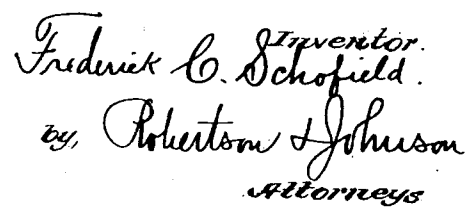


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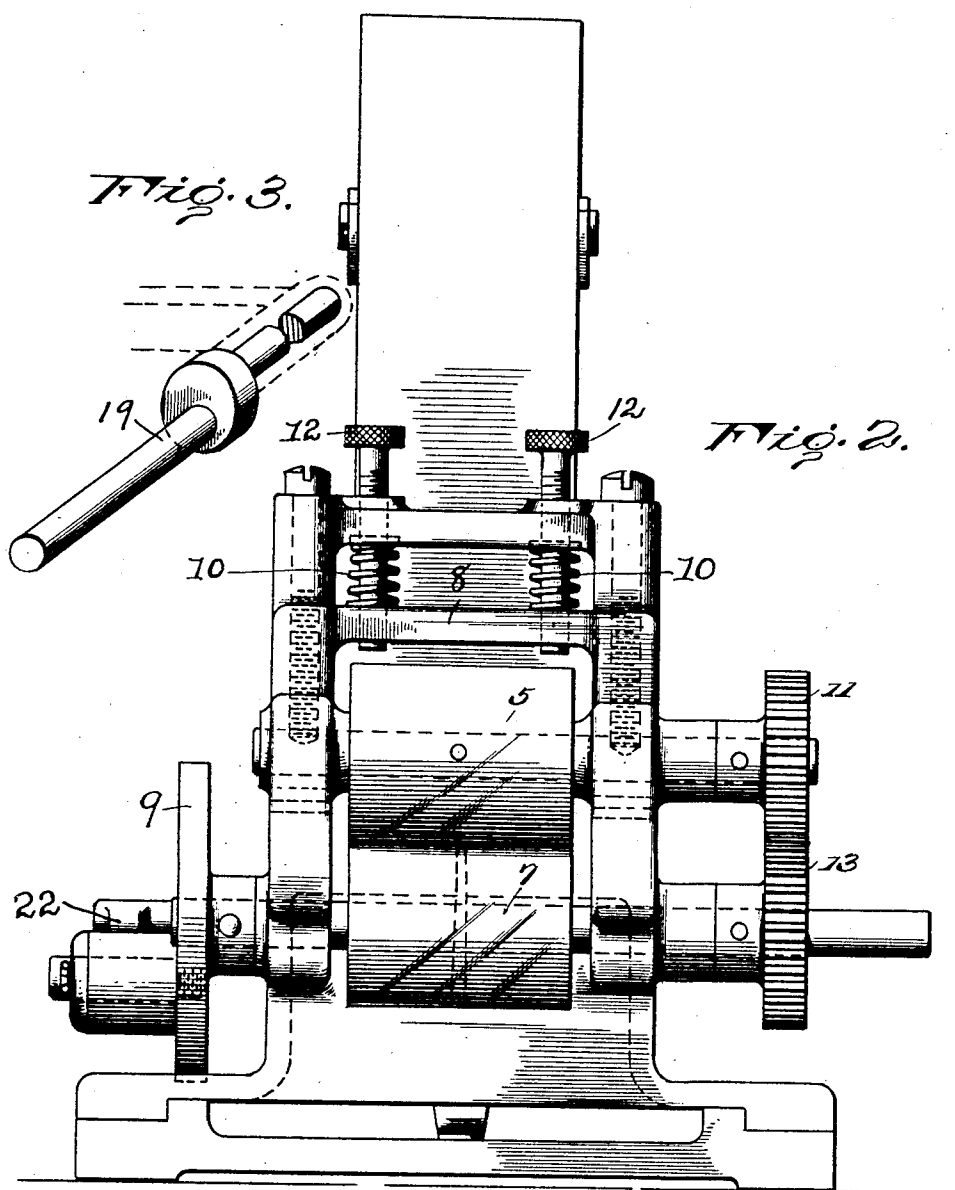
4 SHEETS—SHEET 1.



F. C. SCHOFIELD,
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Patented Nov. 8, 1921.
4 SHEETS—SHEET 2.

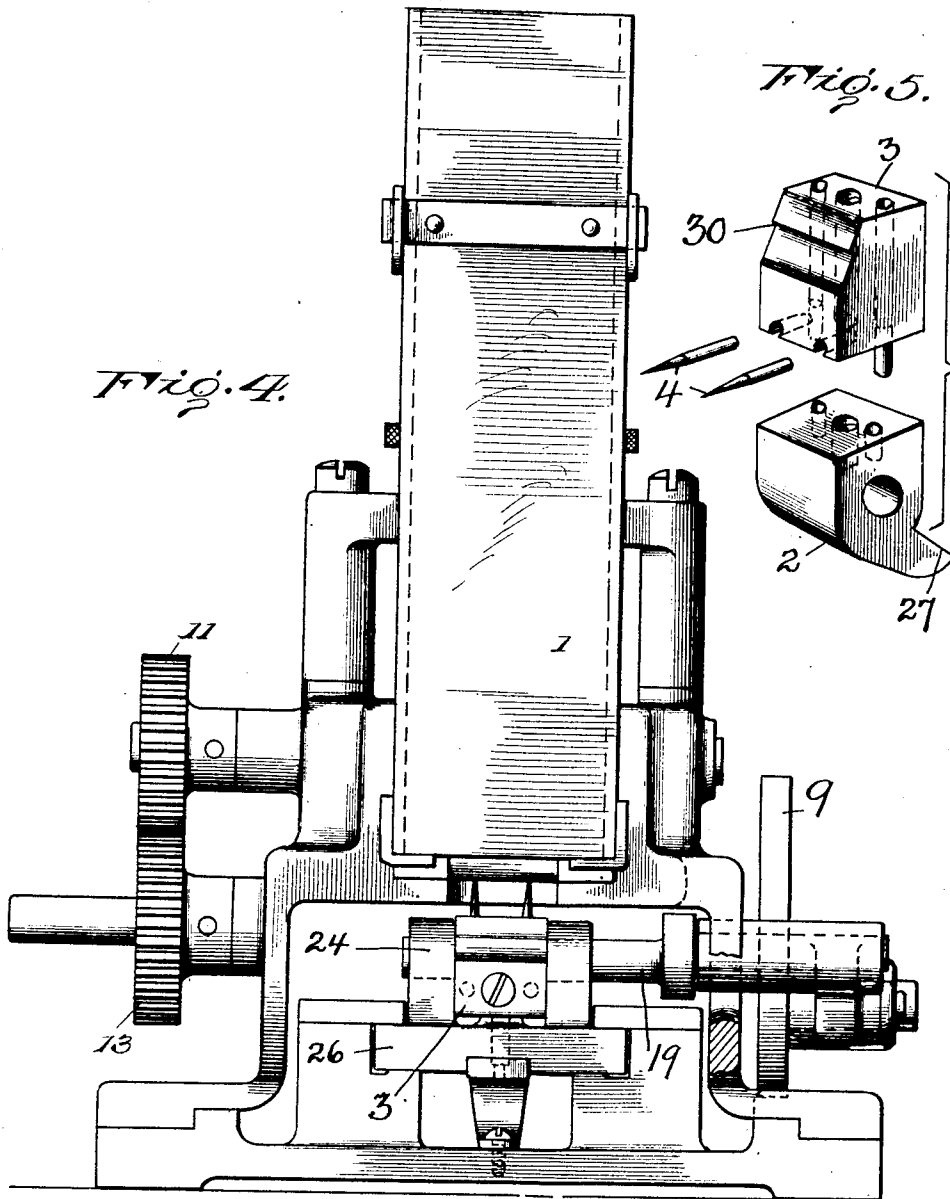


Inventor
Frederick C. Schofield
Attorneys
By, *Wentworth & Johnson*

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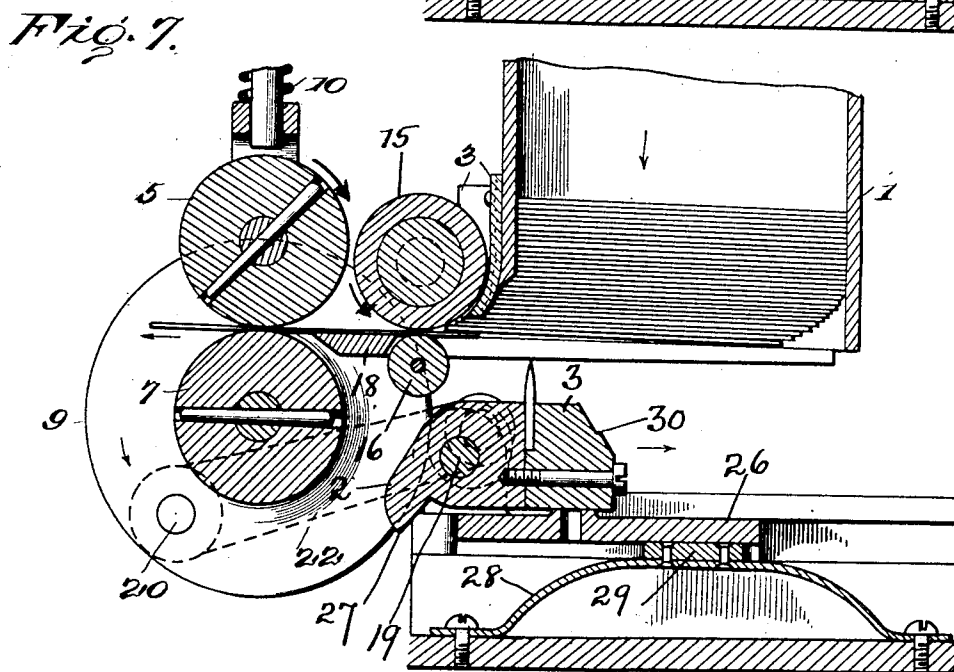
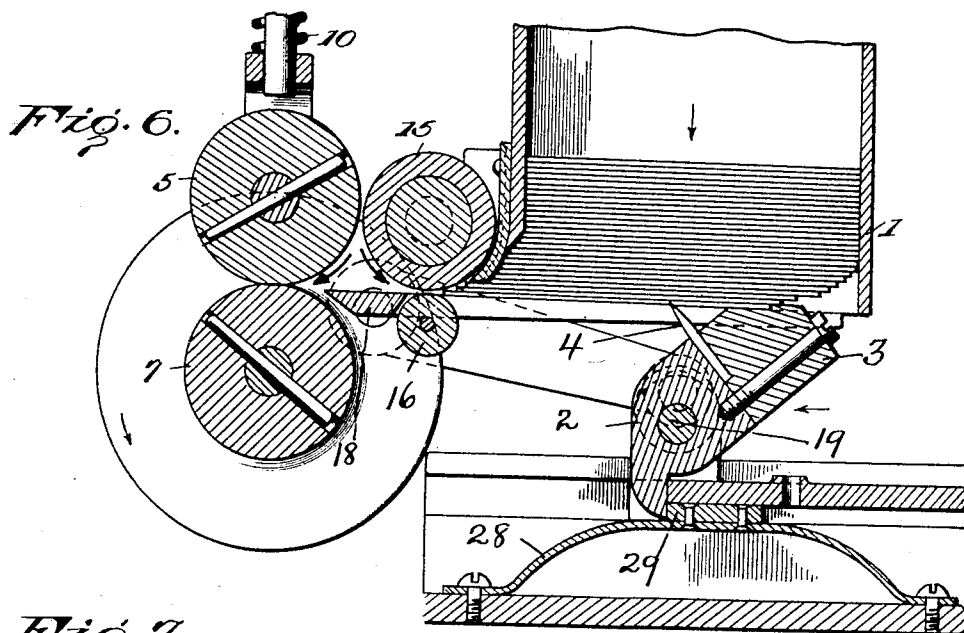
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4 SHEETS—SHEET 3.



Inventor.
Frederick C. Schofield
by, Robertson & Johnson
Attorneys.

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4 SHEETS—SHEET 4.



Inventor,
Frederick C. Schofield
by, Robertson & Johnson
Attorneys.

UNITED STATES PATENT OFFICE.

FREDERICK C. SCHOFIELD, OF SALEM, VIRGINIA, ASSIGNOR TO COMAS CIGARETTE MACHINE COMPANY, OF SALEM, VIRGINIA, A CORPORATION OF VIRGINIA.

COUPON OR CARD FEEDING DEVICE.

1,396,531.

Specification of Letters Patent.

Patented Nov. 8, 1921.

Application filed August 22, 1919. Serial No. 319,173.

To all whom it may concern:

Be it known that I, FREDERICK C. SCHOFIELD, a citizen of the United States of America, and a resident of Salem, in the county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Coupon or Card Feeding Devices, of which the following is a specification.

This invention relates to improvements in coupon or card feeding devices in which a feeding device is arranged to contact with the bottom card of a stack of cards contained in a suitable receptacle to feed said cards forward between the delivery rolls, a reversely acting roll being preferably provided to prevent the feeding of two cards should more than one card be accidentally fed forward at the same time.

The invention consists in the construction and arrangement of parts hereinafter described and then definitely claimed.

In the drawings which represent the preferable, but not necessary, embodiment of my invention:

Figure 1 is a side elevation of a coupon or card feeding device made in accordance with my invention, parts being broken away in order to show the interior construction.

Fig. 2 is an end elevation of the same.

Fig. 3 is a perspective view of a crank shaft detached.

Fig. 4 is an end elevation viewed from the opposite end to that shown in Fig. 2.

Fig. 5 is a perspective view of the rocking head and needle, detached.

Figs. 6 and 7 are sectional views showing the different movements of the device.

Referring now to the details of the drawings by numerals: 1 designates a card receptacle which may be of any desired form, preferably open at the bottom, as illustrated in Figs. 6 and 7. Under the card feeder is a rocking head formed of two main members 2 and 3 (see Fig. 5) between which are secured needles 4 (similar to those used on a graphophone); the parts 2 and 3 being adapted to be secured together by a screw as illustrated in Fig. 6, to clamp the needles 4 between them. In a manner to be hereinafter described, the needles 4 are adapted to move the card on the bottom of the pile to the left as viewed in Fig. 6 until its front edge projects between delivery rolls 5 and 7, these rolls having gears 11 and 13 on their

ends by which they are simultaneously driven, the upper gear 11 preferably having one or two teeth more than the lower gear in order to cause a slight difference of peripheral speed of the delivery rolls 5 and 7 to keep them free from accumulated dust and dirt from the cards. Just in advance of the upper delivery roll 5, and between said roll and the card receptacle 1, is supported a rubber covered roll 15 on the end of which is a gear 17 meshing with the aforesaid gear 11. This construction causes the delivery roll 5 to rotate in an opposite direction from that of the rubber covered roll 15. Underneath said rubber covered roll 15 is an anti-friction roll 16 which is located at just the proper height to permit the cards to move over the same with as little friction as possible, a supporting plate 18 being provided between said anti-friction roll 16 and the delivery rolls 5 and 7. It is desirable that there should be just sufficient space between the rubber covered roll 15 and the anti-friction roll 16 to permit of the passage of a single card and, therefore, should two cards happen to be fed at once, the rubber covered roll 15 which is rotating in an anti-clockwise direction will prevent the upper of the two cards from being fed through to the delivery rolls 5 and 7. In order that the rolls 15 and 16 may be adjusted with respect to each other, I support the rubber covered roll 15 in movable bearings adjustable by the set screws 12 passing through a yoke 14. At the other end of this yoke are springs 10 which bear upon a yoke 8 and make certain that the upper delivery roll 5 shall bear with sufficient pressure against the lower delivery roll 7.

On the end of the shaft to which the lower delivery roll 7 is secured, I attach a crank disk 9, the wrist pin 20 of which is connected by a connecting rod 22 with the cross head 2—3 hereinbefore referred to by means of an eccentric shaft 19. One end of this shaft passes through the aforesaid connecting rod 22 and is moved thereby, and the other end of said shaft passes through bearings 24 projecting upwardly from a slide 26, the eccentric part of the shaft between said bearings 24 passing through the lower part 2 of the rocking head 2—3. The slide 26 therefore acts as a support for the rocking head 2 and 3 and when the latter is

moved in one position, a lug 27 on the part 2 of the rocking head contacts with the front end of the slide 26 and prevents further movement, while, when the rocking head is moved in the other direction, the lug 27 moves away from the slide and the bottom of the rocking head 2—3 contacts with the slide and prevents further movement in the opposite direction. Underneath the slide 26 is a spring 28 having on its upper surface a piece of leather 29 to contact with the lower end of the slide and frictionally hold said slide in any position to which it has been moved as will be hereinafter explained. The construction of the parts just described is such that, as the crank disk rotates with the lower delivery roll 7, the connecting rod 22 moves the slide and the rocking head back and forth under the card receptacle 1. It will be observed that during the rotation of the crank disk 9 before the connecting rod 22 pulls the rocking head forward the crank shaft revolves about 45° until the lug 27 moves from the position shown in Fig. 7 to the position shown in Fig. 6 to contact with the front end of the slide 26, at which time the needle points have engaged the lower card and from now on the whole structure moves forward, the card being carried along, until after the crank disk passes over the center and drives the connecting rod back, the rocking head remaining stationary owing to the friction caused by the piece of leather 29 being held in contact with the bottom of the slide 26 by the spring 29 until the crank has revolved back through 45° and then moves the rocking head into the position shown in Fig. 7, this action dropping the needles away from the card so as not to scratch or scar the bottom card in the rearward movement. If, for any reason, the needles should not feed the bottom card, I have provided the part 3 of the rocking head 2—3 with an offset 30 (see Figs. 5 and 7) which will engage the rear end of the bottom card and move it until the front end of the card is engaged by the delivery rolls 5 and 7, as the crank disk rotates to draw the connecting rod 22 and the rocking head 2—3 along under the bottom of the card receptacle.

I have described the operation of my coupon and card feeder at the same time that I have described the various parts, and hence it is believed that further description of the operation is unnecessary. However, I desire to point out the fact that one end of the rocking head, as viewed in Fig. 6, is so constructed that it will contact with the bottom card before the needles will penetrate entirely through the card, and that further rotation of the crank disk will draw the rocking head and its needles forward to feed the bottom card and that when the rocking-

head and its needles reach the position where the delivery rolls 5 and 7 receive and positively feed the card forward, the wrist-pin 20 begins its downward movement and thus causes the rocking-head to swing down and permit the needles to descend with respect to the card. This moves the needles to a point where there is no possibility of their contact with the cards during their rearward movement, as shown in Fig. 7, or in fact of the needles engaging the next card until the rocking-head not only reaches the limit of its backward stroke but also until the rocking-head has been drawn upward and forward by the upward movement of the wrist-pin 20 pulling upon its connecting-rod 22, as shown in Fig. 6.

It will be obvious that changes and modifications may be made in my invention without departing from the spirit thereof, the scope of which is set forth in the appended claims.

What I claim as my invention is:

1. In a device of the character described, the combination of a pair of delivery rolls, and an eccentrically supported rocking head having a needle projecting therefrom and adapted to move a card to said rolls, and means for positively rocking said rocking head and its needle moving forward with the card, then dropping it away from the card before moving it to its initial feeding position, and then moving it into contact with the next card to feed the same.
2. In a device of the character described, the combination of a pair of delivery rolls, and a rocking head having a needle projecting therefrom and an offset portion adapted to move a card to said rolls, said rocking head and its needle moving forward with the card, then dropping away from the card before moving to its initial feeding position, and then moving into contact with the next card to feed the same.
3. In a device of the character described, the combination of a pair of delivery rolls, a rocking head having a needle projecting therefrom and adapted to move a card to said rolls, said rocking head and its needle moving forward with the card, then dropping away from the card before moving to its initial feeding position, and then moving into contact with the next card to feed the same, and a stop on the rocking head for preventing the needle from piercing the card.
4. In a device of the character described, the combination of a pair of delivery rolls, a rocking head having a needle projecting therefrom and an offset portion adapted to move a card to said rolls, said rocking head and its needle moving forward with the card, then dropping away from the card before moving to its initial feeding position, and

then moving into contact with the next card to feed the same, and a stop preventing the needle from piercing the card.

5 In a device of the character described, the combination of a pair of delivery rolls, an eccentrically pivoted rocking head having a needle projecting therefrom and adapted to move a card to said rolls, said rocking head and its needle moving forward
10 with the card, then dropping away from the card before moving to its initial feeding position, and then moving into contact with the next card to feed the same, and a friction device tending to restrict the movement
15 of the rocking head.

6. In a device of the character described, the combination of a pair of delivery rolls, an eccentrically pivoted rocking head having a needle projecting therefrom and adapted
20 to move a card to said rolls, said rocking head and its needle moving forward with the card, then dropping away from the card before moving to its initial feeding position, and then moving into contact with the next
25 card to feed the same, and a roller rotating in a direction opposite to the feeding of the card to prevent the feeding of more than one card.

7. In a device of the character described,
30 the combination of a pair of delivery rolls, an eccentrically pivoted rocking head having a needle projecting therefrom and adapted to move a card to said rolls, said rocking head and its needle moving forward with the card,
35 then dropping away from the card before moving to its initial feeding position, and then moving into contact with the next card to feed the same, and an adjustable roller rotating in a direction opposite to
40 the feeding of the card to prevent the feeding of more than one card.

8. In a device of the character described, the combination of a feeding device, an anti-friction roll over which the cards are fed,
45 and a roller rotating in a direction opposite to the feeding of the card to prevent the feeding of more than one card over said anti-friction roll.

9. In a device of the character described,
50 the combination of a feeding device, an anti-friction roll over which the cards are fed, and a roller rotating in a direction opposite to the feeding of the card to prevent the feeding of more than one card over said anti-
55 friction roll, said roller and said anti-friction roll being adjustable with respect to each other.

10. In a device of the character described, the combination of a pair of delivery rolls of equal diameter, a feeding device arranged
60 to feed cards to said delivery rolls, and gears on said delivery rolls, one of said gears having more teeth than the other.

11. In a device of the character described,
65 the combination of a pair of delivery rolls,

a cross head driven from one of said rolls and having means for engaging and feeding a card, said cross head having an eccentric shaft to cause it to have a movement to and from the cards at the beginning and end of
70 its stroke.

12. In a device of the character described, the combination of a pair of delivery rolls, a cross head driven from one of said rolls and having means for engaging and feeding a
75 card, an eccentric shaft on which said cross head is mounted whereby the cross head is caused to move to and from the cards at the beginning and end of its stroke, and means for frictionally retarding the move-
80 ment of said cross head.

13. In a device of the character described, the combination of a card receptacle, a rocking head having means for engaging and feeding a card and movable back and forth
85 with respect to said receptacle, a slide upon which said rocking head is eccentrically mounted, and frictional means for retarding the movement of said slide and its rock-
90 ing head.

14. In a device of the character described, the combination of a card receptacle, a slide movable back and forth under the same, and a rocking head eccentrically mounted upon
95 said slide and having means for engaging and feeding a card as said rocking head and its slide move back and forth under said receptacle.

15. In a device of the character described, the combination of a card receptacle, a slide
100 movable back and forth under the same, a rocking head eccentrically mounted upon said slide and having means for engaging and feeding a card as said rocking head and its slide move back and forth under said
105 receptacle, and a spring actuated frictional device co-acting with said slide.

16. In a device of the character described, the combination of a card receptacle, a pair of delivery rolls, a slide having an eccen-
110 trically mounted rocking head movable under said card receptacle, and a connecting rod connecting one of said delivery rolls with said eccentrically mounted rocking head.

17. In a device of the character described,
115 the combination of a card holding device, and an eccentrically-mounted head for feeding cards from said card holding device, said rocking head having a needle movable upwardly against the bottom card to feed
120 the same.

18. In a device of the character described, the combination of a card-holding device having an opening in the bottom, a slide which moves in a plane substantially par-
125 allel with the bottom of the holding device, a rocking-head pivoted to the slide and having means for engaging a single card, and removing it from the holding device, a crank, a connecting-rod extending from the
130

crank to the rocking-head, and means for resisting the movement of the slide whereby the turning of the crank first swings the rocking-head and then moves the slide in one direction or the other.

19. In a device of the character described, the combination of a card-holding device having an opening in the bottom, a slide which moves in a plane substantially parallel with the bottom of the holding device, a rocking-head pivoted to the slide and having means for engaging a single card, and removing it from the holding device, a crank, a connecting-rod extending from the crank to the rocking-head, means for resisting the movement of the slide whereby the turning of the crank first swings the rocking-head and then moves the slide in one direction or the other, and a stop in position to engage the slide, and which limits the swing of the rocking-head to a predetermined point.

20. In a device of the character described, the combination of a card-holding device having an opening in the bottom, a slide which moves in a plane substantially parallel with the bottom of the holding device, a rocking-head pivoted to the slide and having means for engaging a single card, and removing it from the holding device, a crank, a connecting-rod extending from the crank to the rocking-head, means for resisting the movement of the slide whereby the turning of the crank first swings the rock-

ing-head and then moves the slide in one direction or the other, and rotary means acting in unison with the crank for continuing the feed of the card after it shall have been initially moved by the rocking-head.

21. In a device of the character described, the combination of a card-holding device having an opening in the bottom, a slide which moves in a plane substantially parallel with the bottom of the holding device, a rocking-head pivoted to the slide and having means for engaging a single card, and removing it from the holding device, a crank, a connecting-rod extending from the crank to the rocking-head, and a stop in position to engage the slide, and which limits the swing of the rocking-head to a predetermined point.

22. In a device of the character described, the combination of a card-holding device having an outlet at the bottom for the cards, a rocking-head constructed and adapted to slide a card from the bottom of the supply of cards in the card-holding device, while moving in one direction, a movable support for the rocking-head, to which the latter is pivoted, means connected with the head for swinging and sliding the latter, and means for resisting the sliding movement until the head shall have first been rocked.

In testimony whereof I affix my signature.
FREDERICK C. SCHOFIELD.