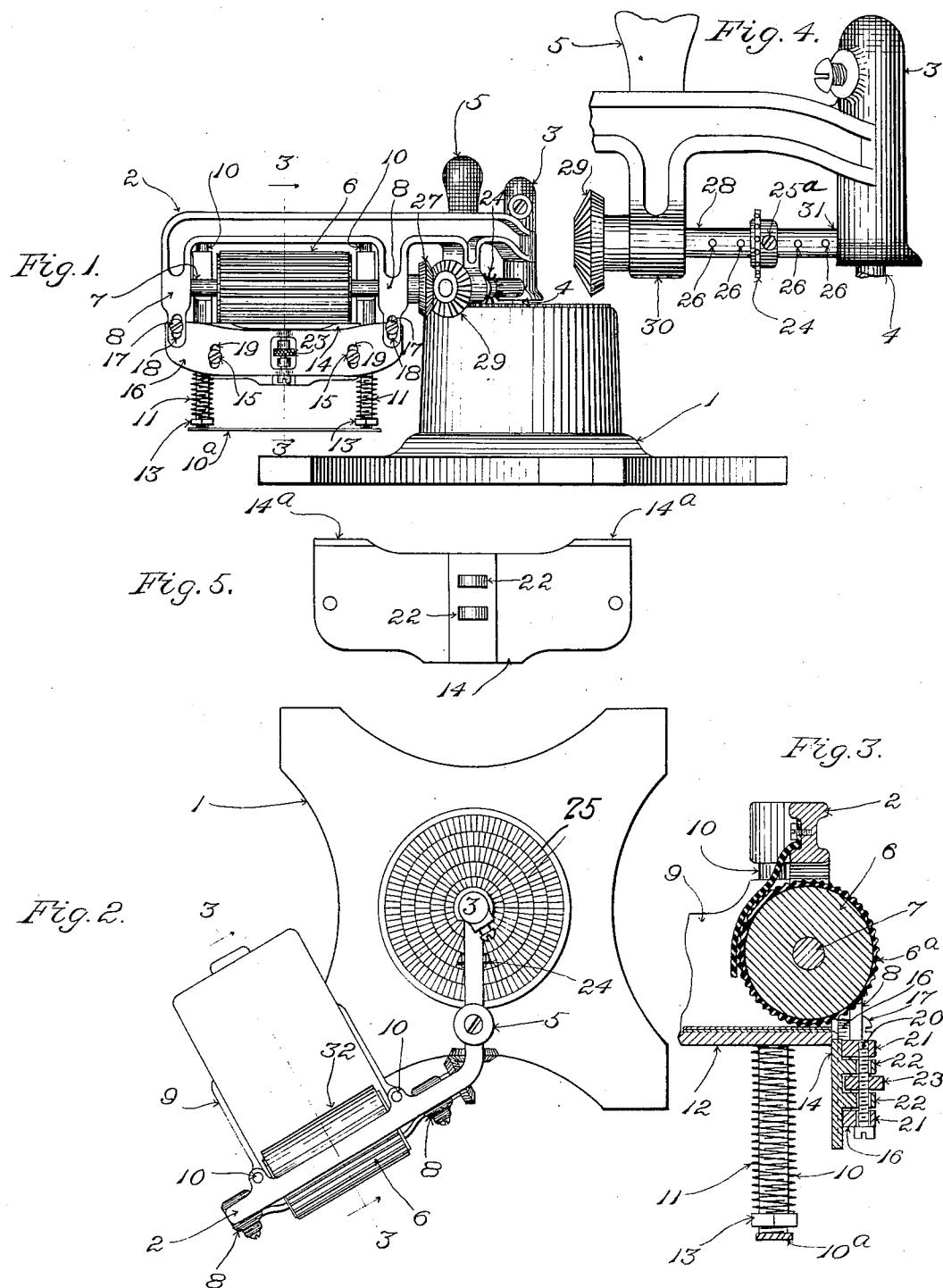


G. MURCH.
MACHINE FOR DEALING PLAYING CARDS.
APPLICATION FILED AUG. 28, 1908.

999,670.

Patented Aug. 1, 1911.



UNITED STATES PATENT OFFICE.

GEORGE MURCH, OF CAPETOWN, CAPE COLONY.

MACHINE FOR DEALING PLAYING-CARDS.

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Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed August 28, 1908. Serial No. 450,632.

To all whom it may concern:

Be it known that I, GEORGE MURCH, a subject of Great Britain, residing at Cape-town, Cape Colony, have invented a certain 5 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 has relation to card dealing machines of the class exemplified by that of United States Letters Patent No. 842,803, granted to me under date of January 29, 1907. The machine of the said patent is characterized by the employment of a rotary dealer-carrier, a card-holder or box carried thereby, and devices acting in the rotation of the said dealer-carrier to deliver cards at predetermined points in the said rotation. The particular delivering devices 20 which are shown and described in the patent just referred to include a dealer-roll which, by its engagement with the first card of the pack within the card-holder or box, operates to eject or discharge the cards successively 25 at the predetermined places in the rotation of the dealer-carrier.

The first object of the invention is to provide in simple manner for correcting any 30 tendency of a frictional dealer-roll to gain or lose in discharging the cards from the card-holder or box.

To this end, the first portion of the invention consists in means for varying at will the force with which the cards and delivery- 35 roll are pressed together, thereby regulating the frictional engagement between the said roll and each card to be dealt. Most conveniently, this is carried into effect by providing means to adjust the tension of the 40 springs which press the card-holder or box toward the delivery-roll. When the said roll loses in delivering the cards, so that each of the latter is discharged later than is desired, the said means may be operated to 45 cause the cards to be pressed with a properly- graduated increased force against the roll, which will secure greater promptness of delivery; when the roll gains, so that each card is discharged earlier than desired, the pressure 50 may be reduced, whereupon the delivery will be retarded. By a proper manipulation of the adjusting means, the times of delivery of the successive cards may be regulated with great nicety.

55 Card dealing machines such as aforesaid have been provided with a gage having for

one of the functions thereof to prevent more than one card from being fed at a time. Having investigated to ascertain the cause of frequent interruptions in the dealing, I 60 have discovered that these occur in large part as a result of the engagement of the gage with a battered and thickened portion of the leading end of a card, or with the depressed portion of a card which has become 65 bent transversely. Cards that have been used some time often become battered and bruised at the edges thereof so as to thicken the latter, and card players often squeeze a pack of cards transversely while holding 70 the same and thereby bow or bend the cards, giving a more or less permanent set thereto. Various attempts have been made to remedy these interruptions of the feeding but without success heretofore.

I have disposed of the difficulty and obviated the tendency to such interruptions by the second portion of my invention, which consists in a gaging device having acting portions arranged to engage solely with 75 portions of the ends of the cards at or close to the side-edges of the latter, and having intermediate such acting portions a depression which accommodates any battered and thickened intermediate portions of the end 80 of the top card, and any downwardly bent or bowed portion of such end, thus permitting the top card to be advanced without hindrance from the gage.

The invention also has relation to means 90 for keeping a rotary dealer-roll in working condition. Much difficulty has been experienced in practice in the use of card-dealing machines, owing to variability in the delivering action. A given machine at times 95 delivers cards of one pack with a spacing different from that with which it delivers the cards of another pack, and sometimes varies, as regards spacing, in delivering the cards of the same pack at different times. 100 I have discovered that this is largely due to the surface of the dealer-roll becoming charged with dust, grease, or the substance with which cards are coated. When the roll has gathered dust, etc., its frictional 105 hold upon the card which is in contact therewith is reduced and its action in feeding such card is altered, and hence the successive cards are not fed or discharged accurately and uniformly. This portion of 110 my invention comprises means for obviating this drawback, and consists in a wiper for

the dealer-roll by which its surface is kept in proper condition for action, whereby accurate delivery is secured.

5 A machine containing embodiments of the features of the invention is shown in the drawings, in which—

Figure 1 is a view of such machine in side elevation. Fig. 2 is a view thereof in plan. Fig. 3 is a view in vertical section on line 10 3, 3, of Figs. 1 and 2. Fig. 4 is a detail view in side elevation on an enlarged scale. Fig. 5 is a view of the gage, detached, also on an enlarged scale.

Having reference to the drawings,—at 15 1 is the stationary base or stand of the machine, and 2 is the revoluble dealer-carrier, the latter having the socket bearing 3 fitting upon the upright supporting-pin 4 projecting from the top of the central post of 20 the said base or stand.

At 5 is the handle upon the dealer-carrier which is grasped for the purpose of manually turning the dealer-carrier around upon the said supporting-pin.

25 At 6 is the dealer-roll which is mounted upon the dealer-carrier, its supporting-shaft, which is marked 7, being fitted to bearings which are provided at 8, 8, in connection with the dealer-carrier.

30 The card-holder or box is designated 9, the guide-rods on which it is mounted to slide vertically toward and from the dealer-roll being shown at 10, 10, and 11, 11, are the springs which act upon the card-holder or 35 box to press the bottom 12 thereof, and the cards resting thereon, toward the periphery of the dealer-roll. The said springs encircle the lower portions of the guide-rods, and act expansively upward against the bottom 40 12 and bear the card-holder or box toward the dealer-roll.

45 At 14 is the gage by which the dealing of more than one card at a time by the dealer-roll is prevented, it being held by screws 15, 15, to a supporting-bar 16 that in turn is attached by screws 17, 17, to depending portions of the dealer-carrier. For convenience in setting the said bar 16, and setting and alining the gage, the holes 18, 18, that are 50 formed in the said depending portions to receive the stems of the screws 17, 17, are made in the form of vertically-elongated slots. To enable the gage to be adju:ted vertically upon the bar 16, the holes 19, 19, 55 that are formed in the latter to receive the stems of the screws 15, 15, are made in the form of vertically-elongated slots, and a screw 20 is applied to lugs 21, 21, projecting from the bar, the said screw being passed 60 through holes in a pair of lugs 22, 22, projecting from the gage, and a nut 23 being threaded upon the said screw between the latter lugs. By turning this nut manually 65 it is shifted up or down upon the fixed

nut with the lugs 22, 22, the gage is correspondingly raised or lowered.

As here shown, though not necessarily in all embodiments of the invention, the dealer-roll derives its movement of rotation from the turning movement of the dealer-carrier, through the engagement of a pinion 24, which is operatively connected to the dealer-roll, with circularly-disposed stationary teeth at 25 Fig. 2 upon the top of the post of 70 the base or stand, the said stationary teeth being arranged concentrically with relation to the axis of the supporting-pin 4. To enable the number of deliveries made in a round to be varied at will, a plurality of 80 concentric series or racks of the teeth 25 is provided, as shown in Fig. 2, the different series or racks containing different numbers of teeth, and pinion 24 is adapted to be shifted from one of such series or racks to 85 another. In Fig. 4 the said pinion is shown fixed in place upon its carrying shaft by means of a screw 25^a, and screw-threaded holes are tapped in the shaft at 26, 26, etc., at the places to be occupied by the pinion 90 when in engagement with the respective series or racks. To permit the pinion 24 to be shifted from one circular series of teeth, or rack, to another, and adapt the teeth of the pinion for engagement at different times 95 with teeth described on pitch-circles of different diameters, the said pinion, instead of being a bevel gear of customary shape is of modified construction to suit such requirements. Its teeth are made much narrower 100 than usual, for instance, in the shape of pins as in Fig. 4.

In order to enable the force with which the cards and delivery-roll are pressed together to be varied at will, so as to regulate 105 the frictional engagement between the said roll and the cards to be dealt, for the purpose of compensating for tendency of the dealer-roll to gain or lose in dealing the cards, I screw-thread the lower portions of 110 the guide-rods 10, 10, as indicated in Figs. 1 and 2, and apply to the same the nuts 13, 13, against which the lower ends of the springs 11, 11, take their bearing. By turning the nuts up on the guide-rods so as thereby to increase the tension of the springs and the degree of pressure, a tendency of the dealer-roll to lose in dealing may be corrected, while tendency to gain may be corrected by turning them down so as to decrease the said 115 tension and the degree of pressure. To prevent the guide-rods from becoming bent or sprung out of parallelism with each other, their lower ends have combined therewith the cross-bar 10^a.

In Fig. 2, the arm of the dealer-carrier is bent so that the outer portion thereof inclines forward in the direction in which the dealer-carrier turns. In consequence, the axis of the dealer-roll is correspondingly 130

inclined with respect to the radius. The machine shown is arranged to deliver rearwardly, and therefore, as a result of such inclination of the said axis the card is extended at an outward inclination rearwardly in being fed by the dealer-roll. A rear delivery machine having the axis of the dealer-roll forwardly inclined, as shown in Fig. 2, will distribute the cards farther from the center than one having the axis of the dealer-roll radial or parallel with a radius. By varying the inclination, the action in delivering may be varied to meet requirements. Thus, by reversing the inclination, so that the card shall be directed inward in being delivered, the card may be dropped closer to the center, and other advantageous results may be attained by arranging the dealer-roll to stand at right angles to a radius.

In the present instance the driving arrangements for the dealer-roll have been adapted to the inclined position of the latter by providing the shaft 7 of such roll with a bevel-gear 27, and mounting the pinion 24 upon a short secondary shaft 28 carrying a bevel-gear meshing with bevel-gear 27. The said secondary shaft is mounted in bearings at 30 and 31 upon the arm of the dealer-carrier, and its socket 3, respectively.

In the separate detail view of the gaging device 14 shown in Fig. 5, the said device is represented as a strip having acting portions 14^a, 14^a, the said acting portions being, as heretofore stated, separated from each other and so located as to engage with the ends of the cards of the pack contained in the holder or box only close to their side-edges. The space or depression intervening between such acting portions accommodates any enlargement or bend at or near the middle of the width of the top card, and hence the improved form of gage permits the card to be advanced without being obstructed.

The dealer-roll 6 is provided with a rubber covering 6^a. I secure the greatest power in taking hold of a card and feeding the same from the machine through the employment of a rubber covering which has the acting surface thereof formed with alternate elevations and depressions, as, for instance, one having the surface thereof corrugated, as shown in the drawings. The wiper by which the acting surface of the dealer-roll is kept in working condition is shown at 32. It consists of a strip of sheet-rubber, attached by one edge to the arm of the dealer-carrier, and hanging down upon the descending side of the dealer-roll. The construction and arrangement of the wiper

may be varied. The wiper takes from the periphery of the dealer-roll such particles of dust, lint, and the like, as become adherent thereto, and also removes grease and coating material transferred from the surfaces of the cards to such periphery. The cleaning action is greatly facilitated by forming the acting surface of the roll with corrugations, etc.

I claim as my invention:—

1. In a card-dealing machine, in combination, a frictional dealer-roll, a card-holder, means acting to produce pressure between such roll and the top card, and means for regulating the time of delivery of the respective cards by adjusting the frictional engagement of the roll with the said top card.

2. In a card-dealing machine, in combination, a frictional dealer-roll, a card-holder, a spring by which the said card-holder and roll are pressed toward each other, and means for regulating the time of delivery of the respective cards by adjusting the tension of the said spring so as to vary the frictional engagement of the roll with the card presented thereto by the card-holder.

3. In a card-dealing machine, in combination, card-delivering means, and a delivery-gage having separated acting portions with intermediate space, said acting portions arranged to engage with the end of a card at or near the side-edges of the latter.

4. In a card-dealing machine, in combination, a card-dealing roll, and a delivery-gage having separated acting portions with intermediate space, said acting portions arranged to engage with the end of a card at or near the side-edges of the latter.

5. In a card-dealing machine, in combination, a card-holder, a dealer-roll having a frictional surface for engagement with the surface of a card to be fed, and a wiper acting to keep the said surface of the dealer-roll frictionally active.

6. In a card-dealing machine, in combination, a card-holder, a rubber-surfaced dealer-roll, and a wiper acting to keep the surface of said roll frictionally active.

7. In a card-dealing machine, in combination, a card-holder, a dealer-roll having a corrugated rubber acting surface, and a wiper acting upon such surface to keep the same frictionally active.

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

GEORGE MURCH.

Witnesses:

CHAS. F. RANDALL,
EDITH J. ANDERSON.