containers after all the balls have performed their selective function.

15. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of fifty-two balls arranged in sets of different sizes, means for selecting and moving said balls indiscriminately, a receiver with the same number of compartments as there are sets of balls of each size resting on a lever, means for raising and lowering said lever, latch means operated by said moving balls for holding said lever and receiver in various positions according to the size of the moving ball and means for releasing the latch after each card has been delivered.

16. A card shuffling device comprising a container for a pack of cards, means for feeding the cards one by one from the container, a series of fifty-two balls arranged in sets of different sizes, a container for said balls with an opening at the base, a wheel with an indentation in the rim large enough to catch the largest ball arranged so the rim closes the opening at the base of the ball container except for a space large enough to permit the passage of the largest ball when resting in the indentation in the rim, a lever placed at the opening of the ball container to prevent the passage of more than one ball at each revolution of the wheel and means operated by said lever for variably delivering the cards according to the sizes of the balls.

17. A card shuffling and dealing device comprising a casing having a container for a pack of cards, means for feeding the cards one by one from the container, a series of fifty-two balls arranged in sets of four different sizes with thirteen balls in each set, a receiver with four compartments arranged so it can be inserted in and removed from said casing, means for selecting and moving said balls indiscriminately and means operated by said balls for delivering the cards to the different compartments according to the sizes of the balls.

18. A card shuffling device comprising a container for a pack of cards consisting of a slanting base with narrow runners on which

the cards normally rest, a front piece for holding the cards with fingers opposite each runner leaving space for only one card to pass through at a time, a weight placed on top of said cards in the container with runners corresponding approximately to the runners on the base, means for forcing out the bottom card of the deck placed in the container, a series of selectors differential with respect to each other, means for selecting and moving said selectors and means operated by said selectors for variably delivering the cards according to the differential characteristics of the selectors.

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