Aug. 31, 1937. H. P. ELLIOTT 2,091,435

PERFORATING MACHINE FOR PRINTING DEVICES

Filed June 8, 1936 4 Sheets-Sheet 1

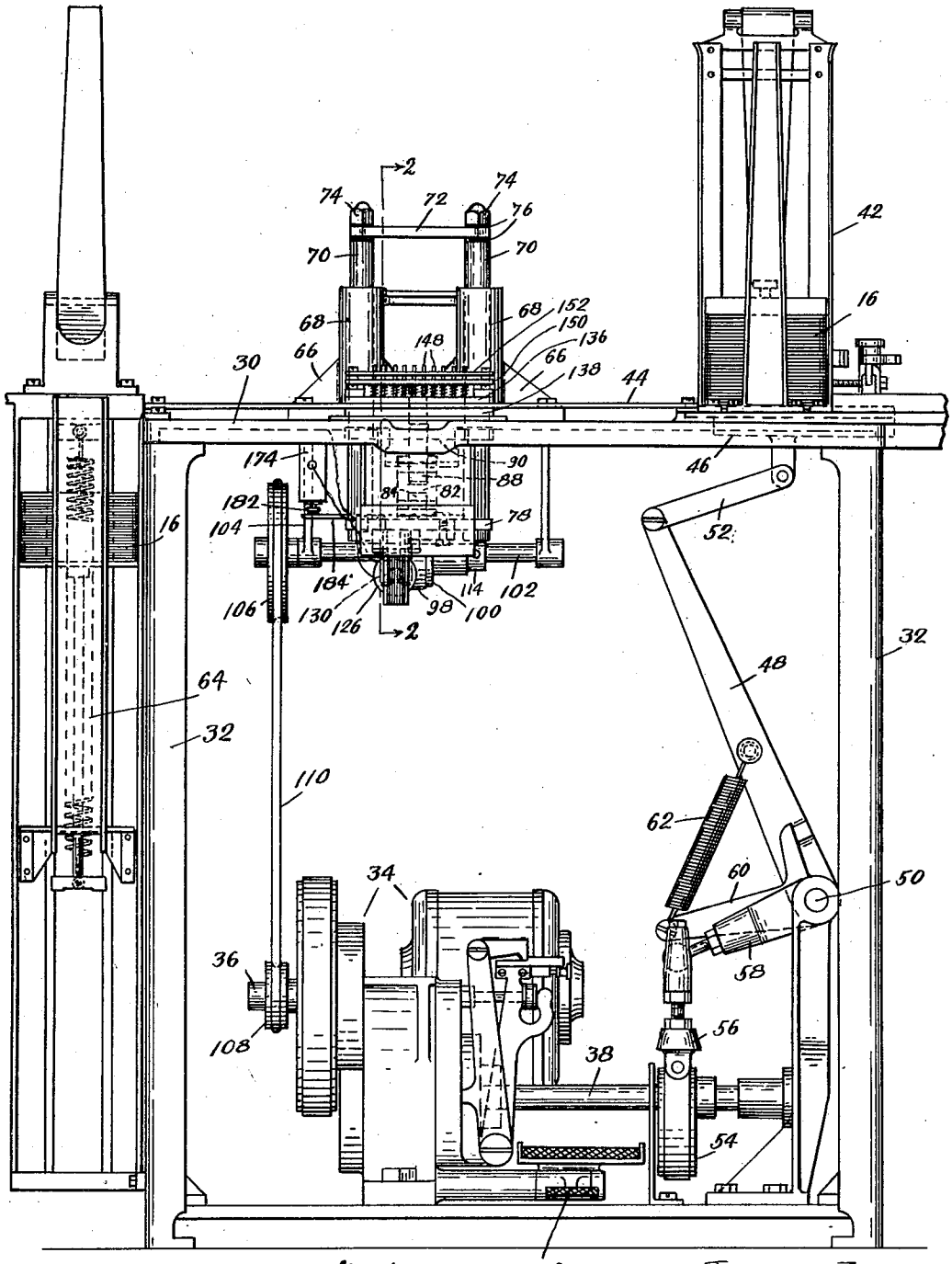


Fig. 1.

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by
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PERFORATING MACHINE FOR PRINTING DEVICES

Filed June 8, 1936 4 Sheets-Sheet 2

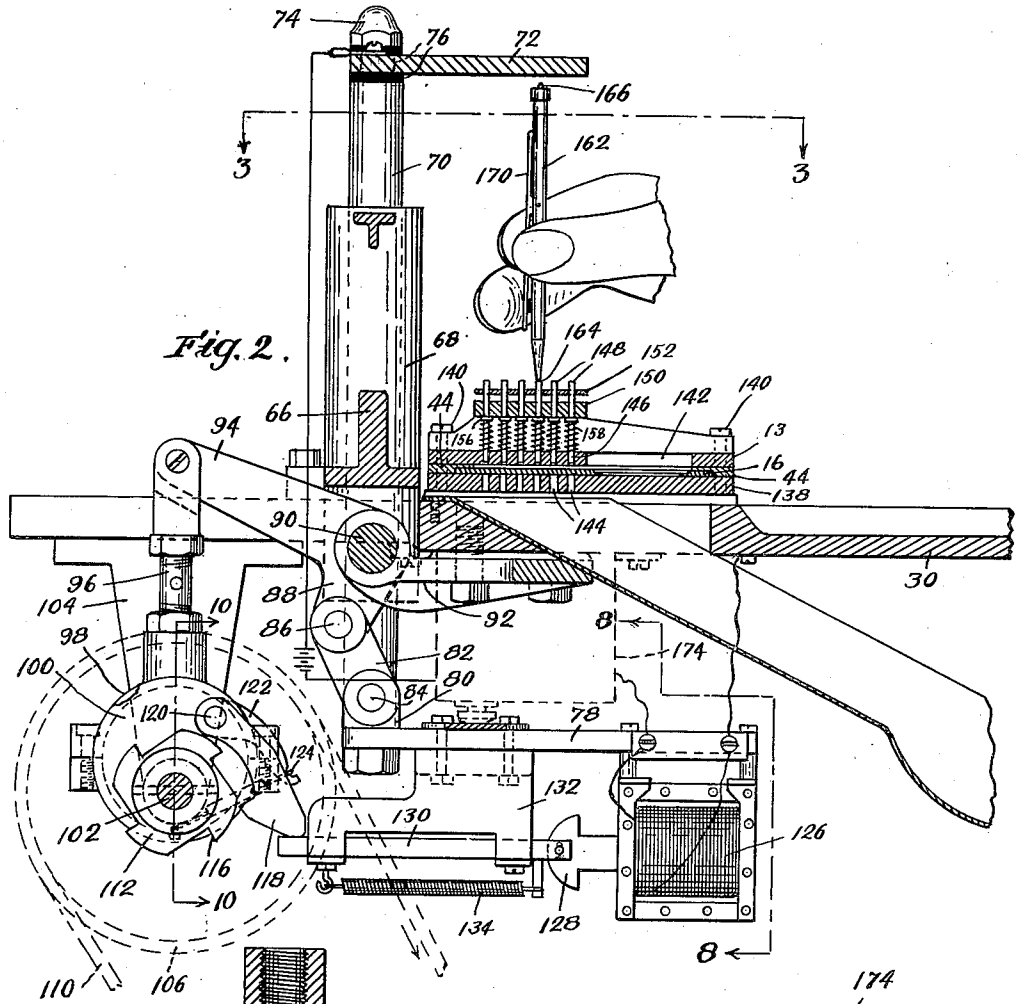


Fig. 2.

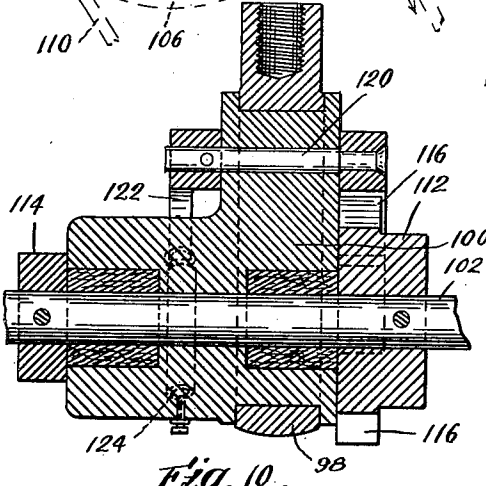


Fig. 10.

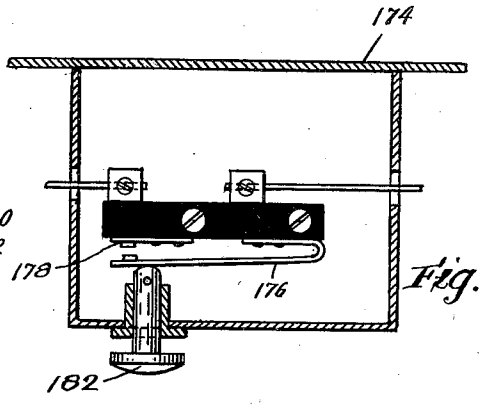


Fig. 9.

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Aug. 31, 1937. H. P. ELLIOTT 2,091,435

PERFORATING MACHINE FOR PRINTING DEVICES

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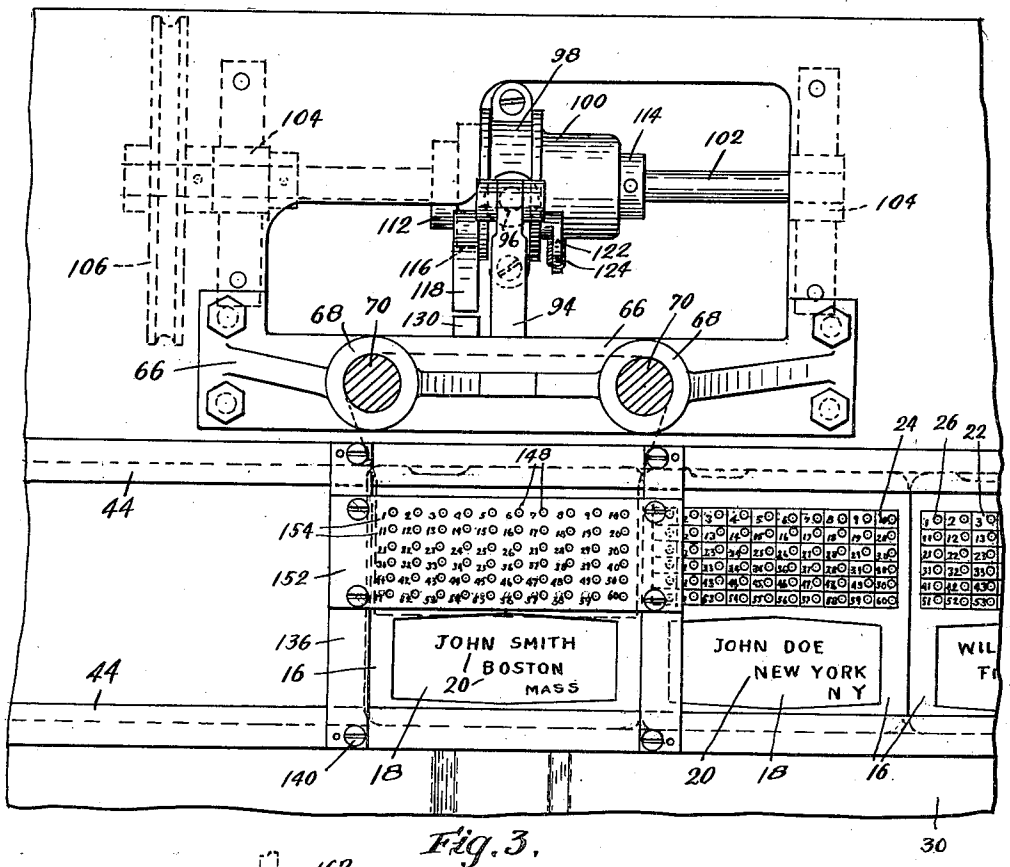


Fig. 3.

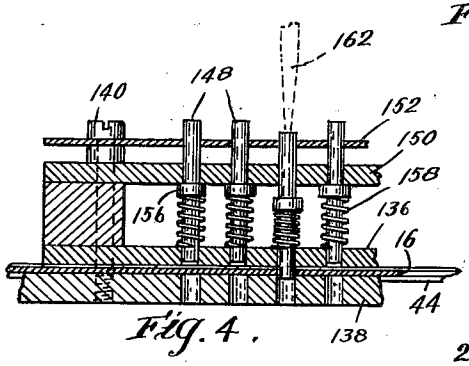


Fig. 4.

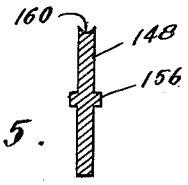


Fig. 5.

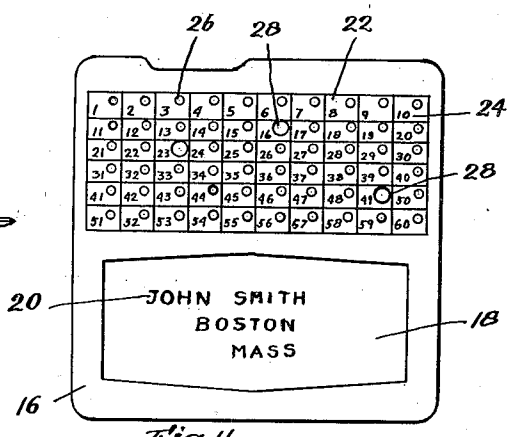


Fig. 11.

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PERFORATING MACHINE FOR PRINTING DEVICES

Filed June 8, 1936 4 Sheets-Sheet 4

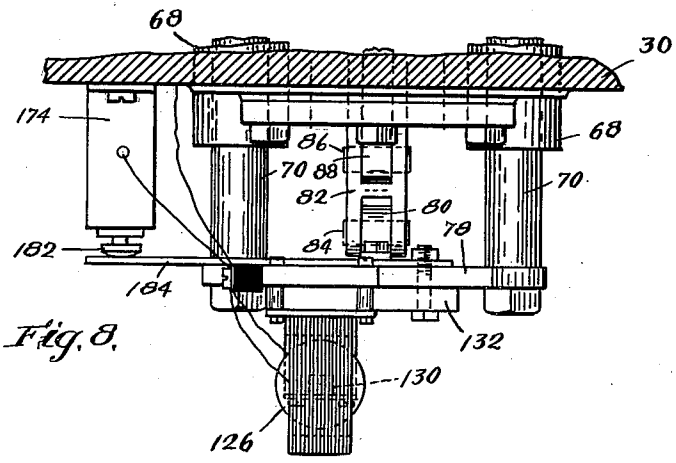


Fig. 8.

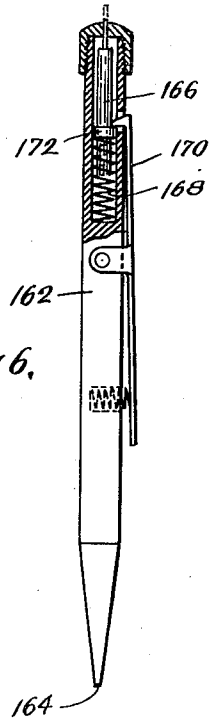


Fig. 6.

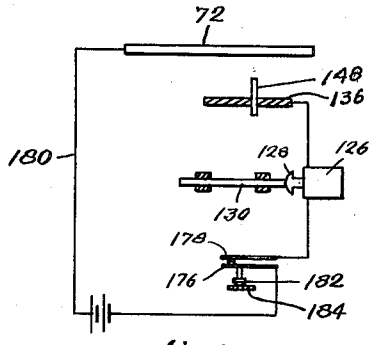


Fig. 7.

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Patented Aug. 31, 1937 2,091,435

UNITED STATES PATENT OFFICE

2,091,435

PERFORATING MACHINE FOR PRINTING DEVICES

Harmon P. Elliott, Watertown, Mass.

Application June 8, 1936, Serial No. 84,150

30 Claims. (Cl. 164—111)

This invention relates to a machine for punching perforations in cards such as address bearing stencils and printing plates employed in addressing machines.

In my copending applications Serial No. 69,803, filed March 20, 1936, and Serial No. 75,118, filed April 18, 1936, I have disclosed printing machines operating upon address bearing stencils and printing plates and arranged to mark on a record sheet at positions denoting different items of statistical information, the marking being controlled by and corresponding in positions to perforations selectively positioned on the stencil or printing plate. The stencil or printing plate is provided with a plurality of differently positioned zones each corresponding to a different item of statistical information and capable of receiving a perforation when a mark corresponding to the perforated zone and hence to the selected statistical item is intended to be recorded upon a record sheet.

An object of the present invention is the provision of a machine arranged to perforate the stencil or printing device in positions selected at the will of an operative usually under guidance of a prepared list containing statistical items pertinent to the addresses borne by the printing devices.

A further object of the invention is the provision of a machine adapted to advance a succession of cards into and out of a perforating position, and punching means selectively operable under control of an operative to form perforations at selected positions in the successive cards.

Another object of the invention is a stencil perforating machine adapted to operate upon a succession of printing devices having a plurality of differently positioned zones indicative of different items of statistical information, the machine having a series of independently operable punches each of which registers with a separate item zone of the stencil when the stencil is in perforating position, and means controlled by the operative to select the punches desired for operation on the printing devices.

Another object of the invention is the provision of a perforating machine having a series of punches operative upon a printing device disposed thereunder, a reciprocating member disposed above the punches and a punch-selecting rod capable of being positioned in engagement with a selected punch and between it and the reciprocating member to receive the thrust therefrom and transmit the thrust to the punch.

A yet further object of the invention is the provision of a card perforating machine having a series of punches operable upon the card disposed therebeneath, a reciprocable punch operating member, and a free punch-selecting rod capable of being positioned manually between the reciprocating member and a selected punch and in engagement with the latter and arranged to control an electric circuit effecting the reciprocation of the reciprocating member to carry out a punching operation upon the selected punch.

Another object of the invention is the provision of a card perforating machine having the electrical circuit as above described together with means controlled by a part of the mechanism for interrupting the circuit at a part of the operating cycle thereof that insures but a single punching operation of the machine on a selected punch.

A yet further object of the invention is the provision of a card perforating machine having a reciprocable punch operating member and manually controlled means for bringing a punch, through the operation of said member, into engagement with any one of several differently positioned perforation receiving zones of the card.

A yet further object is generally to improve the construction and operation of card punching machines.

A card perforating machine having the punch operating mechanism of the present machine but different punching and perforation location selecting means is disclosed in a concurrently filed application of Roff Elliott Serial No. 84,149.

Fig. 1 is a front elevation of the perforating machine embodying the present invention.

Fig. 2 is a sectional view taken along line 2—2 of Fig. 1.

Fig. 3 is a plan detail taken along line 3—3 of Fig. 2 with the stylus omitted.

Fig. 4 is an enlarged detail of some of the punches of Fig. 3 with one of the punches illustrated in depressed or operated position.

Fig. 5 is a sectional detail of a punch.

Fig. 6 is a detail partly in section of the manually manipulated punch selecting and operation controlling rod.

Fig. 7 is a diagram of the electric circuit for controlling the punching operation.

Fig. 8 is a sectional detail taken along line 8—8 of Fig. 2 and illustrating particularly the machine controlled circuit interrupting means.

Fig. 9 is a sectional view of the machine controlled switch.

Fig. 10 is a section taken along line 10—10 of Fig. 2.

Fig. 11 is a plan view of a stencil or printing plate perforated by the present machine.

As illustrated in Fig. 11 the card or printing device comprises a stencil 16 having a stencil sheet 18 in one portion bearing an address 20. The stencil in another portion thereof has a series of zones 22, the different positions of which denote different statistical items. The zones 22 are arranged in horizontal and vertical columns and are consecutively numbered as at 24.

The stencil herein shown has provision for sixty zones, although the precise number is of no particular importance to the present invention. Each zone is preferably provided with a mark, as a small circle 26 printed thereon for indicating the location of a possible perforation. With the perforating mechanism incorporating the present invention such marks 26 are not necessary. They are desirable, however, in indicating the location of a perforation that may be formed by hand.

The stencil is adapted to receive perforations 28 in selected zones. The perforations control the passage of marking members through the stencil and into pressure applying relation with a record sheet thereunder for the purpose of making a mark on the record sheet in a location corresponding to the location of a perforation, thereby to indicate by its position on the record sheet the item of information denoted by the perforated zone of the stencil.

The machine for perforating the stencil comprises a table 30, see Figs. 1, 2, and 3, supported on uprights 32 and having its operative parts operated by a power device 34, now common in the art. The power device includes a continuously rotating shaft 36 and an intermittently rotating shaft 38, the latter shaft being arranged to make one complete revolution per operation and then to stop. The rotation is under control of a pedal 40, which when depressed and subsequently released effects one complete rotation of the shaft 38.

A collection of the stencils 16 preferably with the addresses 20 thereon is contained in a holder 42 disposed at one end of the table 30 and in register with the entrance of a stencil track formed by a pair of horizontally spaced guide rails 44 which are spaced above the table. The lowermost stencils of the holder are advanced in successive order into and along the track by a reciprocating pusher 46. Said pusher is reciprocated by a vertical lever 48 pivoted to the frame of the machine at 50 and connected to the pusher by a link 52. The lever is reciprocated by means including an eccentric 54 which is fixed to and is rotatable with the shaft 38. The eccentric has an eccentric strap 56 that is swiveled to the end of a pivoted arm 58 that reciprocates a lever 60 bearing against the lever 48 and connected thereto through a tension spring 62. The arrangement of the arm 58, lever 60 and spring 62 is such as to permit reciprocation of the parts as a unit under ordinary conditions but to permit the lever to stop reciprocation if a stencil or printing device should jam in the track 44. The perforated stencils are discharged from the end of the track into a stencil receiver 64.

The successive stencils rest stationary in the middle portion of the track where they are operated upon by the punching or perforating mechanism. Said mechanism includes a bracket 66 fixed to and upstanding above the table 30 alongside and in the rear of the stencil track. Said bracket is provided with a pair of parallel bosses 68 in which a pair of vertical rods 70 are reciprocable. A punch operating member 72 in the form of a flat plate which projects forwardly of the machine over the perforation receiving zone of the stencil is fixed to the upper ends of the rods 70 by means including nuts 74. As herein shown the plate 72 is electrically insulated from the rod 70 by means of insulating bushings and washers 76.

The lower ends of the rods below the table are connected by a plate 78. The rods are reciprocated by toggle mechanism which includes a bracket 80 fixed to said plate 78 between the rods. A pair of toggle links 82 are pivoted at 84 to said bracket and have their upper ends disposed between and pivotally connected at 86 with the arm 88 of a bell crank lever. Said bell crank lever is pivoted on a shaft 90 carried by a bracket 92 fixed to the under side of the table 30. The long arm 94 of said bell crank lever extends rearwardly of the machine and is pivotally connected to the upper end of a rod 96. The lower end of the rod is connected to an eccentric strap 98 operating on an eccentric 100 loosely journalled on a shaft 102. Said shaft is rotatably supported in bearings 104, see especially Fig. 1, and is continuously rotated from the continuously rotating shaft 36 of the power mechanism by means of pulleys 106, 108 and belt 110.

The eccentric 100 is adapted to be connected with the shaft 102 for rotation therewith by means of a ratchet 112 fixed to the shaft on one side of said eccentric. A collar 114 fixed to said shaft on the other side of said eccentric serves to hold said eccentric from axial displacement. Said ratchet 112 is provided with a series of teeth 116, four teeth being here shown. Said teeth are adapted to engage a pawl 118 fixed to a shaft 120 pivoted in and extended through the eccentric. Said shaft has an arm 122 fixed thereto on the other side of the eccentric which is engaged by a tension spring 124 that constantly biases said pawl for movement towards the ratchet. When the pawl is engaged with a tooth of the ratchet the ratchet and eccentric are rotated conjointly. When, however, the pawl is disengaged from a ratchet tooth the eccentric remains stationary with the eccentric at the top of its stroke. The reciprocation of the eccentric serves to straighten and collapse the operating toggle consisting of the links 82 and the short bell crank arm 88 and thereby to reciprocate the punch operating plate 72 with respect to the stencils.

The engagement of the pawl 118 with and its disengagement from the ratchet 112 is effected by means of an electromagnet 126 carried by the plate 78 and having an armature or core 128 movable into and out of the magnet. Said core is connected to and reciprocates a slide bar 130 which slides in a bracket 132 fixed to the under side of said plate 78 and has its rear end disposed in the path of rotation of the latch 118. A tension spring 134 is connected with said slide bar 130 and serves normally to maintain the slide bar and the armature in a retracted position. In this position the rear end of the slide bar can be engaged by the latch 118 as it rotates. The operation is such that the rotation of the latch into engagement with the slide bar causes the withdrawal of the latch from engagement with a ratchet tooth, thereby freeing the eccentric from the continuously rotating shaft 102 and holding the eccentric and the mechanism associated therewith from further movement. When, how-

ever, the electromagnet 126 is energized the armature or core 128 is moved to retracted position and the end of the slide bar 130 is pulled out from under the nose of the latch 118. The latch spring 124 then becomes operative to swing the latch into engagement with the ratchet to cause the latch to be engaged by a ratchet tooth and carried around therewith. The electromagnet is intended to be but momentarily energized so that the slide bar is positioned in the path of rotation of the latch before the latch has made a complete revolution. Hence the slide bar is in position to be engaged by the latch and to cam it out of engagement with the ratchet upon the completion of a single revolution, thereby to stop further reciprocation of the mechanism. The bar also holds the mechanism stationary with the eccentric at the top of its stroke.

The punching mechanism, intended for operation by the reciprocation of the punch operating member 72 includes an upper die plate 136 disposed above and in engagement with the stencil track and suitably secured together and to the table 30 by fastening means 140. The upper die plate 136 is formed with or is so arranged as to provide an opening 142 through which the address bearing portion of the stencil is visible. The lower die plate 138 is provided with a series of punch holes 144 therethrough corresponding in number to the perforation receiving zones 22 of the stencil and located to be in register with the perforation receiving localities 26 of the stencil when the stencil is properly positioned in the punching position. The upper plate 136 is correspondingly formed with a series of guide holes 146. A series of punches 148 comprising cylindrical rods are reciprocable in said guide holes and through the stencils and into the punch holes 144. The upper ends of the punches are reciprocable in a pair of superposed guide plates 150, 152, respectively.

The upper guide plate, see especially Fig. 3, constitutes an index plate and bears consecutive numbers 154 adjacent each punch, the numbers corresponding with the numbers of the perforation receiving zones of the stencil so that number four punch, for instance, is the punch to be employed in perforating number four zone of the stencil.

The punches have outstanding flanges 156 intermediate their ends. Helical springs 158 encircle said punches below said flanges and bear against the flanges and the upper die plate 136, thereby to maintain the punches yieldingly in elevated position out of the path of movement of the stencils. The upper ends of the punches have cup-shaped depressions 160 adapted to receive the end of a punch selecting rod or stylus 162 now to be described.

The means for transferring reciprocatory movement between the punch operating plate 72 and the punches includes the free punch selecting rod or stylus 162 illustrated particularly in Figs. 2 and 6. The rod comprises a cylindrical metal bar of about the dimensions of a lead pencil having a pointed end 164 which is adapted to be seated in the cup-shaped depressions 160 of the punches and to be held in engagement therewith as the rod is forced downward by the reciprocable plate 72. The rod is adapted to be positioned manually generally vertically in engagement with a punch and immediately under the plate 72. Hence when the plate moves downwardly the plate transmits pressure through the rod to the punch and consequently moves the punch through the stencil therebeneath. The operative of the machine merely has to position the rod into the cups of the successive desired punches and effect the momentary energization of the electromagnet 126 to effect a punching operation. Thus no particular manual labor is required on the part of the operative and the space between the punches and the plate 72 at all times is clear enough so that there is no danger of the fingers of the operative becoming injured.

While the operative may momentarily energize the electromagnet 126 in any suitable manner, it is preferred to effect the energization thereof through the instrumentality of the rod 162. To this end the rod is provided at its upper end with a vertically movable plunger 166 urged for movement outwardly of the end of the plunger by a compression spring 168 normally held from operation by the engagement of a spring urged latch 170 with a shoulder 172 of the plunger. When the lower end of the latch is depressed to free the plunger the plunger moves outwardly from the upper end of the rod into the position indicated by the dotted lines. The rod is somewhat shorter than the distance between the punches and the plate 72 and hence when in engagement with a punch does not engage the plate 72. When the operative, however, has selected a punch she momentarily depresses the lower end of the latch 170. This releases the plunger 166 and causes it to move upwardly into electrical engagement with the plate 72. The circuit is thus completed through the electromagnet 126 as will be seen from an inspection of Fig. 7, and thus the plate 72 is caused to move downward. The downward movement of the plate 72 forces the plunger 166 inwardly of the rod and thus causes it to be automatically reset. Thus the plate 72 in its upward stroke moves away from the end of the reset rod and hence the circuit is interrupted.

Since the plate 72 only breaks contact with the upper end of the rod in the last part of its upward stroke and hence the electromagnet 126 may not be deenergized soon enough, in a fast running machine, for the armature to be retracted and the slide bar 130 to become positioned in the path of movement of the latch 118, before the latch has made a complete revolution, machine operated means is provided to interrupt the circuit sooner than it would be interrupted by the separation of the plate 72 from the rod, thereby to insure the withdrawal of the latch at the end of one revolution.

Said means includes a switch box 174 secured to the under side of the table 30 above and at one side of the path of movement of the lower plate 78 of the reciprocating unit, see especially Fig. 8. Said switch box contains the movable contact member 176 and the cooperating stationary contact member 178 which contact members are in series with the circuit 180 through the electromagnet 126 and the plate 72 and rod 162. An insulating contact button 182 is slidably carried by said box and bears against the movable contact member 176 in position to close the circuit when the button is depressed. The plate 78 carries a resilient laterally extended arm 184 which, when the reciprocating unit is in elevated position, is engaged with the button 182 and serves to hold the associated contact members closed so that the electromagnet is in condition to be energized by the operation of the rod 162. The arm 184 is adapted, however, to

release the movable contact member 176 as soon as the reciprocating structure has descended sufficiently for the latch 118 to have moved clear from the slide bar 130, thereby to break the electromagnetic circuit independently of the rod. Thus the electromagnet has the greater part of the time of revolution of the latch 118 to permit the retraction of its armature and the movement of the slide bar 130 into latch retaining position. This arrangement insures but one punching operation for each circuit controlling manipulation of the rod. With this arrangement of rod the operative has one hand free in which to hold or follow prepared lists of addresses and statistical items to guide her in the selection of punches.

After a stencil has been completely perforated the pedal 40 is momentarily depressed to effect the movement of the perforated stencil away from the punching position and the introduction of a new stencil into punching position.

While the machine herein described is particularly adapted for perforating address bearing printing devices it can also be used to perforate other types of cards.

I claim:

1. A card perforating machine comprising a series of rows of independently operable punches, means for supporting a card in cooperative relation with said punches, a punch operating member reciprocable toward and away from but always spaced from said punches, and an element movable over said series of rows of punches and under said punch operating member for establishing an operative connection between said reciprocable member and said punches selected at will.

2. A card perforating machine comprising a series of rows of independently operable punches, means for supporting a card in cooperative relation with said punches, a punch operating member reciprocable toward and away from but always spaced from said punches, means for establishing an operative connection between said reciprocable member and said punches selected at will comprising a rod interposed between said reciprocable member and said punches and movable over said rows of punches into engagement with a selected punch of said series of rows, and means for causing reciprocation of said reciprocable member into engagement with said rod for reciprocating said rod and punch.

3. A card perforating machine comprising a series of independently operable punches, means for supporting a card in cooperative relation with said punches, a punch operating member reciprocable toward and away from but always spaced from said punches, means for establishing an operative connection between said reciprocable member and said punches selected at will, said means comprising a free rod adapted to be held in the hand of an operative and interposed between said reciprocating member and a selected punch and to be engaged and reciprocated by said reciprocable member while being held in engagement with the selected punch, whereby to operate the selected punch.

4. A card perforating machine comprising a series of rows of independently operable punches, means for supporting a card in cooperative relation with said punches, a punch operating member reciprocable toward and away but always spaced from said punches, and means movable over said series of rows of punches and adapted to be positiontd between said punches and said reciprocable member and in alignment with a selected punch for transferring reciprocation of said reciprocable member to said selected punch.

5. A card perforating machine comprising a series of punches, means for supporting a card in cooperative relation with said punches, a reciprocable punch operating member positioned above all of said punches and reciprocable toward and away therefrom, and manually-held means for transferring motion of said reciprocable member to a selected punch.

6. A card perforating machine comprising a series of independently operable punches, means for supporting a card in cooperative relation with said punches, a reciprocable punch operating member, and manually-held means for operatively connecting said reciprocable member with said punches selected at will.

7. A card perforating machine comprising a series of rows of independently operable punches, means for advancing a succession of cards into operative relation with said punches, means for reciprocating said punches, and a device movable over said series of rows of punches for establishing an operative connection between said reciprocating member and said punches selected at will.

8. A card perforating machine comprising a series of rows of independently operable punches, a reciprocating punch operating member common to all of said punches, a device movable over said series of row of punches for establishing a reciprocating connection between said member and punches selected at will, and means for advancing a perforated card out of punching position and an unperforated card into punching position following a selected number of punching operations.

9. A card perforating machine comprising a plurality of rows of independently operable punches, a reciprocating punch operating member common to all of said punches, a punch selecting and motion transferring member arranged for positioning between said reciprocating member and a selected punch, and means for effecting a reciprocatory movement of said operating member upon said positioned punch selecting member.

10. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches, means for positioning a manually-held punch selecting and motion transferring member between said reciprocating member and a selected punch, and means for effecting a reciprocatory movement of said operating member upon said positioned punch selecting member, said means being carried by said punch selecting member.

11. A card perforating mechanism comprising a plurality of rows of independently operable punches, a reciprocating operating member common to said punches for operating them, a punch selecting member capable of being interposed between said reciprocating member and a selected punch of any of said plurality of rows of punches for transferring the reciprocatory movement of said reciprocable member to said selected punch, means for effecting a reciprocatory movement of said reciprocating member upon a selected punch, and means for moving a perforated card out of perforating position with respect to said punches following a selected number of punching operations and for advancing an unperforated card into perforating position.

12. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches for operating them, a manually-held punch selecting rod capable of being interposed between said reciprocating member and a selected punch for transferring the movement of said member to said punch, and means controlled by said rod for effecting the reciprocation of said member.

13. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches for operating them, a manually-held punch selecting rod capable of being interposed between said reciprocating member and a selected punch for transferring the movement of said member to said punch, and operative controlled means carried by said rod for effecting a reciprocatory movement of said reciprocating member.

14. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches for operating them, a manually-held punch selecting rod capable of being interposed between said reciprocating member and a selected punch for transferring the movement of said member to said punch, electromagnetic means for controlling the reciprocation of said reciprocating member, and control means for said electromagnetic means controlled by said rod.

15. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches for operating them, a punch selecting rod capable of being interposed between said reciprocating member and a selected punch for transferring the movement of said member to said punch, electromagnetic means for controlling the reciprocation of said reciprocating member, and circuit controlling means for said electromagnetic means comprised in part by said rod.

16. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches for operating them, a manually-held punch selecting rod capable of being interposed between said reciprocating member and a selected punch for transferring the movement of said member to said punch, electromagnetic means controlling the reciprocation of said reciprocatory member, and circuit controlling means for said electromagnetic means carried by said rod.

17. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches for operating them, a punch selecting rod capable of being interposed between said reciprocating member and a selected punch for transferring the movement of said member to said punch, electromagnetic means controlling the reciprocation of said reciprocating member, and said reciprocating member and said punches constituting terminals of an excitation circuit for said electromagnetic means, and said rod having means for electrically connecting said reciprocating member and punch for effecting the reciprocatory movement of said reciprocating member.

18. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches for operating them, a punch selecting rod capable of being interposed between said reciprocating member and a selected punch for transferring the movement of said member to said punch, electromagnetic means controlling the reciprocation of said reciprocating member, and said reciprocating member and said punches constituting terminals of an excitation circuit for said electromagnetic means, and said rod having manually releasable circuit controlling means electrically engageable with said reciprocating member.

19. A card perforating machine comprising a plurality of independently operable punches, a reciprocating punch operating member common to all of said punches for operating them, a punch selecting rod capable of being interposed between said reciprocating member and a selected punch for transferring the movement of said member to said punch, electromagnetic means controlling the reciprocation of said reciprocating member, said reciprocating member and said punches constituting terminals of an excitation circuit for said electromagnetic means, said rod having manually releasable circuit controlling means electrically engageable with said reciprocating member, said means being resettable by movement of said reciprocating member, and latch means on said rod for locking said means releasably in reset condition.

20. A card perforating machine comprising a plurality of independently operable punches, a reciprocatory member common to all of said punches for reciprocating them, means for supporting a card in operative relation with said punches, electromagnetic means controlling the reciprocation of said reciprocatory member, said punches and said reciprocatory member constituting terminals of an excitation circuit for said electromagnetic means, and a punch selecting rod capable of being positioned between said punches and reciprocatory member in engagement with a selected punch for transferring the reciprocation of said reciprocatory member to the selected punch, said rod having a manually releasable spring actuated circuit controlling member movable into engagement with said reciprocating member for effecting the energization of said electromagnetic means and the reciprocation of said reciprocatory member, said circuit controlling member being resettable by movement of said reciprocatory member in a punch operating direction, and means carried by said rod for locking said member releasably in reset position.

21. A card perforating machine comprising a series of independently operable punches, means for supporting a card in operative relation with respect to said punches, a punch operating member reciprocable toward and away from but always spaced from said punches, electromagnetic means for effecting reciprocation of said reciprocable member from a normal inactive position thereof, said punches and said reciprocable member constituting terminals of an excitation circuit for said electromagnetic means, and a free punch selecting rod adapted to be held by the hand of an operative between said punches and reciprocable member and normally out of engagement with said reciprocable member and in engagement with a selected punch for transferring the reciprocating movement of said reciprocating member to the selected punch, and manually controlled circuit controlling means carried by said rod and movable into electrical

engagement with said reciprocable member for effecting energization of said electromagnetic means and the reciprocation of said reciprocable member, said circuit controlling member being movable in the opposite direction by said reciprocable member into a reset position.

22. A card perforating machine comprising a series of independently operable punches, means for supporting a card in operative relation with said punches, a punch reciprocating member movable toward and away from said punches, operating mechanism for reciprocating said member, electromagnetic control means for said operating mechanism, said reciprocating member and said punches constituting terminals of an excitation circuit for said electromagnetic means, a punch selecting rod adapted to be manually interposed between said reciprocating member and said punches and in engagement with a selected punch for transferring the reciprocation of said reciprocating member to the selected punch, manually releasable circuit controlling means carried by said rod for effecting electrical connection between said rod and said reciprocating member for effecting reciprocation of said member, said circuit controlling means being resettable by movement of said reciprocating member toward said punches, and a circuit controller in series with said first circuit controlling means and operated by said operating mechanism for de-energizing said electromagnetic means following the circuit closing operation of said circuit controlling means and prior to the interruption of the circuit thereby.

23. A card perforating machine comprising a plurality of independently operable punches, a punch operating member reciprocable toward and away from said punches, a manually-held punch selecting rod adapted to be interposed between said member and a selected punch for transferring the movement of said member to the selected punch, electromagnetic means for controlling the operation of said reciprocating member, and circuit controlling means for said electromagnetic means carried by said rod.

24. A card perforating machine comprising an index plate having a plurality of perforation indicating means located in positions corresponding to possible perforation receiving locations of the card, a manually-held perforation selecting member adapted to be selectively positioned in register with one of said indicating means selected at will, and means operated by said selecting means to effect the formation of a perforation in the card corresponding in position to the position of the selected indicating means of said index plate.

25. A card perforating machine comprising perforating means, and a manually-held selecting member movable into a position corresponding to the location of the perforation in the card for effecting the operation of said perforating means thereat.

26. A card perforating machine comprising perforating means, a manually-held selecting member movable into a position corresponding to the location of the perforation in the card for effecting the operation of said perforating means thereat, and operative-controlling means for said perforating means carried by said selecting member.

27. A card perforating machine adapted to form perforations in differently positioned perforation receiving zones, selected at will, of a card, comprising an index plate having perforation zones corresponding in number and position to the zones of the card, a manually-held perforation selecting member adapted to be positioned at the index plate perforation zones selected at will to condition the machine to form a perforation in a zone of the card corresponding to the zone selected by said member, and means to effect the perforation of the card at such selected zone.

28. A perforating machine comprising a card holder, a punch device above a card in said holder, a punch operating mechanism comprising a reciprocating frame having a punch operating member at the upper end thereof that overlies said punch device and is reciprocable into and out of operative engagement therewith, toggle mechanism for reciprocating said frame, a continuously rotating shaft, an eccentric on said shaft, an eccentric strap on said eccentric connected with said toggle mechanism for operating it, ratchet and latch mechanism for releasably connecting said eccentric with said shaft for rotation thereby, and means for controlling said ratchet and latch mechanism.

29. A card perforating machine comprising a card holder, a punch device above a card in said holder, and punch operating mechanism comprising a reciprocating frame having a punch operating member at the upper end thereof that overlies said punch device and is reciprocable into and out of operative engagement therewith, toggle mechanism for reciprocating said frame, a continuously rotating shaft, an eccentric on said shaft, an eccentric strap on said eccentric connected with said toggle mechanism for operating it, ratchet and latch mechanism for releasably connecting said eccentric with said shaft for rotation thereby, a plate carried by the lower end of said frame, and means controlling said ratchet and latch mechanism carried by said plate.

30. A card perforating machine comprising a punch device operable on the card, a reciprocating frame having at one end a punch operating member and at the other end a supporting plate, toggle mechanism for reciprocating said frame, operating mechanism for said toggle mechanism including a continuously rotating shaft, a disc rotatably supported on said shaft, a ratchet fixed to said shaft, a pawl carried by said disc engageable with said ratchet, and pawl controlling means carried by and movable with said plate.

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