May 16, 1933. R. M. RING ET AL 1,909,122

CARD DEALING DEVICE

Filed May 10, 1930 3 Sheets-Sheet 1

Fig. 1

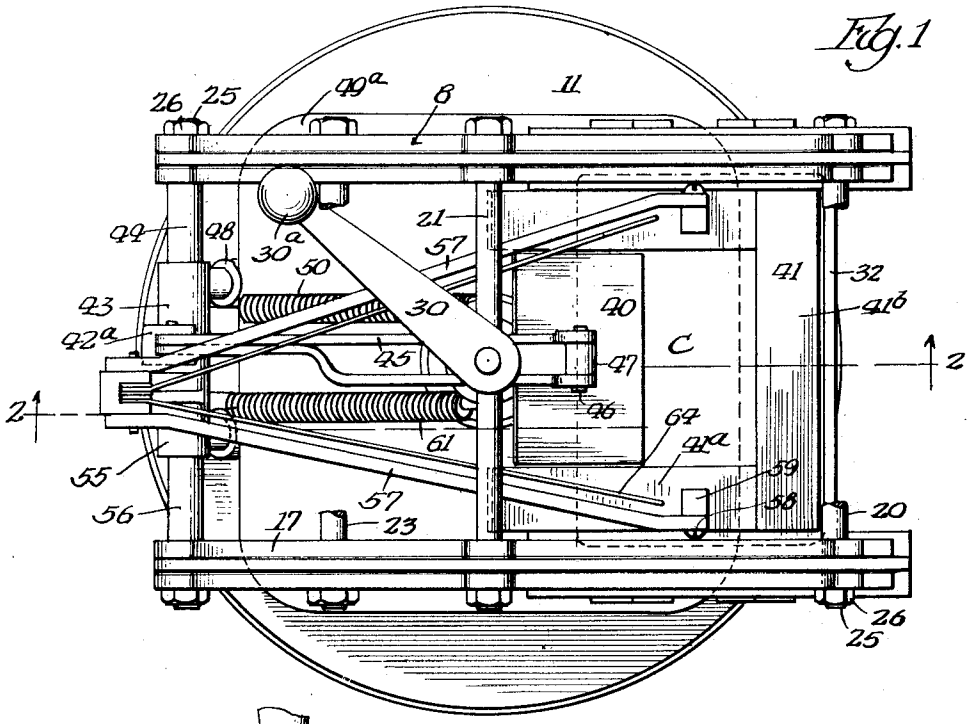
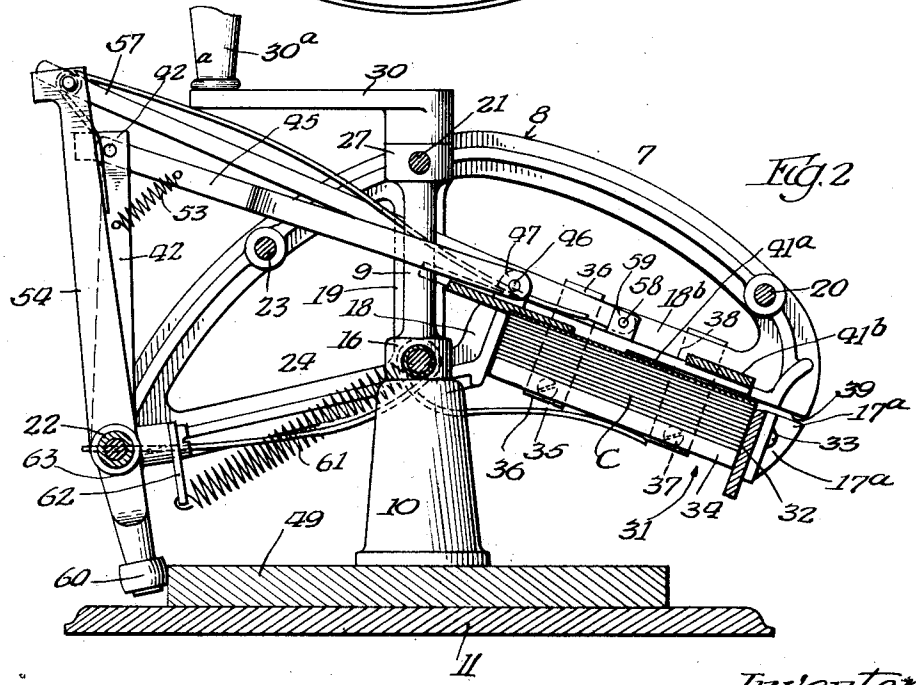


Fig. 2



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Fig. 3

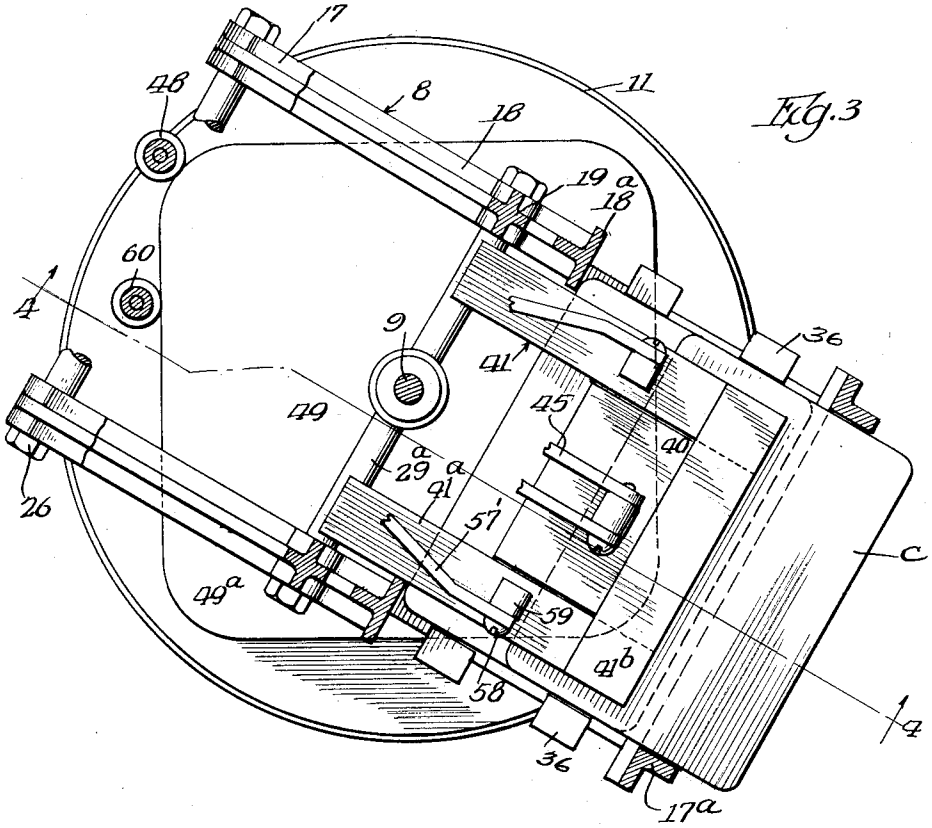
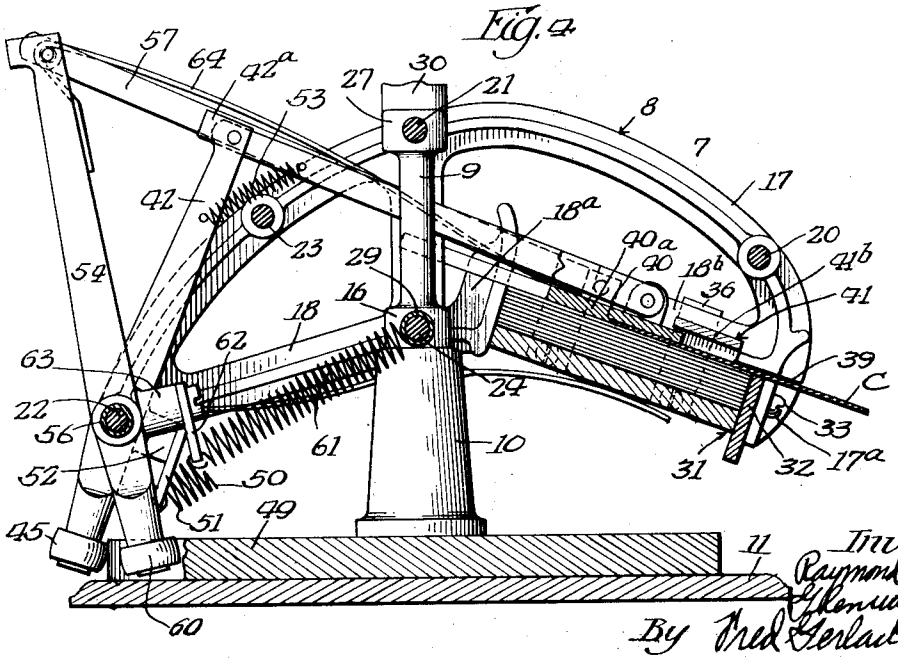


Fig. 4



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Fig. 5

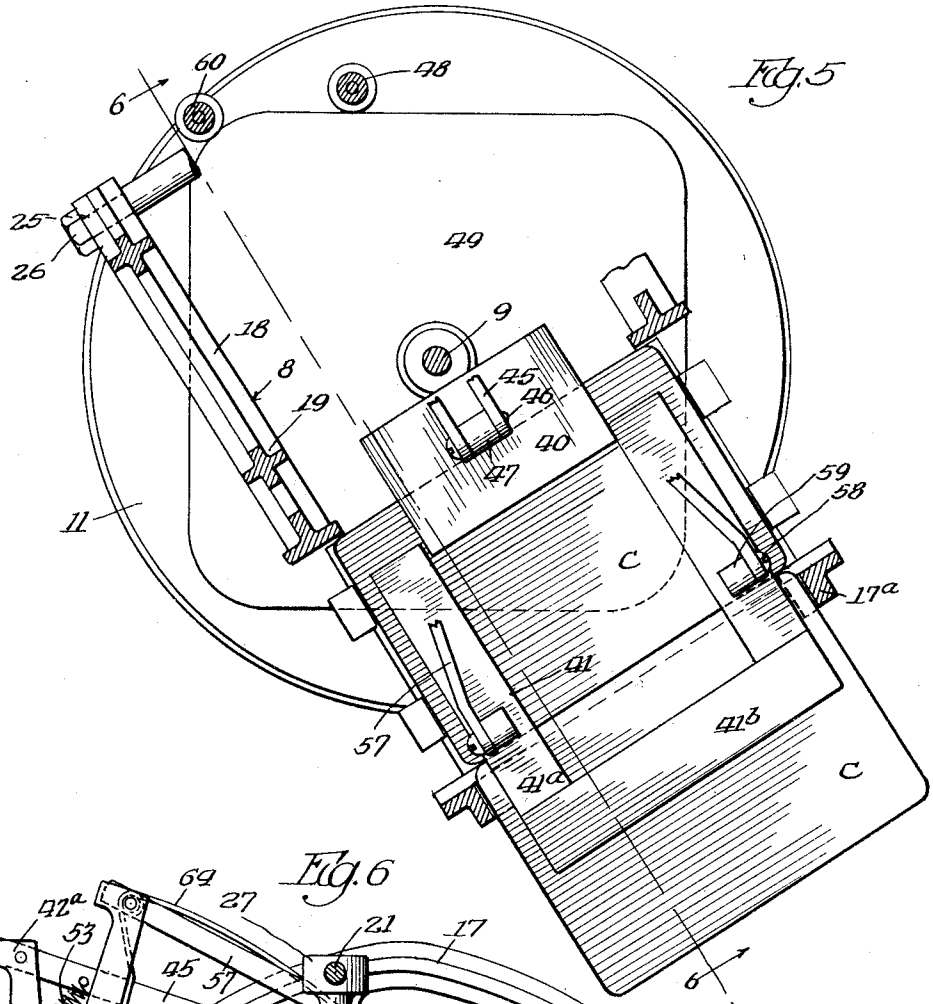
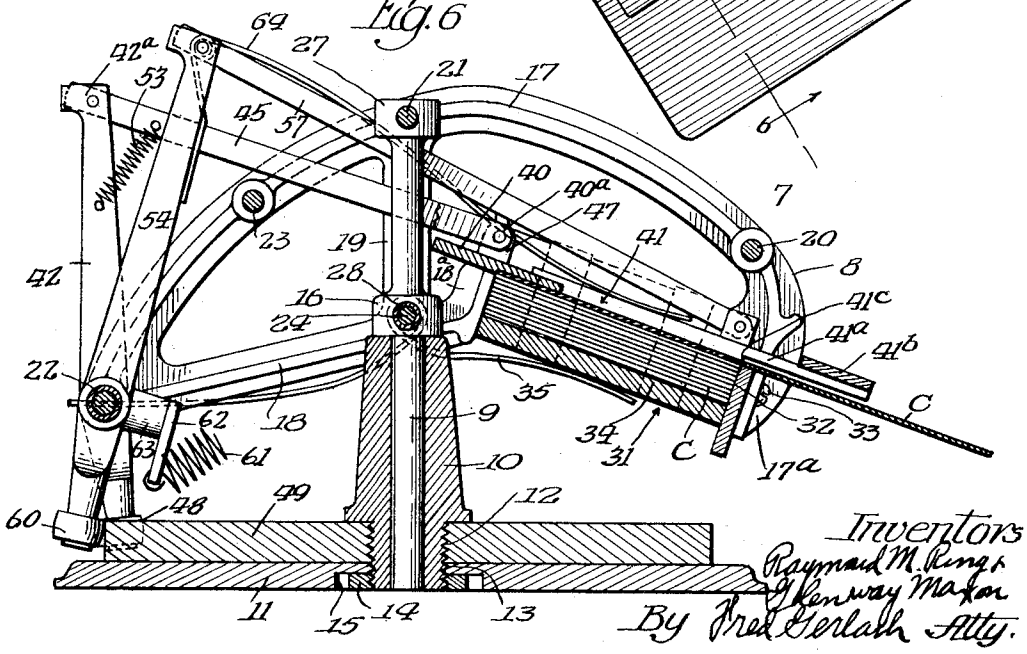


Fig. 6



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Patented May 16, 1933 1,909,122

UNITED STATES PATENT OFFICE

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CARD DEALING DEVICE

Application filed May 10, 1930. Serial No. 451,219.

The present invention relates to devices for dealing playing cards.

One object of the invention is to provide a device which is comparatively simple as far as construction is concerned, and operates during drive thereof to deal automatically a pack or deck of playing cards into a plurality of piles or stacks on the table upon which the device is placed.

Another object of the invention is to provide a card dealing device which comprises a rotatably mounted frame having a pocket for retaining the cards and embodies a pair of cam actuated elements which coact to deal the cards into piles on the table as the frame is rotated.

A further object of the invention is to provide a device for dealing a pack or deck of cards in which provision is made for distributing the cards into any number of piles or stacks.

A still further object of the invention is to provide a dealing device which is generally of new and improved construction, may be produced at a comparatively low cost and is exceedingly efficient in operation.

Other objects of the invention and the various advantages and characteristics of the present construction will be apparent to those skilled in the art from a consideration of the following detailed description.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings which accompany and form a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a plan view of a card dealing device embodying the invention, the cam actuated feed elements of the device being shown in the position that they assume preparatory to feeding or discharging a card from the pack;

Figure 2 is a vertical section taken on the line 2—2 of Figure 1 and exhibiting in detail the construction of the pocket in which the cards are held in the frame in a position wherein they are subject to the action of the coacting feed elements;

Figure 3 is a fragmentary plan view, illustrating the position of the feed elements after the frame has been rotated approximately thirty degrees from the position disclosed in Figure 1;

Figure 4 is a section taken on the line 4—4 of Figure 3 and disclosing the manner in which one of the feed elements operates to shift the top card of the pack outwardly of the frame into a position where it is subject to the action of the other element;

Figure 5 is a fragmentary plan view, showing the position of the feed elements after the frame has been rotated substantially sixty degrees from its initial position, that is, the position illustrated in Figure 1; and

Figure 6 is a section taken on the line 6—6 of Figure 5 and exhibiting the manner in which the second element operates to shift the top card completely out of engagement with the pack.

The device which forms the subject matter of the invention is adapted, during operation thereof, to deal automatically a pack of playing cards *c* into a plurality of piles for use by a group of card players. It comprises a frame 7 which is rotatable horizontally and embodies a pair of sides 8 and a vertically extending spindle 9. The latter is journalled in an elongated bearing 10 which projects upwardly from the central portion of a circular plate 11. This plate forms a base for the device and is adapted to rest upon the table or supporting structure over which the cards *c* are to be dealt. The bearing 10 is connected to the plate 11 by means of an externally threaded stem 12 which is formed integrally with the lower end of the bearing, extends through a circular opening 13 in the center of the plate 11 and is provided with a nut 14. This nut is adapted to clamp the bearing 10 in place and is disposed in a recess 15 in the underside of the plate 11. The spindle 9 is provided at the central portion thereof with a shoulder 16 which rests upon the upper end of the bearing 10 and prevents downward displacement of the spindle and frame relatively to the plate 11. The sides

8 of the frame 7 are preferably formed of cast metal and consist of curved or arcuate upper members 17, bottom members 18 and uprights 19. The ends of the upper members 17 are joined to the ends of the lower members 18, as indicated in Figures 2 and 4 of the drawings. The uprights 19 extend between the central portions of the members 17 and 18. The sides 8 are positioned at opposite sides of the spindle 9 and are held in spaced relation by means of crossrods 20, 21, 22, 23, and 24. These crossrods extend through holes or apertures in the members of the frame-sides and are provided at the ends thereof with reduced stems 25 and nuts 26 whereby they are held in connected relation. The crossrod 20 extends between and joins the front ends of the upper members 17. The crossrod 21 extends between the central portions of the members 17 and extends through an enlarged portion 27 at the upper end of the spindle 19 so that the frame is connected rigidly to and rotatable with the spindle. The crossrod 22 extends between and joins the rear ends of the members 17 and 18. The crossrod 23 is positioned between the crossbars 21 and 22 and extends between the arcuate upper members 17 of the frame-sides. The crossrod 24 extends between and joins the central portions of the lower members 18 and extends through a horizontally extending opening 28 in the shoulder 16 so as to assist the crossbar 21 in connecting the frame rigidly to the spindle. To prevent the frame from moving laterally with respect to the spindle, the crossrod 24 is provided with a pair of sleeves 29. These sleeves extend between the shoulder 16 and the contiguous parts of the lower members 18 of the frame-sides. A crank 30 is connected to the enlarged portion 27 at the upper end of the spindle 9 so that the spindle, together with the frame, may be rotated manually. The handle 30^a of the crank is preferably arranged so that it projects upwardly in order to facilitate rotation of the frame.

The cards c which are adapted, as hereinafter described, to be dealt successively and automatically into a plurality of piles during rotation of the frame, are confined in a pocket 31 at the front of the frame. The front ends of the members 18 are shaped so that they extend upwardly and then outwardly to form parts 18^a and 18^b which, together with a crossbar 32, define the pocket 31. The parts 18^a form the back portion of the pocket and are adapted to engage the rear edges of the cards. The parts 18^b form the top ends of the pocket 31 and are adapted to have the cards pressed thereagainst. The crossbar 32 forms the front portion of the pocket and is adapted to engage the front edges of the cards and to cooperate with the parts 18^a to direct the cards upwardly against the parts 18^b. The ends of the crossbar are connected by screws 33 to a pair of downwardly projecting extensions 17^a at the front ends of the members 17. The parts 18^a and 18^b and the crossbar 32 are so arranged that the pocket 31 for the cards extends downwardly and outwardly. By arranging the pocket in this manner the cards cannot be seen during dealing thereof and are not likely to be faced as they are ejected or discharged onto the table as hereinafter described. A rectangular plate 34 fits within the pocket and operates to force the cards upwardly against the parts 18^b. This plate is supported yieldably by a pair of spring wires 35 which are soldered or otherwise secured to the nuts 26 at the ends of the rod 24 and are so arranged that they tend to shift upwardly the plate 34. The plate is guided to and from the parts 18^b by means of upwardly extending fingers 36. The latter are connected by screws 37 to the side edges of the plate and are slidable in recesses 38 which are formed in the outer faces of the parts 18^b. Assembly of the cards with respect to the pocket 31 is effected by first depressing the plate 34 until the fingers 36 are shifted out of engagement with the recesses 38. Thereafter the cards are inserted beneath the front end of the frame and placed upon the plate 34. As soon as the cards are properly positioned on the plate, the plate is released so that it is subject to the action of the spring wires 35 which force the plate, together with the cards, upwardly towards the parts 18^b. The fingers 36 engage the ends of the cards and prevent the cards from being displaced lengthwise of the plate 34. The crossbar 32 is held in place by the screws 33 so that it is positioned beneath the parts 18 a distance equal to the height of a single card. As a result of this arrangement the card at the top of the pack or deck is free so that it may be ejected or discharged outwardly from the frame. To permit the card to be ejected or discharged as aforesaid, the extensions 17^a are provided with slots 39. These slots are aligned with the lower faces of the parts 18^b and are of such height that the cards are permitted to pass therethrough but one at a time.

Ejection or discharge of the cards is effected by means of a pair of coacting feed elements 40 and 41. These elements are positioned between the sides 8 of the frame and rest directly upon the pack of cards. The element 40 operates, as hereinafter described, to feed the top card partially over the crossbar 32 and through the slots 39. The element 41 is adapted to feed the card the remainder of the way over the crossbar 32. By utilizing two feed elements the cards may be fed rapidly for the reason that one of the elements effects discharge of the top card while the other element at the same time feeds partially the card next in order in the pack.

The feed element 40 is in the nature of a

rectangular plate and is positioned adjacent to the rear portion of the pack of cards. The front portion of the lower face of the element 40 is cut away so as to form a shoulder 40ª. This shoulder is equal to the height of a card and operates, during reciprocation of the feed element 40, to engage the rear edge of the top card and to shift the card outwardly with respect to the pack. Reciprocation of the feed member 40 is effected by means of a vertically extending lever 42 which is provided at the central portion thereof with a hub 43. The latter is journalled on the central portion of the crossrod 22 and is held in spaced relation from one of the sides 8 of the frame by a sleeve 44 on the crossrod 22. The upper end of the lever 42 is operatively connected to the feed element 40 by a link 45. This link is pivotally connected at the rear end thereof to a head or enlargement 42ª at the upper end of the lever. The front end of the link 45 is pivotally connected by a pin 46 to an upwardly extending lug 47 on the central portion of the element 40. The lower end of the lever 41 is provided with a roller 48 which engages a cam 49 and coacts with the latter to oscillate the lever and effect the desired reciprocation of the feed element 40 during rotation of the frame 7. The cam 49 extends around the threaded stem 12 and is clamped in place between the plate 11 and the bearing 10 by the nut 14. It is substantially square in conformation and has rounded corners 49ª which operate to oscillate the lever 42 four times during one revolution of the frame 7 and thereby cause the cards to be successively distributed into four piles on the table. The roller 48 is held in engagement with the cam by means of a spring 50. This spring has the front end thereof anchored to one of the sleeves 29 on the crossrod 24. The rear or distal end of the spring is connected to an arm 51 which is attached to and depends from a lug 52 on the central portion of the lever 42. During rotation of the frame 7 the lever 42 is shifted forwardly when the roller 48 is moved around the rounded corners 49ª of the cam. After the roller passes the rounded corners, the spring 50 shifts rearwardly the lever 42 and retracts the feed element 40. The element 40 is pressed against the pack of cards by means of a spring 53. This spring extends between the lever 42 and the link 45 and is applied so as to draw downwardly the link 45 and pull the element 40 into engagement with the card at the top of the pack. The stroke of the lever 42 is such that the feed element 40, during forward shift movement thereof, feeds the top card approximately halfway over the crossbar 32 and through the slots 39. On the return stroke of the lever 42 the element 40 is retracted so that the shoulder 40ª is shifted rearwardly of the pack of cards. As a result of this arrangement the element 40 is shifted into a position wherein the shoulder 40ª is operative to engage the rear edge of the next succeeding card. The retractile stroke of the element is effected by the spring 50 which operates to swing the lever 42 outwardly after the roller 48 passes the curved corners 49ª of the cam.

The feed element 41 operates, as previously pointed out, to complete the ejection or discharge of the top card. It comprises a pair of laterally spaced side members 41ª which straddle the feed element 40 and are slidable along the inner faces of the parts 18ᵇ of the members 18. In addition to the side members 41ª, the feed element 41 comprises an end member 41ᵇ. This member extends between and joins the front ends of the side members 41ª. It is connected to the top faces of the members 41ª so that the feed element 40 is free to slide thereunder during ejection or discharge of the cards. The side members 41ª are provided on the under or bottom faces thereof with shoulders 41ᶜ. These shoulders are adapted to engage the rear edge of the card that is initially shifted by the feed element 40 and operate, during reciprocation of the element 41, to feed the card over the crossbar 32. The element 41 is reciprocated for card feeding purposes by means of a vertically extending lever 54. This lever is provided at the central portion thereof with a hub 55 which is journalled on the central portion of the crossrod 22 and is positioned next to the hub 43 of the lever 42. The lever 54 is held against lateral displacement relatively to the crossrod 22 by a sleeve 56. This sleeve extends between the hub 55 and the contiguous side of the frame. The upper end of the lever 54 is connected to the feed element 41 by a pair of links 57. These links have the rear ends thereof pivotally connected to a head or enlargement 54ª at the upper end of the lever 54. The front ends of the links are pivotally connected by screws 58 to a pair of lugs 59 which are secured to and project upwardly from the central portions of the side members 41ª of the element 41. The lower end of the lever 54 is provided with a roller 60 which is adapted to engage the cam 49 similarly to the roller 48. During rotation of the frame 7 the roller 60 operates in conjunction with the cam to oscillate the lever 54. The lever 54 in turn reciprocates the feed element 41 and effects discharge of the card over the crossbar 32. The lever 42 is positioned so that the roller 48 engages the curved corners 49ª of the cam in advance of the roller 60. As a result of this arrangement the rounded corners 49ª of the cam operate, during rotation of the frame 7, to oscillate the levers 42 and 54 successively. The lever 54 which is oscillated by the curved corners 49ª after the lever 42, shifts the feed element 41 forwardly so that it engages the top card at the conclusion of

the forward stroke of the element 40 and feeds the card over the crossbar 32. The stroke of the lever 54 is such that the feed element 41 operates to receive the top card from the feed member 40 and to move it forwardly, as indicated in Figure 5. The roller 60 is held at all times in engagement with the cam 49 by means of a spring 61. This spring has the front end thereof anchored to one of the sleeves 29 on the crossrod 24. The other end of the spring is attached to an arm 62 which is connected to and depends from a lug 63 on the central portion of the lever 54. The feed element 41 is pressed into engagement with the top card of the pack in the pocket 31 by means of a pair of spring wires 64. These wires are attached to the head or enlargement 54[a] and press against the side members 41[a] of the element 41.

The slots 39 in the extensions 17[a] are so arranged that the top card, after being shifted forwardly by the feed elements 40 and 41, is retained at the front of the frame 7 until it is ejected or discharged by the initial feed movement of the next succeeding card (see Figure 5). By retaining the top card in this manner, discharge onto the table is not effected until the frame is rotated 90°.

The operation of the card dealing device is as follows:

The pack of cards to be dealt is introduced into the pocket 31 by depressing the plate 34 as hereinbefore described. When the pack is in its operative position the wire springs 35 exert sufficient pressure to cause the card at the top of the deck to engage yieldably the bottom faces of the parts 18[b] of the lower members 18 of the frame-sides. To deal the cards, the crank 30 is turned so as to rotate the frame 7. As the frame is first rotated, the roller 48 is brought into engagement with one of the rounded corners 49[a] of the cam and is actuated in such a manner that the lever 42 swings inwardly. This movement of the lever 42 operates in turn to shift forwardly the feed element 40 and to cause the card at the top of the pack to be shifted halfway over the crossbar 32 and through the slots 39. Further rotation of the frame brings the roller 60 into engagement with the aforesaid rounded corners of the cam and results in the lever 54 being swung forwardly similarly to the lever 42. As the lever 54 is swung forwardly the feed element 41 is shifted so as to cause the top card to be moved completely over the crossbar 32 and into a position wherein it is held only at the rear portion by the slots 39. After passing the rounded corner of the cam the rollers 48 and 60 are brought into engagement with one of the straight-sided portions of the cam and thus permit the levers 42 and 54 to be swung outwardly by the springs 50 and 61 so as to retract the feed elements 40 and 41 and bring them into position for feed of the next succeeding card. As the next succeeding card is initially moved by the feed element 40 it shifts the first card clear of the slots 39 and causes the same to be discharged onto the table. As the frame 7 is rotated, the cards are dealt or fed successively into piles around the device.

In the event that it should be desired to deal the cards into two, three, five or more piles, the cam 49 is removed and a second cam of the proper shape is substituted in its stead. Substitution of the cam is effected by removing the nut 14 so as to release the threaded stem 12 with respect to the plate 11. The substitute cam is clamped in place by mounting it around the stem 12 and then applying the nut 14.

The card dealing device herein disclosed is comparatively simple as far as construction is concerned and may be manufactured at a low cost in view of the fact that it embodies but a small number of parts. By virtue of the fact that two feed members are used to effect complete discharge of the cards from the frame, the device is exceedingly efficient in operation and may be operated rapidly in order to effect a quick dealing of the cards.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a card dealing device of the character described, the combination of a support, a carrier-frame mounted for rotation in a substantially horizontal plane over the support and adapted to receive playing cards, and means comprising a cam and operative during rotation of the carrier-frame relatively to the support, to discharge the cards from said carrier-frame into piles or stacks at predetermined or substantially fixed points around the support.

2. In a dealing device of the character described, the combination of a support, a frame mounted rotatably on the support and adapted to hold a pack of playing cards, and means comprising a cam mounted fixedly on the support, for successively discharging the cards from the frame into piles or stacks around the support during rotation of said frame relatively to the support.

3. In a dealing device of the character described, the combination of a support, a frame mounted on the support to rotate in a substantially horizontal plane and provided with means for holding a pack of playing cards, a reciprocatory feed element for discharging the cards successively from the holding means, and means for reciprocating the element to cause it to discharge the cards into piles or stacks around the support during rotation of the frame relatively to the sup-

port, comprising a stationary cam on the support and a lever on the frame operated by the cam and connected operatively to the element.

4. In a dealing device of the character described, the combination of a support, a frame mounted movably on the support and provided with means for holding a pack of playing cards, a reciprocatory feed-element for discharging the top card substantially halfway off the pack, a reciprocatory feed-element for discharging the top card the remainder of the way off the pack, and means operative during movement of the frame relatively to the support, for successively reciprocating the elements for card-discharging purposes.

5. In a dealing device of the character described, the combination of a support, a frame mounted rotatably on the support and provided with means for holding a pack of playing cards, a reciprocatory feed-element for discharging the top card substantially halfway off the pack, a reciprocatory feed-element for discharging the top card the remainder of the way off the pack, and means operative in response to rotation of the frame relatively to the support successively to reciprocate the elements for card-discharging purposes.

Signed at Chicago, Illinois, this 25 day of April, 1930.

RAYMOND M. RING.
GLENWAY MAXON.