Feb. 8, 1955 F. H. OGDEN 2,701,720

CARD SHUFFLING DEVICE

Filed Oct. 6, 1950 2 Sheets-Sheet 1

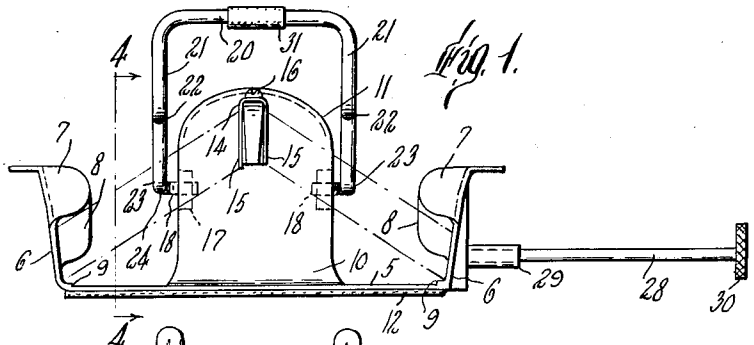

Fig. 1.

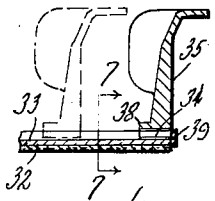

Fig. 6.

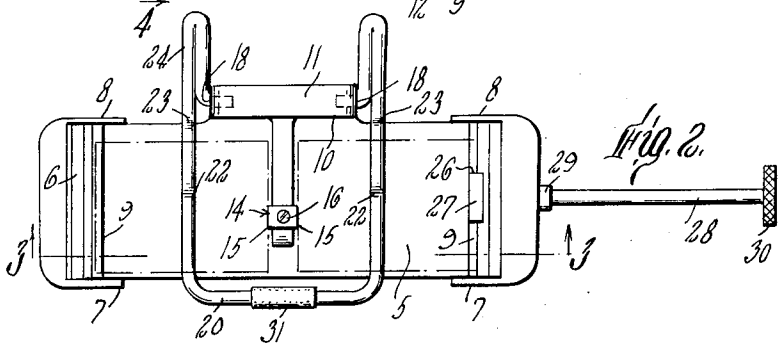

Fig. 2.

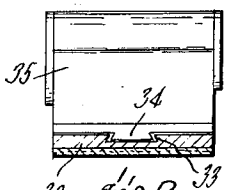

Fig. 7.

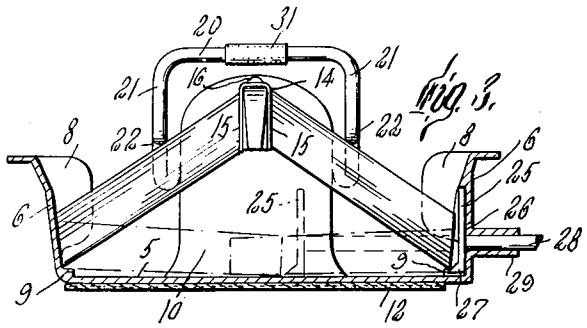

Fig. 3.

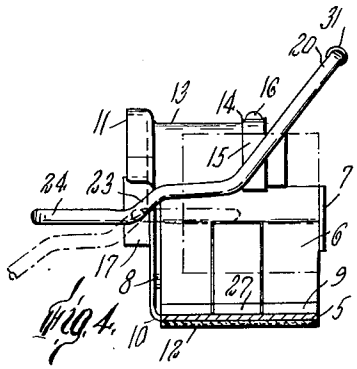

Fig. 4.

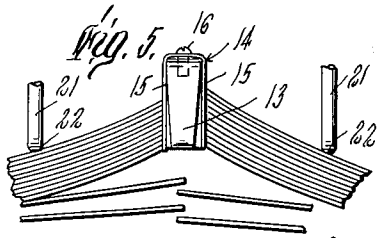

Fig. 5.

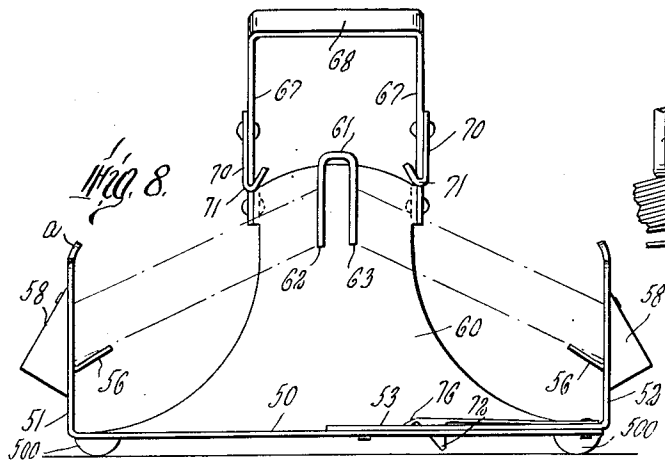

Fig. 8.

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CARD SHUFFLING DEVICE

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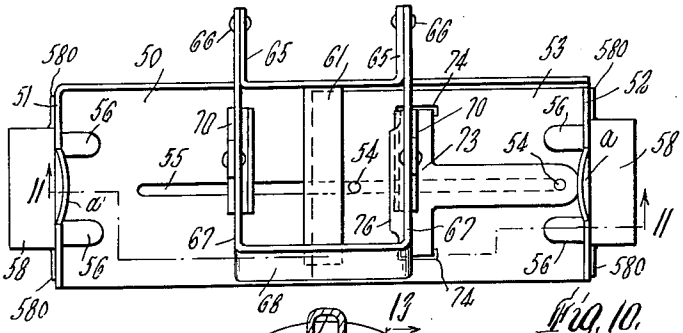

Fig. 10.

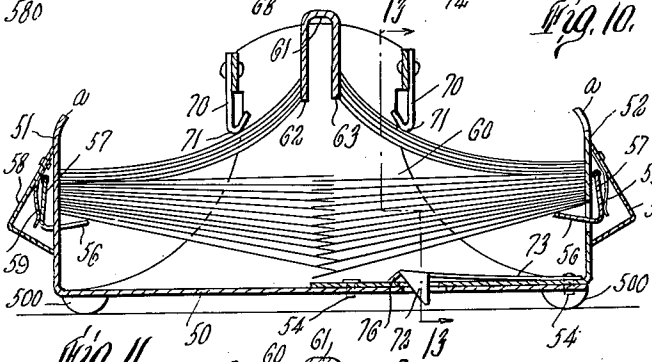

Fig. 11.

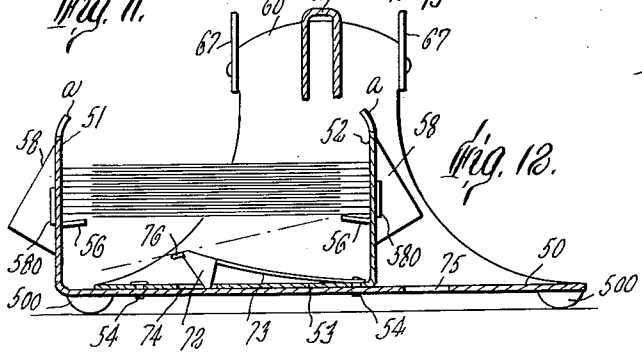

Fig. 12.

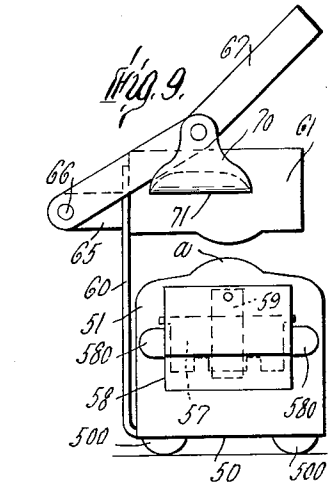

Fig. 9.

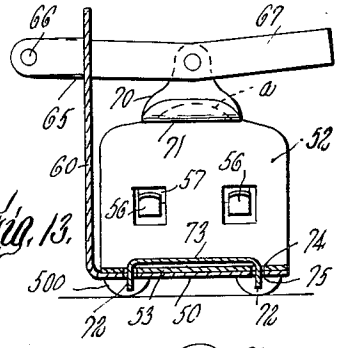

Fig. 13.

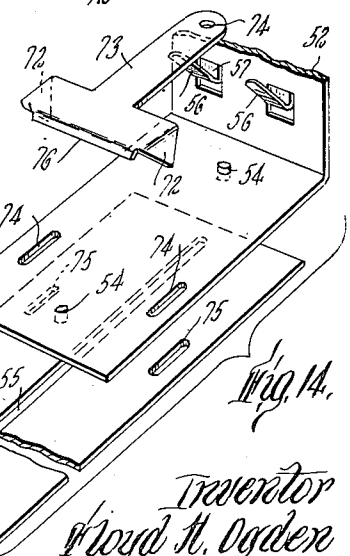

Fig. 14.

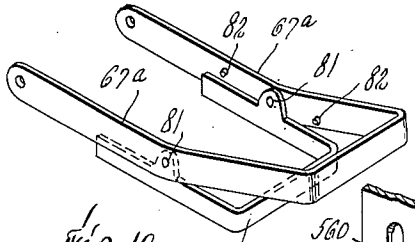

Fig. 16.

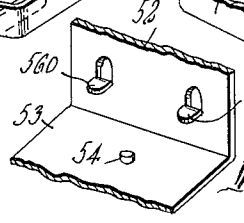

Fig. 15.

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United States Patent Office

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CARD SHUFFLING DEVICE

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Application October 6, 1950, Serial No. 188,805

7 Claims. (Cl. 273—149)

This invention relates to playing card shuffling devices and particularly to a shuffling device for effectively mixing two or three conventional decks of cards in a simple and rapid manner.

It has been found extremely difficult to effectively shuffle two or three decks of cards by hand and the effectiveness of the shuffle has been rather haphazard, since it is rather inconvenient to properly hold and riffle or otherwise mix two or three conventional decks, due to their bulk. Playing card games requiring two or three decks of cards, such for instance as the well known game of "canasta" are largely dependent upon a thorough mixing of the cards and, since a riffling of the cards results in a more effective mixing, the present invention has been designed in a simple and inexpensive manner to receive a divided double or triple deck and, by a simple motion of a pair of riffling arms, the decks are thoroughly riffled and inter-mixed.

The invention includes a tray wherein the divided deck is manually arranged in angular relation with their ends contacting, a pair of riffling fingers and a pair of swinging riffling arms for exerting pressure upon the cards to be riffled alternately from the riffling fingers and fall within the tray more or less alternately with their ends overlapping, and a simple and novel means for pushing the riffled cards together.

An object of the invention is the provision of a device that will effectively riffle a double or triple deck of cards, is cheap to manufacture, is simple in construction, is strong, durable, ornamental in appearance and is highly efficient in use.

Other and important objects of the invention will be apparent during the course of the following description, reference being had to the accompanying drawings, wherein has been illustrated preferred examples thereof and wherein like characters of reference denote like parts throughout the several figures.

In the drawings,

Figure 1 is a front elevation of a device constructed in accordance with the invention.

Figure 2 is a plan view thereof.

Figure 3 is a vertical longitudinal section, taken on line 3—3 of Figure 2.

Figure 4 is a transverse vertical section, taken on line 4—4 of Figure 1.

Figure 5 is an enlarged fragmentary front elevation, illustrating the riffling action.

Figure 6 is a fragmentary vertical longitudinal section through one end of the device, illustrating a modified form of the invention, and

Figure 7 is a transverse section, taken on line 7—7 of Figure 6.

Figure 8 is a view similar to Figure 1, but showing a further modification.

Figure 9 is a left end elevation of the structure shown in Figure 8.

Figure 10 is a top plan view of the same.

Figure 11 is a sectional view on line 11—11 of Figure 10.

Figure 12 is a view similar to Figure 11, but showing the cards of the two piles moved together.

Figure 13 is a sectional view on line 13—13 of Figure 11.

Figure 14 is a fragmentary exploded view of parts of the structure shown in Figures 8 to 14, inclusive.

Figure 15 is a fragmentary perspective view showing a modified construction or card-supporting ledge.

Figure 16 is a perspective view of a modified form of riffling element.

Referring to Figures 1 to 4, inclusive, the numeral 5 designates a base plate of generally rectangular shape having up-turned and slightly outwardly inclined end flanges 6. Each flange 6 is provided with inwardly extending forward and rear wings 7 and 8, paralleling the base plate 5. At the junction of the flanges 6 and the base 5, flat shoulders or ledges 9 are provided, for a purpose to be presently described. Extending vertically from the rear end of the plate 5 and intermediate the length of the plate, is a relatively wide wall 10, having its upper terminus rearwardly flanged, as at 11 and preferably formed on an arc. The plate 5, flanges 6, wings 7 and 8 and the wall 10 with its flange 11, may be cast as an integral unit, of metal, plastic or any other desirable material having sufficient rigidity. The bottom of the plate 5 may be covered by a layer of felt 12, cemented or otherwise secured thereto.

Projecting forwardly from the wall 10, at a point adjacent to the upper end, is a bar 13, preferably formed integral with the wall and having its opposite sides tapered downwardly, as shown, and the upper forward corner rounded. Fixed upon the bar 13, adjacent to the forward end, is a U-shaped riffling element 14, having parallel legs 15 positioned upon opposite sides of the bar. The device 14 is rigidly held against movement on the bar 13, by a screw 16. As clearly shown in Figures 1, 3 and 5, one leg 15 terminates substantially flush with the lower edge of the bar, while the other leg 15 extends slightly lower, for a purpose to be described. The device 14 is substantially rigid, although it may be desirable to impart a slight flexibility thereto.

Fixed upon the rear of the wall 10, at opposite sides, are trunnion blocks 17, rotatably supporting the axially alined ends 18, of a generally U-shaped card compressing frame. The frame comprises a forward cross bar 20, integral with a pair of parallel arm portions 21. The arm portions 21 are bent in a relatively wide arc at 22, and then are curved downwardly at 23 and extended at 24 and then bent upon themselves to form a preliminary card support and positioning leg, terminating in the ends 18. After a shuffling operation, by swinging the frame rearwardly, these arm extensions 24 will engage with the rear edges of the shuffled cards and push them outwardly from the tray where they may be taken by the hand. The frame is adapted to be swung in a vertical plane from a position of rest at the rear of the base plate, to a position of rolling contact with the surface of the cards.

The playing cards, after being riffled, are positioned upon the surface of the base plate 5 in extended manner, with their ends overlapping. Means are employed to push the riffled cards into a single pack, comprising a vertically arranged pusher plate 25, normally seating in a recessed rectangular opening 26, formed in one end flange 6. The lower end of the pusher plate 25 is provided with a beveled foot portion 27. The plate 25 is moved toward and from the riffled cards by a rod 28, having a sliding bearing in a tubular extension 29 of the flange 6. A hand knob 30 facilitates the shifting movement of the rod. The plate 25 is rectangular and its foot 27 has sliding contact with the surface of the base plate 5. The plate 25 is maintained in proper travel position for engagement with the cards by the engagement of the foot 27 with the plate 5, thus preventing rocking movement.

In the use of the device, when it is desired to shuffle a double or triple deck of playing cards, the cards are separated into two substantially equal piles. The compressing frame is swung rearwardly until the bar lies upon the surface of a table or other supporting medium. In this position, the extension 24 of the frame extends inwardly and overlies the base plate 5, as shown by dotted lines in Figure 4. The cards are then positioned in the device, with the outer ends supported upon the shoulders or ledges 9 and their upper or inner ends resting against the riffling fingers 15, shown clearly in Figures 3 and 5. The cards are further supported by the extended portions 24 of the frame 19. The operator then swings the frame 19 upwardly and forwardly by the bar 20, such move-

ment causing the ends 24 to swing downwardly and rearwardly away from the cards. Continued forward movement of the frame 19 brings the arcuate portion 22 thereof into rolling contact with the upper surfaces of each pile of cards, pressing the cards downwardly and causing them to flex, as indicated in Figure 5. Continued downward pressure on the cards causes them to alternately snap from the terminal ends of the fingers 15 and, as they leave the fingers 15, they fall downwardly to rest upon the surface of the plate 5, with their inner ends in random overlapped position more or less alternately. After the cards have been completely riffled, the frame is again swung rearwardly to a position of rest and the operator then shifts the rod 28 inwardly, causing the plate 25 to engage the outer ends of the adjacent cards and shift them endwise for stacked engagement with the opposite pile. The completely riffled pile may then be removed by the operator by grasping them with his fingers and sliding them outwardly. It will be noted, that the forward wings 7 are sufficiently short to permit the sidewise shifting of the cards on removal. The operation may be repeated for a more thorough shuffling of the cards if desired. After each operation, the parts are returned to their normal position. The bar 20 may be provided with a resilient sleeve 31, to prevent scarring of a supporting surface, should the frame be swung rearwardly with any degree of force. While the device has been primarily designed to facilitate the shuffling of a double or triple deck of playing cards, it will be apparent that a single deck can be riffled with equal success, it being of course understood, that the deck would be divided into two separate piles as before.

In Figures 6 and 7, a modified form of pushing means has been provided. In this form of the invention, a base plate 32 is provided in its upper surface, longitudinally thereof, with a dove-tailed groove 33, slidably receiving a dove-tail 34, carried by a movable end flange 35, corresponding to the end flanges 6 and also provided with wings, corresponding to the wings 7 and 8. The end flange 35 carries a shoulder 38, similar to the shoulders 9. The stop plate 39 limits the outward movement of the flange. After the cards have been riffled, the flange 35 is shifted inwardly to push the several cards into a single pile. The use of the shifting flange 35 avoids the possibly objectionable projecting rod 28, resulting in a more compact device.

In Figures 8 to 14 there is illustrated a modified construction in which the tray 50 is provided with a single upstanding end 51, an opposed upstanding end 52 being formed on a card-pushing device having a base 53 which overlies the tray base and is secured for sliding movement thereon as by the use of a pair of rivets 54 (see Figure 10) carried by the bar 53 and riding in a slot 55 in the base of the tray.

The supporting ledges of the outer ends of the packs of cards, as shown in these figures, comprises pairs of lips 56 projecting from the inner edges of angle members 57 through slots in the end walls 51 and 52. These angle members 57 are pivoted at their upper ends in end walls of casing members 58 having flange elements 580 overlying and secured as by welding, or the like, to the outer faces of the walls 51 and 52. Light leaf springs 59 secured at their upper ends to the casing members 58, and bearing at their lower ends on the angle members 57, tend to hold the lips 56 projecting inwardly and slightly upwardly as shown in Figures 11 and 12, but as the cards are being riffled they are free individually to spring downwardly and outwardly under pressure. This arrangement is particularly useful when three decks are being shuffled.

Particularly when not more than two decks are to be shuffled, a simple construction shown in Figure 15 may be employed wherein the card supports may comprise integral lips 560 struck inwardly from the ends 51 and 52. Also the upper ends of the upstanding end portions 51 and 52 are rounded as at *a* and are inwardly inclined toward each other, as shown, which tends to prevent the cards from rising above these ends when the device is in use.

The tray 50 has an upstanding side portion 60 from which extends, projecting over the space between the end portions 51 and 52, a U-shaped riffling element 61 which is shown as provided with rounded lower edges 62 and 63, one of these edges extending slightly lower than the other as shown in Figure 8. The upstanding wall portion 60 is also shown as provided with a pair of rearwardly extending ears 65 to the rear ends of which are pivoted as at 66, the side arms 67 of the riffling frame which is provided with a cross bar 68 at its forward end. Intermediate the ends of the arm 67 they have loosely pivoted thereon card-engaging shoes 70 having lower edges 71 preferably rolled inwardly to present rounded engagement with the cards and of sufficient length to engage a substantial distance crosswise on the top faces of the cards as shown in Figure 11. These shoes hang loosely by gravity and prevent any substantial rubbing engagement with the upper faces of the cards during the shuffling operation. The end portions of the tray 50, as shown, are provided with rounded supporting feet 500 which hold the tray somewhat elevated above a supporting table, or the like, and make room for the passage of cam elements 72 on a T-shaped spring member 73 which is secured at its rear narrow end as at 54 by riveting, or the like, to the base 53. The forward widened portion of this spring arm 73 is down-turned at its ends to form the cam elements 72 and at its forward end is preferably provided with a downwardly inclined lip 76. The cam portions 72, when the pusher plate is retracted, extend down through mating slots 74, 75 through the base 53 and the tray 50, but after the cards have been pushed past the riffling element and have taken the positions shown generally in Figure 11, the pusher plate or the upstanding wall member 52 is moved toward the wall member 51, whereupon the forward edge of each of the cam elements 72 engaging the left hand edge of its slot 75 through the tray, lifts the forward end of the element 73 into the position shown in Figure 12, lifting the overlapped portions of the cards of the two sets toward horizontal alinement with their outer ends which are supported on the lips 56. In this position the cards are in a much better position to be slid relatively into a single pile into the position shown in Figure 12.

In Figure 16 a further modification in the riffling element is illustrated wherein in place of the shoes 70, shown in Figures 8 to 13, inclusive, a U shaped double shoe 80 is employed. This shoe 80 is pivoted at ears 81 to the inner faces of the riffling frame side arms 67*a* which may be provided with stops 82 on opposite sides of the pivots, limiting the extent of pivotal motion of the shoe 80 in opposite directions. The lower edges of the side members of the shoe 80 engage the cards during the riffling action. This shoe construction is somewhat more convenient than the individual shoes shown in Figures 8 to 13, since it is not subject to such free swinging action and is not likely to become displaced from operating position.

It will be apparent from the foregoing that a very simple and novel device has been provided to effectively riffle two decks of playing cards together. The use of the riffling fingers is outstandingly novel with the two decks of cards supported in spaced relation to the surface of the base plate in a manner to cause their alternately released ends to overlap and fall upon the base plate. The presser frame imparts a downward flexing pressure upon the cards with a rolling action that progressively snaps the ends of the opposite cards of the two decks from the fingers 15, causing them to whip downwardly with their ends overlapping. The structure is simple and readily lends itself to economical manufacture from a variety of materials, such as metal or plastic. The device is shaped to avoid objectionable sharp corners and provides an ornamental device requiring a minimum of storage space and offers no objections as a part of every playing card kit.

It is to be understood, that the invention is not limited to the precise forms shown, but that it includes within its purview, whatever changes fairly come within the terms of the appended claims.

This application is a continuation-in-part of my applications Serial No. 138,760, filed January 16, 1950, and now Patent No. 2,676,020, and Serial No. 158,732, filed April 28, 1950, and now abandoned, for Card Shuffling Device, generic claims being contained in my application Serial No. 138,760.

I claim:

1. A card shuffling device including a tray having a base and an upstanding end, a pusher plate having a base and an upstanding end, the base of said pusher plate being mounted on said tray base for motion to

bring said pusher end toward and from said tray end, means carried by said tray and actuable to position two packs of cards with their adjacent ends overlapping between said tray and pusher plate ends to be pushed together into a single pile on motion of said pusher plate toward said tray end, ledges projecting inwardly from said upstanding ends for supporting the outer ends of said packs, and means effective on the pushing toward each other of said upstanding ends for lifting the overlapping ends of the cards of the two packs into substantial alinement with their outer ends thereby to facilitate the pushing of the cards of the two packs into a single pile.

2. A card shuffling device including a tray having a base and an upstanding end, a pusher plate having a base and an upstanding end, the base of said pusher plate being mounted on said tray base for motion to bring said pusher end toward and from said tray end, means carried by said tray and actuable to position two packs of cards with their adjacent ends overlapping between said tray and pusher plate ends to be pushed together into a single pile on motion of said pusher plate toward said tray end, ledges projecting inwardly from said upstanding ends for supporting the outer ends of said packs, a spring plate secured to said pusher base and having a cam face projecting through a slot in said pusher base, and means on said tray cooperating with said cam to lift one end of said plate when said upstanding ends are pushed toward each other and lift the overlapping card ends of the two packs into substantial alinement with their outer ends to thereby facilitate the pushing of the cards of the two packs into a single pile.

3. A card shuffling device including a tray having a base and an upstanding end, a pusher plate having a base and an upstanding end, the base of said pusher plate being mounted on said tray base for motion to bring said pusher end toward and from said tray end, means carried by said tray and actuable to position two packs of cards with their adjacent ends overlapping between said tray and pusher plate ends to be pushed together into a single pile on motion of said pusher plate toward said tray end, ledges projecting inwardly from said upstanding ends for supporting the outer ends of said packs, a spring plate secured to said pusher base and having a cam face projecting through a slot in said pusher base, said tray having a slot through which said cam face may extend when said upstanding ends are positioned widely spaced, one end of said tray slot cooperating with said cam face to lift the end of said spring plate and thereby lift the overlapping ends of the two packs into substantially horizontal relation to their outer ends.

4. A card shuffling device comprising a tray having spaced upstanding end walls, an upstanding side wall, a riffling element carried by said side wall and projecting over the space between said end walls, ledges carried by said end walls and with said riffling element supporting two packs of cards between said end walls and element, a double arm pivoted to said side wall and having parts engageable with the top faces of the two packs of cards and actuable to depress said cards and force said cards to escape alternately from engagement with said element to fall in an overlapping pile of cards in said tray, said arm parts comprising a pair of shoes loosely pivoted thereon for engagement with substantial lengths laterally of the top faces of the cards in the two packs spaced on either side of said element.

5. A card shuffling device including a tray having a base provided with ends, a riffling device carried by said tray between said ends for initially supporting one end of each of two packs of cards extending from said riffling device to said ends, means carried by said tray adjacent to said ends for supporting the opposite ends of said packs, and a pressure device carried by said tray and adapted to engage the upper surfaces of said packs and progressively disengage the cards of both packs from said riffling device, said pressure device comprising a pair of pivotally mounted side members, and a U shaped card-engaging element pivoted to said side members for limited rocking motion relative thereto laterally of said packs.

6. A card shuffling device comprising a receptacle including a rectangular bottom plate, end plates disposed one at each end of said bottom plate and extending perpendicularly from the same side of the latter in substantially parallel relationship to each other, the distance between the inner sides of said end plates being less than twice the length of a conventional playing card, a back plate disposed along one longitudinal edge of said bottom plate between said end plates and extending perpendicularly from the same side of said bottom plate as said end plates, support means disposed at the inner side of each end plate and having surfaces spaced from said bottom plate for supporting the outer ends of stacks of cards placed in said receptacle, a riffling device secured at one end to said back plate above and midway between the surfaces of said support means and extending perpendicularly from said back plate transversely of said bottom plate, arms pivotally connected each at one end to said back plate at respectively opposite sides of said riffling device, a handle disposed between and secured to said arms at the other end of the latter, and pressure elements pivotally secured one to each of said arms intermediate the length of the arms and depending therefrom to engage at their ends remote from said arms stacks of playing cards supported on said support means and resting against said divider and force cards alternately from the sides of said stacks adjacent said bottom plate into said receptacle.

7. A card shuffling device including a base provided with end walls and a back wall, a riffling device carried by said back wall and projecting over the space between said end walls, support means on the inner sides of the end walls above said base positioned to support the outer ends of two stacks of playing cards with their inner ends resting against said riffling device above said supporting means, arms pivotally carried by said back wall and arranged to be swung between said riffling device and end walls, and means pivoted to said arms and depending therefrom for engagement with the top faces of the stacks of playing cards and movable by the downward swinging of said arms to force cards from said stacks past said riffling device to fall into said tray in partially overlapped relation.

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