

Jan. 17, 1956

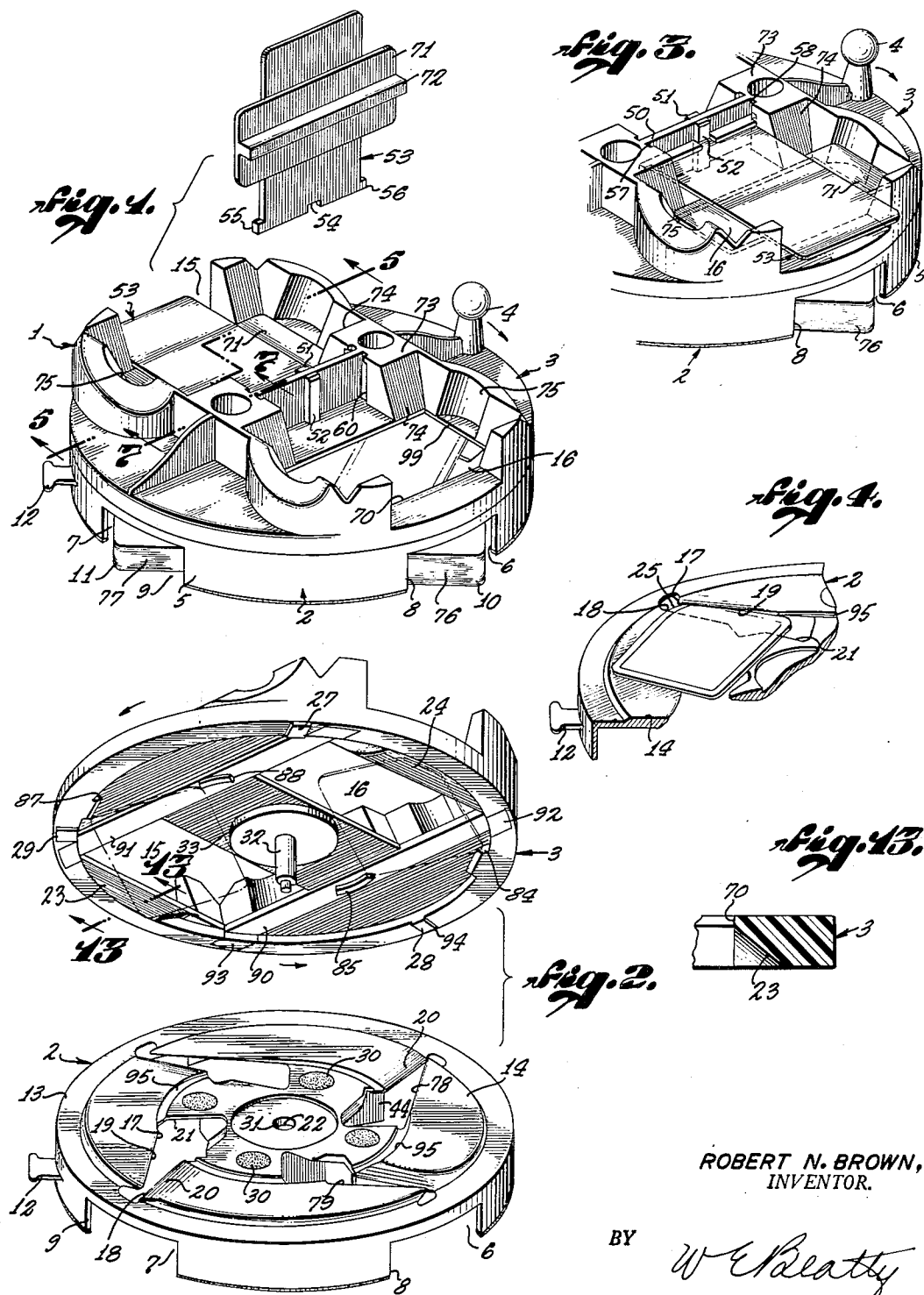
R. N. BROWN

2,731,271

COMBINED DEALER, SHUFFLER AND TRAY FOR PLAYING CARDS

Filed July 14, 1952

3 Sheets-Sheet 1



ROBERT N. BROWN,
INVENTOR.

BY

W E Beatty
ATTORNEY.

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Fig. 5.

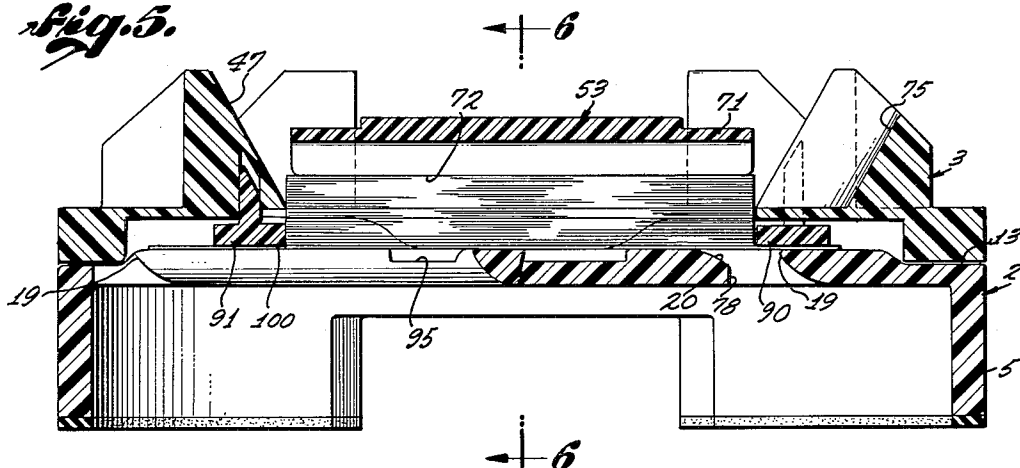


Fig. 6.

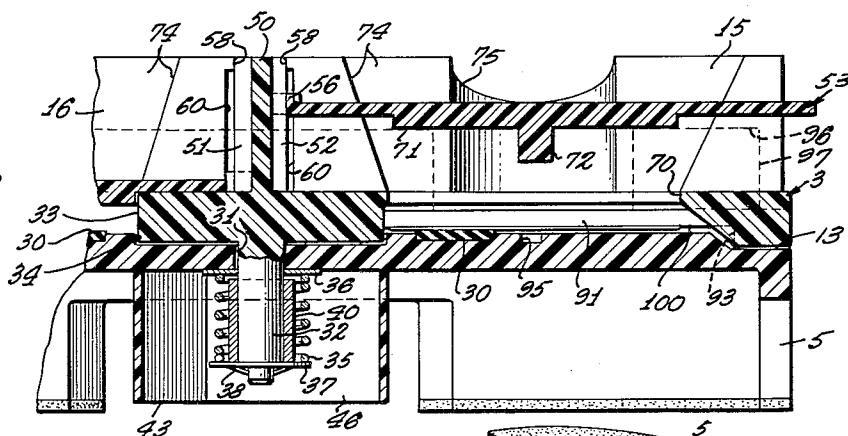


Fig. 7.

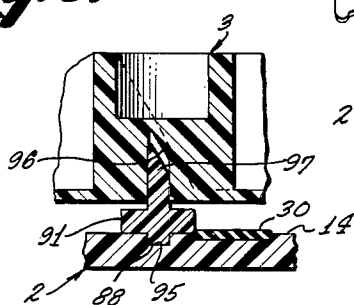
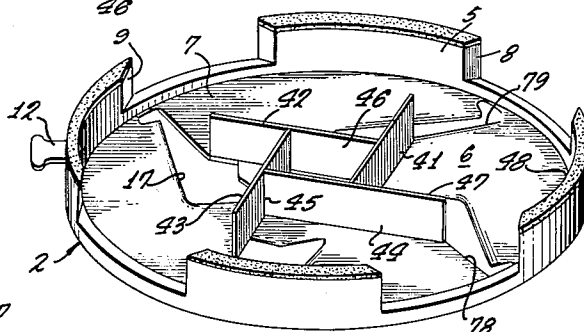


Fig. 12.



ROBERT N. BROWN,
INVENTOR.

BY

W E Beatty

ATTORNEY.

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Fig. 8.

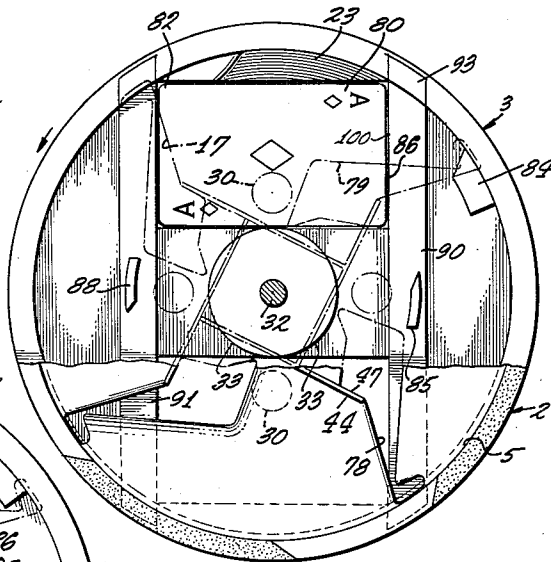


Fig. 9.

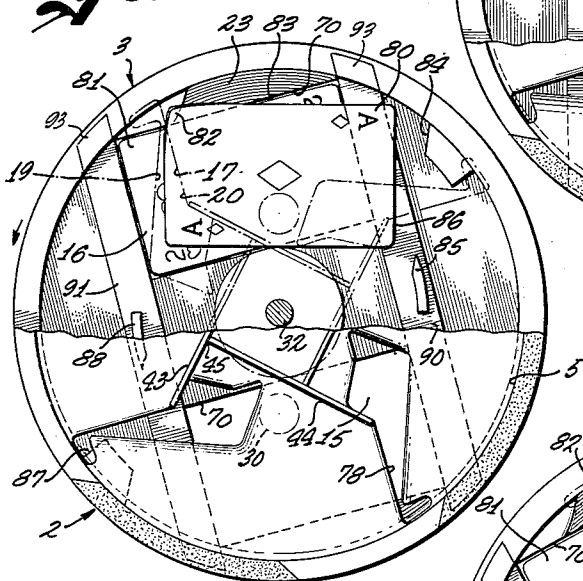


Fig. 10.

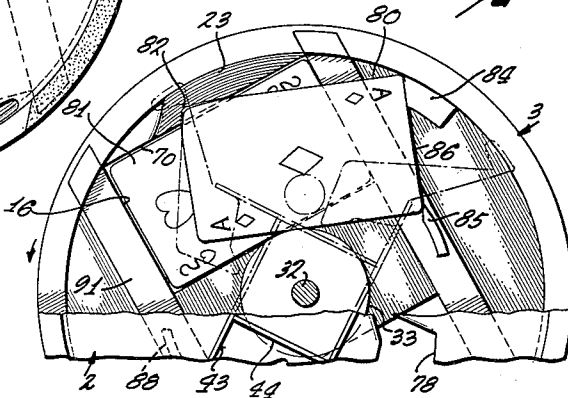
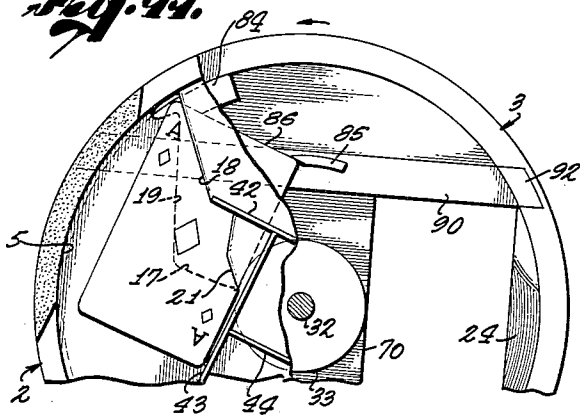


Fig. 11.



ROBERT N. BROWN,
INVENTOR.

BY *W. E. Beatty*

ATTORNEY.

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COMBINED DEALER, SHUFFLER, AND TRAY FOR PLAYING CARDS

Robert N. Brown, Gaylord, Mich.

Application July 14, 1952, Serial No. 298,696

13 Claims. (Cl. 273—149)

The invention relates to a combined card dealer, shuffler and storage tray for playing cards.

An object of the invention is to provide a unitary device which will serve one or more of the three functions of a shuffler, dealer and a tray, the tray holding the remainder of a deck in one stack, and the discards in another stack, while the card game is being played. As the device is useful while the game is being played, it is unnecessary to remove it from the card table after it has served the purpose of dealing and shuffling the cards.

Another object of the invention is to provide such a device which has a small number of parts which can be molded of plastic material.

In general, the device comprises a base having a number of stations, here illustrated as four, where the shuffled or dealt cards accumulate, with a rotatable tray having two magazines, each for a deck or stack of cards. The magazines serve the double function of feeding the cards to the shuffling mechanism which comes into play as the tray is rotated. These magazines serve also the additional function of storing the remainder of the deck and the discard stack, and for this purpose the magazines are each provided with a swinging combined shelf and cover. This item serves as a cover for the stack to serve as a weight during the time that the cards are being dealt and shuffled, whereas as it serves as a bottom shelf to cover the open bottom of the magazines and support the remainder of the deck and the discards while the game is being played. In other words, with these combined covers and shelves in one position, the device is rotated to deal or shuffle the cards, while in the other position the device serves as a tray to support the remainder of the deck and the discards and if desired it may also be rotated step by step for the convenience of the players when selecting and discarding cards.

Another object of the invention is to provide a card dealer and shuffler which will handle two stacks of cards and alternately deposit a card from each of these stacks at a plurality of different stations, here indicated as four stations by way of example.

Another object is to deal by ejecting the bottom card of a stack, and to shuffle by ejecting the bottom cards of a plurality of stacks.

As the parts are preferably made of plastic, which may possibly warp, another object of the invention is to provide a construction which will prevent such warping from interfering with the successful operation of the card dealing and shuffling mechanism.

The device is not restricted for use with that type of game employing a stack remainder and discards, and in this case after the cards have been dealt and are shuffled, the device may be removed from the card table if desired. On the other hand, the device may be left on the table if desired as it is small and compact and does not take up very much more room than four stacks of cards. Also the cards may be dealt and shuffled by hand or in some other manner and the device used as rotatable tray to

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hold the stack remainder and discards while the game is being played.

For further details of the invention reference may be made to the drawings wherein:

Fig. 1 is an exploded perspective view of a combined card dealer, shuffler and tray according to the present invention.

Fig. 2 is an exploded perspective view of the device of Fig. 1, looking at the top of the base, and at the bottom of the tray.

Fig. 3 is a perspective view, like Fig. 1, with parts broken away, showing the combined cover and bottom in position.

Fig. 4 is a perspective view with parts broken away, and with the tray removed, showing a card about to enter the slot in the base.

Fig. 5 is an enlarged sectional view on line 5—5 of Fig. 1.

Fig. 6 is a sectional view on line 6—6 of Fig. 5, with parts broken away.

Fig. 7 is an enlarged sectional view on line 7—7 of Fig. 1.

Figs. 8, 9, 10 and 11 are horizontal sectional views, with parts broken away showing the successive positions of the bottom card and the remainder of its deck for different positions of the tray with respect to its base, for dealing or shuffling, the same applying also to the other deck not illustrated.

Fig. 12 is a perspective view of the base inverted.

Fig. 13 is a sectional view on line 13—13 of Fig. 2.

Referring to the drawings, the card distributor comprises a stationary base 2 and a rotatable tray 3 having an operating handle 4.

The base 2 is in one piece and has no moving parts. The base 2 has an upright cylindrical side wall 5 having four compartments like 6 and 7, spaced 90° apart around the base. Each of the compartments like 6 and 7 has an opening like 8 and 9 through which the corners of the stack of dealt or shuffled cards project as indicated at 10 and 11 in Fig. 1.

After the cards have been dealt or shuffled, the handle 12 on the base may be used to lift the distributor 1 to gain access to the four stacks like 76 and 77.

The base 2 has a circular track 13 at its outer periphery, at the top of the wall 5, and above the level of track 13 is a segmented platform 14.

The tray 3 has two magazines 15 and 16, each for a stack of cards, and the bottom card in each stack rides on the platform 14, which for the most part is level.

The four quarter segments of the base 2 are alike, in other words the same construction is used to select the bottom card from either of the stacks in magazines 15 or 16, for ejection into the four compartments or stations like 6 and 7. For example, the station 6, as shown in Fig. 2, receives its card through a slot 78 in the platform 14, and the compartment 7 receives its card through a similar slot 79. Assuming that the tray 3 is rotated in a clockwise direction, the edge 18 of slot 17 is the leading edge and the edge 19 is the lagging edge. The edge 18 is tapered downwardly as indicated in 20 of Fig. 2, and the outer ends of edges 19 and 20 are closely spaced, see Fig. 9, and the inner ends of edges 19 and 20 are widely spaced as shown at 21, due to the fact that edge 18 is at a slight angle to a center line through the center 22 of the base, while the edge 19 is at a greater angle. The reason for this will be explained later and in general is due to the fact that a cam like 23 or 24 on the tray operates on the outer corner of a card to bend it down as shown at 25 in Fig. 4 so that on being pushed, it enters the narrow outer portion of slot 17, whereby the edge 19 urges the remainder of the leading edge of the card into slot 17.

Each quarter segment of the base 2 also is provided

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with a disc 30 of rubber or other friction material. This disc 30 is also shown in Fig. 6 and it extends at a level slightly above the platform 14 in position to arrest the movement of the bottom card of a stack.

The tray 3 is rotatably carried by the base 2 and for this purpose, as shown in Figs. 2 and 6, the base 2 has a central bearing opening 31 to receive a short shaft 32 molded integral with the tray 3. The shaft 32 has a circular enlarged hub 33. The enlarged hub 33 has no bearing in the circular depression 34. It has a slight clearance on both bottom and diameter. Its purpose is to guide the inner edge of the card, and is recessed at 34 to prevent the card from getting between the tray 3 and the base 2 when the tray 3 is rotated. The tray 3 has a three point support on the track 13, as the tray 3 has three lugs equally spaced and flat, as shown at 27, 28, 29, at the top of Fig. 2. Preferably the construction permits the tray 3 to be raised slightly above the base 2 if cards should be jammed in the device, and for this purpose the construction shown in Fig. 6 is provided. In this figure, the shaft 32 is urged downwardly by a spring 35 which bears at its upper end against a washer 36 and at its lower end against self-locking washer 37 which is held on the shaft 32 by the spring portions 38. On the shaft 32 is a sleeve 40 which is shorter than the effective length of shaft 32 so that the tray 3 can be raised against the force of spring 35 for the purpose described above.

In Fig. 12 the base 2 is shown inverted. Moulded integral with the base are four upright similar strips or wings 41, 42, 43, 44, each extending at right angles to an intermediate portion of an adjoining strip as indicated at 45, to form an angle 46 around the shaft 33. The assembly also forms two walls of each card compartment like 6 and 7, the remaining wall being provided by the upright wall 5 of the base. For example, the compartment 6 is defined by the wing 41 and with the outer end 47 of the wing 44 and the opposite portion 48 of the wall 5.

The design and shape of the magazines 15, 16 is such that as it is rotated it pushes all cards except the bottom one forward. The upper part of the side walls are tapered as shown at 74, to help center the cards in the stack as they move downward. The lower portion 99 of the rear or trailing wall is perpendicular to act as a means of pushing the stack forward. Also, a suitable space is provided at this point to allow only one card to be retarded by the pad like 30. In other words, the bottom edge 100 of the rear wall is elevated above the top of pad 30 the thickness of one card, see Fig. 6.

The exact position at which the bottom card is retarded when tray 3 is rotated, is not critical and depends on the friction between the bottom card and the pad 30. This friction depends to some extent on whether the card is exactly flat or not and it also depends on the weight of the stack of cards and the cover 53 acting on the bottom card, the friction becoming smaller as the stack becomes smaller. If the bottom card should start to retard when its leading edge reaches pad 30, it will remain stationary until the cam 23 has turned down the corner of this card and lugs 84 and 85 engage the trailing edge of the card to push it forward until the leading edge reaches the first slot such as slot 17 through which it passes into compartment 7. It is unimportant whether the bottom card is retarded as soon as it reaches the pad 30 or whether the card advances beyond it, for example to a central position as shown in Fig. 8 before the bottom card is retarded. In either case, as soon as the bottom card is retarded, the cam 23 turns down the protruding outer corner of the card and at a later interval the lugs 84 and 85 contact the opposite end of the card to advance it through the slot such as slot 17. The approximate point at which the bottom card is retarded is that shown in Fig. 8 and 10.

The card magazines 15 and 16 are both alike and are arranged on opposite sides of the center of the tray, with

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the median line of these compartments forming a diameter of the tray, and with the cards in each compartment extending lengthwise at right angles to such diameter. Also at right angles to such diameter and at the center of the tray is provided an upright wall 50, see Figs. 1 and 3, having on opposite sides thereof the upright rectangular stationary guide posts 51 and 52, each for a notch like 54 in a cover like 53 at the top of Fig. 1. Each cover like 53 has hinge extensions like 55 and 56, which when the cover is upright can be passed through the key slot like 57 and 58 so that the cover 53 can then be swung to horizontal position, with the lugs 55, 56 extending behind and hinging in the enlarged slot portion like 60. In other words, each cover like 53 will hinge in its two slots like 60 and each cover can be raised or lowered, or fall by gravity, the length of its slots like 60. The covers like 53 follow the stack by gravity and move automatically to cover the open bottom of the magazine like 6 or 7. The covers like 53 can be moved to cover the bottom of each magazine like 15 and 16 so that a deck of cards will rest on and be supported by such covers while the game is being played, the stack remainder being put in one of these compartments, and the discards in the other. The covers like 53 may also be tilted up to raise the stack to assist in removing the discard stack from the tray 3. The handle 4 is used to rotate the tray so that the cards will be convenient for a particular player. On the other hand, when cards are to be dealt or shuffled, the covers like 53 are swung so that they will rest on top of their respective stacks of cards to serve as weights. The weight of the covers like 53 is useful on the last few cards of the stack to hold them against the rubber pad like 30 to add friction to offset that lost by displacement of the other cards from the stack.

The bottom of each magazine like 15 and 16 has an opening indicated at 70 in Figs. 8 to 11, slightly larger than the size of a playing card, and each cover like 53 is provided with a lateral extension indicated at 71 to fit such opening when the cover 53 is arranged at the bottom of the magazines. The extension 71 on its lower side has a raised rib 72, to prevent warping, as this is molded of plastic material, and to provide a uniform bearing surface along the center of the length of the card when the cover is at the top of a card stack.

To reduce the amount of plastic material used, each magazine like 15 and 16 is defined by four posts like 73 in Fig. 1, the adjacent faces like 74 being inclined to guide the cards to the bottom of the magazine. Also the opposite sides of each magazine like 15 and 16 may have walls which are provided with finger recesses like 75 to facilitate removing a card when playing.

When used as a dealer, a sufficient number of cards to complete the deal are cut from the top of the stack and placed in one only of the magazines 15 or 16. By counting the number of revolutions of the tray 3, a desired number of cards can be dealt into each of the four stacks like 76, 77.

When used to shuffle cards for a game requiring two or more decks, then about half of the cards would be put in each of the magazines 15 and 16, and the handle 4 rotated clockwise until the cards all appear in the four stations like 6 and 7, eight cards dropping for each rotation of the tray 3. Also, each station like 6 and 7 receives first a card from one deck then a card from the other deck, whereby the cards from two decks are shuffled and distributed into four stacks.

The manner in which the rotation of the tray 3 serves to shuffle or deal the cards will be described in connection with Figs. 8 to 11 wherein it is assumed that the bottom card in one of the magazines like 15 or 16, is an ace indicated at 80. As the ace 80 reaches the friction pad 30, the movement of the ace is arrested, the rest of the stack indicated at 81 proceeding, whereby the outer corner 82 of the ace is exposed outwardly beyond the outer margin 83 of the rest of the stack. This leaves the corner

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82 in position where the cam 23 bends down the corner 82. The cam 23 is elongated so that even though the ace 80 is temporarily stationary, the corner 82 remains bent down during movement of the tray 3, until the lug 84 on the tray and the lug 85, also carried by the tray, catch up with the lagging edge 86 of the ace as shown in Fig. 10. The cam like 23 bends the leading outer corner of the ace down below the level of the edge 19 of slot 17, so that when the lugs 84 and 85 push the ace forwardly, first the corner 82 and then the remainder of the leading edge of the ace enter the slot 17 and the card is thereby ejected and falls into its compartment like 6 or 7.

Referring to Fig. 9, at the lagging side of the other compartment 15, the tray has a lug 87 like lug 84, and a lug 88 like lug 85.

The lugs 85 and 88 may be molded integral with the tray 3 although to safeguard against the possibility that the tray may warp, as previously described, each of these lugs 85, 88 is on a separate bridge member like 90, 91, see Fig. 2. The outer end of each bridge member like 90 has a shoe like 92 and 93 which forms a section of the annular periphery 94 of the tray which rides on the track 13 of the base. Also each bridge member like 90 and its shoes 92, 93 are loosely carried by the tray 3, see also Figs. 5 and 7, so that the lugs like 85 and 88 and the bridges 90 and 91 which define the opposite sides of the bottom of the card compartment remain in proper position on the base, even if the tray 3 should warp. However, the device shown herein, but with the bridge members 90 and 91 and their lugs and shoes integral with the tray, has been operated successfully.

In any event, the lugs 85 and 88 are in the form of an arc, concentric with the center 22, and riding in the circular groove 95, see Figs. 2 and 7. As shown in Figs. 5 and 7, loose play between the tray 3 and the bridge members 90 and 91 is provided by means of a socket 96 in the tray 3 in which an extension 97 on the bridge member 91 slidably fits.

Various modifications may be made. For example, the friction pads 30 may be arranged in platform 14 outside of groove 95, instead of inside as shown.

I claim:

1. A card dealing device comprising a rotatable magazine for a stack of cards, a base comprising means for restraining the bottom card of the stack which is in said magazine whereby continued movement of said magazine angularly displaces said stack with reference to said bottom card whereby the outer corner of said bottom card projects outwardly beyond said stack at certain times, means engageable with said outer corner of said bottom card for deflecting the leading edge of said card out of the path of the bottom of said magazine, and means for ejecting the bottom card thus deflected.

2. A card dealing and shuffling device comprising relatively rotatable members, one of said members having a certain number of spaced card magazines, said other member having a greater number of compartments, a card selector on said other member for each of said compartments and positioned in the path of the bottoms of said magazines, said card selector having a slot leading downwardly from said path, and means operated by relative movement of said members for bending a leading portion of a card in line with said slot and means for ejecting the selected card into its associated compartment.

3. A card dealer comprising a base having a card compartment and a card slot leading to said compartment, a moveable card magazine carried by said base, said slot having a path diverging from the path of the bottom of said magazine, means on said base and operative on movement of said magazine for restraining the card which is at the bottom of said magazine at a position in front of said slot, means associated with said magazine for diverting the leading edge of said bottom card out of the plane of the remainder of the card and into the path of said slot,

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and means associated with said magazine for propelling said card into said slot.

4. A card dealer comprising a base having a card compartment and a card slot leading to said compartment, a moveable card magazine carried by said base in a path over said slot, said slot having a path diverging from the path of the bottom of said magazine, means on said base and operative on movement of said magazine for restraining the card which is at the bottom of said magazine at a position in front of said slot, and deflecting means and propelling means associated with said magazine for deflecting said card out of the path of the said magazine and in line with said slot and means for propelling the deflected card through said slot.

5. A card dealer comprising a circular base having an outer circular track and an inner raised platform, said base having means supporting said track and platform in elevated position, said platform having a card opening leading downwardly from said platform, and having a friction pad in advance of said opening, and a cooperative rotatable tray having a rim fitting on said track and having a card magazine having an open bottom adjacent to said platform, a cam on said tray for guiding a card towards said slot, and means on said tray for urging said card through said slot.

6. A card dealer according to claim 5, said urging means comprising a bridge member loosely carried by said tray and having at its opposite ends shoes riding on said track, said bridge member having a lug engageable with the rear edge of said bottom card.

7. A card dealer device comprising a tray having a magazine for a stack of cards, said magazine having an open bottom, a base having means movably supporting said magazine, said base having a platform serving as a bottom for said magazine, said platform having a slot providing a card path diverging from the path of the bottom of said magazine, means for displacing a bottom card of said stack with respect to the remainder of the stack, means for diverging the leading edge of said displaced card out of the plane of the remainder of the card in position to enter said slot, and means for propelling the displaced card into said slot.

8. A card distributing device comprising a rotatable tray having a magazine for a stack of cards, a base comprising a plurality of spaced means for restraining the bottom card of the stack which is in said magazine whereby continued movement of said magazine angularly displaces said stack with reference to said bottom card at spaced locations whereby the outer corner of the bottom card projects outwardly beyond said stack at each of said locations, means on said tray engageable with the outer corner of the bottom card for deflecting the leading edge of the card out of the path of the bottom of said magazine, and means on said tray for ejecting the bottom card thus deflected.

9. A card distributing device according to claim 8, said tray having an additional magazine for a stack of cards, said tray having said deflecting means and said ejecting means for each of said magazines.

10. A card distributor comprising a base having a plurality of card compartments and a card slot leading to each of said compartments, a moveable card magazine carried by said base, each of said slots having a path diverging from the path of the bottom of said magazine, spaced means on said base and operative on movement of said magazine for restraining the card which is at the bottom of said magazine at a position in front of each of said slots, means associated with said magazine for diverting the leading edge of the bottom card out of the plane of the remainder of the card and into the path of each of said slots in succession and means associated with said magazine for propelling said card into its associated said slot.

11. A card distributor comprising a base having a plurality of card compartments and a card slot leading

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to each of said compartments, a moveable card magazine carried by said base in a path over said slots, each of said slots having a path diverging from the path of the bottom of said magazine, spaced means on said base and operative on movement of said magazine for restraining the card which is at the bottom of said magazine at a position in front of each of said slots, and deflecting means and propelling means associated with said magazine for deflecting the restrained card out of the path of the said magazine and in line with its associated said slot and means for propelling the deflected card through said slot.

12. A card distributor comprising a circular base having an outer circular track and an inner raised platform, said base having means supporting said track and platform in elevated position, said platform having a plurality of spaced card openings leading downwardly from said platform, and having a friction pad in advance of each of said openings, and a cooperative rotatable tray having a rim fitting on said track and having a plurality of spaced card magazines each having an open bottom adjacent to said platform, a cam on said tray for each of said magazines for guiding the bottom card towards the next one of said slots, and means on said tray for each of said magazines for urging the guided card through its associated said slot.

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13. A card distributing device comprising a tray having a magazine for a stack of cards, said magazine having an open bottom, a base having means movably supporting said magazine, said base having a platform serving as a bottom for said magazine, said platform having a plurality of spaced slots each providing a card path diverging from the path of the bottom of said magazine, means in advance of each of said slots for displacing a bottom card of said stack with respect to the remainder of the stack, means for diverging the leading edge of the displaced cards out of the plane of the remainder of the card in position to enter said slots in succession respectively, and means for propelling the displaced cards into their respective said slots.

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