May 14, 1935.

R. C. SMITH

2,001,220

CARD DEALING DEVICE

Filed Jan. 6, 1932

2 Sheets-Sheet 1

FIG. 1

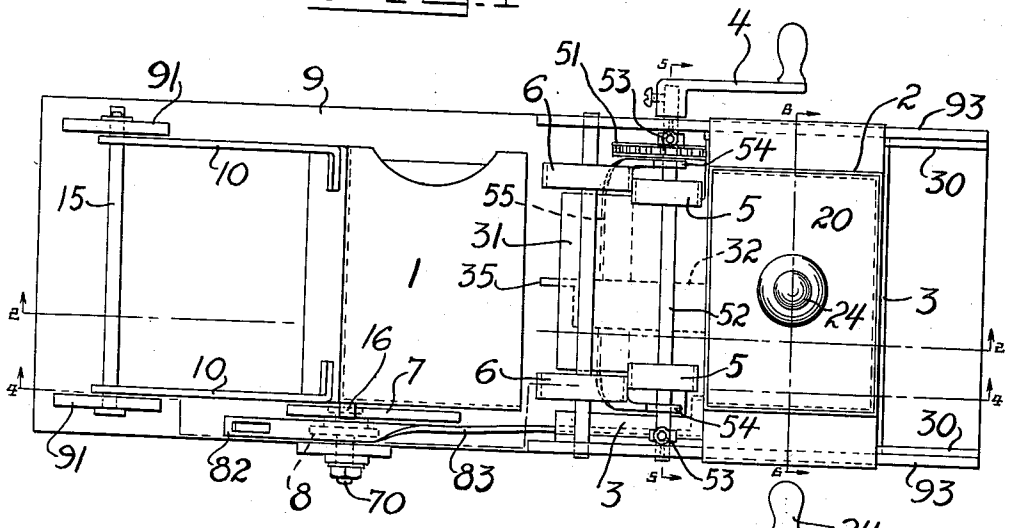
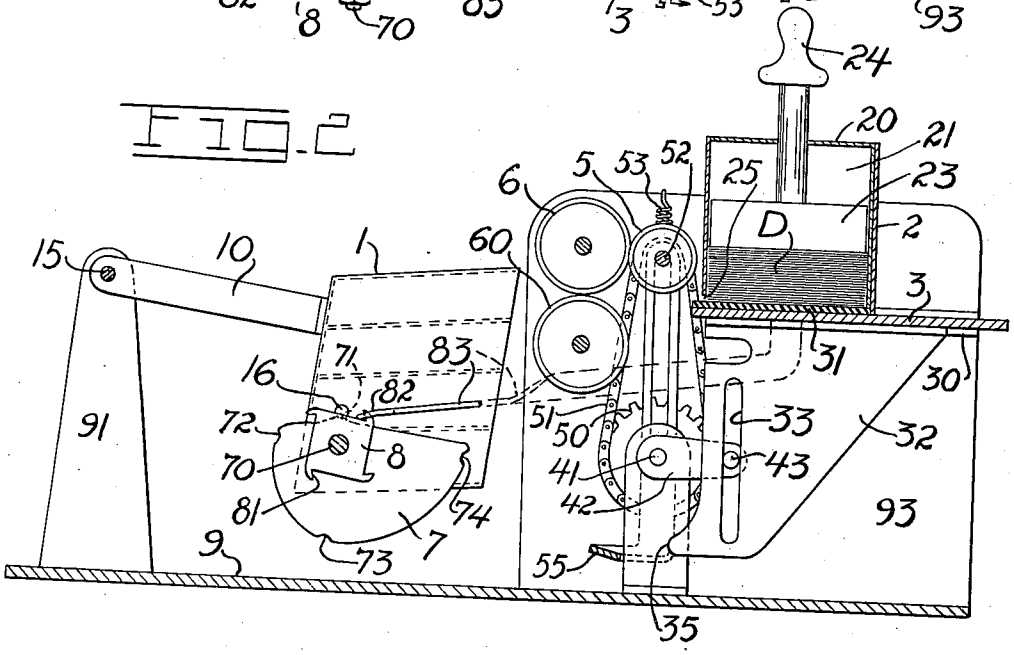


FIG. 2



Inventor

Richard C. Smith

By Charles L. Reynolds

Attorney

May 14, 1935.

R. C. SMITH

2,001,220

CARD DEALING DEVICE

Filed Jan. 6, 1932

2 Sheets-Sheet 2

FIG. 3

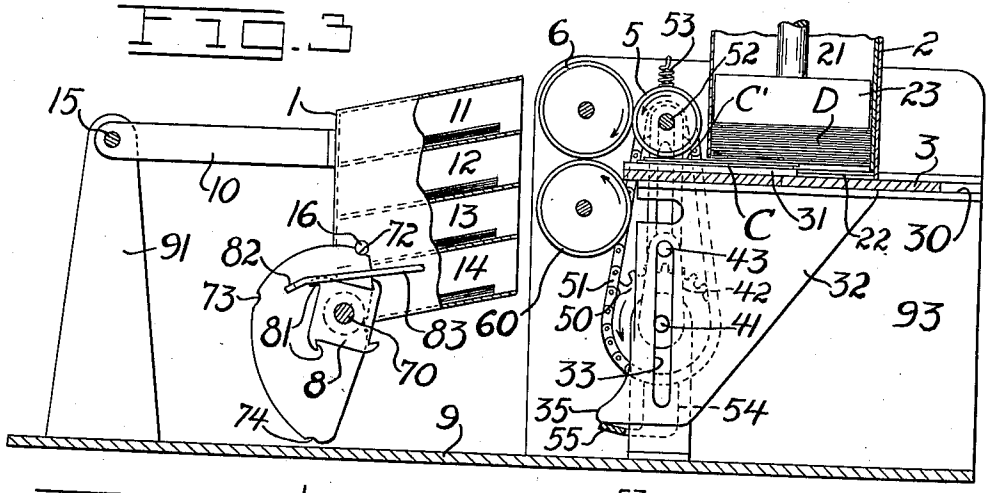


FIG. 4

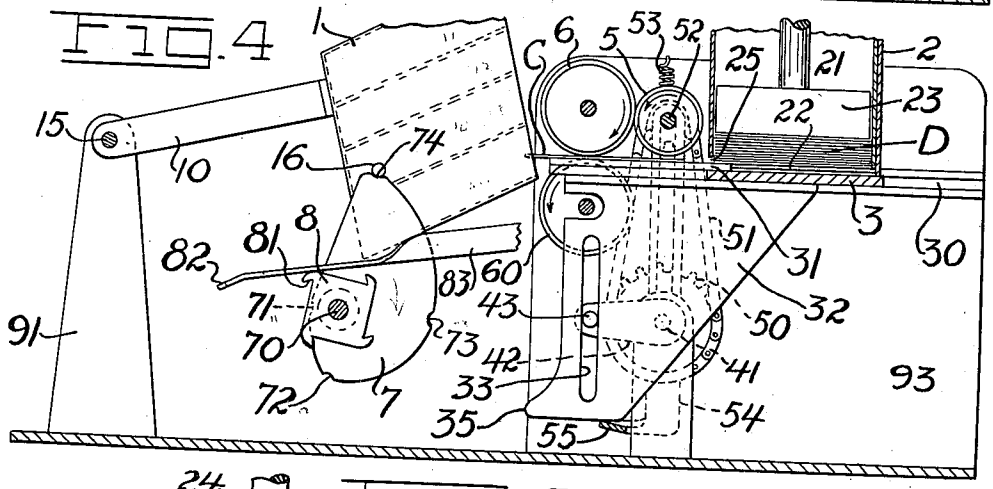


FIG. 5

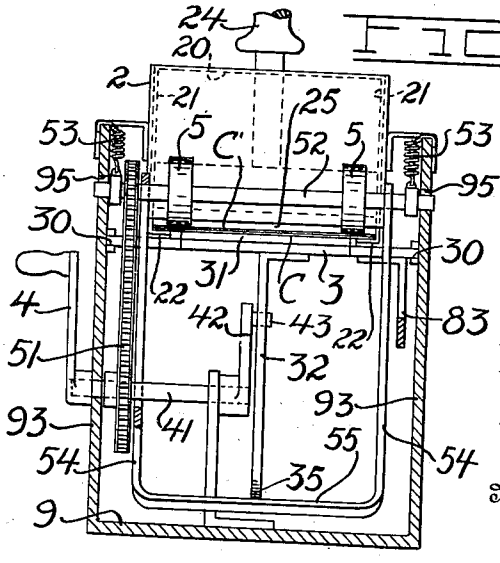
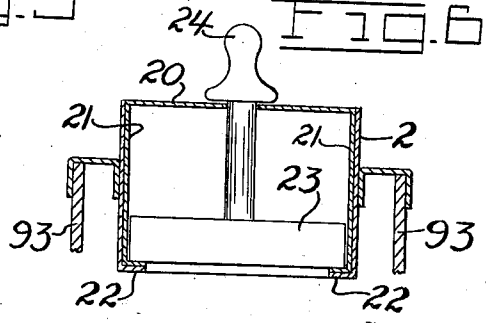


FIG. 6



Inventor

Richard C. Smith

By Charles L. Reynolds

Attorney

Patented May 14, 1935

2,001,220

UNITED STATES PATENT OFFICE

2,001,220

CARD DEALING DEVICE

Richard C. Smith, Seattle, Wash.

Application January 6, 1932, Serial No. 585,042

13 Claims. (Cl. 273—149)

My invention relates to devices for mechanically dealing cards—that is to say, dividing a previously shuffled deck by delivery of the cards in regular succession into a plurality of groups. The device should be distinguished from shuffling machines wherein it is the intention to distribute cards differently throughout a deck by distributing them irregularly into one or several groups formed from the original deck, and then consolidating these groups, if more than one are formed.

It is an object of my present invention to devise a machine of the character indicated which can be inexpensively constructed, to the end that it can be sold at a price attractive to the large group of those who play for amusement, and can be built in large quantities.

It is an object, then, to devise such a machine by means of which the cards are delivered one by one, and which has means for positively intercepting and holding back cards in excess of the one which is intended to be delivered.

It is a further object to devise a receiving device for employment in such a dealing machine, and to provide means for presenting the several compartments in succession in position to receive the successively delivered single cards, so that, for instance, four hands may be dealt, the cards being delivered in recurring succession to the several compartments, ready for play.

Other objects, and more especially such as deal particularly with the mechanical details of my invention, will be best understood as this specification progresses.

My invention comprises the novel parts, and the novel combination and arrangement thereof, as shown in the accompanying drawings, described in the specification, and as will be more particularly defined by the claims which terminate the same.

In the accompanying drawings I have shown my invention embodied in a form which at present is preferred by me, it being understood that the principles thereof may be otherwise embodied, within the scope of the claims.

Figure 1 is a plan view of the complete machine, and Figure 2 is a longitudinal vertical section therethrough on the line 2—2 of Figure 1.

Figure 3 is a view similar to Figure 2, showing parts in a position assumed during the delivery of a card, and Figure 4 is a similar view, taken on the line 4—4 of Figure 1, showing a further stage in the delivery of a card.

Figure 5 is a transverse vertical section through the machine on the line 5—5 of Figure 1, and Figure 6 is a cross section through the hopper on the line 6—6 of Figure 1.

Essentially the device comprises a hopper to receive a deck of cards, a series of compartments to receive the cards in succession, means to move the compartments so that the successively presented cards are received in different compartments, in regular rotation, and means to handle the cards, first to project them from the hopper, moving the lowermost card first, then insuring that only the lowermost card will be further advanced, then engaging and feeding forward this lowermost card for delivery to the compartment then presented. The several parts are timed together so as to accomplish the end in view, which is the distribution of the deck of cards, or any portion thereof, into a given number of hands, each of an equal number of cards. The machine may be designed to deliver any number of hands, within reason, and may deal out the entire deck or any portion thereof.

Let us assume that it is intended that the machine shall deal four bridge hands from a deck. A receiving box 1 is divided into a plurality of compartments 11, 12, 13 and 14. In order to support this box from the frame 9, or a bracket 91 upstanding therefrom, I may provide an arm or arms 10 pivoted at 15 at such a distance from the entrance to the compartments 11, 12, 13 and 14 as to flatten the arc of swing thereof to a considerable extent, and to lessen the size of a cam 7 which moves the same, as will be explained hereafter. The box has a pin 16 projecting therefrom between the entrance to the compartments and the pivot point 15, for engagement with this cam.

At the opposite end of the frame is supported the hopper, and as illustrated in Figure 6, this may comprise a rectangular frame 2 having the cover 20 with flanges 21 in which the deck may be received when the cover is removed, and which may be then inverted within the hopper 2. The hopper is provided with flanges 22 at its lower side to support a deck of cards D. A weight 23, with a handle 24 projecting through the top 20, may be employed to press the cards down to the bottom of the hopper. The bottom of the hopper otherwise is open, and the hopper has a slot 25 at the bottom of one side through which it is intended that single cards shall be discharged.

Supported in guides 30 of the side plates 93 of the frame is a platform 3. The surface of this platform, as indicated at 31, may be formed of a frictional material such that when it engages the under face of a card it will overcome any

grip between this card and the one above it, and will cause the same to be withdrawn from beneath the deck, and to be projected through the slot **25**. Movement of the platform may be accomplished in various ways, for instance, by means of a downwardly projecting fin **32** having a vertical slot **33** in which is engaged a crank pin **43** upon an arm **42**, which arm is rotatable by means of a crank handle **4** (see Figures 1 and 5). Both the arm **42** and the crank handle **4** are secured upon the shaft **41**.

Likewise secured upon this shaft **41** is a drive wheel such as the gear **50**, which is connected through a chain drive, indicated at **51**, to rotate a hold-back roller **5**. This roller is secured upon a shaft **52**, which may be supported for slight vertical movement in vertical slots **95** of the frame, and which in such case is yieldingly held upward above the plane of movement of a card C by means such as the spring **53**. This holds the roller **5** normally above the plane of movement of a projected card. The direction of rotation of the roller **5** is indicated in Figures 3 and 4, and this direction is such that the roller, when brought down into contact with a card being projected through the slot **25** and resting upon the platform **3**, will cause this card to be held back except as the frictional grip of the platform **3** is the stronger. If the card rests directly upon the platform **3**, the frictional grip of the platform over its entire under surface will be greater than the tendency of the roller **5** to move it or hold it back, but if a card, such as the card C' in Figure 3, rests upon a lower card C, the frictional grip on the under surface of the upper card C' will be less than the grip of the roller **5** tending to hold it back, and consequently only the lowermost card in each instance will be moved past the hold-back roller **5**.

Such movement of the roller **5** into engagement with the cards may be accomplished in various ways, for instance, by providing a nose **35** upon the fin **32**, this nose being engageable with an inclined cam member **55** connected by an arm **54** to the shaft **52**. These members are so positioned that the cards upon the platform will have their leading edges advanced beyond the roller **5** before the roller is brought down into engagement therewith, for if the roller were to engage with the leading edge of a single card C, the engagement with the edge might be sufficient in some cases to overcome the frictional grip of the platform **3** upon the card, and it would be thus held back and the deal would be incorrect.

After the cards have been thus projected, and excess cards held back, the lowermost card C will be passed by the latter portion of the platform's advance between rollers **6** and **60** which act as feed rollers to complete the withdrawal of the card from the hopper and from engagement with the platform and hold-back roller. The roller **6** may be frictionally engaged by the roller **5** to cause rotation of the roller **6**, and the rollers **6** and **60** may be frictionally engaged with each other, as is common in feed rollers.

In order to present the several compartments **11**, **12**, **13** and **14** into such position as to receive a card advanced between the feed rollers **6** and **60**, I may provide cam means, generally indicated at **7**, upon a shaft **70**, this cam means being formed for engagement with the pin **16**, previously referred to, to advance the box **1** step by step from one position to another through a recurring cycle, and thus I have shown the several depressions **71**, **72**, **73** and **74**, corresponding to the compartments **11**, **12**, **13** and **14**, respectively. Rotation of the cam **7** is accomplished by means of a ratchet wheel **8** secured upon the shaft **70**, and having points **81** engaged by the slotted end of a dog or pawl **82** projecting as part of an arm **83** secured to the platform **3**. As the platform reciprocates, the ratchet wheel **8** and the cam **7** are advanced one step for each reciprocation, and each reciprocation advances one card.

It is believed that the manner of use of my device will now be apparent. Cards are placed in the hopper **2**, are delivered one by one into the compartments **11**, **12**, **13** and **14** in succession by turning the crank handle **4**, and when the dealing is completed the several hands are removed from the end of the box **1** (see Figure 1).

What I claim as my invention is:

1. In a card dealing machine, in combination, a bottomless hopper to receive a deck of cards, a reciprocatory platform supporting cards in the hopper and spaced from the lower edge of the hopper at one side to leave a discharge slot therebetween, said platform being movable past said edge of the hopper to engage and project through the slot the lowermost card from the deck, means disposed above a card or cards thus projected to hold back all except the lowermost card, means to engage such projected lowermost card and to advance it, a plurality of receiving compartments, and means timed with the card projecting and advancing means to move the compartments in turn into position to receive successively advanced cards.

2. A card delivering machine comprising, in combination, means to hold a deck of cards, means to remove and advance cards from the deck one at a time, a roller disposed adjacent the path of movement of such cards, rotating contra to the movement of the cards, and engageable therewith to frictionally hold back all cards in excess of one.

3. A card delivering machine comprising, in combination, means to hold a deck of cards, means frictionally engaging one face of a card to remove and advance it from the deck, a roller disposed adjacent the path of movement of such cards, rotating contra to the movement of the cards, and engageable with the face opposite that engaged by the removing and advancing means, with a less force, to frictionally engage and hold back all cards in excess of that one engaged by the removing and advancing means.

4. In a card dealing machine, in combination, means to hold a deck of cards, means to remove and advance cards from the deck one at a time, means to positively hold back all cards in excess of one, means to withhold engagement of such means until the leading edge of a card has passed the same, a plurality of compartments, and means timed with the card removing and advancing means to bring the several compartments and successive cards into registry, to deliver successive cards in rotation into the several compartments.

5. A card delivering machine comprising, in combination, means to hold a deck of cards, means to remove and advance cards from the deck one at a time, a roller disposed adjacent the path of movement of such cards, rotating contra to the movement of the cards, and engageable therewith to frictionally hold back all cards in excess of one, spring means normally withholding said roller from engagement with

the cards, and means to engage said roller after the leading edge of the cards has passed the same.

6. A card dealing machine comprising, in combination, means to hold a deck of cards, means to remove and advance cards from the deck one at a time, a receiving box divided into a plurality of compartments, an arm supporting said box for oscillatory movement, a rotary cam and means on the box cooperating therewith to move the box through successive positions where a newly presented card is received in the several compartments in recurring succession, a ratchet wheel associated with the cam, and a pawl engageable therewith to feed the same step by step, corresponding to the spacing of the compartments, and said pawl being connected for reciprocation to the card removing and advancing means.

7. A card delivering machine comprising, in combination, a bottomless hopper to receive a deck of cards, a reciprocatory platform supporting cards in the hopper and spaced from the lower edge of the hopper at one side to leave a discharge slot therebetween, said platform being movable beneath the deck and past said edge of the hopper to frictionally engage and project through the slot the lowermost card from the deck, a pair of rotatable feed rollers disposed to engage the opposite faces of a card thus projected, and a hold-back roller having lesser frictional characteristics than said platform, disposed to frictionally engage the upper face of a card prior to its engagement by said feed rollers, to prevent such engagement except as said platform engages the card to overcome the holding action of said hold-back roller, the upper of said feed rollers being engaged for rotation with said hold-back roller.

8. A card delivering machine comprising, in combination, a hopper to receive a deck of cards, and having a discharge slot at the bottom of one side, a reciprocatory platform movable beneath the deck and past said slot to engage and project through the slot the lower most card from the deck, a pair of feed rollers disposed to engage the opposite faces of a card thus projected, means to rotate said rollers to advance the card, a hold-back roller disposed to engage the upper face of a card prior to its engagement by said feed rollers, said hold-back roller being engaged for rotation with the upper of said feed rollers, means supporting said hold-back roller normally above the plane of the card's movement, and means movable with the platform and complemental means associated with the roller's support for drawing the roller down into engagement with the card after its leading edge has passed.

9. In a card dealing machine, in combination, a frame, a hopper carried thereby to receive a deck of cards, and having a discharge slot at the bottom of one side, a platform guided in the frame for horizontal reciprocation transversely beneath the hopper, and frictionally engaging the lowermost card and projecting it through the slot, a hold-back roller disposed above and engageable with a card or cards so projected, a common means to reciprocate said platform and to rotate said roller in a direction opposite the card's movement, said roller by frictional contact holding back all cards in excess of the one engaged by the platform, a pair of feed rollers connected for rotation to the hold-back roller, to receive between them and to advance a card projected by the platform, a receiving box divided into compartments and supported from the frame for movement to present the compartments in recurring succession in position to receive successive cards advanced by the feed roller, cam means to move said box step by step from each receiving position to the next, a ratchet wheel associated with said cam means, and a pawl secured to and reciprocable with the platform to advance said ratchet wheel and cam.

10. A card dealing machine as in claim 9, in which the hold-back roller is normally yieldingly held upraised above the plane of movement of the card, cam means associated with said hold-back roller, and complemental means upon the carriage engageable with such cam means to depress the hold-back roller into engagement with the card after its leading edge has passed.

11. In a card delivering machine, in combination, means to hold a deck of cards, means to project cards from the deck, and means engageable with projected cards, and movable contra to the movement of the cards as projected, to hold back all cards projected in excess of one.

12. In a card delivering machine, in combination, two cooperating means, one to support a deck of cards and one to restrain the cards from endwise movement, said two means being spaced to define a slot, means to project cards from the deck through the slot, and means to positively hold back all cards projected in excess of one.

13. In a card delivering machine, in combination, two cooperating means, one to support a deck of cards and one to restrain the cards from endwise movement, said latter means having an edge across which the cards are moved in delivering them, means to project cards from the deck across such edge, and means to positively hold back all cards projected in excess of one.

RICHARD C. SMITH.