B. L. BAKER.

MACHINE FOR DEALING PLAYING CARDS.

APPLICATION FILED MAR. 27, 1907.

999,428.

Patented Aug. 1, 1911.

2 SHEETS—SHEET 1.

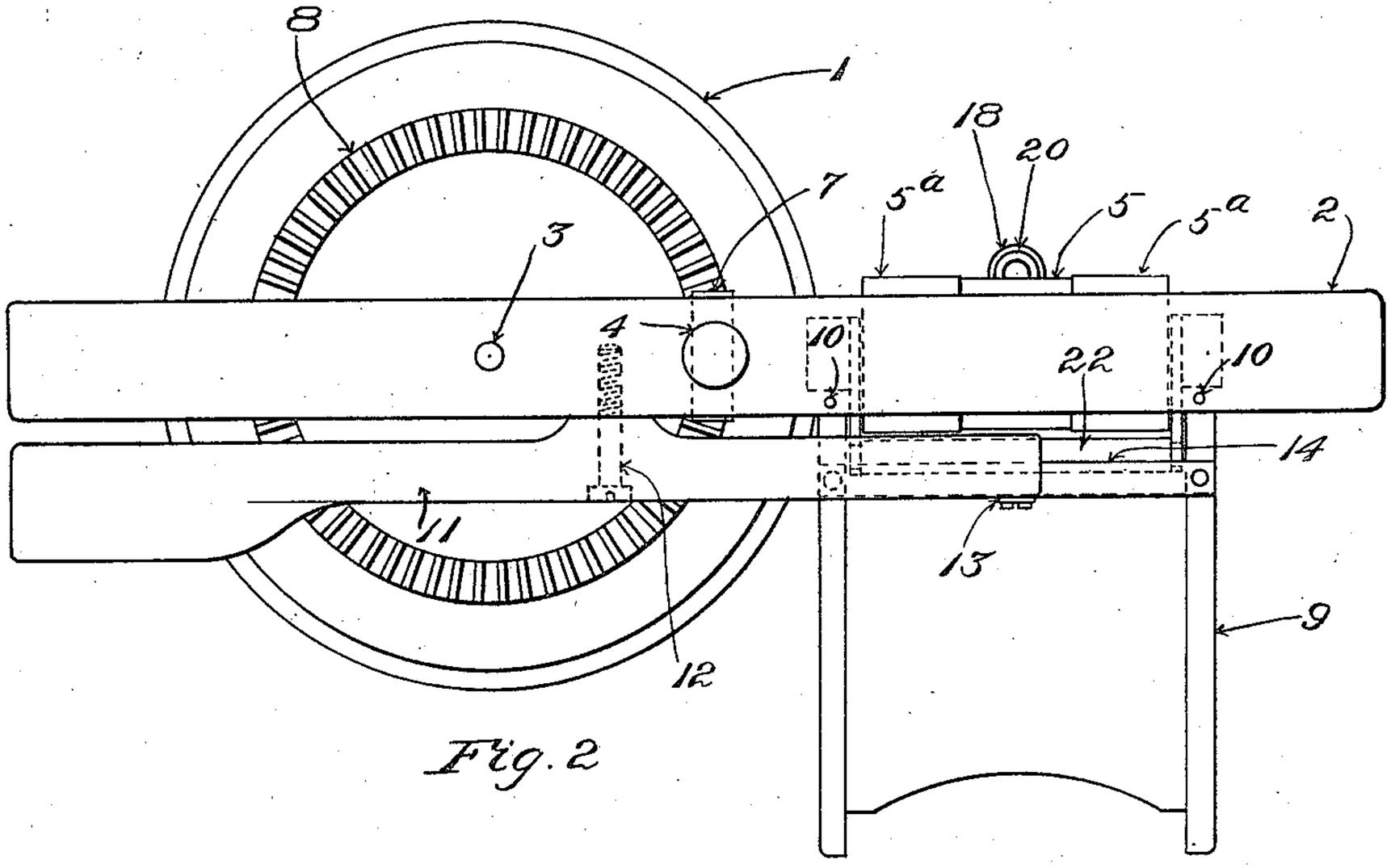

Fig. 2

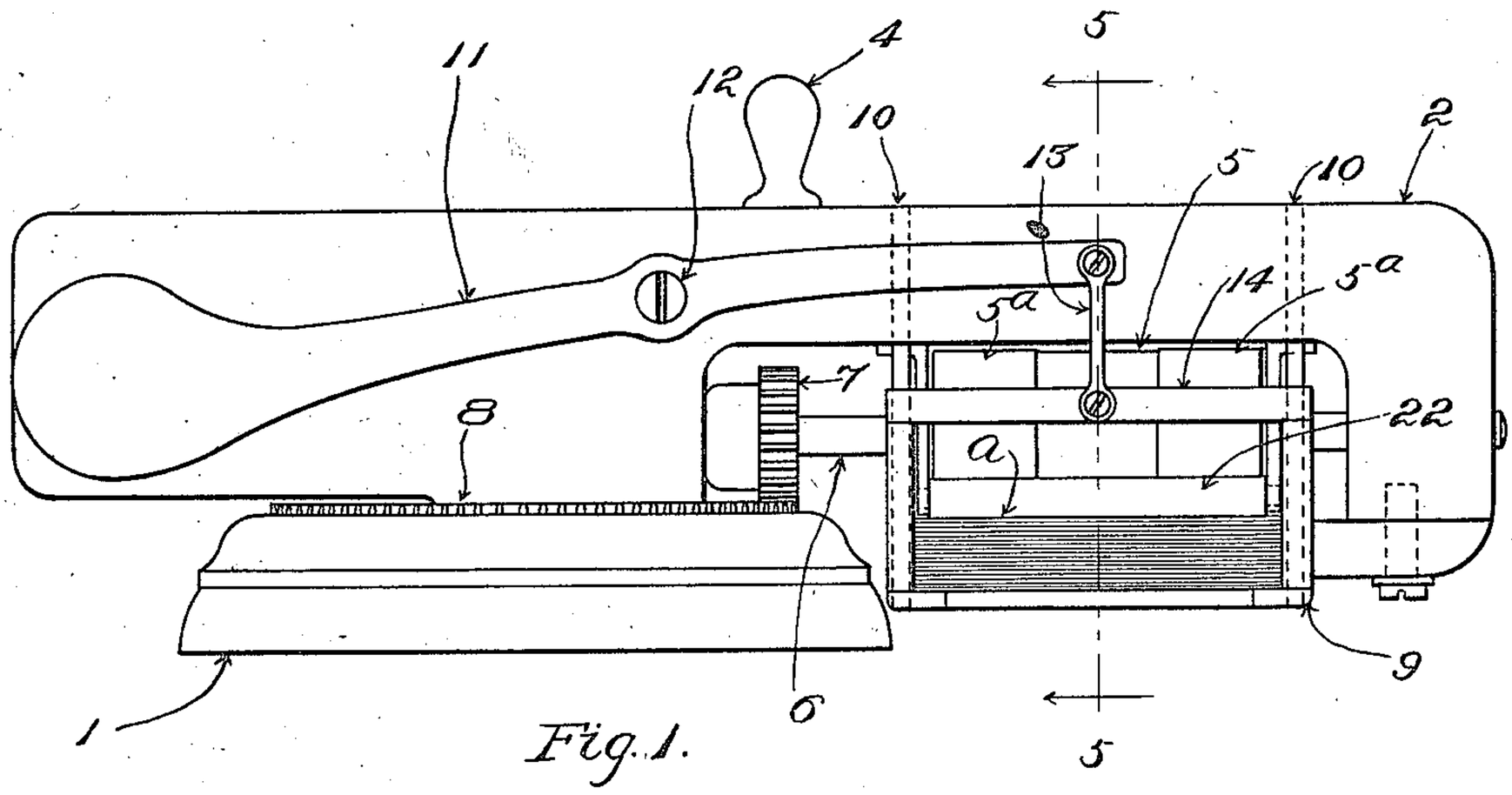

Fig. 1.

Witnesses:
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Edith J. Anderson.

Inventor:
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2 SHEETS—SHEET 2.

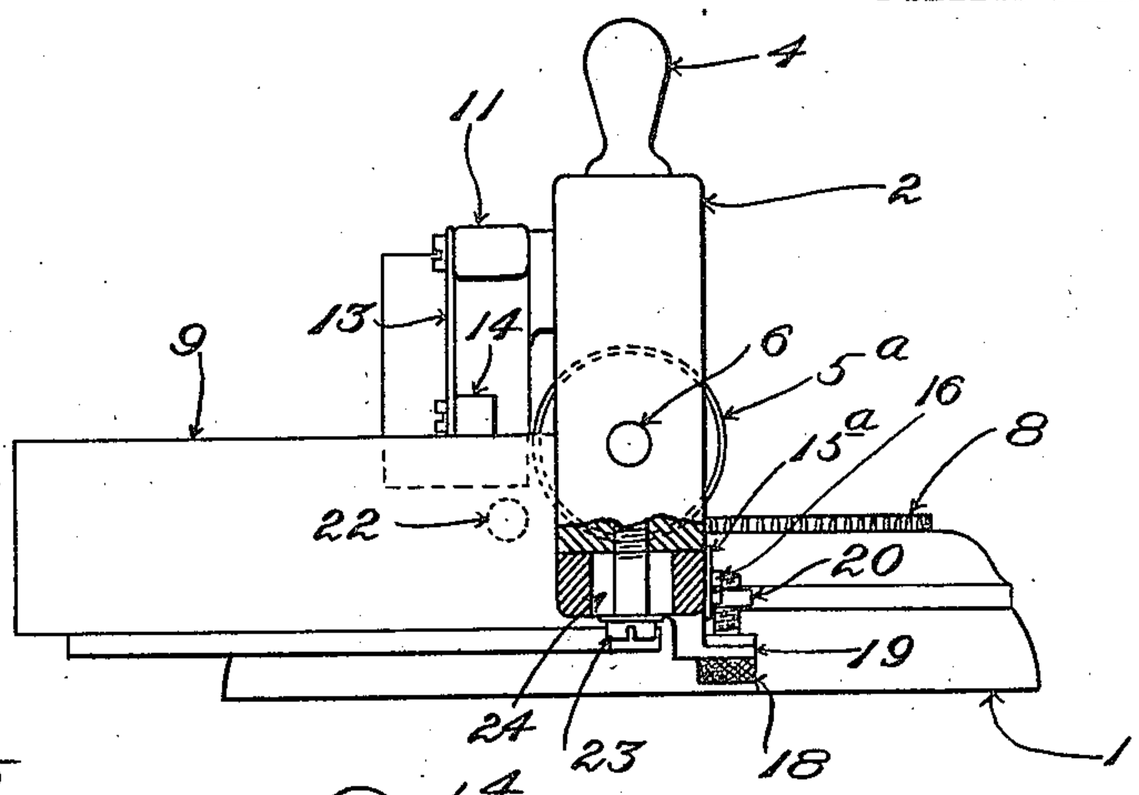

Fig. 4.

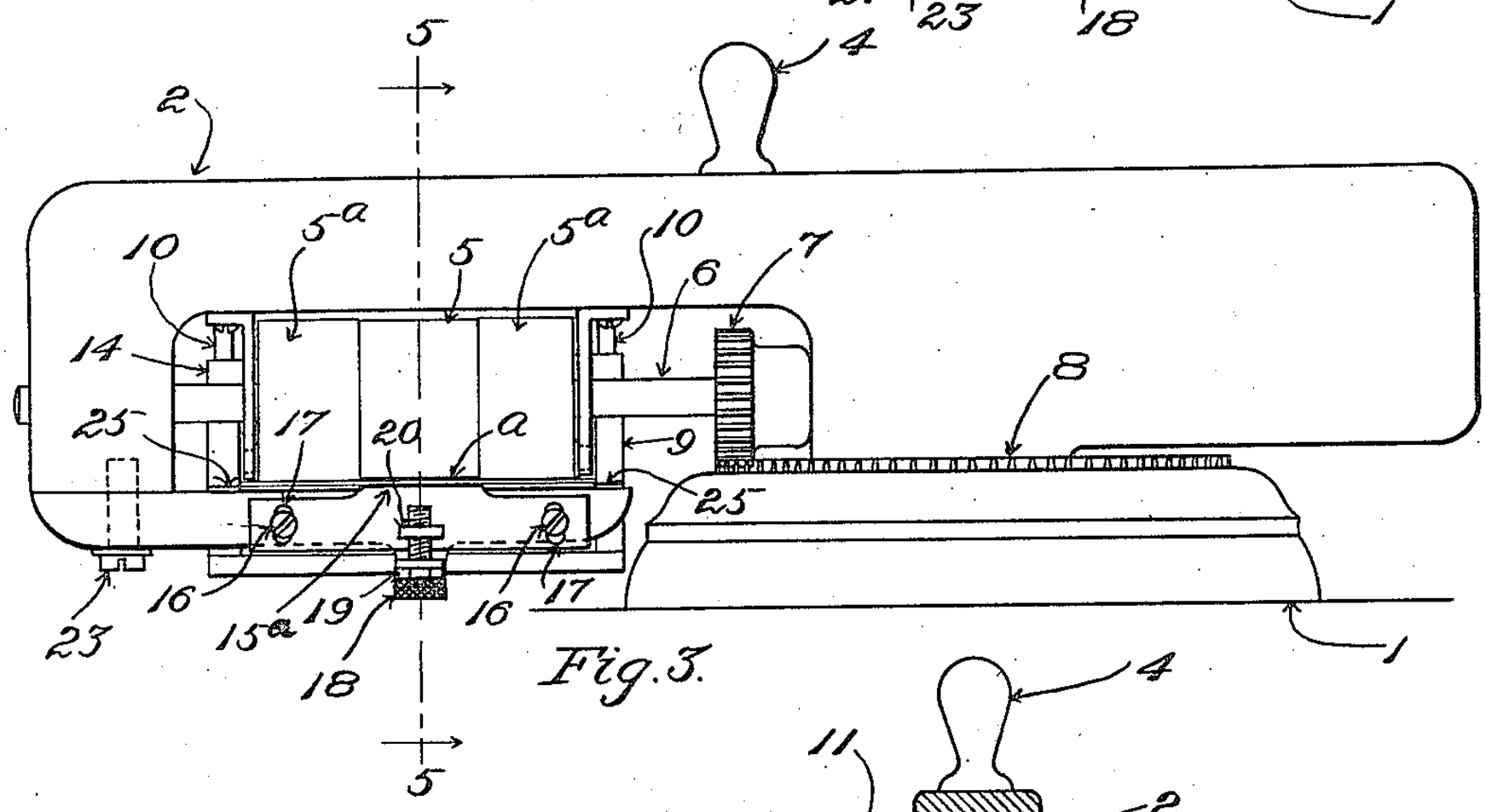

Fig. 3.

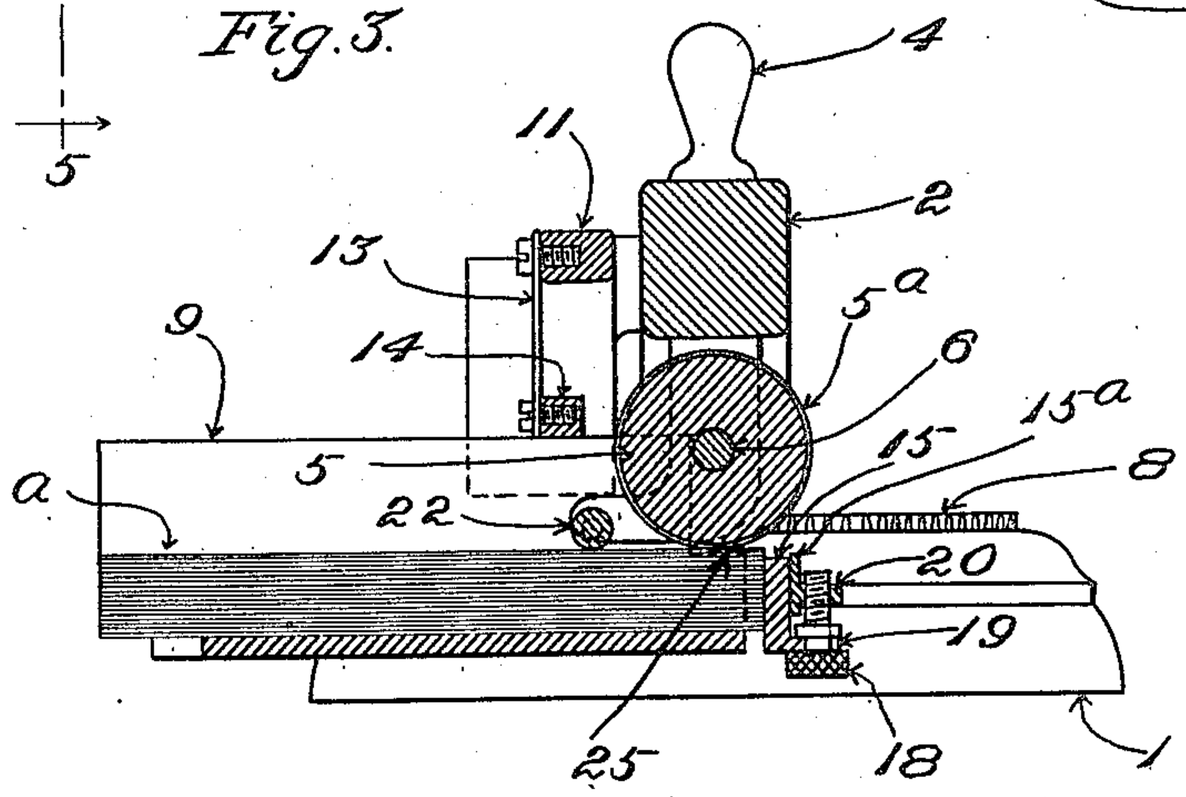

Fig. 5.

Witnesses:
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UNITED STATES PATENT OFFICE.

BURTON L. BAKER, OF EAST BRAINTREE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO GEORGE MURCH, OF OBSERVATORY ROAD, NEAR CAPETOWN, CAPE COLONY.

MACHINE FOR DEALING PLAYING-CARDS.

999,428. Specification of Letters Patent. Patented Aug. 1, 1911.

Application filed March 27, 1907. Serial No. 364,750.

To all whom it may concern:

Be it known that I, BURTON L. BAKER, a citizen of the United States, residing at East Braintree, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Machines for Dealing Playing-Cards, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention is an improvement in rotary card-dealing machines of the type illustrated in the United States Letters Patent to George Murch, No. 842,803, dated January 29, 1907. In the case of the particular construction of machine which is shown and described in the patent referred to, the successive cards are advanced forwardly in the direction of rotation of the dealer-carrier in being fed or delivered from the pack. This may be characterized as a forward delivery.

My present invention consists in a rotary dealer having a rear feed or delivery; also, in uniform-pressure devices for holding the pack of cards in contact with the feeding-roll; and also in means for determining and adjusting the times of delivery of successive cards.

Embodiments of the features of the invention are illustrated in the drawings, in which latter,—

Figure 1 shows in front elevation a machine embodying the invention. Fig. 2 is a plan thereof. Fig. 3 is an elevation from the rear in Fig. 1. Fig. 4 is an elevation of the right-hand end in Figs. 1 and 2 with a small portion broken away to show features of construction that otherwise would be hidden. Fig. 5 is a view in vertical section in the plane of the dotted line 5, 5, Fig. 1, looking in the direction indicated by the arrows at the ends of such line.

Having reference to the drawings,—at 1 is a base or supporting-stand. In practice this may be of any suitable form and proportions, and will be of sufficient weight to afford stability and to cause the machine to remain in place while being operated.

At 2 is shown the dealer-carrier. This is in the form of a bar or frame extending transversely with respect to the base or supporting-stand 1, the portion thereof to which the feeding devices proper are applied projecting outward beyond the said base or supporting-stand so that the cards in being discharged shall be clear or substantially clear of the base or supporting-stand.

The dealer-carrier 2 is mounted upon the base or supporting-stand 1 and turns around a vertical stud or pin 3, Fig. 2, as an axis.

At 4 is a handle rising from the dealer-carrier 2, for convenience in turning the dealer-carrier around.

The form, proportions, and actual construction of the dealer-carrier, and the means and manner of turning the same in operating the machine, are not material and may be varied in practice as found necessary or deemed desirable.

The feeder for delivering the cards from the dealer-carrier may vary more or less in character and mode of operation. Herein, I have shown, as in the Letters Patent aforesaid, a rotary frictional feeder consisting essentially of a delivery or feed-roll 5. The mode of supporting and actuating the rotary feeder may vary in practice. In this instance, the roll 5 is supported by means of a shaft 6, which latter is mounted in suitable bearings in the dealer-carrier 2. For the purpose of causing the roll 5 to be rotated as the dealer-carrier is turned around, the shaft 6 has fixed thereon a spur-pinion 7 meshing with a fixed or stationary rack 8 on the base or supporting-stand 1. As the dealer-carrier is turned around, the engagement of the teeth of the pinion 7 with those of the rack 8 causes the supporting-shaft 6 and the roll 5 to be rotated at the required relative rate of rotation. The gearing described is positive and non-slipping, and thereby the required ratio between the rotation of roll 5 and that of the dealer-carrier is insured. Various other mechanical arrangements for producing rotary motion of the roll 5 from the turning movement of the dealer-carrier will be obvious to the skilled mechanic and may be substituted in practice in the place of the pinion 7 and fixed stationary rack 8.

In the case of embodiments of some of the features of my invention, separately claimed herein, I do not limit myself to the employment of the same in connection with a feeder deriving its motion from the turning movement of the dealer-carrier.

At 9 is the card-holder, movable vertically

as in the patent aforesaid, and guided in its vertical movement by fixed pins 10, 10, secured to and projecting downward from the upper portion of the outward extension of the dealer-carrier 2, the sidewalls of the card-holder being formed with vertical holes to constitute bearings which receive the said pins and fit the latter. The construction of the card-holder, and the manner of guiding the same in its vertical movements, are not of the gist of the invention, and may be varied as deemed practicable or desirable.

It has been proposed heretofore to employ springs for the purpose of pressing the card-holder toward the feed or delivery-roller so as to produce the desired frictional contact between the surface of the said roller and the surfaces of the successive cards to be dealt. It is of course requisite that each card in succession, as it is presented to the action of the roller on the discharge of the preceding card, should be engaged efficiently by the roller to insure its own delivery. Ordinary arrangements of springs, however, have the drawback that they act with varying degrees of tension, namely, greatest when a full pack of cards is in place in the card-holder, and decreasing as the number of cards remaining in the holder is lessened, so that the last card or two are pressed against the roller with a considerably reduced force. It is therefore difficult to combine and adjust the parts to insure perfect delivery. I provide constant-pressure devices for producing the pressure between the cards and the feed or delivery-roller whereby uniform or substantially uniform pressure is maintained, regardless of the number of cards contained in the card-holder. Preferably I employ a weight operatively combined with the parts, inasmuch as the action of gravity may easily be rendered substantially uniform until the last card of a pack of a given thickness has been dealt. In the drawings I have shown at 11 a lever which is pivoted at 12 to the dealer-carrier 2, upon one side of the latter, so that it is capable of swinging in a vertical plane, and one arm of the said lever is connected by means of a link 13 to a cross-bar 14 on the card-holder 9. The opposite arm of the said lever 11 is weighted, as by being enlarged as shown clearly in Figs. 1 and 2, or it might be by attaching a separate weight or weights to the said arm. The weight of the weighted arm of the lever preponderates over that of the other arm and the connected card-holder and a pack of cards within the said card-holder, to the extent which is necessary in order to hold the cards pressed against the surface of the feed or delivery-roller 5 with the required degree of force. The said weight projects to the side of the vertical axis of the dealer-carrier opposite that at which the card-holder, feeder, etc., are located, and serves as a means of counterbalancing the dealer-carrier.

As will be perceived, the construction and arrangement of the parts are such that as the dealer-carrier is turned around, the feed or delivery-roller 5 by its engagement with the upper surface of the top card in the card-holder will move or feed such card in the direction opposite that in which the dealer-carrier itself is moving, and thus deliver the card rearwardly so that the card will drop behind the dealer-carrier as the latter travels around. The cards will therefore drop quietly into place upon the table upon which they are being dealt, and will neither tend to flirt upward or be overturned by the resistance of the air. The rearward delivery causes or allows a card to fall directly onto the surface of the table so that exposure of its face to view as it falls does not occur. In addition, each card falls flat upon other cards lying upon the table without liability to become overturned by its own edges engaging with or passing under those of the said cards. At 15 is a stop with which the dealer-carrier is provided, extending across the rear end of the card-holder, and against which the rear edges of the cards are caused to press when inserting them into the card-holder.

For the purpose of preventing more than one card at a time from being fed or delivered I provide a gage in connection with the feed or delivery-roller. Such a gage is shown at 15^a in Figs. 3, 4, and 5, it comprising a strip or bar which is attached to the stop 15. The top of the gage is the acting portion thereof. Such portion is located in position just below the path of movement of the card a which is in contact with the feed or delivery-roller and being fed or delivered thereby. It will prevent the passage of a second card in case the frictional adhesion between the surfaces of the cards should tend to carry the second card along with the first. To enable the gage to be set with precision to suit the thickness of the cards it is made vertically adjustable. In the present instance it is held to the stop 15 by means of two screws 16, 16, the stems of which pass through vertically elongated slots 17, 17, which are made in the body of the gage. These slots enable the gage to be moved up or down in effecting the adjustment thereof. For convenience in making the vertical adjustment, an adjusting-screw is shown at 18, applied to a lug 19 upon the stop 15. The threaded stem of the said adjusting-screw works in a threaded hole that is tapped in a lug 20 projecting from the gage 15^a. To secure the gage in the position which has been given to it, the screws 16, 16, may, if desired, be tightened

after the adjustment has been effected so as to clamp the gage in place.

To secure proper frictional engagement between the feed or delivery-roller and the cards which are to be fed, the said roller usually is furnished with a surfacing of rubber or its equivalent. Rubber, however, is more or less yielding, and the pressure of the cards against the rubber surfacing of the roller tends to compress such surfacing more or less, which in some cases may render the action of the gage uncertain. Herein I show the roller 5 formed with an unyielding peripheral portion and the gage 15ª arranged to co-act with the said unyielding portion. Thus, as shown in the drawings, the end-portions of the length of the roller are furnished with sleeves or jackets 5ª, 5ª, of rubber, but the middle portion of the length of the roller is formed of hard and unyielding material, which may be the material of the body of the roller itself. As shown in Fig. 3 the acting portion of the gage 15ª is a little less in length than the unyielding middle portion of the roller 5 and is in line with the said portion in the direction of the feed.

At 22 is a hold-down roll which may be employed adjacent the feed or delivery-roll 5 to prevent the cards from bulging or springing upward near the said roll. If owing to the compression of the leading end of the pack against the feed or delivery-roller 5, the rear ends of the cards should have a tendency to rise, and if this tendency were not overcome the top card in being fed would be guided in a somewhat downwardly inclined direction, and be carried against the gage below the edge of the latter and thereby detained so as to prevent or interfere with the feeding operation. The hold-down roll acts to keep the cards level at and adjacent the feed or delivery-roller so that as the top card is fed it moves horizontally and its leading edge passes over and clears the gage.

To enable the machine to be adapted to cards of different lengths, and also to enable the time of delivery to be regulated so that the deliveries shall take place at the predetermined points in the circuit of the machine, and also so that in successive rounds or circuits the cards shall always be delivered at the same places without appreciable gain or loss in time of delivery, the stop 15 is made adjustable in the direction of the feed. The said stop is secured to the outer end of the dealer-carrier by means of a screw 23, and for the purpose of the adjustment referred to the portion of the stop which is engaged by the said screw is formed with a slot 24 to receive the stem of the screw. This slot extends in the direction of the feed and enables the stop, and of course the gage which is carried thereby, to be set at the required distance from the line on which the feed or delivery-roller makes contact with the upper surface of the top card. Adjustment of the stop forward or rearward provides for delivery of the cards at the predetermined places in each round of the dealer-carrier. The vertical adjustment of the gage provides, in addition, for regulating the times of delivery. Differences in the delivery result from differences in the character and finish of the cards, and in the extent to which they have been used. Thus, for different reasons, some cards tend to deliver more quickly than others of the same length. By the contact of the top of the gage with the under surface of a card which is being delivered, the gage acts in a manner to check or retard, or otherwise control, the rate of delivery. Hence, by vertical adjustment of the gage, I am enabled to compensate for differences in the cards themselves, and can regulate to a considerable nicety the points of delivery of the successive cards, so that all those cards which are intended to be deposited at the same place shall fall at substantially one point in successive rounds made by the machine.

For the purpose of preventing the bottom of the card-holder from being carried into contact with the surface of the delivery- or feed-roll after the last card has been delivered, the card-holder is formed or provided with stops herein constituted by the shoulders at 25, 25, which in the rise of the card-holder make contact with the under side of the shaft of the delivery or feed-roll after the delivery of the last card, and arrest the card-holder with the portions of its bottom which is nearest to the periphery of the delivery or feed-roll just out of contact with the said periphery. Thereby wear of the periphery of the delivery or feed-roll in consequence of being rotated in contact with the bottom surface of the card-holder is prevented.

What I claim is:—

1. In a machine for dealing playing-cards, a rotary dealer-carrier combined with card-feeding devices having a rear delivery.

2. In a machine for dealing playing-cards, in combination, a rotary dealer-carrier, a card-holder, and a feeding-device delivering rearwardly.

3. In a machine for dealing playing-cards, in combination, a rotary dealer-carrier, a card-holder, and a feed-roller delivering rearwardly.

4. In a machine for dealing playing-cards, in combination, a dealer-carrier, a card-holder, a frictional feeder, and a stop for the leading ends of the cards adjustable to regulate the time of delivery of the respective cards.

5. In a machine for dealing playing-cards, in combination, a rotary dealer-carrier, a card-holder, a frictional feeder, and

a stop for engagement with the leading edges of the cards, adjustable to vary the times of delivery of the successive cards.

6. In a machine for dealing playing-cards, a rotary dealer-carrier, combined with rear-delivery card-feeding devices actuated by the rotation of said dealer-carrier.

7. In a machine for delivering playing cards, a rotary dealer-carrier, combined with a rear-delivery feed-roller actuated by the rotation of said dealer-carrier.

8. In a machine for dealing playing-cards, in combination, a rotary dealer-carrier, a card-holder, a card-feeder, and a stop or gage for the ends of the cards adjustable forward or rearward to regulate the time of delivery of the respective cards.

9. In a machine for dealing cards, in combination, a traveling dealer-carrier, a rear-delivery feeder acting to deliver cards successively in the traveling movement of the dealer-carrier, and a stop for positioning the rear ends of the cards to be delivered.

10. In a machine for dealing playing-cards, in combination, a rotary dealer-carrier, a card-holder, a card-feeder, and a delivery-gage adjustable forward or rearward and also vertically to regulate the time of the delivery of the respective cards.

11. In a machine for dealing cards, in combination, a dealer-carrier which turns for the purpose of delivering at different places, a feeding-device delivering a plurality of cards in each complete round made by the dealer-carrier, and means for varying the interval between successive deliveries in the round.

12. In a machine for dealing cards, in combination, a dealer-carrier which turns for the purpose of delivering at different places, a feeding-device delivering a plurality of cards in each round made by the dealer-carrier, and adjustable means engaging with the cards by which the times of delivery of the successive cards may be regulated.

13. In a machine for dealing cards, in combination, a dealer-carrier which turns for the purpose of delivering at different places, a frictional feeding-device delivering a plurality of cards in each round made by the dealer-carrier, and an adjustable gage by which the delivery of a card is regulated.

14. In a machine for dealing cards, in combination, a dealer-carrier which turns for the purpose of delivering at different places, a frictional feeding-device delivering a plurality of cards in each round made by the dealer-carrier, and an adjustable retarding device for regulating the delivery of a card.

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

BURTON L. BAKER.

Witnesses:
CHAS. F. RANDALL,
EDITH J. ANDERSON.