

Jan. 31, 1939.

H. P. ELLIOTT

2,145,301

ADDRESSING

Filed Jan. 31, 1938

3 Sheets-Sheet 1

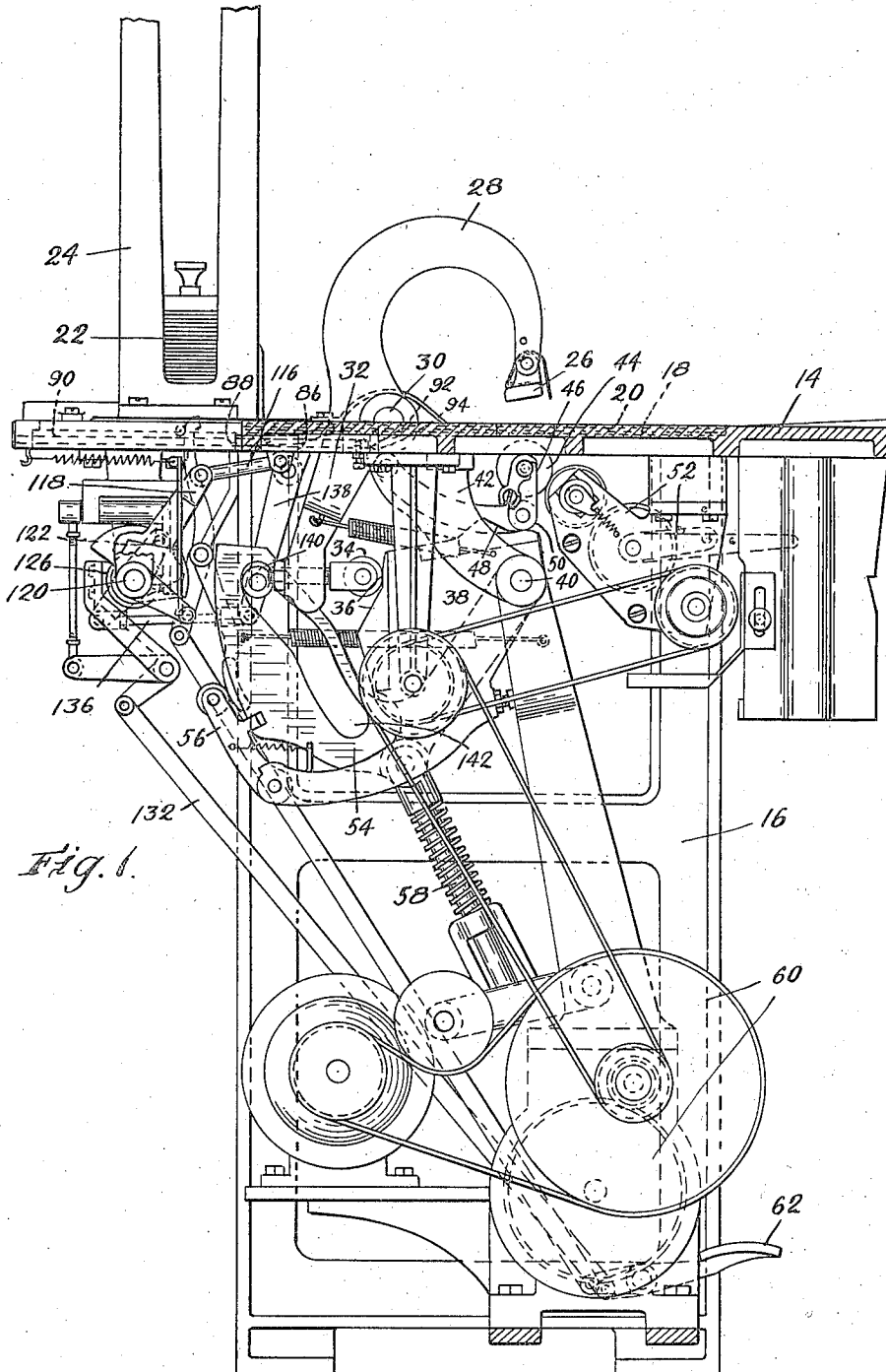


Fig. 1.

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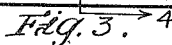
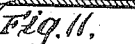
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

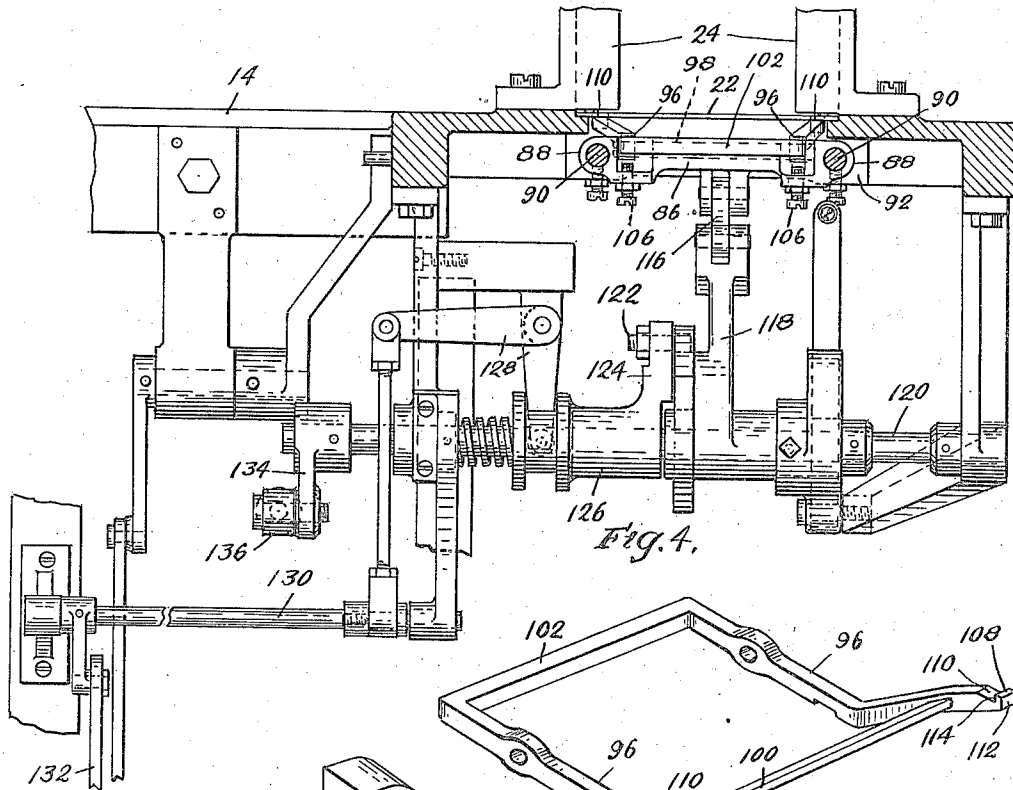


Fig. 4.

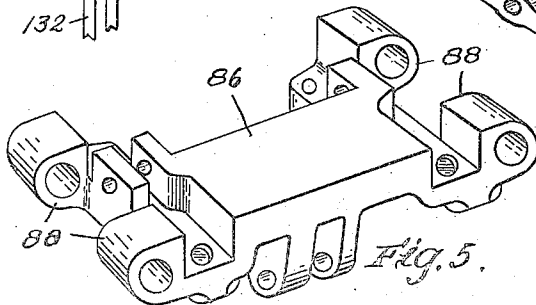


Fig. 5.

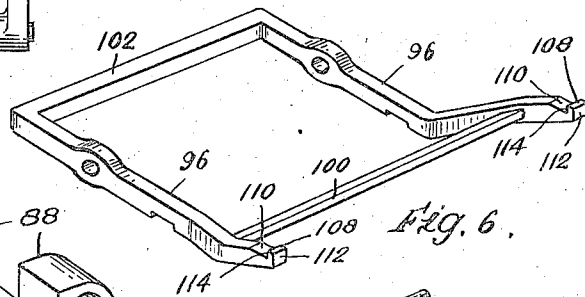


Fig. 6.

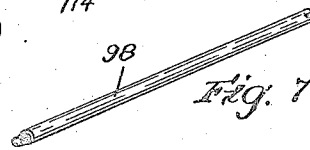


Fig. 7.

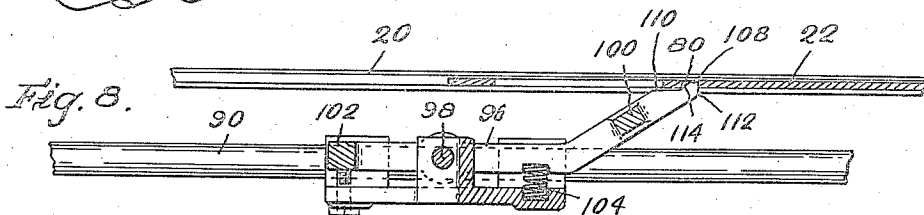


Fig. 8.

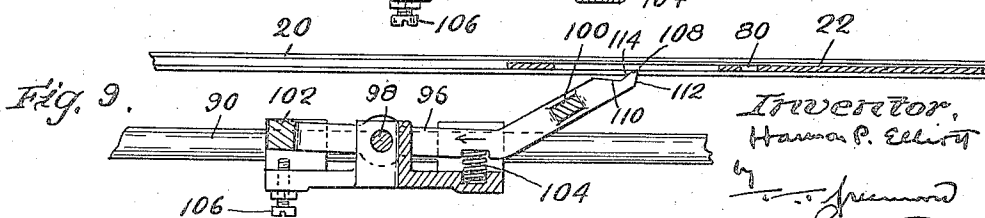


Fig. 9.

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UNITED STATES PATENT OFFICE

2,145,301

ADDRESSING

Harmon P. Elliott, Watertown, Mass.

Application January 31, 1938, Serial No. 187,837

9 Claims. (Cl. 101—48)

This invention relates to addressing machines adapted to operate upon a succession of stencils for printing the addresses borne by the stencils.

The invention has particular reference to mechanism for engaging and advancing the successive stencils from a stack thereof toward a printing position and to a stencil construction especially adapted for said advancing mechanism.

There is a well known type of stencil, commonly known as the "Belknap" stencil, comprising a card of paper stock having a window cut therein which is overlaid with an address bearing stencil sheet that is adhesively affixed to one face of the card, the card constituting a frame for the window.

The pusher mechanism of the addressing machine operating on this type of stencil includes a pair of reciprocating arms having abutments or shoulders at their forward ends which are adapted to engage the leading edge of the window of the stencil to move the stencil out of a stack and to advance the stencil along a guideway toward printing position.

There is another well known type of stencil, commonly known as the "Elliott" stencil, composed of three sheets of paper stock and having a window therein, the intermediate sheet projecting into the window and forming a welt strip which supports the address bearing stencil sheet below the surface of the stencil. The total thickness of this type of stencil is not greater than the total thickness of the Belknap stencil and hence the thickness of an outer lamination at the window thereof is much less than the thickness of the window ledge of the Belknap stencil. The Elliott stencil is not well adapted to be advanced by the arms of the above described pusher mechanism because of the narrowness of the window ledge that would be engaged by the shoulders of the pusher arms.

Hence an object of the present invention is to provide a stencil, and especially one of the Elliott type, with means forming a thick shoulder that can be engaged surely by the shoulder of the pusher arms and be retained in engagement with the pusher arm during the movement of the stencil out of a stack of such stencils and into the guideway, the thick shoulder of the stencil being preferably formed as a notch or perforation extended entirely through the entire thickness of the stencil.

A further object of the invention is the provision of a stencil having a pusher engaging perforation or notch, or two such perforations or notches, located forwardly of the stencil sheet.

A yet further object of the invention is in the provision of a modified form of pusher arm, especially adapted to enter and cooperate with the pusher engaging perforation of the stencil.

Another object of the invention is the combination of a specially formed stencil and a specially formed pusher for cooperating with the stencil for advancing it from a stack towards the printing position.

An additional object of the present invention is generally to improve the construction of addressing machines and stencils therefor.

Fig. 1 is an end elevation of an addressing machine embodying the present invention with the table partly in section.

Fig. 2 is a sectional elevation through the median line of the stencil guideway and the stencil holder of Fig. 1, taken along line 2—2 of Fig. 3.

Fig. 3 is a plan view of the mechanism of Fig. 2, taken along line 3—3 of Fig. 1.

Fig. 4 is a sectional detail of the pusher operating mechanism, taken along line 4—4 of Fig. 3.

Fig. 5 is a perspective view of the pusher carrier.

Fig. 6 is a perspective view of the pusher frame.

Fig. 7 is a perspective view of the pivot shaft of the pusher frame.

Fig. 8 is a sectional detail, taken along line 2—2 of Fig. 1, and illustrating the position of the pusher in engagement with the stencil in the fully advanced position of the stencil.

Fig. 9 is a view similar to Fig. 8 but illustrating a partially retracted position of the stencil.

Fig. 10 is a plan view of a stencil constructed in accordance with the present invention.

Fig. 11 is a sectional view of the stencil of Fig. 10, taken along the line 11—11 of Fig. 10.

Fig. 12 is a plan detail of the pusher with a pusher arm located in the notch of the pusher.

The addressing machine embodying the present invention is generally as constructed in my copending application Serial No. 92,582, filed July 25, 1936, and need not be described in great detail.

The addressing machine comprises a horizontal table 14 supported on end frames 16. The table has a groove or depression 18 extended transversely of the table in the middle thereof and from the front to the rear. Slotted rails 20 are located in said depression and constitute a guideway for the passage of stencils 22 contained in a holder 24 located above said guideway at the rear end of the table.

The successive lowermost stencils of the stack are adapted to be moved from the stack into and

along the guideway by pusher mechanism presently to be described and to the action of printing mechanism.

The printing mechanism includes a platen 26 located above the guideway and secured to arcuate arms 28 pivoted at 30 and having an extension 32 depending beneath the table. Said extension carries a roller 34 which cooperates with cam faces 36 of an operating arm 38 pivoted at 40 to a bracket 42 fixed to and depending beneath the under face of the table.

Cooperating with the platen 26 is a printing roll 44 rotatably journaled at the free end of a pivoted frame 46 which is reciprocated by the engagement of the cam faces 48 of said operating arm 38 with a roller 50 journaled on said printing roll frame. The face of the printing roller receives ink supplied by a suitable inking mechanism 52.

The operating arm 38 is reciprocated by an actuating arm 54 pivoted at 40 concentric with the operating arm and having a disengageable latch connection 56 therewith. The actuating arm is reciprocated by means of a connecting rod 58 reciprocated by a power plant 60 of well known construction controlled by one of a series of pedals, one of which is indicated at 62, to effect one complete printing operation of the aforesaid elements following the momentary depression and subsequent release of the pedal.

The type of stencil intended for use in connection with the present addressing machine is the "Elliott" type, as illustrated in Figs. 10 and 11. Said stencil comprises a rectangular card 64 composed of an inner thin welt sheet 66 of paper stock combined between and with thicker outer sheets 68 and 70 of paper stock. The outer sheets 68 and 70 are formed with rectangular windows 72 and 74, respectively, therein, the two windows being disposed in aligned order. The inner sheet 66 is formed with a rectangular window 76 which is smaller in all dimensions than either of the windows 72 and 74 and thereby forms a welt strip extended around the other windows which supports and is adhesively affixed to an address bearing stencil sheet 78 that is located within the window 72 and below the surface of the sheet 68. The total thickness of the stencil is about the same as that of the Belknap stencil composed of a single thick paper sheet having the stencil sheet adhesively affixed onto one face of the thick sheet. Thus the thickness of width of the edge of the window 74, or 72, is too little to be surely engaged by the pusher mechanism to advance the lowermost stencil out of the stack against the friction of the stack thereon.

In accordance with the present invention the stencil is provided with a thick shoulder that can be engaged surely with the shoulder of the pusher mechanism. To this end the stencil is provided with a pair of perforations 80 located forwardly of the stencil sheet and adjacent the opposite side edges of the stencil and at least substantially in line with the narrow end parts 82 of the stencil frame. The perforations 80 are suitably rectangular and oblong with their long sides located in a line transverse of the direction of movement of the stencil in the addressing machine. The perforations pass through all laminations of the stencil and hence the pusher-engaging leading edge 84 of the notches is as thick as the stencil.

The pusher mechanism adapted for cooperation with the stencil includes a carrier 86, see Figs. 2 through 9, and especially Fig. 5, having

pairs of oppositely extended ears 88 which are loosely mounted on a pair of horizontal parallel spaced guide rods 90 secured removably at their forward ends in a cross block 92 fixed removably to a cross member 94 of the frame. The carrier is reciprocable upon said rods. A pusher frame is pivoted to said carrier.

Said frame includes a pair of side arms 96 journaled intermediate their ends on a pivot pin 98 secured to the carrier and integrally connected near their forward ends by a cross bar 100 and at their rear ends by a cross bar 102. The forward ends of the arms are held yieldingly in elevated position by compression springs 104 located under the forward ends of the arms and seated on the carrier 86.

Adjusting screws 106 adjustably screw-threaded in the carrier and bearing against the under face of the rear cross bar 102 limit the uppermost position of the pusher arms under urge of said springs.

The pusher arms forwardly of the forward cross bar 100 are each provided at the end thereof with an upstanding shoulder or projection 108 and rearwardly of said projection with a flat ledge or shelf 110 which in the stencil engaged position of the arm is horizontal and underlies and engages the under face of the stencil. The projection 108 upstands above the ledge 110 by approximately the thickness of the cooperating stencil. The fore and aft dimension of the projection 108 is something less than the corresponding dimension of the notch 80 of the stencil so that the projection can enter the notch readily under urge of the springs 104. The front face 112 of the projection is vertical when the projection is in the notch of the stencil and is adapted to engage the leading edge of the notch. The projection thus has a bearing on substantially the full thickness of the stencil and thus can advance it positively out of the stack against any friction that may be on the stencil. The rear face 114 of the projection is inclined downwardly and rearwardly to the ledge 110 so that when the pusher is retracted the face 114 acts as a cam against the trailing edge of the stencil notch to force the arms downwardly against the action of the springs 104 to effect the disengagement of the projection with the stencil.

On the rearward movement of the pusher the top face of the projection 108 moves rearwardly upon the under face of a narrow side of the stencil frame and axially at one side of and out of engagement with the stencil sheet.

The pusher is reciprocated more or less in the manner described in my aforesaid application by means of a connecting link 116 pivoted at its forward end to the carrier 86 and at its rear end to an upstanding arm 118 journaled upon an oscillable shaft 120. Said arm 118 has a disengageable connection with said shaft, this connection including a pin 122, see Figs. 2 and 4, removably located in a recess of a part of said arm and carried by an outstanding arm 124 of a hub 126. The hub is fixed for oscillation with the shaft 120 but is slidable axially thereof to withdraw the pin 122 from and replace it in engagement with the arm 118. Axial movement of the hub 126 is effected through mechanism forming in effect a bell crank lever 128 which is operated through a shaft 130 and a link 132 by one of the pedals 62. The shaft 120 is oscillated by an arm 134 which is fixed to the shaft and is pivotally connected through a link 136, see Fig. 1, to the lower end of a generally vertical link 138 that is pivoted

at its upper end to the under side of the table 14. The lower end of the link 133 is provided with a cam roll 140 which operates in a cam slot 142 of the actuating arm 54. Thus the shaft 120 is oscillated in response to the reciprocation of said actuating arm.

I claim:

1. In an addressing machine, a holder, a guideway, a collection of stencils in said holder, and a pusher for advancing successive stencils from said holder into said guideway, said stencils each comprising a thick frame having a window therein traversed by an address bearing stencil sheet, and a perforation therethrough located forwardly of the window and at least partly at one side thereof, said pusher having a projection adapted to enter said perforation and engage a wall thereof for advancing the stencil, said projection being located at one side of the window whereby upon retracting movement of the pusher it is under the frame of said stencil and by said frame is held from engagement with the stencil sheet.

2. In an addressing machine, a holder, a guideway, a collection of stencils in said holder, a pusher for advancing successive stencils from said holder into said guideway, said stencils each comprising a frame having a window therein traversed by an address bearing stencil sheet and having perforations located in the frame forwardly of the window and at least partly outside of the line of the sides of the window, said pusher having opposed stencil engaging projections that are disposed at least partly outside the opposite side edges of the window and are arranged to enter said perforations to advance the stencil, said projections being retractable over and in contact with the side edges of said frame and being held thereby from engagement with the stencil sheet.

3. In an addressing machine, a holder adapted to contain a collection of stencils having windows and pusher engaging perforations, a guideway, a reciprocable pusher located beneath said holder having upstanding projections arranged to enter said stencil perforations and engage a wall thereof to advance the successive stencils from said holder into said guideway, said projections having a vertical yielding support therefor and having rear inclined cam faces whereby the projections are moved downwardly out of the stencil perforations by the retraction movement of the pusher.

4. In an addressing machine, a holder adapted to contain a collection of stencils each having a window and pusher engaging perforations located

forwardly of the window, a guideway, pusher mechanism for advancing the successive stencils from said holder into said guideway including a reciprocating carrier located under said holder, a pusher frame having a pivotal support on said carrier and having forwardly of said support upstanding stencil engaging projections which are located at least partly beyond the opposite side edges of the windows of the stencils and in line with the pusher engaging projections thereof, and means yieldingly urging said pusher frame and said projections upwardly toward the stencils.

5. A stencil comprising a frame having a window therein, a stencil sheet in said window and a pusher engaging perforation therethrough forwardly of said window.

6. A stencil comprising a frame having a window therein traversed by an address bearing stencil sheet, said frame also having a pair of opposed pusher engaging openings therethrough located forwardly of the leading edge of the window and at least partly outwardly beyond the opposite sides of the window.

7. A stencil having a welt strip combined between and with outer thicker frame sheets, all sheets having aligned windows therein, a stencil sheet in one frame window overlying the welt sheet window and attached to the welt sheet, and means located within the sides and faces of the stencil providing a pusher ledge thicker than the edge of any of said sheets.

8. A stencil having a welt strip combined between and with outer thicker frame sheets, all sheets having aligned windows therein, a stencil sheet in one frame window overlying the welt sheet window and attached to the welt sheet, and means located within the sides and faces of the stencil providing a pusher ledge thicker than the edge of any of said sheets, said means comprising a perforation extended through all aforesaid sheets at one side of said windows.

9. A stencil having a welt strip combined between and with outer thicker frame sheets, all sheets having aligned windows therein, a stencil sheet in one frame window overlying the welt sheet window and attached to the welt sheet, and means located within the sides and faces of the stencil providing a pusher ledge thicker than the edge of any of said sheets, said means comprising a pair of perforations through all aforesaid sheets beyond opposite sides and also forwardly of the windows.

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