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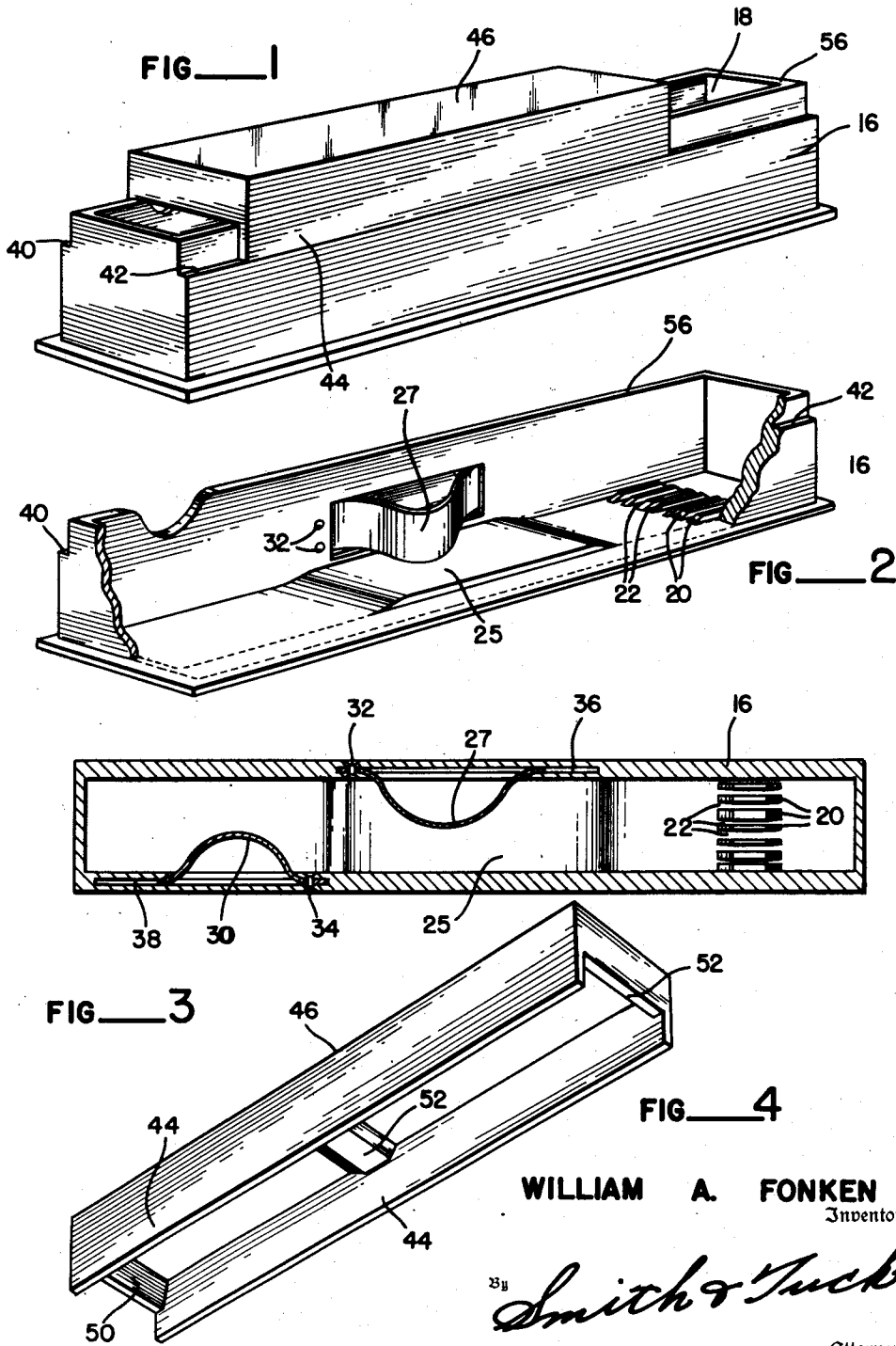
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MEANS FOR SHUFFLING DECKS OF PLAYING CARDS

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3 Sheets-Sheet 1



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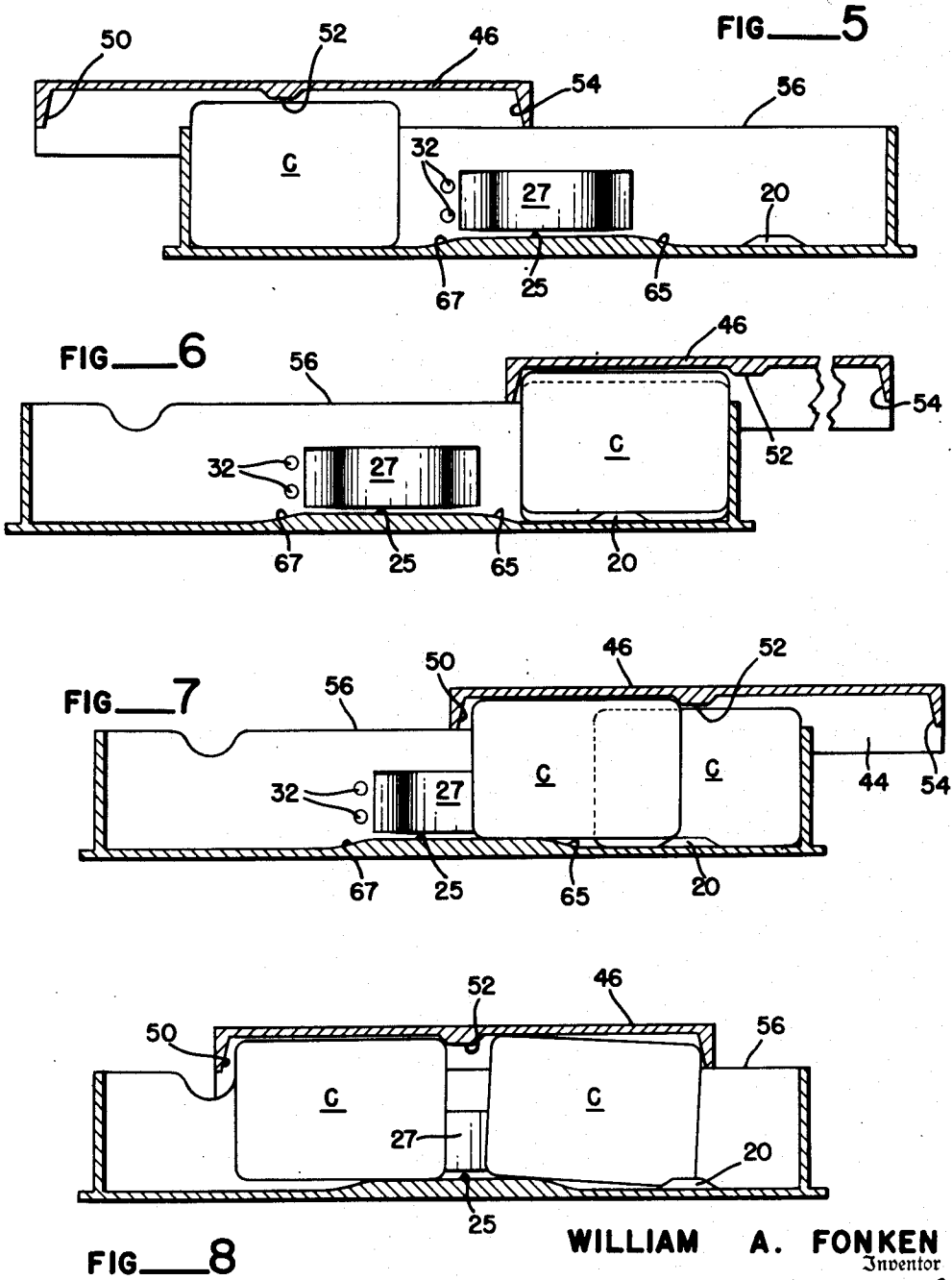
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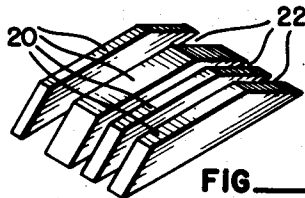
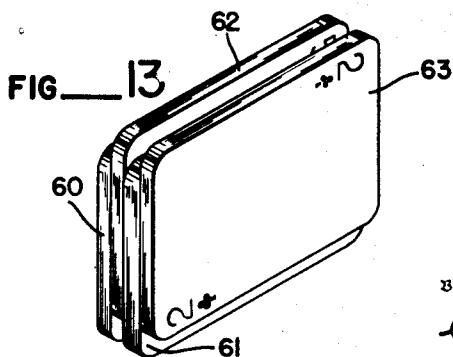
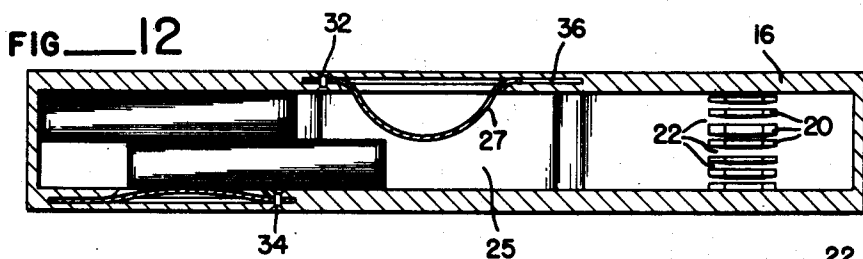
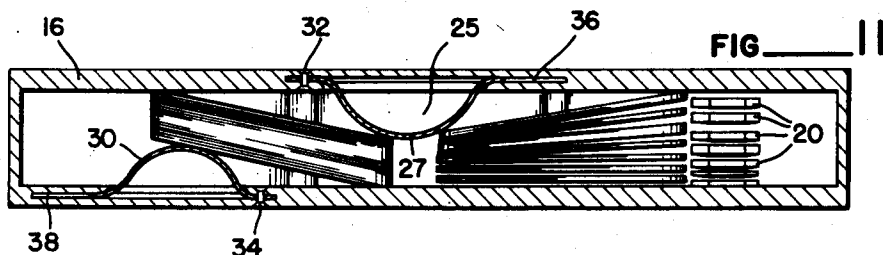
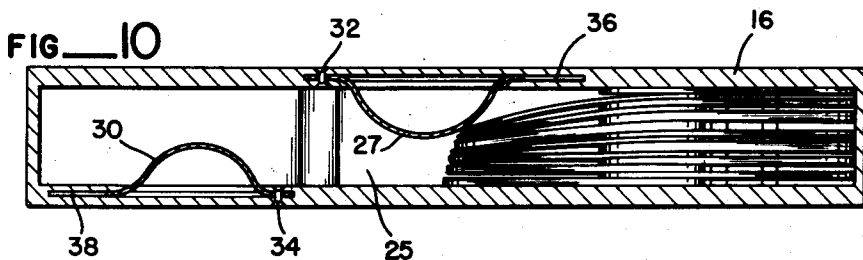
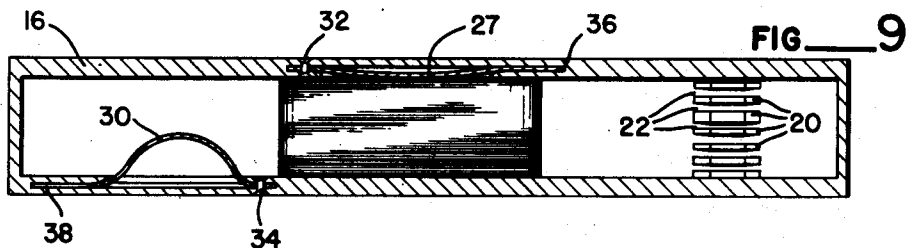
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# UNITED STATES PATENT OFFICE

2,615,719

## MEANS FOR SHUFFLING DECKS OF PLAYING CARDS

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3 Claims. (Cl. 273-149)

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This present invention contemplates a new method and the means required to shuffle large decks of cards. Means are provided in the form of a box-like device having a sliding cover, for separating the large deck of cards into two half-decks and then recombining these two half-decks so that a repetition of the shuffling cycle can be made. The two half-decks are achieved by a means which takes from the entire assembled deck small books of cards having a different number of cards, normally, in each of the small books. By such means, no reasonable number of shuffling cycles can ever restore the deck to the original arrangement of cards.

In the past, many arrangements have been provided for shuffling cards. The greater majority of these devices have been arranged so as to provide a mechanical means for shuffling cards to the end that the various players of the card game would have the assurance that a fair, honest shuffling of the cards had been made. In this present invention, this result is achieved incidentally, but a further and more important purpose has been served, mainly, the handling of large decks of cards, decks so large that only persons skilled in the handling of cards can effectively shuffle them in a single shuffling operation. Such decks of cards are used in a number of games among these are canasta, and various forms of rummy, from which canasta appears to be a derivative or variant. Further, in the past the majority of the shuffling devices were designed for use in gambling games. In this present invention, however, the intent of this device is to provide a convenient means for shuffling the large decks of cards, such as used in canasta, which can be effectively handled by anyone, even though they be unskilled in the handling of cards. Normally, canasta is a family game. It is played, in a large measure, for home entertainment and probably nothing is as embarrassing to those unskilled in shuffling as to endeavor to assemble the double deck normally used in canasta, and one of the achievements of this present invention is to provide a convenient means for the handling of the cards which will prevent the embarrassment of guests in one's home in the handling of the double deck employed in this new game. In the past, many persons have not become interested in the usual games played in the home because of the long study required to achieve practical playing skill. Canasta, on the other hand, is easily understood as it comes from the rummy game foundation, and has been the means of introducing card playing to a large

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number of newcomers in the field, and it is particularly for the benefit of these people that this present invention has been conceived.

The principal object of this present invention, therefore, is to provide a shuffling means for handling, normally, double decks of cards in such a simplified manner that one unskilled in card handling can achieve an honest, complete shuffling of the cards.

A further object of this present invention is to provide a method and means for segregating the double deck of cards into two single decks, each formed from books of cards taken throughout the double deck.

A further object of this invention is to provide means for raising the level of approximately one-half of a double deck of cards above the other half as they are held in an on-edge position and then slipping these raised cards from the double deck to form half-decks.

A further object of this invention is to provide convenient means whereby a single movement of the sliding cover from one end to the other end and back, will complete a shuffling cycle.

A further object of this invention is to provide a card shuffling device in which a series of sequential operations are performed by one complete movement of the slide cover to one end of the container and return.

A further object of this invention is to achieve a method of shuffling wherein a deck of cards is separated into a plurality of books of cards taken throughout the entire deck, combining the books of cards into a single half-deck, and then combining the two half-decks of cards into a single full deck.

Further objects, advantages and capabilities will be apparent from the description and disclosure in the drawings, or may be comprehended or are inherent in the device.

In the drawings:

Figure 1 is a perspective view of my complete card shuffling device;

Figure 2 is a perspective view of the lower chamber of my shuffling device, with certain parts broken away and shown in section to more clearly illustrate its construction;

Figure 3 is a plan view, in section, as though cut by a plane passing horizontally through the center of my shuffling device;

Figure 4 is a perspective view showing the inner portion of the slide, or cover, used with my shuffling device;

Figure 5 is a vertical, longitudinal, sectional view through my card shuffling device, with a

deck of cards in the position used for starting the shuffle;

Figure 6 is a vertical, longitudinal, sectional view of my device, showing the deck of cards on the separating platform of the same;

Figure 7 is a longitudinal, sectional view, similar to Figures 5 and 6, illustrating the manner in which the separated books or cards are stripped from the main deck of the cards;

Figure 8 is a longitudinal, vertical, sectional view, showing both half-decks being moved to the left to the point where they will be recombined;

Figure 9 is a sectional view in plan, showing a deck of cards being moved to the separating platform;

Figure 10 is a view similar to Figure 9, but showing the separation of the stripped out books of cards from the main deck;

Figure 11 is a sectional view in plan, showing the movement of the two half-decks to the left;

Figure 12 is a view similar to Figure 11, showing the next step in the recombining of the two half-decks;

Figure 13 illustrates the manner in which the complete deck is broken into several books, normally, each having a different number of cards therein as the first step in the shuffling of the cards forming the shuffling method of this application;

Figure 14 is a perspective view of the type of separation ramps used in my device.

Referring more particularly to the disclosure in the drawings, the numeral 16 designates the lower box-like chamber or enclosure of my shuffling device. This is, normally, so proportioned that a complete double deck of cards will fit snugly but not tightly, into the shuffling chamber 18 within box 16 and the length of this chamber, in the form shown, is slightly over three times the length of the playing cards used in the device. On one end, disposed so that a deck of cards can be centrally disposed thereon, is a plurality of transversely fingered separation ramps 20. Ramps 20 are arranged longitudinally of the separation chamber 18 and are provided to segregate cards in a non-uniform manner. This is best achieved by varying the thickness, as considered transversely on container 18, of one or more of the ramps, or may be achieved by having the spaces 22 between the ramps so arranged that one or more are of different thickness from the rest of the same. It will further be apparent that a combination of these two variants may be used. It has been found desirable, however, to have the combined breadth of the spaces substantially equal to the combined breadth of the ramps so that a full deck will be separated into two half-decks of substantially an equal number of cards. This condition, however, is largely a matter of choice as it is not essential that the two half-decks be of the same size.

Disposed centrally of the length of chamber 18 is a raised solid ramp 25 having sloping approaches toward each end of the enclosure. The height of this ramp, for convenient operation, should be substantially that of ramps 20. The purpose of this ramp is to provide that the cards are held in a raised position so that the central transferring lug can adequately engage the same so as to achieve their longitudinal movement.

Disposed on each side and extending inwardly of chamber 18 are the half-deck positioning springs 27 and 30. These springs may take various forms, however, those illustrated throughout

the accompanying drawings have proved very satisfactory. They consist of relatively thin spring stock having a width about one-half of the width of the playing cards handled and are secured at one end as by rivets, 32 and 34. The opposite ends of springs 27 and 30 are entered into guiding grooves, as 36 and 38, to the end that these springs may be straightened and the unsecured ends occupy a space within the sidewalls of box 16. Such a showing of spring 27 is illustrated in Figure 9. Springs 27 and 30 have the function of positioning the half-decks so that they will be recombined into a full deck at the completion of a single shuffling cycle.

The upper longitudinal sides of box 16 are formed as guideways 40 and 42, adapted to receive the downwardly extending skirts 44 of the sliding cover 46. Cover 46 has three downwardly extending transporting lugs, as 50, 52 and 54. The proportioning of these lugs must bear a definite relationship to the various other parts of box 16. For instance, lugs 50 and 54 must be able to overrun each end of box 16 and the upper margin 56 of box 16 must be of a height to expose the upper longitudinal margins of the playing cards C. With this proportioning, lugs 50 and 54 can engage the end margins of the cards in order to move them through the sequence of operations required to complete a shuffling cycle. The downward extent of lug 52 must bear a definite relationship with the space between it and the raised central ramp 25 and between it and ramps 20, so that the operation illustrated in Figures 6 through 8 can be achieved. It, therefore, follows that the distance from the upper face of ramp 25 to the under surface of cover 46 must be just sufficient to give ample clearance for a card on edge. Lug 52 must extend downwardly toward ramp 25 sufficiently so that it can engage the cards resting on ramps 20 and move them longitudinally of box 16. This relationship is shown in Figures 6 and 7. At the same time, lug 52 must not extend downwardly sufficient to engage those cards of the deck that have come to rest in grooves 22, between ramps 20. Figure 7 illustrates this relationship.

#### Method of operation

In carrying out the method of card shuffling, made possible by this present means, the following sequential operations are desirable. First, referring to Figure 5, the complete deck of cards is placed in the left hand view of box 16, then cover 46 is put in place over the deck to insure that the lugs 50 and 54 are on opposite ends of the deck. The next step in the operation is to move cover 46 to the right, as viewed in the various figures. This gives an intermediate position illustrated in Figure 9, where the deck is in mid-point in chamber 18, and has forced spring 27 into its guiding recess 36. As the cover 46 is continued in its movement to the right, lug 50 continues to carry the deck along until it comes to rest at the right end of the shuffling chamber 18. Here, as illustrated in Figure 6, those cards which are on top of ramps 20 maintain their position substantially in contact with cover 46. The balance of the cards, due to their weight, and the fact that they have been moved along by lug 50, fall down into the spaces 22, between ramps 20. Ramps complementary to ramp 20 may be formed in the cover to avoid dependence on gravity if desired. This creates the various books of cards, which, for the purpose of insuring against a restoration of the pack to its original position

after several shufflings are unequal as the ramps and spaces are provided in a non-uniform manner. The next step is the reversal of movement of cover 46. This is illustrated in Figures 7 and 10, wherein it will be noted, the cards, which have rested on top of ramp 20, are being stripped out of the deck by lug 52. The balance of the cards, coming to approximately one-half the complete deck, are left momentarily in grooves or spaces 22. A continuation of the movement of cover 46 to the left causes a disengagement of the interleaved books of cards and creates two half-decks. Each of these half-decks must pass by the central spring 27, but as separate half-decks. The leading half-deck is forced to one side by spring 27, and then to the other side by spring 30, and spring 30 normally bears on that half-deck, at rest, toward the right of its center so that any ruffling of the deck will be only at the left end, leaving the right end firmly compressed so that the second half-deck, as it is carried along by lug 54, will be positioned by spring 27 alongside of the first half-deck that was stripped from the full deck, the second half compressing spring 30. Thus the pack is reunited and one complete shuffling cycle has been achieved.

Attention is invited to the perspective view of Figure 13, wherein a view of a small group of the books of cards making up the deck is shown in the general relationship they have with one another during the separation stage, and which is achieved through the use of ramps 20 and the associated spaces 22 between them. When the cards are shuffled, as by this method, the separation of the cards in the finally formed complete deck, are considerably further apart than by any ordinary system of inter-leaving cards. In the reformation of the deck, after the method previously described, it will be apparent, it is believed, that each book of cards of Figure 13, which shows books 60 and 61, in normal position, interfingered with raised books 62, 63, will normally be disposed in the reformed deck a distance away from its original position. Such an arrangement insures the widest possible separation of cards from their original position and then, by having spaces 22 of various widths, successive cycles of shuffling will thoroughly mix the cards. This method of shuffling the cards is a very thorough one and should well serve the ends of card players.

Many details of structure add to the certainty of the shuffling operation. One example is the fact that the central ramp 25, as shown in Figure 5, tends to put back into place any cards of the deck that are raised too high. This insures smoother operation near the end of the cycle. Attention is further invited to the sloping approaches to ramp 25, as are illustrated at 65 and 67, over which the cards move.

It is believed that it will be clearly apparent from the above description and the disclosure in the drawings that the invention comprehends a novel construction of means for shuffling decks of playing cards.

Having thus disclosed the invention, I claim:

1. A shuffling device for playing cards, comprising: a stationary, box-like shuffling enclosure with an open top, the upper portions of the sides of said enclosure forming guideways, said enclosure having a length roughly approximately the length of three decks of cards and being wide enough to accommodate loosely therein a deck of

cards on its side; a cover disposed to slide above and longitudinally of said enclosure and in said guideways, said cover having three depending, transverse lugs, disposed to engage cards in said enclosure, said lugs being spaced apart one from another longitudinally of said cover; a first resilient member positioned on one side and near one end of said enclosure and disposed to press against cards passing said member; a second resilient member positioned on the other side and intermediate the ends of said enclosure and disposed to press, in an opposite direction from said first resilient member, against cards passing said member; a ramp positioned on the floor of said enclosure in a central position and having sloping approaches facing each end of the enclosure; and a ramp, having a series of grooves spaced apart one from another, transversely of said enclosure positioned on the floor of said enclosure in the opposite end from said first resilient member.

2. A shuffling device for playing cards, comprising: a stationary, elongated, box-like shuffling enclosure with an open top, said enclosure being wide enough to accommodate loosely therein a deck of cards on its side; a cover disposed to slide above and longitudinally of said enclosure, said cover having a plurality of depending, transverse, lugs, disposed to engage cards in said enclosure, said lugs being spaced apart one from another; there being a portion of the floor of said enclosure with a surface having a series of grooves spaced apart one from another transversely of said enclosure; and means positioned in said enclosure, at a point spaced from said point, in abutting side-by-side relationship one to another.

3. A shuffling device for playing cards, comprising: a stationary, box-like shuffling enclosure with an open top adapted to accommodate a deck of cards positioned on edge and moved in a substantially horizontal, edge-forward direction within said enclosure; a cover slidably mounted on said open top of said enclosure and having engaging lugs disposed to engage and longitudinally move cards in said enclosure; orienting means in said enclosure disposed to separate such deck into groups of books of cards with the top edges of a first group of books extending beyond the top edges of a second group of books and with the books belonging to said first group in interfingered relationship to books belonging to said second group, said engaging lugs having means for engaging and moving said top edges of said first group of books independently of said second group.

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