No. 714,553. Patented Nov. 25, 1902.

G. A. ARMSTRONG.

AUTOMATIC CARD SERVING MACHINE.

(Application filed June 14, 1902.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

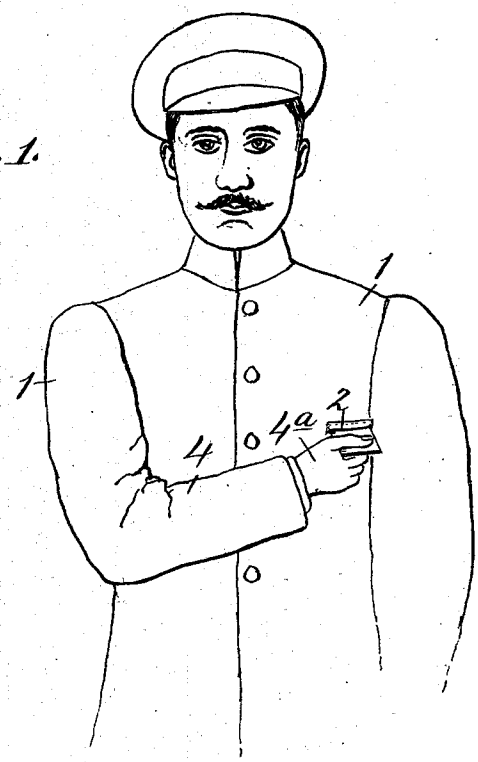


Fig. 7.

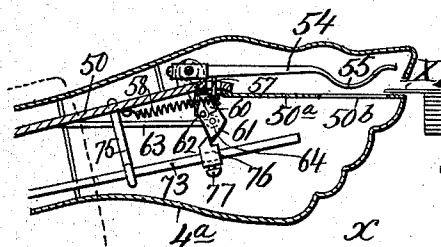


Fig. 6.

Fig. 8.

Witnesses

F. H. Schott

A. M. Ray.

Inventor

G. A. Armstrong

By E. B. Clark

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 2.

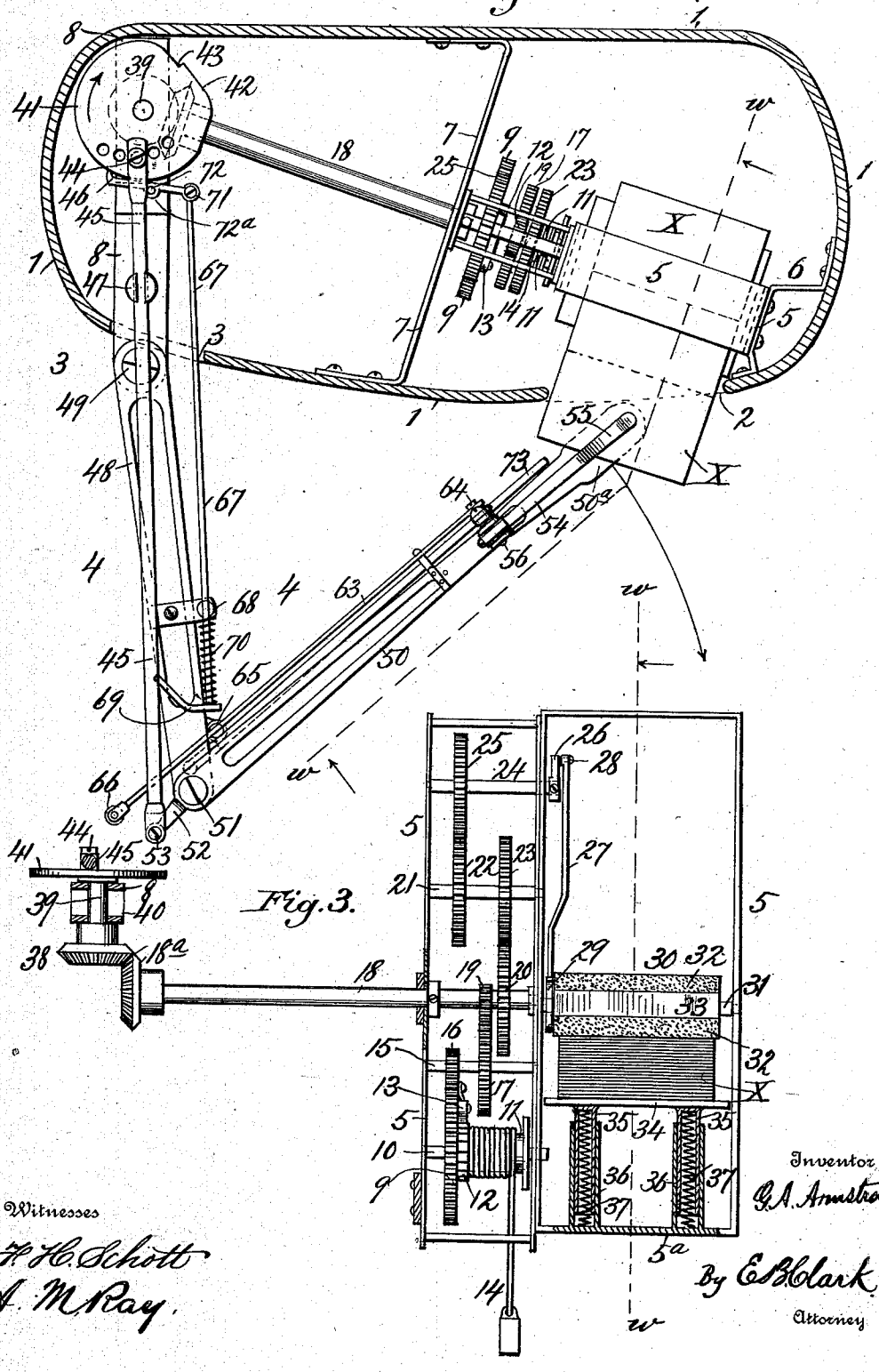


Fig. 3.

Witnesses

H. C. Schott

A. M. Ray.

Inventor

G. A. Armstrong

By E. B. Clark

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

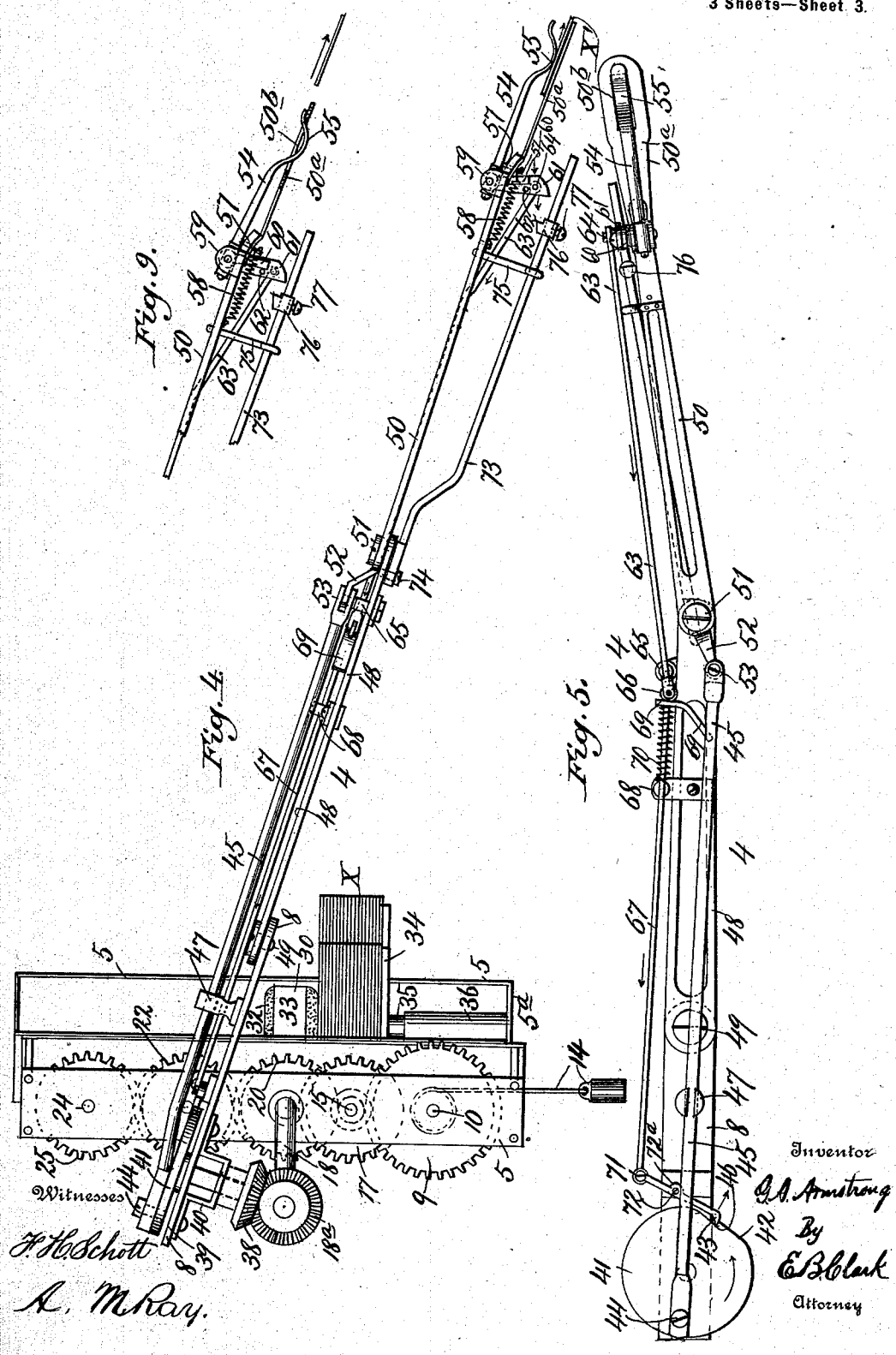
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(No Model.) 3 Sheets—Sheet 3.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE A. ARMSTRONG, OF YOUNGSTOWN, OHIO, ASSIGNOR OF TWO-THIRDS TO D. F. ANDERSON AND D. P. COOPER, OF YOUNGSTOWN, OHIO.

AUTOMATIC CARD-SERVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 714,553, dated November 25, 1902.

Application filed June 14, 1902. Serial No. 111,645. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. ARMSTRONG, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Automatic Card-Serving Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an automaton, in the shape of a human figure, adapted for serving or handing out advertising-cards, circulars, and the like.

The object of my invention is to provide effective and easily-operating mechanism concealed within the body of a human figure for automatically taking a card from a feeding device and handing it out by a swinging motion of the arm and hand to a bystander, whereby, as soon as one card has been withdrawn from the automaton, mechanism will be put into operation for causing the swinging arm and hand to grasp and serve another card for delivery.

The matter constituting my invention herein will be defined in the claims.

I will now describe the details of construction and operation of my automatic serving mechanism by reference to the accompanying drawings, in which—

Figure 1 represents a front elevation of the automaton, in the shape of a man, containing my automatic serving mechanism. Fig. 2 represents a horizontal section through the body or casing of the figure and showing a top plan of the serving mechanism. Fig. 3 represents a front elevation of the operating-gearing. Fig. 4 represents a perspective side elevation, looking toward the right in Fig. 2, of the gearing and the mechanism of the arm in extended position. Fig. 5 represents a top plan view of the mechanism of the arm in extended position. Fig. 6 represents a vertical section with parts in elevation on the line *w w*, Figs. 2 and 3. Fig. 7 represents a vertical section of the hand and card-grasping mechanism. Fig. 8 represents a transverse section on the line *x x*, Fig. 6. Fig. 9 represents a detail side elevation of the card-grasping mechanism with the thumb-clip depressed.

The operating-gearing and part of the mechanism of the arm are inclosed within the casing 1, which forms the body of the figure, the mechanism of the arm being inclosed within a suitable arm casing or sleeve, and the casing is provided with a card-slot 2 and the opening 3 for the arm 4. In practice the swinging arm 4 will be covered by a suitable flexible casing or sleeve. The operating-gearing and feed-roller are mounted in a metallic frame 5, which is supported in the case 1 by means of the braces 6 and 7, screwed to the casing, as shown in Fig. 2. The supporting-plate 8 for the arm mechanism 4 will also be secured to the casing 1 in any suitable manner. The main driving gear-wheel 9, Fig. 3, is mounted on shaft 10, on which is also loosely mounted the winding-drum 11, having the ratchet-wheel 12. A spring-pawl 13 is pivoted to the gear-wheel 9 for engagement with said ratchet-wheel 12, as shown in Figs. 3 and 6. A cord and weight 14 are attached to the drum 11 as a motive power for the gearing. Any other suitable motor may be used for driving the gearing. In the frame above the winding-drum is journaled the counter-shaft 15, having secured to it the pinion 16 and gear-wheel 17, and the pinion 16 meshes with the driving-gear 9, while the gear 17 meshes with the pinion 19, secured to shaft 18. Another gear 20 is also secured to shaft 18 and meshes with the gear 23 on counter-shaft 21. The counter-shaft 21 is journaled in the casing and also has secured to it the gear 22, which meshes with the upper gear 25 on shaft 24. To the outer end of shaft 24 is secured the crank 26, to the outer end of which is pivotally connected the long pawl 27 by pin 28. The long pawl 27 extends downwardly and engages with the four-toothed ratchet-wheel 29, which is secured to the feed-roller 30, mounted by journals 31 in the frame 5. The feed-roller 30 is provided with four equidistant longitudinal roughened surfaces 32 and four intermediate smooth surfaces 33.

The roughened surfaces may be made by means of sand or emery powder or roughened metal, as desired. Beneath the feed-roller is placed the spring-pressed card-supporting table 34, to the under side of which are connected the downwardly-extending tubes 35 for the coiled springs 37, said tubes 35 being inclosed in the guide-tubes 36, which extend upwardly from the base-plate 5^a of the frame 5, as clearly shown in Figs. 3, 4, and 6. The package of cards X is placed upon the table 34 beneath the feed-roller 30, so as to be fed out one at a time by the intermittent turning of the feed-roller.

The shaft 18 is the main driving-shaft for the arm mechanism and has secured to its outer end the beveled gear 18^a, which meshes with the beveled gear 38, secured by its hub to the short vertical shaft 39, as shown in Figs. 3 and 4. The shaft 39 is supported in the hanger 40, which is secured to the supporting-plate 8 of the arm. To the upper end of shaft 39 is secured the cam-disk 41, which is provided at its under side with a short hub or washer bearing upon the supporting-plate 8, as shown in Fig. 4. The disk 41 is provided in its edge with a cam-face 42 and a tooth 43, with the latter of which engages the locking-detent 46, to be hereinafter described. The connecting-rod 45 is connected by the eccentric-pin 44 to the disk 41 and is supported by the guide-post 47, which also acts as a fulcrum and is secured to plate 8, as shown in Figs. 2, 4, and 5. To the outer end of plate 8 is pivotally connected the upper part 48 of the swinging arm by means of the pivotal pin 49, and to the outer end of said part 48 is pivotally connected the lower or outer swinging arm 50 by means of the pivotal pin 51. The inner end of arm 50 is provided with a rear extension 52, to which is pivotally connected the connecting-rod 45 by means of pin 53, as shown in Figs. 2, 4, and 5. It will be understood that by means of the connecting-rod 45, pivotally connected, as shown, the revolution of disk 41 will cause the arms 48 and 50 to be bent or flexed on their pivotal pins into the position shown in Fig. 2 and then outward into the extended position shown in Figs. 4 and 5 in the operation of grasping and serving cards.

To the outer end of arm 50 is pivotally connected the thumb-clip 54, which is rigidly secured to the short shaft 56, Fig. 8, and is provided at its outer end with a downwardly-extending bow 55, adapted to drop into the slot 50^b in the card rest or finger 50^a, as shown in Fig. 9. The thumb-clip 54 is provided near its rear end with the downwardly-projecting pin 57, passing through a slot in the outer end of arm 50, and to such pin is connected the coiled spring 58, which is secured at its other end to the arm 50, as shown in Figs. 4, 6, and 7. A short shaft 56 is journaled in the posts 59 and has rigidly secured to it the downwardly-projecting detent 60, adapted to bear against the stop-pin 62, projecting laterally from the hanger 61, which is loosely mounted upon the shaft 56, as shown in Figs. 6 and 8. The thumb-clip 54, shaft 56, and detent 60 make a bell-crank lever, which is pulled in one direction by the coil-spring 58, so as to depress the bow 55 into the slot 50^b of the card-rest 50^a, as shown in Fig. 9. This bell-crank lever is moved in the opposite direction, so as to raise the bow 55 out of the slot 50^b, Fig. 7, by means of the dog 76, as will be hereinafter explained. To the lower end of the hanger 61 is pivotally connected the push-rod 63 by means of pin 64. The inner end of rod 63 rests in the guide-post 65 and is provided at its end with a roller 66 for bearing upon the cam-plate 69, as shown in Figs. 2 and 5. The release-rod 67 rests in the slotted guide-post 68 and is provided at its outer end with the cam-plate 69 and with the coiled spring 70 between said plate and the post 68. The inner end of the release-rod 67 is pivotally connected by pin 71 to the outer end of detent 46, which is pivoted by pin 72 to a cross-bar 72^a on plate 8, as shown in Figs. 2 and 5.

The supporting-rod 73 for a dog is pivotally connected at its rear end by pin 74 to the outer end of arm 48 and is supported by the hanger 75, which is secured to the arm 50, as shown in Fig. 4. The dog 76 is secured by a set-screw 77 on rod 73 in proper position to engage with the swinging hanger 61 on the short shaft 56, as shown in Figs. 6, 7, and 8.

The mechanism being constructed and arranged as above described and the cord and weight 14 having been wound upon the drum 11 or other power applied to the shaft 10, the mechanism may be put into operation as follows: The arm 4 being in the extended position and a card X′ held between the bow 55 of the thumb-clip and the rest or finger 50^a, as shown in Figs. 4 and 5, the mechanism will be locked by reason of the fact that the detent 46 will be engaged by the tooth 43 on the crank-disk 41. If the card X′ is now removed from the hand, the thumb-clip 54 will drop so that its bow 55 passes down into the slot 50^b, as shown in Fig. 9. This motion is effected by the spring 58 drawing backward the pin 57 and will cause the detent 60 to strike against the pin 62 and carry backward the hanger 61, thereby forcing backward the push-rod 63 and the release-rod 67, thereby releasing the detent 46 from the tooth 43, so that the crank-disk 41 and the train of gearing will be free to turn. The roller 30 will now be revolved and push out one of the cards in the pack X, and simultaneously the pivoted arms 48 and 50 will be flexed inward to the position shown in Fig. 2 for grasping the pushed-out card. As the swinging arm 50 is bent inward and approaches the pack of cards the dog 76 on sup-

porting-rod 73, Figs. 6 and 7, engages the hanger 61, causing the pin 62 to strike the detent 60 and push it forward, thereby turning the short shaft 56 and raising the thumb-clip 54, so that its bow 55 rises out of the slot 50^b, permitting a card X′ to be pushed between the bow and the card-rest. Just after the card is pushed into the hand the dog 57 will pass beyond the hanger 61, permitting the spring 58 to draw downward the thumb-clip, so that the bow 55 will rest upon and grasp the card, as shown particularly in Fig. 6. The continued revolution of the gearing causes the crank-disk 41 to further turn around from the position shown in Fig. 2 to the position shown in Fig. 5, when the detent 46 will be again engaged by the locking-tooth 43 on disk 41. The mechanism is now locked and revolution of the gearing is stopped. It will be understood that when the crank-disk 41 is revolved so as to carry the crank-pin 44 to the position shown in Fig. 5 the arm will be turned outward into the extended position and the card will be under the thumb-clip ready to be removed by a bystander. The removal of the card will again automatically release the detent 46 from the tooth 43, again permitting the gearing to revolve and the arm mechanism to be bent into position for the hand to receive another card, as shown in Fig. 2. It is to be understood that when the thumb-clip drops, as shown in Fig. 9, and the hanger 61 is moved backward the rod 63 will push upon the release-rod 67, Fig. 5, against the pressure of its coiled spring 70, so as to swing the detent 46 upon its pivotal pin and disengage it from the tooth 43 on the crank-disk 41. As the arm 50 is swung inward, as shown in Fig. 2, the coiled spring 70 on rod 67 acts to hold the detent 46 against the edge of the revolving disk 41, as shown, so that it will be in position to engage with the tooth 43 when the disk has revolved to the position shown in Fig. 5. At this time the push-rod 63 does not act upon the release-rod 67, for the reason that the card X′ is under the bow of clip 54, thereby taking off pressure from the swinging hanger 61, which would otherwise be exerted by the coiled spring 58.

The operation is very simple, and the automatic action of the device will continue so long as the power is properly applied and cards are removed by a bystander from the extended hand. When a pack of cards becomes exhausted from the table 34 a new pack will be inserted. Each revolution of the shaft 24 and its crank 26 causes the long pawl 27 to engage one of the four teeth on the ratchet-wheel 29 and turn the feed-roller 30 one-fourth revolution, thereby feeding out the top card a sufficient distance to be grasped by the bow 55 of the thumb-clip 54 in the hand 4^a, as shown in Fig. 6. During this revolution of the shaft 24 the shaft 18 makes one revolution, at the same time causing the crank-disk 41 to make a revolution, which flexes or bends the arms 48 and 50 first inward to the position shown in Fig. 2 and then outward to the position shown in Fig. 5.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a card-serving machine, the combination with a card-feeding device, of a delivering-arm embracing upper and lower pivoted arms, a thumb-clip for grasping a card and operating mechanism for said delivering-arm and clip, substantially as described.

2. In a card-serving machine, the combination with a card-feeding device, of a delivering-arm embracing upper and lower pivoted arms, a crank-disk, a connecting-rod, a thumb-clip and means for operating said parts, substantially as described.

3. In a card-serving machine, the card-feeding mechanism composed of a spring-pressed table for holding cards, a feed-roller having longitudinal roughened surfaces and intermediate longitudinal spaces, a ratchet-wheel, a crank and pawl engaging said wheel and operating-gearing, substantially as described.

4. In a card-serving machine, the combination with a card-feeding device, of a delivering-arm having a spring-pressed movable thumb-clip, a connecting-detent, a hanger engaging the same, a supporting-rod, a dog on the same adapted to engage said hanger to raise said thumb-clip, substantially as described.

5. In a card-serving machine, the combination with a crank-disk and operating mechanism, of a delivering-arm composed of upper and lower pivoted arms, said lower arm having a rear extension, a connecting-rod pivotally connected to said disk and to said rear extension of the lower arm, a movable thumb-clip, a locking-detent adapted to engage with the crank-disk and operating mechanism therefor, substantially as described.

6. In a card-serving machine, the combination with a card-feeding device, of a delivering-arm composed of upper and lower pivoted arms, said lower arm having a rear extension, a crank-disk, a connecting-rod pivotally connected thereto and to said extension of the lower arm, a thumb-clip, a locking device for the crank-disk and intermediate operating mechanism between the clip and the crank-disk, substantially as described.

7. In a card-serving machine, the combination with the crank-disk having a tooth, of the upper and lower pivoted arms, a thumb-clip and a swinging hanger on the shaft of said clip, a pivoted detent adapted to engage with the tooth of said disk, a push-rod and a release-rod connecting said hanger with said detent and suitable connecting devices whereby the crank-disk will be locked or released, substantially as described.

8. In a card-serving machine, the combina-

tion with a swinging arm and a thumb-clip therefor, of a card-feeding mechanism composed of a spring-pressed card-table, a feed-roller above said table having a longitudinal roughened surface and an adjacent longitudinal space, a device for intermittently turning said feed-roller and operating mechanism therefor and for said swinging arm, whereby a card may be intermittently fed out and then delivered by said swinging arm, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE A. ARMSTRONG.

Witnesses:
D. F. ANDERSON,
H. A. ERNST.