

Dec. 26, 1939.

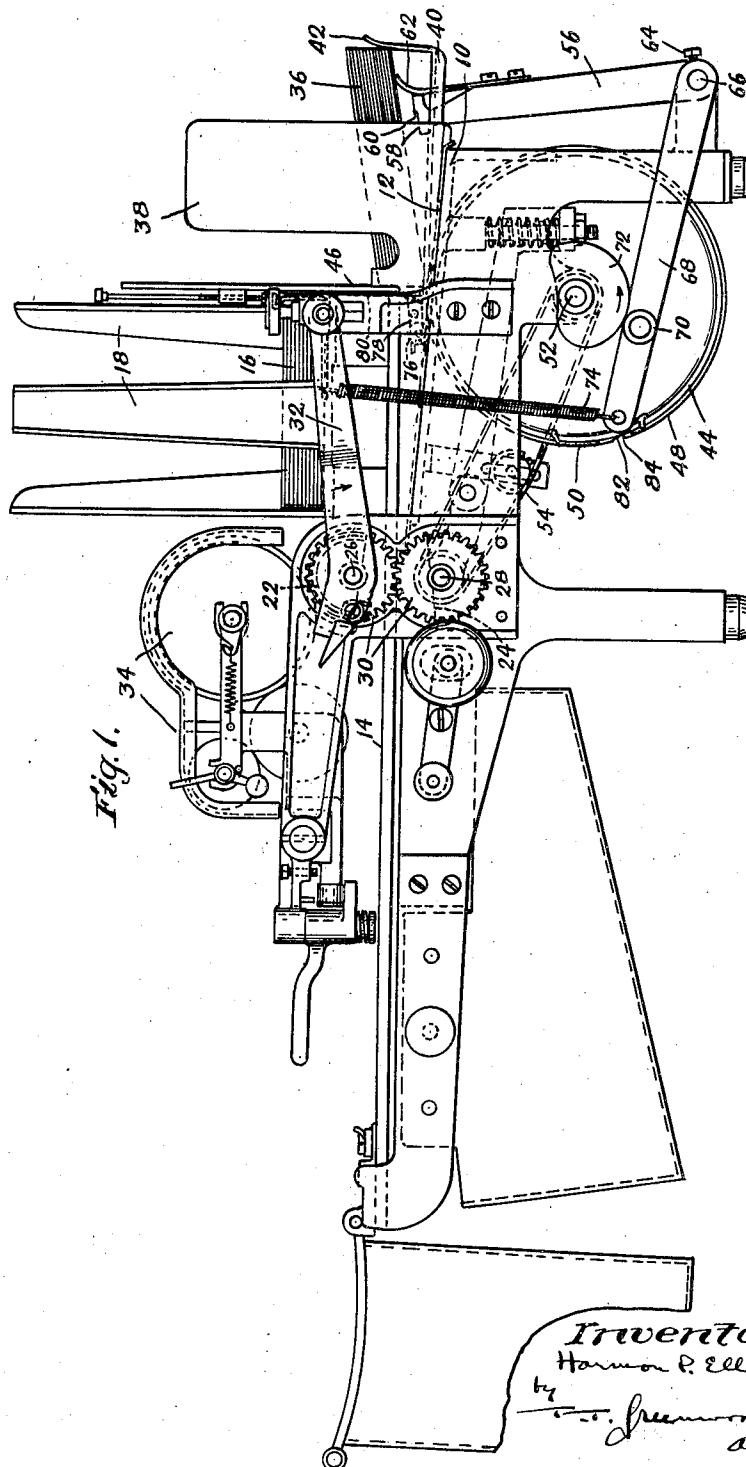
H. P. ELLIOTT

2,185,014

ADDRESSING MACHINE AND CARD FEEDING MECHANISM THEREFOR

Original Filed Aug. 26, 1937

2 Sheets-Sheet 1



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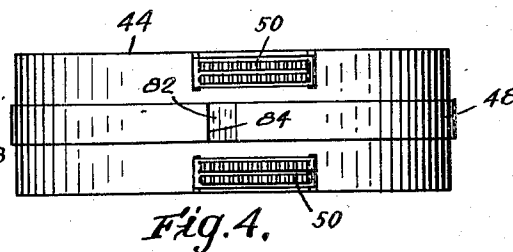
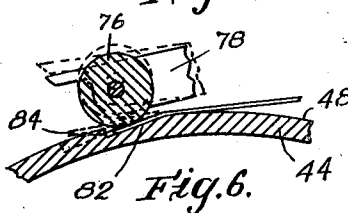
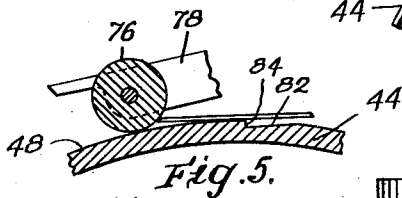
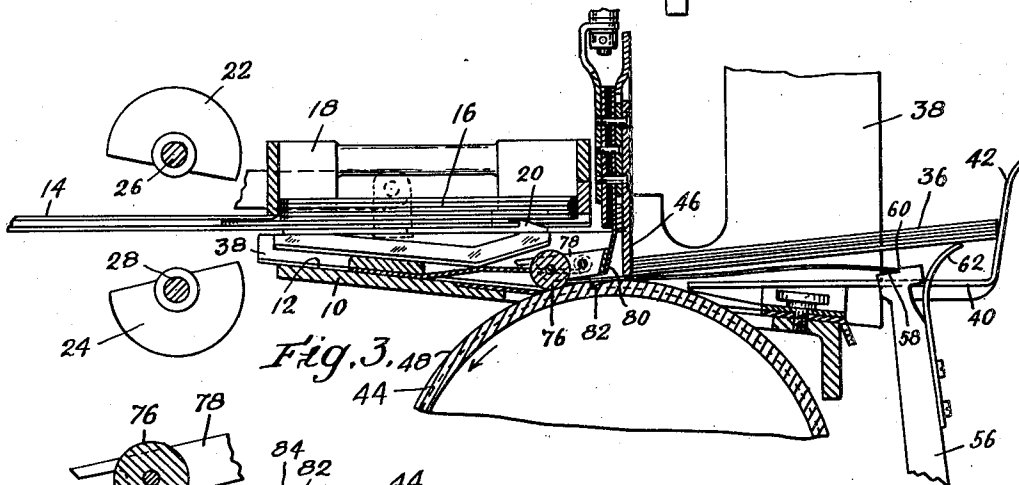
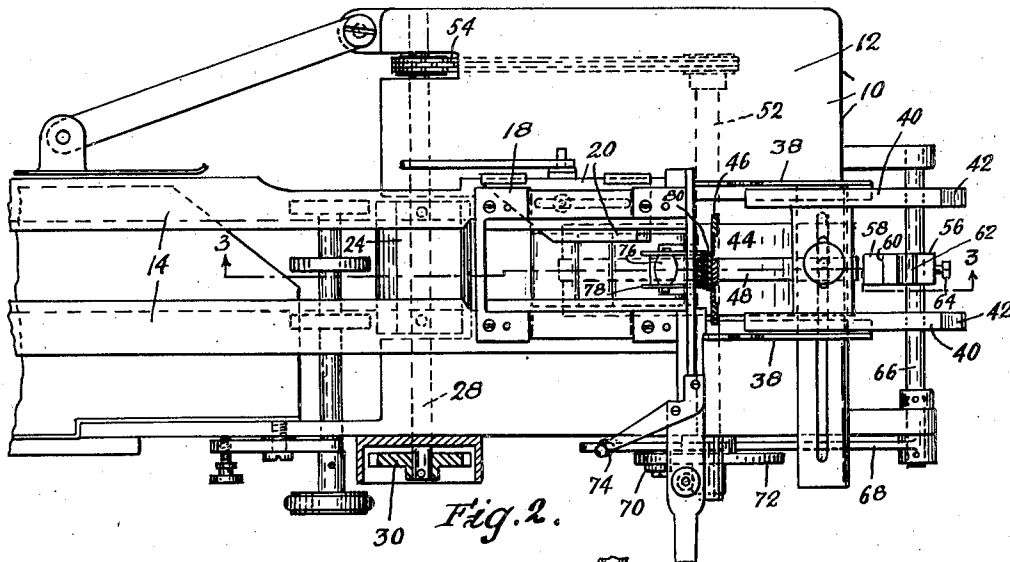
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ADDRESSING MACHINE AND CARD FEEDING MECHANISM THEREFOR

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,185,014

ADDRESSING MACHINE AND CARD FEED-
ING MECHANISM THEREFOR

Harmon P. Elliott, Watertown, Mass.

Original application August 26, 1937, Serial No.
160,985. Divided and this application Decem-
ber 30, 1937, Serial No. 182,508

11 Claims. (Cl. 271-41)

This invention relates to addressing machines which have mechanism for automatically feeding cards, envelopes and the like, to the addressing elements; and has particular reference to the card feeding mechanism.

The addressing machine with which this invention is particularly concerned, although to which it is not limited, comprises a pair of rotating printing sectors which grip between them a card or envelope and a printing device, specifically a stencil, and advance both in contact during the printing operation. The stencils are advanced in succession toward the printing sector from a stack of stencils. The cards are advanced in succession towards the sectors by mechanism including a drum and a cooperating small roll, the successive cards being advanced from a stack by a pusher into the engagement of the drum and roll. The drum is smooth-faced at least at that part confronting the roll and sometimes there is a possibility that the drum might slip in engagement with the card and hence not advance the card as promptly as is desired with the result that the address may not be positioned accurately on the card.

Hence an object of the present invention is a construction and arrangement of the card feeding mechanism that will insure the positive and accurate delivery of cards.

Another object of the invention is the provision of a card feeding cooperating drum and roll so arranged that the card is positively positioned therebetween so that it can be positively advanced by the drum.

A further object of the invention is the provision of card feeding apparatus including a feed-drum and a cooperating roll, the drum having a notch in its card engaging periphery adapted to receive the leading edge of the card to permit the leading edge to pass surely under the roll and thereby be in a position to be securely engaged and advanced by the drum and roll.

Another object of the invention is the provision of a pusher for positively advancing the successive lowermost cards of a stack of said cards into the bite of the drum and roll.

A further object of the invention is generally an improved addressing machine and the card feeding apparatus thereof.

This application is a division of my copending application Serial No. 160,985, filed August 26, 1937.

Fig. 1 is a side elevation of an addressing machine embodying the present invention.

Fig. 2 is a plan view partly in section of the

addressing machine of Fig. 1 and illustrating particularly the card advancing mechanism.

Fig. 3 is a sectional elevation taken along line 3-3 of Fig. 2.

Fig. 4 is a plan view of the feed drum.

Figs. 5 and 6 are sectional details of successive positions of the feed drum and roll and illustrating the function of the notch in the feed drum.

The addressing machine herein illustrated comprises a base 10 having an inclined top face 12 over which a pair of spaced guideways 14 are extended and between which successive printing devices, herein stencils, are advanced from a stack 16 of such stencils contained in a holder 18 disposed above said guideway and inclined top face 12.

The successive lowermost stencils of the stack are advanced therefrom by a reciprocating pusher 20, see Fig. 2, into position to be engaged by a pair of cooperating rotatable upper and lower printing sectors 22 and 24 fixed to shafts 26 and 28 geared together for conjoint rotation by the intermeshing gears 30 and rotating by the handle 32. The face of the upper sector is adapted to receive ink from the inking mechanism 34.

A card is also adapted to be advanced to the action of the printing sectors so that a card and a superimposed stencil are advanced together by the sectors which print the address borne by the stencil upon the card as both are advanced.

The cards are advanced toward the printing sectors in successive order from a vertical stack 36 of such cards or envelopes disposed rearwardly of the stencil holder in a card holder comprising the upstanding side plates 38, terminated at their forward parts under the stencil holder in grooved card guides 38a, one of which is illustrated in Fig. 3, and the bottom supports 40 having upstanding fingers 42 which engage the rear edge of the stack. The forward edge of the stack rests upon the periphery of a card advancing drum 44 and against a gate plate 46 the lower end of which is elevated above the periphery of the drum sufficiently to permit the passage of a single card only thereunder.

The periphery of the drum is provided with a continuous raised ledge 48 in the middle part thereof that supports the forward end of the stack of cards and directly engages the lowermost card. The opposite edge parts of the periphery of the drum are provided with raised corrugated rubber strips 50, see Fig. 4, of short axial extent to assist in advancing the lowermost card. The drum 44 is fixed to a shaft 52 journaled in and extended transversely of the frame 10 and posi-

tively connected through sprockets and a chain 54 with the lower segment shaft 28 so that the drum makes one complete rotation for each complete rotation of the segment.

5 The successive lowermost cards of the stack are advanced forwardly by a pusher 56 comprising a generally vertical arm having a horizontal card supporting ledge 58 and an upstanding shoulder 60 at the rear of the ledge which has a height not
10 greater than the thickness of the card. In the inactive position of the pusher it is disposed at the rear of the stack and supports the stack upon the ledge 58. As the pusher advances forwardly the shoulder 60 engages the rear edge of the lower-
15 most card and thus advances it under the gate 46. The pusher is provided with a rearwardly curved finger 62 which upstands above the shoulder 60 in position to engage the rear edge of the stack after the lowermost card has been engaged and ad-
20 vanced a short distance by the shoulder 60 to move the stack upwardly away from the lowermost card for the purpose of facilitating the advance of the card.

The lower end of the pusher arm 56 is fixed
25 by a set screw 64 to a shaft 66, see Fig. 1, journaled in the frame 10. The end of the shaft has an arm 68 fixed thereto which extends below the drum shaft 52 and has a cam roller 70 journaled thereon. The drum shaft 52 has a
30 cam 72 fixed thereto which engages the roll and thereby rotates the arm and the pusher. A spring 74 is fixed to the arm 68 and a stationary part of the machine to maintain the roller and cam in constant engagement.

35 A small idler roll 76 of a length approximately equal to the width of the driving rib 48 cooperates with the drum 44 in advancing the successive cards. Said roll overlies the driving rib 48 of the drum forwardly of the top thereof and is
40 of small diameter and of barrel shape and is journaled in a supporting frame 78 mounted on the end of a spring plate 80 carried by a stationary part of the machine immediately forwardly of the gate plate 46. The spring plate thereby
45 presses the roll yieldingly against the drum 44 and against a card thereon.

The stroke of the pusher 56 is of such length that the leading edge of the card is advanced on the rib of the drum and against the periphery
50 of the roll 76 slightly above the region of contact of the roller and the drum and is moved into the bite of the drum and roller by the rotation of the roller against the leading edge of the card and also by the declination of the roller
55 face. It may happen, however, that the card might not enter the bite between the roll and the drum promptly due to slipping of the drum on the card or for other reasons so that the card
60 either is not advanced or is not advanced promptly. To this end the construction and arrangement of the advancing mechanism is such as to cause the card to be positively advanced at the proper time.

For this purpose the periphery of the rib 48
65 is provided with a notch or recess 82 which extends entirely across the rib and has the radial front wall 84 and the inclined bottom wall 86 that at its rear edge merges gradually with the cylindrical face of the rib. The notch is located
70 in that part of the rib disposed between the rubber strips 50 and in such position with respect to the stroke of the pusher that the notch is between the top of the drum and the roll 76 or just in the rear of the leading edge of the card at
75 the time the leading edge is against the roll 76.

Thus the leading edge of the card is over and it falls into the notch or is flexed downwardly thereinto by the rotating roll 76 which bears upon the drum by the spring pressure extended by its resilient support. This position of the card in the notch is illustrated in Fig. 6. The roll 76 is in engagement with the drum 44 and is rotated thereby. The roll 76 thus tends to urge the leading edge of the card toward the drum 44 and downwardly into the notch 82 when the notch is under the leading edge. The corrugated rubber strips 50, at the time that the notch 82 is under the roll 76, merely support the sides of the leading end portion of the card and do not prevent the card from being bent into the notch 82. Thus the leading edge of the card is caused to be positively introduced between the roll and the drum and thereby advanced. The driving pressure on the card is increased as the drum advances and the roll raises out of the notch so that a positive driving engagement is insured. The end of the card in the notch flexes out of the notch by its own resiliency as the card and drum advance.

I claim:

1. Card feeding mechanism for addressing machines including a pair of coacting feed rolls between which the card is advanced and on the periphery of one of which rolls the advancing card is supported, yielding means urging said rolls into pressure engagement, means to present a card to the action of said rolls, and means on one of said rolls for supporting the leading part of the card and for insuring the entrance of the card between the rolls.

2. Card feeding mechanism for addressing machines including a pair of coacting feed rolls between which the card is advanced and on the periphery of one of which rolls the advancing card is supported, yielding means urging said rolls into pressure engagement, means to present a card to the action of said rolls, and means insuring the entrance of the card between the rolls comprising a peripherally short notch in the driving periphery of one of said rolls adapted to be entered by the leading edge of the card.

3. Card advancing mechanism for an addressing machine comprising a pair of spring-pressed coacting rolls normally in peripheral engagement, means to present a card to the action of said rolls, one of said rolls constituting a support for the leading part of the card, and means comprising a shallow and peripherally short notch in the driving periphery of one roll providing a gap between said rolls adapted to be entered by the leading edge of the card, the bottom of the notch constituting a support for the leading edge of the card therein.

4. Card advancing mechanism for addressing machines comprising a driving drum and a cooperating presser roll between which the card is adapted to be gripped and advanced, means for presenting a card to the action of said drum and roll, said drum constituting a support for the leading part of the card and having a peripheral recess adapted to be entered by the leading edge of said card to position it under said roll and between said drum and roll.

5. Card feeding mechanism for addressing machines comprising cooperating card advancing rolls, a holder for a stack of cards, a pusher for advancing successive cards from said holder and presenting the cards to the action of said rolls, one of said rolls constituting a support for the leading part of the card and having a peripheral recess of short circumferential extent adapt-

ed to be entered by the leading edge of the card to position the leading edge of the card below the periphery of the notched roll and in line with the bite of said rolls.

5 6. Card advancing mechanism for addressing machines comprising a holder for a stack of cards, a card advancing drum constituting a support for the forward edge of the stack, a cooperating idler roll in pressure contact with said drum, and
10 means for advancing a card out of said holder into position on said drum and against said roll above the bite between said drum and roll, said drum having a transverse notch across its periphery adapted to be entered by the leading edge
15 of the card under pressure of said idler roll to insure entrance of the card between said drum and roll.

7. Card advancing mechanism for addressing machines comprising a card advancing drum having a raised driving rib, a cooperating idler roll in rotatable pressure engagement with said rib, and means for presenting a card to the action of said drum and roll, said rib having a transverse notch of short circumferential length through
25 said driving rib adapted to be entered by the leading edge of the card to position the card between said rib and roll.

8. Card advancing mechanism for addressing machines comprising a card advancing drum having a raised driving rib, a cooperating idler roll in rotatable pressure engagement with said rib, and means for presenting a card to the action of said drum and roll, said rib having a notch transversely through said rib adapted to be entered by the leading edge of the card to position the card between said rib and roll, said drum having card engaging friction pads on its periphery in line with said notch.

9. Card feeding mechanism for addressing machines including a driving drum and a cooperating pressure roll engaging the periphery of said drum, said drum having a transverse notch in its driving periphery, means presenting a card onto the periphery of said drum where it is sup-

ported and the leading edge of the card to the bite between said drum and roll, and resilient yielding means exerting pressure on said roll and under said roll.

notch and against the bottom thereof and pass operative to move said leading edge into said

10. Card feeding mechanism for addressing machines comprising a revoluble card feeding drum combined with a cooperating, freely journaled roller yieldingly biased toward the periphery of said drum, the surface portion of the latter which cooperates with said roller being provided with a narrow, transversely extending notch; whereby the front end of any card being fed by the rotation of said drum between it and
15 said roller and located over said notch may flex down into the same and thereby reduce any resistance to its passage exerted by said roller.

11. In a rotary machine for addressing postal cards substantially such as described having the combination of a printing mechanism, a magazine for holding a stack of cards which is open at the bottom at that side nearest said printing mechanism, a pair of oppositely grooved card guides extending from a point near that side of the bottom of said magazine to said printing mechanism, a roller journaled above the plane of said guides at a point adjacent said magazine and adapted to press downward on any card being fed therefrom into said guides, and a revoluble drum journaled on an axis below said magazine with its periphery substantially tangential to said magazine bottom, whereby the bottom card in said magazine may be drawn therefrom by the revolution of said drum and fed into said guides under said roller while being pressed thereby against said drum periphery; the improvement which consists in providing said drum with a transversely extending notch in its driving periphery at a point that will be substantially beneath said roller when the front edge of any card being fed from said magazine by said drum is in contact with said roller.

HARMON P. ELLIOTT.

CERTIFICATE OF CORRECTION.

Patent No. 2,185,014.

December 26, 1939.

HARMON P. ELLIOTT.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, lines 4, 5 and 6; claim 9, for "under said roll. notch and against the bottom thereof and pass operative to move said leading edge into said" read operative to move said leading edge into said notch and against the bottom thereof and pass under said roll.; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 30th day of January, A. D. 1940.

(Seal)

Henry Van Arsdale,
Acting Commissioner of Patents.