

Dec. 12, 1950

A. F. HAYEK
CARD FEEDING DEVICE

2,533,932

Filed Sept. 29, 1948

2 Sheets-Sheet 1

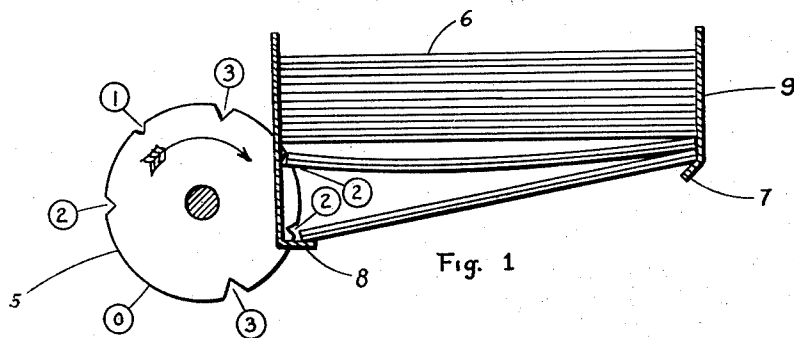


Fig. 1

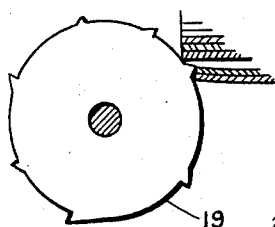


Fig. 2

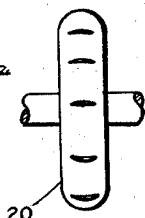


Fig. 3

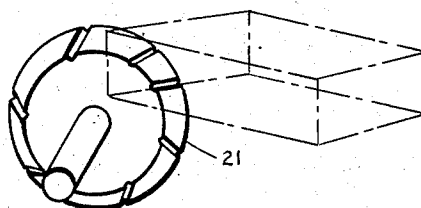


Fig. 4

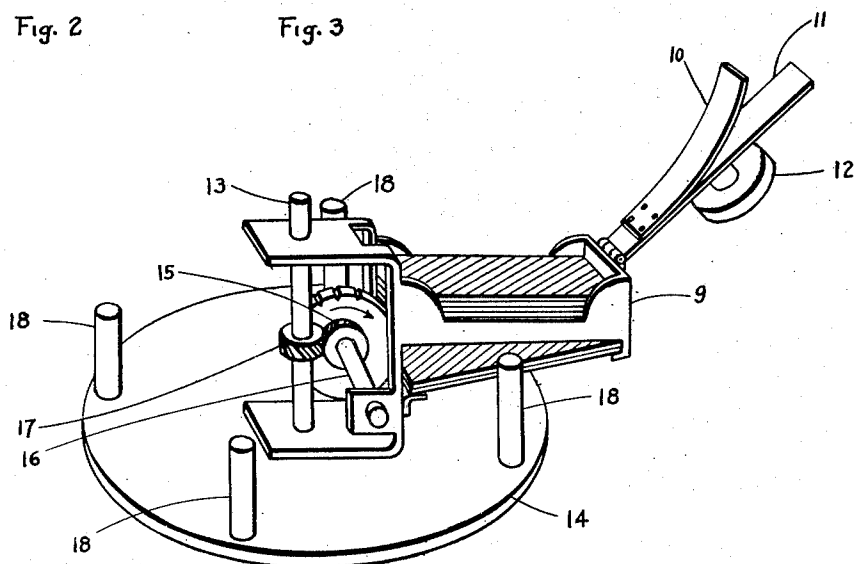


Fig. 5

Arthur F. Hayek Inventor

By

Edward S. Roe

Attorney

Dec. 12, 1950

A. F. HAYEK
CARD FEEDING DEVICE

2,533,932

Filed Sept. 29, 1948

2 Sheets-Sheet 2

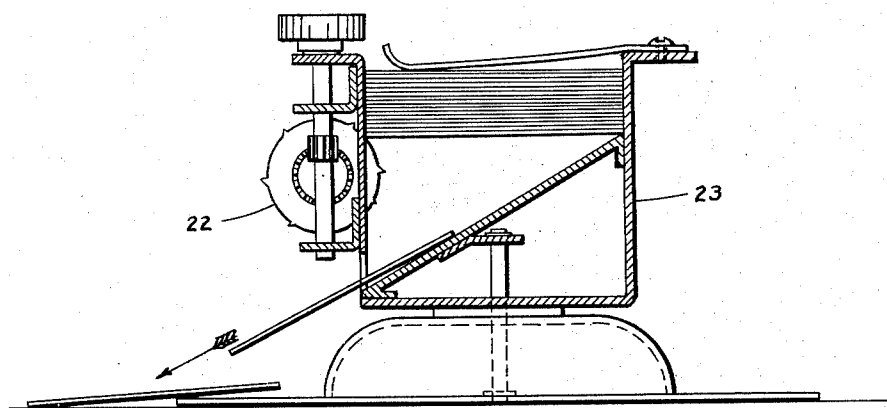


Fig. 6

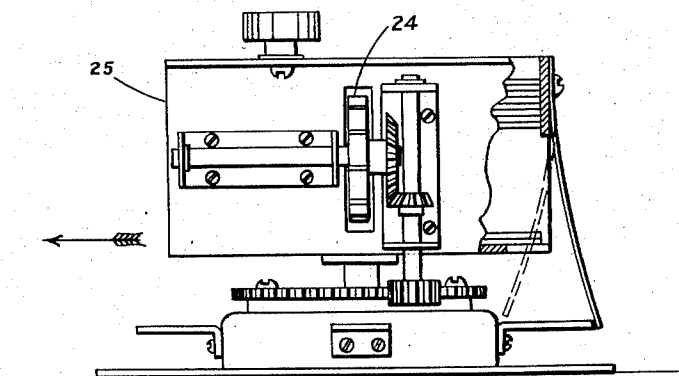


Fig. 7

Arthur F. Hayek Inventor

By

Edward G. Roe

Attorney

UNITED STATES PATENT OFFICE

2,533,932

CARD FEEDING DEVICE

Arthur F. Hayek, Pleasantville, N. Y.

Application September 29, 1948, Serial No. 51,769

3 Claims. (Cl. 273-149)

1

My invention pertains to card feeding devices for playing cards and more particularly to such devices adapted for use in card dealing and shuffling machines.

Devices characterized as dealing and shuffling machines have been used for many years but are subject to several inherent disadvantages: they are usually bulky, complicated and expensive, in fact so costly that their purchase is not within the budget of the vast majority of citizens.

My card feeding device is especially useful for the type of card dealing and shuffling machines where the cards are not actually shuffled but are given the equivalent of a shuffle by dealing the cards in a random manner. Stated otherwise, the cards are shuffled as they are dealt. Illustratively, three cards are dealt to one player, one card to the next player, two cards to the next and so on. However, the present drawback of these machines is that the cards are fed one at a time so that each card must be handled individually by the machine. When several cards must be dealt to the same player, there is a loss of time because the machine must perform a complete feeding and dealing operation for each card.

Broadly, I have invented a card feeding device which obviates all of the foregoing disadvantages.

A principal object is the provision of a card feeding device wherein from one to several cards are successively mechanically separated and fed from a deck of cards.

Another object comprehends a device which will feed or discharge from one to several cards in a certain predetermined sequence wherein each discharge will consist of a different and predetermined number of cards.

Another object is the provision of a card feeding device which will handle the operation of feeding, discharging, dealing or separating several cards with the same facility and dispatch as feeding, discharging or separating one card—that is, the device handles multiples of one card as a group.

Other objects contemplate the provision of a card feeding device admirably adapted for use in relatively inexpensive and compact dealing and shuffling machines of my design, characterized by simplicity of manufacture and ease of operation.

These and other objects of the invention will be apparent as the description of the invention unfolds.

In the description herein, the words feeding,

2

discharging, dealing and separating are considered equivalents and are used interchangeably.

I have illustrated the card dealing device in three card dealing and shuffling machines I have designed for its use. However, it should be noted, that there are many other possible embodiments capable of employing the device in addition to the modifications I have shown in the drawings. It will be apparent from the inspection of these machines that my card feeding device opens up a new approach to the design of card dealing and shuffling machines.

In the drawings:

Fig. 1 is a side elevation of my card feeding device, with the disc shown capable of discharging or separating successively 2, 3, 1, 2, 0, 3 and 2 cards from the deck.

Fig. 2 is one modification of the disc member.

Fig. 3 is another modification of the said member.

Fig. 4 is a third modification of the disc member.

Fig. 5 is an isometric view of a card dealing and shuffling machine employing my card feeding device.

Fig. 6 is a cross sectional view of another card dealing and shuffling machine employing my card feeding device.

Fig. 7 is a side view of a third card dealing and shuffling machine employing my card feeding device.

The card feeding device as illustrated in Fig. 1, consists of a disc 5 cooperating with a card receptacle 9, having an outer lip 7 to support the cards, the disc containing several notches of various depths about its periphery. The number of cards each notch is capable of feeding from the deck is proportional to the depth of the notch. The notch depicted in contact with the deck 6 has a depth equal to the thickness of two cards. The next notch has a depth equal to the thickness of three cards and will feed three cards from the deck. As the disc is rotated clockwise and each notch contacts the edge or edges of the cards, it will feed successively the number of cards indicated by the circled number adjacent each notch. The outer end of the deck is supported by the lip 7. As the cards are fed from the notched disc, they may fall directly upon the card table or upon a lip 8, whichever method is deemed desirable.

The disc may assume a number of forms, several of which are illustrated in Figs. 2, 3, and 4. The disc may have teeth instead of notches; it may have rounded edges or be in the form of a

truncated cone. Or, its axis of rotation may be at any angle with both the surface of the deck and/or to the edge of the deck. Additionally, the shape and axis of rotation of the disc can have other variations than those shown depending upon the particular application.

The card feeding device is shown mounted in a card dealing and shuffling machine depicted in Fig. 5. The deck of cards 6 is placed in the card receptacle 9, which are spring loaded by a leaf spring 10 fastened to a hinged arm 11. The arm is depicted in its open position as the deck is placed in the card receptacle, with a knob 12 fastened to the center portion thereof, for manipulation of the arm.

Card receptacle 9 is rotatably mounted on stud 13 projecting from and secured to base 14. Notched disc 5 and gear 15 are secured to shaft 16, which is rotatably mounted on the card receptacle. Gear 15 meshes with gear 17 carried by stud 13.

In the operation of the machine, card receptacle 9 is rotated clockwise by manipulating knob 12. The stationary gear 17 on the stud actuates gear 15 and the notched disc in the direction shown.

Assuming there are four players, the ratio between gears should be such that four (4) notches engage the cards during each revolution. As the cards fall, they are caught by the lip 8 where they remain until forcibly removed by one of the four posts 18.

The lip 8 and the posts 18 are not absolutely necessary. Without the lip 8, the cards would fall directly into four (4) piles as they are fed from the notched disc. However, with old and battered cards, the position at which they leave the disc may not be uniform. The lip 8 and the posts 18 simply serve to stack the cards into neater piles.

In Figs. 2, 3, and 4, the discs are numbered, respectively 19, 20 and 21. Disc 19 is provided with teeth instead of notches, disc 20 with rounded edges, while disc 21 is in the form of a truncated cone.

Illustrative of the manner in which the cards are shuffled, it will be assumed that a bridge deck which contains 52 cards is to be dealt in four piles of (13) thirteen cards each. It is obvious, however, that the machine could be modified to adapt itself to various types of card games which require decks with a different number of cards and/or which requires a different number of players.

Let the players be designated as North, East, South and West and then let North be the first player to receive the two cards shown in Fig. 1. It will be noticed that a portion of the disc is labeled zero. This simply corresponds to a notch of zero depth or no notch at all so that occasionally during some revolution, one of the players will receive no cards. The cards will be dealt as shown in the table below.

No. of Revolutions	N	E	S	W
1	2	3	1	2
2	0	3	2	2
3	3	1	2	0
4	3	2	2	3
5	1	2	0	3
6	2	2	3	1
7	2	0	3	2

Each of the players will, therefore, receive thirteen (13) cards and the deal is complete at the end of the seventh revolution. It will be evi-

dent from study of the above table that the cards are given the equivalent of a shuffle as they are dealt and that each player will receive thirteen (13) cards regardless of which notch first engages the cards or which player first receives cards.

There are other possible variations in both the arrangement of the notches on the disc or in the number of notches on the disc. Increasing the number of notches on the disc will increase the number of possible arrangements of the notches. In any case, care should be taken in arranging the notches on the disc to make certain that each player will receive the same number of cards regardless of which notch first engages the cards.

To only deal the cards, the notches should all have the same depth. The depth of the notches depends upon the type of card game to be played. In a game of pinocle, for example, where it is customary to deal three cards at a time, the notches should have a depth equal to the thickness of three (3) cards, or for a game of bridge, each notch would have the depth of one card.

Fig. 6 shows another card dealing and shuffling machine which employs my card feeding device. In this drawing, a toothed instead of a notched disc 22, is shown feeding the cards from the deck. The side of the toothed disc contains a circular row of teeth which mesh with a spur gear secured to a vertical shaft. A knob is rigidly fastened to the top end of this shaft. By firmly gripping this knob and by rotating the card receptacle 23, the vertical shaft will rotate with respect to the card receptacle and turn the toothed disc. As the cards are discharged from the toothed disc, they slide down an inclined plane on to the card table.

Fig. 7 shows a third card dealing and shuffling machine which employs my card feeding device. In this machine a notched disc 24 is rotated by a gear train which consists of a large spur gear fastened to the stationary base of the machine, a small spur gear and bevel gear mounted on a vertical shaft and a large bevel gear mounted on a shaft which supports the notched disc. These gears will rotate the notched disc as the card receptacle 25 is rotated.

As the cards are fed and fall to the bottom of the card receptacle, they are forcibly removed by a flat leaf spring. The leaf spring is forced to move away from the card receptacle by four (4) projections on the base of the machine. These projections are so shaped that they suddenly release the flat spring so that it swings to the position shown dotted. When it is released, the spring strikes the fallen or discharged cards and drives them out the opposite end of the card receptacle in the direction shown by the arrow.

There are several other machines in addition to those illustrated which could be designed around my card feeding device and which would perform with equal effectiveness. From those shown, however, it can be seen that several cards can be fed from the deck and dealt to one player without repeating a separate operation for each card.

My card feeding device differs from other devices used in card dealing and shuffling machines in that it lifts or separates a small packet of cards from the rest of the deck. The action is similar to that used by a magician for removing a predetermined number of cards from the deck. He places his thumb at the side of the deck with his thumb nail protruding over the edge. By

5

pinching the deck, he can remove a number of cards equal in thickness to the length of his thumb nail. In other devices, however, the cards are generally removed by sliding them across the remainder of the deck. The machines are also commonly limited by the fact that they feed only one card at a time requiring a separate dealing operation for each card. In addition in these machines, there is an occasional sticking of the cards due to the sliding action mentioned. In some of the better machines, provision is made for stripping the unwanted cards from the single card. My card feeding device on the other hand can feed several cards at one time so that the machines can handle them as a group and not repeat a separate operation for each card and in addition, since it lifts the fed cards from the deck, instead of sliding them, it eliminates the problem of sticking cards encountered in other card dealing and shuffling machines.

I reserve the right to make such changes and modifications as may come within the scope of the appended claims without departing from the essence of the invention.

What I claim is:

1. In a card feeding device, a horizontally disposed card receptacle for carrying and compressing a deck of cards, a vertically disposed disc-like member rotatably mounted on the receptacle in continuous contact with one bottom edge of said deck, the receptacle and member being rotatably mounted on a common fixed base, and the disc-like member geared thereto, said rotatable member having fixed spaced teeth of different heights about the periphery thereof, for engaging and separating cards from the deck, means positioned on the fixed base for directing the cards into piles whereby upon rotation of the receptacle and said member, cards will be separated from the deck and distributed about the base in quantities determined by the number and dimension of the teeth.

2. In a card dealing and shuffling machine, in combination, a horizontally disposed card receptacle for carrying a deck of cards, a vertically disposed disc-like member having spaced teeth, at least some of which are of different heights on

6

the periphery thereof and rotatably mounted on the receptacle in continuous contact with one edge of the deck, the receptacle and member being rotatably mounted on a common fixed base and the disc-like member geared thereto, means for rotating said toothed member in a given ratio to the number of revolutions of said card receptacle about the base, means for compressing the cards against the toothed member, whereby cards are successively fed from the bottom of the deck in a quantity determined by the dimension and ratio of the teeth, and means fixed on the base for directing said cards into piles about the base.

3. A card dealing and shuffling device including a base, a frame mounted for rotation on the base and provided with a horizontally disposed card receptacle for holding a deck of cards provided with fixed abutments on opposite lower sides and means to press on the top side of the deck to support the cards, a vertically disposed rotatable disc-like member mounted on said frame contacting the edge of the deck and geared to the base, said member having a plurality of teeth on the periphery thereof of different dimensions, the said teeth adapted to engage and separate cards from the deck, means provided on said base to engage and distribute the cards about the base as the frame is rotated about the base, and the disc-like member engages and separates cards from the deck.

ARTHUR F. HAYEK.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
999,670	Murch	Aug. 1, 1911
1,028,286	Schmidt	June 4, 1912
1,708,441	Cole	Apr. 9, 1929
1,757,553	Tauschek	May 6, 1930
1,916,723	Ferrar	July 4, 1933
1,955,926	Matthaey	Apr. 24, 1934
2,044,266	Weber	June 16, 1936