No. 831,851. PATENTED SEPT. 25, 1906.

C. F. FRAIN.

CARD SERVING MACHINE.

APPLICATION FILED APR. 21, 1904.

2 SHEETS—SHEET 1.

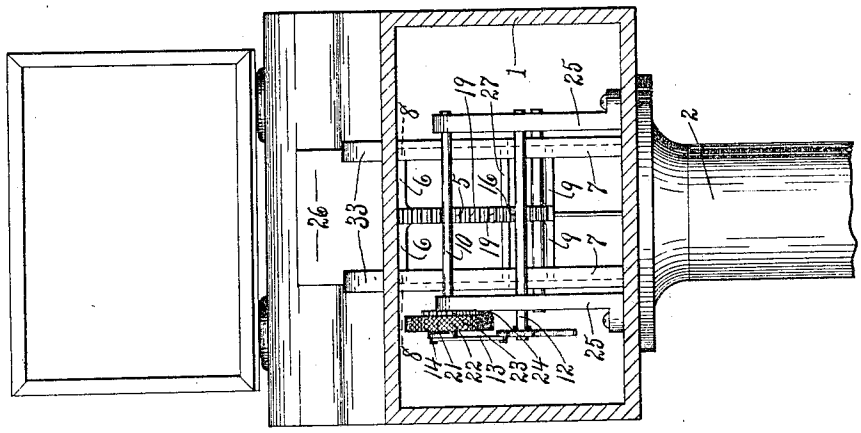


Fig. 2.

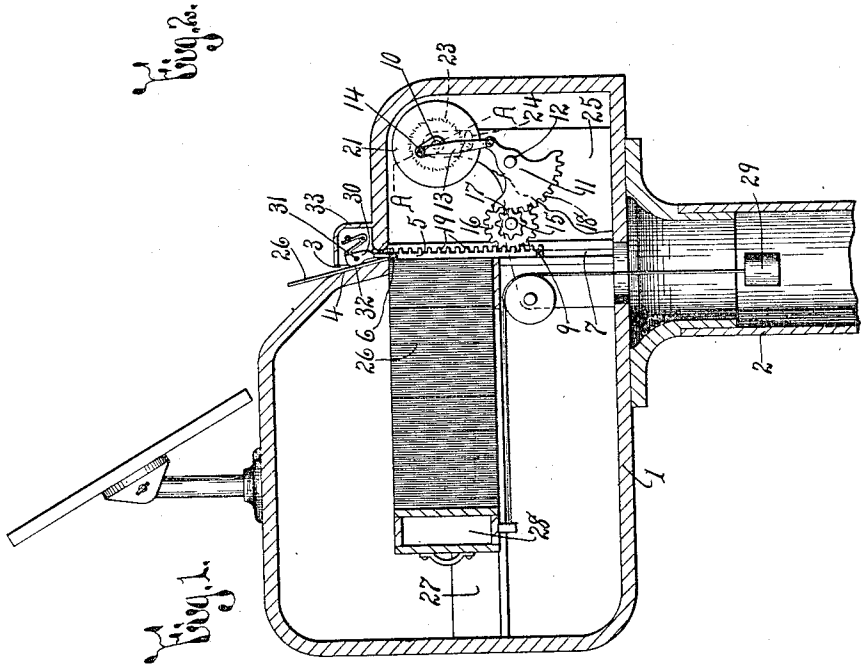


Fig. 1.

WITNESSES:

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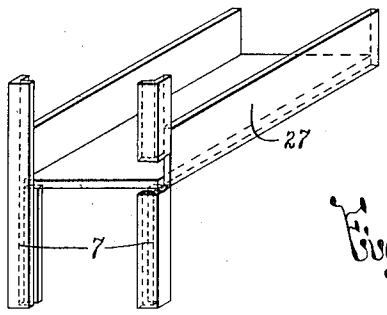


Fig. 3.

Fig. 4.

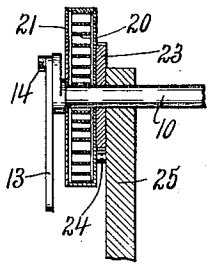


Fig. 5.

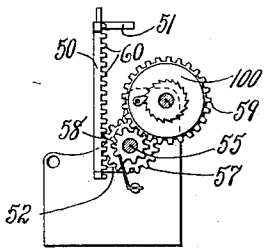
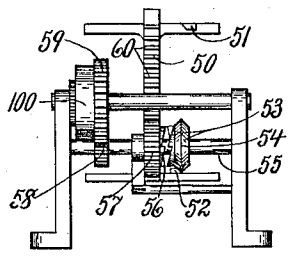


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES F. FRAIN, OF SYRACUSE, NEW YORK.

CARD-SERVING MACHINE.

No. 831,851. Specification of Letters Patent. Patented Sept. 25, 1906.

Application filed April 21, 1904. Serial No. 204,183.

To all whom it may concern:

Be it known that I, CHARLES F. FRAIN, of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Card-Serving Machine, of which the following is a specification.

My invention has for its object the production of a machine for delivering cards or other articles successively, and particularly a machine for serving the same one by one from within the case of the machine to a position in which said articles are visible or may be engaged on the outside of the case.

To this end the invention consists in the combinations, constructions, and arrangements of the component parts of the machine hereinafter set forth, and pointed out in the claims.

In describing the invention reference is had to the accompanying drawings, in which like characters designate corresponding parts in all the views.

Figure 1 is a vertical sectional view, partly in elevation, of one construction of my machine, the base of the pedestal being broken away. Fig. 2 is a front elevation of the portion of the machine seen in Fig. 1, the case being partly broken away. Fig. 3 is an isometric view, partly broken away, of the receptacle for the articles to be delivered and the guides for the feeding member. Fig. 4 is a sectional view taken on line A A, Fig. 1. Figs. 5 and 6 are respectively side and front elevations of a modified construction of the delivering mechanism.

This machine comprises generally a case, means for delivering the cards or other articles one by one and means for governing the operation of the former means.

The case 1, which may be of any desirable form, size, and construction, is here shown as supported on a hollow pedestal 2 and as formed with an exit-opening 3 for the articles to be delivered and with a support 4 on the outside of the case for receiving these articles one by one. Said case is provided with a suitable door (not illustrated) for permitting access to the interior thereof.

The means for delivering the cards or other articles one by one comprises a feeding member 5 for moving the same from within the case 1 through the exit-opening 3 to the support 4 on the outside of the case and actuating mechanism for the feeding member. As shown, the member 5 is reciprocated toward and from the exit-opening 3, is provided with arms 6 at one end thereof for engaging with their upper faces opposite portions of an edge of a card and forcing the same edgewise through the opening 3, and is movable along guides 7, having inner and outer walls which engage extensions 8 of the arms 6, and also the ends of arms 9, provided at the other end of said member 5, the upper portions of the inner walls of the guides 7 being cut away to permit the articles to be delivered to feed above the arms of the member 5.

The mechanism for actuating the reciprocating feeding member 5 consists of a rotary driving member 10 and connections between the member 10 and the feeding member, said connections including a rocking part 11, pivoted at 12, a pitman or link 13, connecting one end of the part 11 to an eccentric-pin 14, associated with the rotary member 10, and gears 15 16, mounted on a rotatable shaft 17, and meshed, respectively, with a segment 18, provided on the other end of said rocking part 11 and with a rack 19 on the feeding member 5. Said rotary driving member 10 is here shown as a revoluble shaft and is actuated by any suitable motor, here illustrated as a coiled spring 20, arranged within the barrel 21 and having one end secured to said shaft 10 and its other to the barrel. When the motor is expended, it is again tensioned by rotating the barrel 21, said barrel being provided with a knurled peripheral surface 22 for facilitating the winding of the spring and retrograde movement of the barrel being prevented by a ratchet-wheel and pawl 23 24. Said pivot 12 and shaft 10 are suitably supported by the frame members 25, disposed within the case.

The cards or other articles to be delivered (designated by the numeral 26) are supported in a guide or receptacle 27, provided within the case 1 in a plane disposed at substantially right angles to the path of movement of the feeding member 5 and are supplied to this member 5 by a follower 28, which is actuated by any desirable means, here shown as a weight 29, the advance movement of said articles toward the member 5 being limited by an upward extension of the feeding member 5 and by the upper portions of the opposing walls of the guides 7, so that said articles register successively with the exit-opening 3.

The means for governing the operation of

the delivering means limits the movement of the actuating mechanism for the member 5 during each operation or reciprocation thereof at approximately the point when the member 5 changes from movement in one direction to that in the reverse direction, said governing means being here shown as limiting the feeding member 5 just before this member reaches the limit of its upward movement and as consisting of a spring-pressed controlling member 30, which when in operative position engages the feeding member 5, and also the article previously delivered in position for removal from the machine, and is movable out of engagement with the feeding member 5 when said article is removed, so that the operation of the controlling member is dependent upon the removal of the article delivered by the machine.

The controlling member 30 is preferably pivoted at 31 intermediate of its length, and when in operative position one end thereof engages the upper edge of the upward extension of the feeding member 5 and the other end simultaneously engages the article 26 to be removed, said last-mentioned end being normally extended across the exit-opening 3 into the path of an article being delivered and being formed with a face 32, arranged substantially parallel to the support 4 when the member 30 is in operative position. Preferably two controlling members are employed for engaging opposite portions of the article being delivered and are disposed in the extensions 33 of the case 1. As a card or other article is being delivered by the member 5 the advance end of the card or article engages the face 32 and rocks backwardly the upper end of the controlling member 30 against the action of the spring for holding the member 30 in its inoperative position, this movement of the controlling member being sufficient to rock the lower end thereof into the path of the feeding member, which contacts with said lower end and is thereby prevented from reaching the limit of its upward movement until the card or article delivered thereby is removed from the machine. Upon the removal of the delivered article the controlling member 30 is forced by its spring to inoperative position, the feeding member 5 is released by the member 30 and ascends slightly, and is then moved downwardly to its initial position. As the feeding member reaches the limit of its downward movement a card or other article is fed above the arms 6 into engagement with the upward extension of the feeding member and the opposing walls of the guides 7, and immediately the member 5 commences its upward movement and delivers said card or other article, being again limited in its upward movement by the controlling member 30.

In Figs. 5 and 6 a modified construction of the means for delivering the cards or other articles is shown, in which a member 50 is moved in a direction to feed the cards by a rotary actuating member 100 and in the reverse direction by gravity or other means independently of the rotary member, said feeding member 50 being provided with tappet-arms 51 52, which respectively engage cam-faces 53, formed on opposite portions of a clutch-section 54, mounted on and revoluble with the spring-driven shaft 55 during the reciprocating movement of said feeding member 50 and move said section axially into and out of engagement with a clutch-face 56, formed on the gear-wheel 57, and thus connect and disconnect the gear 57 from the shaft 55. Said shaft 55 is connected to the rotary actuating member 100 by the gear-wheel 58 meshing with gear-teeth 59, formed on the rotary member 100, and said gear 57 meshes with a rack 60, formed on the feeding member 50. It is obvious that when the member 50 approaches the limit of its upward movement to deliver a card or other article the tappet-arm 52 contacts with one of the cam-faces 53 of the clutch-section 54, moving the same axially out of engagement with the clutch-face of the gear-wheel 57; but before said feeding member 50 has traveled a sufficient distance to engage said tappet-arm 52 and the clutch-section 54 the movement of the member 50 is limited by the controlling member coöperating with the member 50. When a card or other delivered article is removed, the feeding member 50 is free to continue its upward movement until the clutch-section 54 is moved out of engagement with the gear 57, whereupon the gear 57 is permitted to rotate freely on the shaft 55 as the feeding member meshing therewith moves downwardly by gravity or other agent independently of the actuating mechanism until the other tappet-arm 51 contacts with the other cam-face 53 of the clutch-section 54 and forces said clutch-section into engagement with the gear 57.

As illustrated, this machine is designed to automatically deliver in a store or shop cards or other articles which are arranged in the machine and consecutively characterized as by numbers and are removed from the machine by the patrons of the store or shop and designate the order of service of such patrons. These cards or other articles delivered by my machine may contain advertising matter in addition to consecutive characters or may contain advertising matter alone.

The construction and operation of my machine will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be noted that more or less change may be made in the component parts thereof without departing from the spirit of my invention.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a case, means for delivering a plurality of articles consecutively to a position for removal, and means for governing the operation of the delivering means, said governing means projecting into the path of the article when being delivered into such position, to be forced by said article into operative position, substantially as and for the purpose specified.

2. The combination of a case, a receptacle for the articles to be delivered disposed within the case, a feeding member for discharging the articles one by one from the receptacle to position for removal, and a controlling member for governing the operation of the feeding member, said controlling member when in operative position being engaged with the feeding member and with the article in position for removal, and being movable out of its operative position upon the removal of said article engaged thereby, substantially as and for the purpose specified.

3. The combination of a case, a receptacle for the articles to be delivered disposed within the case, a feeding member for discharging the articles one by one from the receptacle to position for removal, and a pivoted controlling member for governing the operation of the feeding member, said controlling member normally engaging the feeding member and being movable on its pivot out of its normal or operative position by the removal of the delivered article, substantially as and for the purpose set forth.

4. The combination of a case, a receptacle for the articles to be delivered disposed within the case, a feeding member for discharging the articles one by one from the receptacle to position for removal, and a pivoted controlling member for governing the operation of the feeding member, said controlling member when in operative position being engaged with the feeding member and with the article in position for removal, and being movable on its pivot out of operative position by the removal of said article engaged thereby, substantially as and for the purpose described.

5. The combination of means for delivering articles successively to a predetermined position, and means for governing the operation of the delivering means, said governing means having a part projecting into the path of the article approaching the predetermined position, substantially as and for the purpose described.

6. The combination of a support, means for delivering articles successively to the support, and means for governing the operation of the delivering means, said governing means being controlled by the article delivered to the support and having a part opposed to the support for engaging said article, substantially as and for the purpose specified.

7. The combination of a case formed with an exit-opening, a receptacle for the articles to be delivered disposed within the case, means for discharging the articles one by one from the receptacle through the exit-opening to a position on the outside of the case, and a controlling member for governing the operation of said means, said member projecting across the exit-opening and into the path of the article being discharged, substantially as and for the purpose set forth.

8. The combination of a case, a receptacle for the articles to be delivered, a reciprocating feeding member for discharging the articles one by one from the receptacle, and a controlling member for governing the operation of the feeding member, said controlling member being movable out of its operative position by the removal of the delivered article, substantially as and for the purpose described.

9. The combination of a case, a feeding member for delivering a plurality of articles successively to a predetermined position, said member being provided with means for limiting the movement of the articles supplied thereto, and means for governing the operation of the feeding member, said governing means being controlled by the article delivered to the predetermined position, substantially as and for the purpose specified.

10. The combination of a case, a feeding member for delivering a plurality of articles successively to a predetermined position, said member being movable in reverse directions to feed each article and to then return to its initial position, and means for governing the operation of the feeding member, said governing means operating to prevent the movement of the feeding member at approximately the point of its change from movement in one direction to that in the reverse direction, substantially as and for the purpose set forth.

11. The combination of a case, a feeding member for delivering a plurality of articles successively to a predetermined position, said member being movable in reverse directions to feed each article and to then return to its initial position, and means for governing the operation of the feeding member, said governing means operating to prevent the movement of the feeding member just before the feeding member reaches the limit of its movement for feeding the articles to the predetermined position, substantially as and for the purpose described.

12. The combination of a case, a receptacle for the articles to be delivered, a reciprocating feeding member for discharging the articles one by one from the receptacle, mechanism for actuating the feeding member, and a controlling member for governing

the operation of the feeding member, said controlling member limiting the movement of the feeding member during each reciprocation thereof at approximately the point of its change from movement in one direction to that in the reverse direction, substantially as and for the purpose specified.

13. The combination of a case, a receptacle for the articles to be delivered disposed within the case, a reciprocating feeding member for discharging the articles one by one from the receptacle to a position on the outside of the case, mechanism for actuating the feeding member including a rotary member connected to said feeding member, and means for governing the operation of the feeding member, said means limiting the movement of the feeding member during each reciprocation thereof at approximately the point of change from movement in one direction to that in the reverse direction, substantially as and for the purpose set forth.

14. The combination of a case, a receptacle for the articles to be delivered disposed within the case, a reciprocating feeding member for discharging the articles one by one from the receptacle to a position on the outside of the case, mechanism for actuating the feeding member including a rotary member connected to the feeding member, and making one revolution to each reciprocation of said member, and means for governing the operation of the feeding member, said means limiting the movement of the feeding member during each reciprocation thereof at approximately the point of change from movement in one direction to that in the reverse direction, substantially as and for the purpose described.

15. The combination of a case, a receptacle for the articles to be delivered disposed within the case, means for discharging the articles one by one from the receptacle to the outside of the case, said means including a rotary actuating member and a reciprocating part connected to the rotary member, and means for governing the operation of the former means, said last-mentioned means limiting the movement of the former means during each reciprocation of said part at approximately the point of change of said reciprocating part from movement in one direction to that in the reverse direction, substantially as and for the purpose specified.

16. The combination of a case, a receptacle for the articles to be delivered disposed within the case, means for discharging the articles one by one from the receptacle to the outside of the case, said means including a rocking part, and means for governing the operation of the discharging means, said governing means limiting the movement of the discharging means when said rocking part has reached approximately the limit of its movement in one direction, substantially as and for the purpose set forth.

17. The combination of a case, a receptacle for the articles to be delivered disposed within the case, a reciprocating feeding member for discharging the articles from the receptacle, actuating mechanism for the feeding member including a rotary member making a complete revolution to each reciprocation of the feeding member and a rocking power-transmitting part, and a controlling member for governing the operation of the feeding member, said controlling member being engaged with the article on the outside of the case and with the feeding member and limiting the movement of said feeding member on each reciprocation thereof at approximately the point of change of said feeding member from movement in one direction to that in the reverse direction, substantially as and for the purpose described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 16th day of April, 1904.

CHARLES F. FRAIN.

Witnesses:
D. LAVINE,
F. G. BODELL.