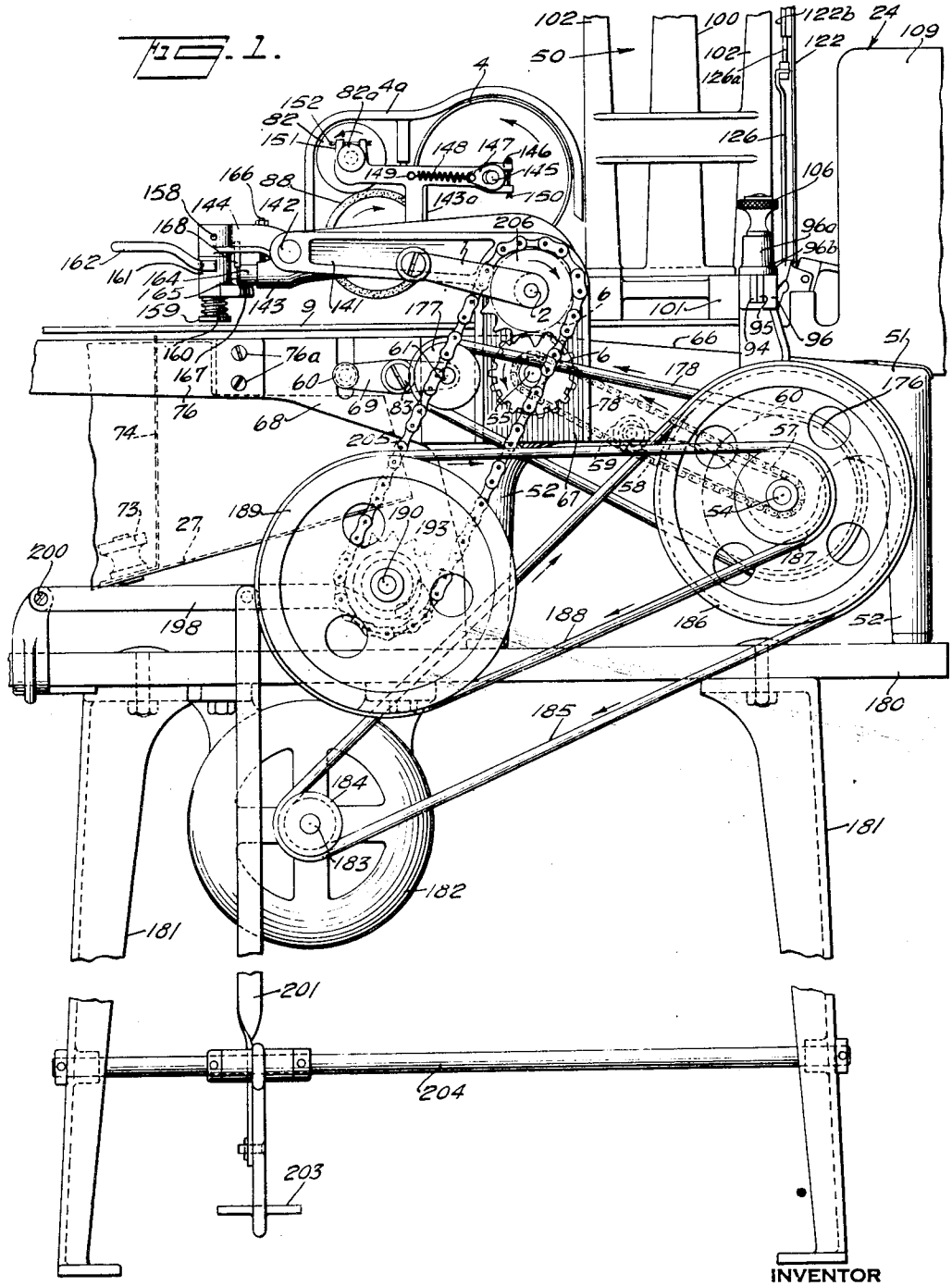
July 4, 1933. H. P. ELLIOTT 1,916,564

ADDRESSING AND PRINTING MACHINE

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Fig. 1.



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ADDRESSING AND PRINTING MACHINE

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FIG. 2.

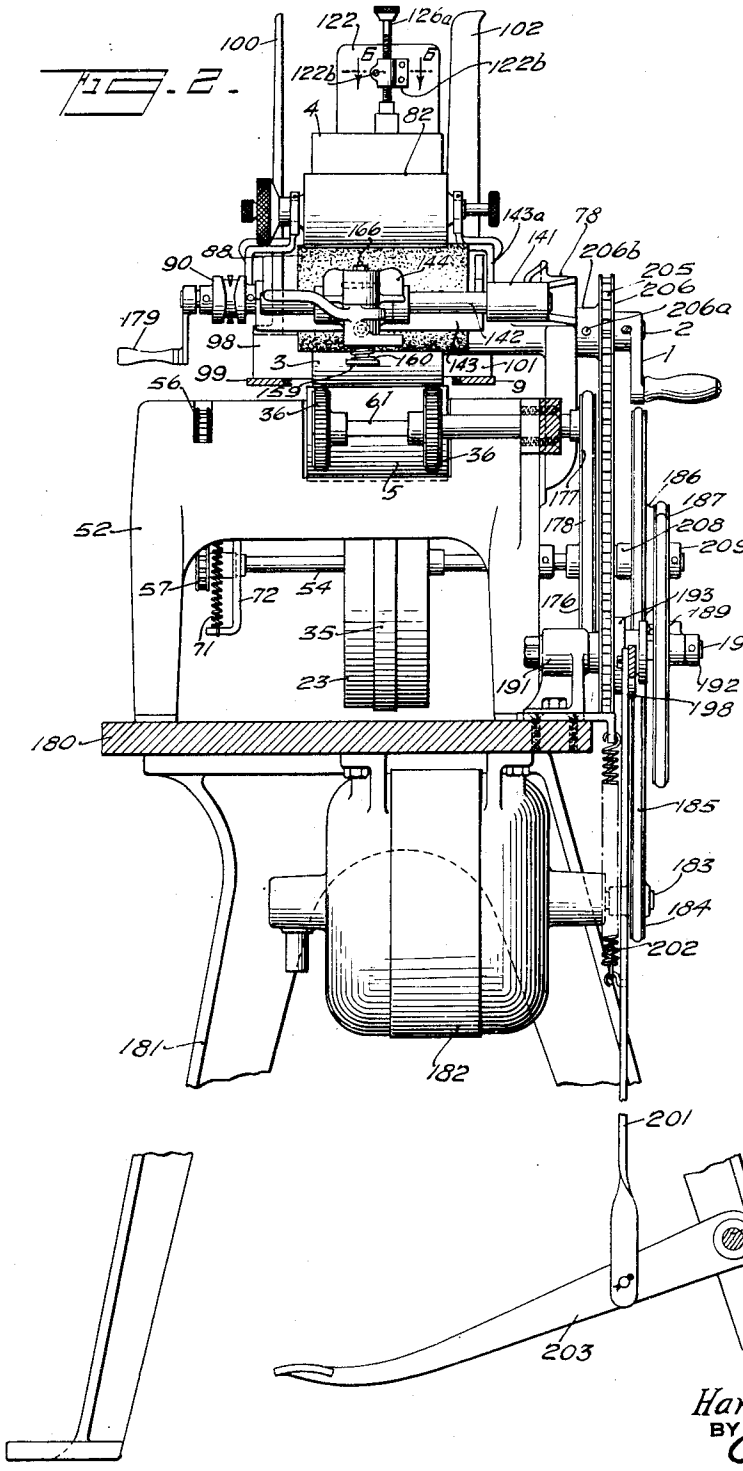
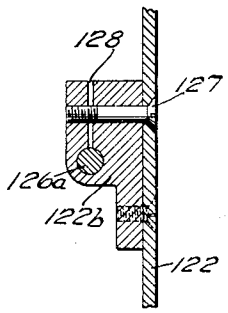


FIG. 6.



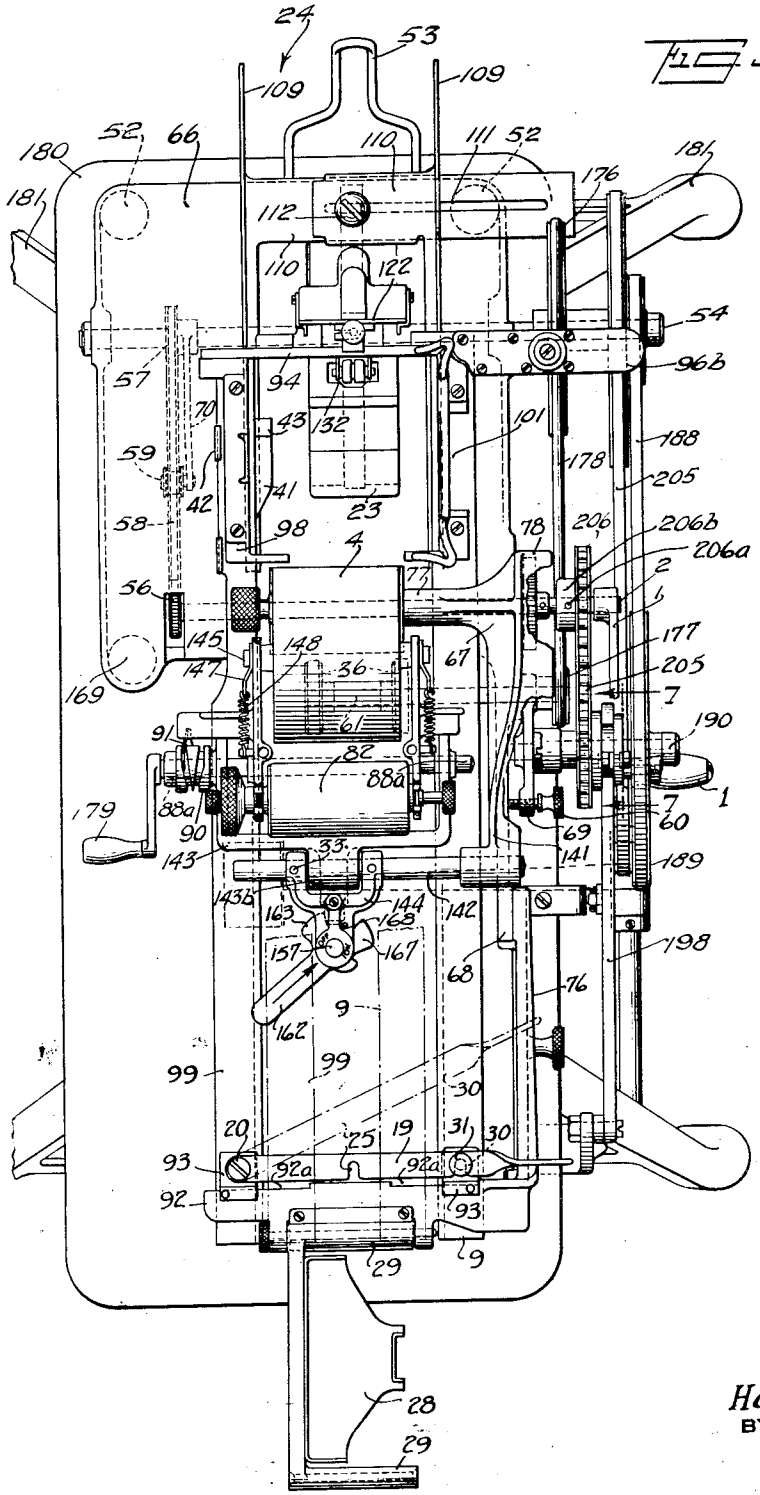
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Harmon P. Elliott
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ADDRESSING AND PRINTING MACHINE

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FIG. 3.



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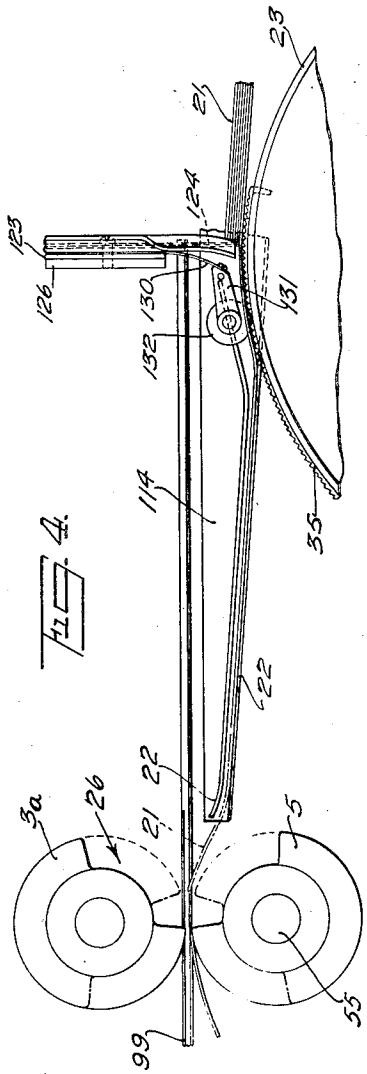


FIG. 4.

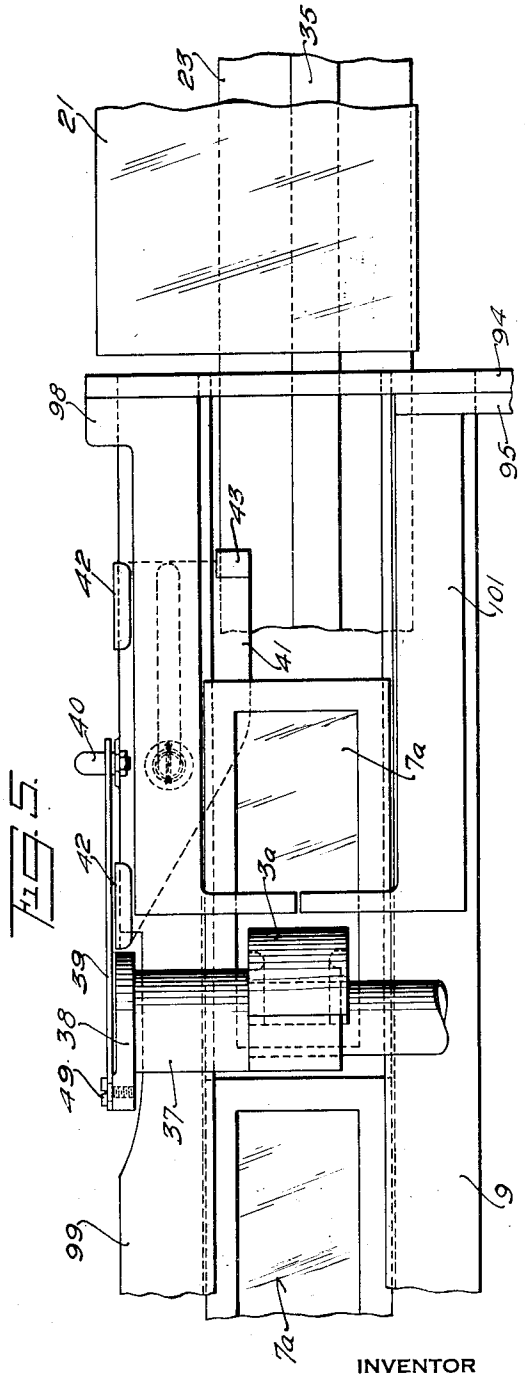


FIG. 5.

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ADDRESSING AND PRINTING MACHINE

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FIG. 7.

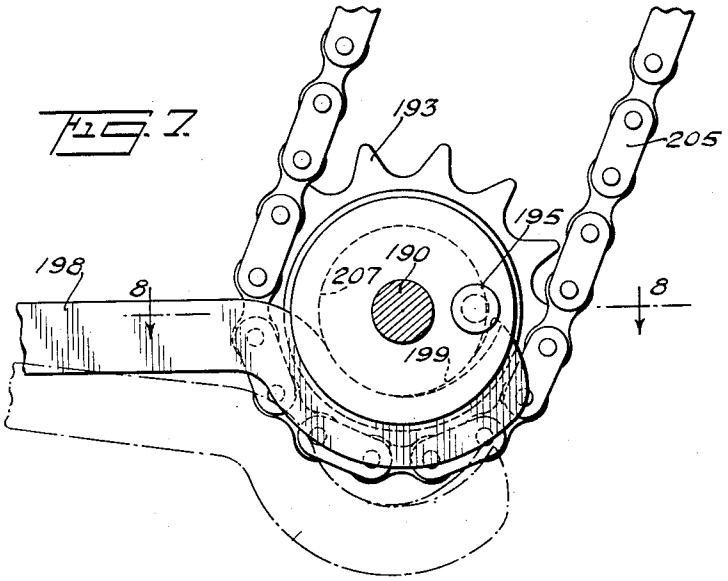
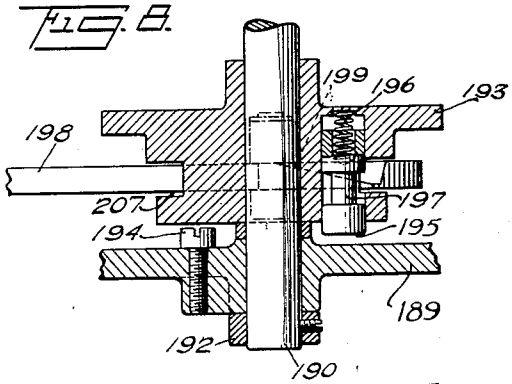


FIG. 8.



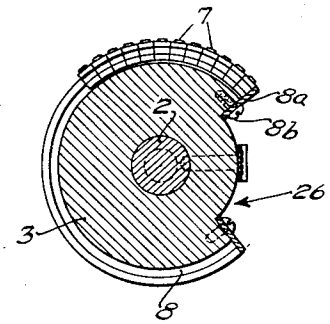
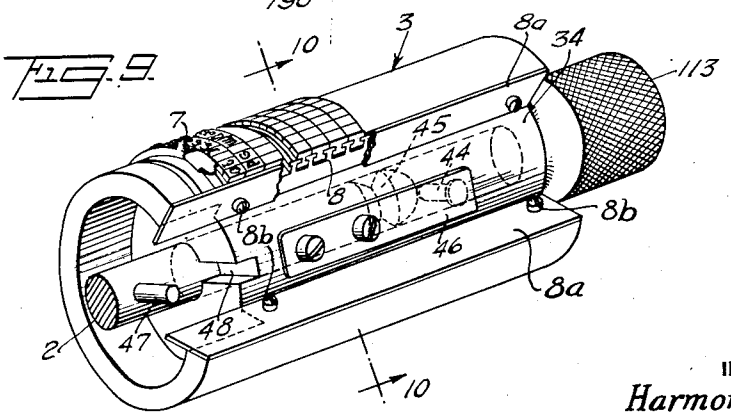


FIG. 10.

FIG. 9.



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Patented July 4, 1933 1,916,564

UNITED STATES PATENT OFFICE

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ADDRESSING AND PRINTING MACHINE

Application filed November 2, 1931. Serial No. 572,480.

This invention relates to combined addressing and printing machines of the type shown and described in my copending application Ser. No. 473,322 filed August 6, 1930, and comprises certain improvements on the structure there shown, and certain modifications thereof.

The apparatus here illustrated, like that described in my said copending application, is designed to use stencils for printing names and addresses upon post cards, envelopes, letter sheets, etc., thousands of users of stencil addressing machines already having many millions of these stencils in stock, which they cannot afford to discard and replace with something different. For printing the message or other matter on the addressed post cards or letter sheets, according to my invention, I employ a sector bearing type or raised letters on its curved face, instead of using a large stencil, as in the form of the broad invention shown in my above noted earlier application. This type bearing sector, however, fits into the addressing machine, in place of the usual inkbearing platen sector employed in cooperation with the stencils in printing the addresses. It takes its ink from the same ink supplying unit that supplies ink to the ink bearing platen sector, and it is revolved by the same gearing that revolves the latter so as to similarly cooperate with the lower pressure platen sector in each printing operation. The type bearing sector may have type set removably in grooves or otherwise in its face, or it may have a facing sheet of rubber or similar elastic composition which has been moulded to form (when inked) a printing surface of any desired pattern.

The type and ink bearing sector and the smooth faced ink bearing sector, being exchangeable one for the other in the machine, constitute the means whereby the character of the printing performed by the machine may be varied, as well as the area covered by the printing done on the successive paper sheets or post cards, or other articles fed to it for printing; and this without necessarily changing, or modifying the action of, any of the other machine parts.

The present invention also includes the combination, with a hand operated addressing machine of the general type shown in my said copending application, of a special power unit and supporting table for both, which may be sold as a unit to present owners and users of said addressing machines, and the latter installed thereon and connected to the motor without requiring any changes which might interfere with said machine still being operated by hand, if desired.

The invention includes certain other and minor improvements which, when described hereinafter will be obvious to those skilled in the art.

The best form of apparatus at present known to me embodying my invention is illustrated in the accompanying five sheets of drawings in which:

Fig. 1 is a side elevation of an addressing machine and supporting power unit, parts being broken away.

Fig. 2 is an end elevation of the same, parts being broken away and others shown in section.

Fig. 3 is a plan view, a few parts being broken away, and others removed.

Fig. 4 is a detail longitudinal section on an enlarged scale, illustrating the card feeding mechanism.

Fig. 5 is a similar detail, plan view illustrating the mechanism for feeding the address bearing stencils to the printing zone.

Fig. 6 is a detail horizontal section on line 6—6 of Fig. 2.

Fig. 7 is an enlarged, detail, vertical section on line 7—7 of Fig. 2, and

Fig. 8 is a horizontal section on line 8—8 of Fig. 7.

Fig. 9 is an enlarged perspective view of one form of type-carrying, ink-bearing sector, and

Fig. 10 is a cross section on line 10—10 of Fig. 9.

Throughout the drawings like reference characters indicate like parts. In its main parts the general construction of the combined addressing and printing machine here shown is the same as that described in detail in my above noted copending application, and consequently will be only briefly recited. 51 is

the main frame which may have a table top 66 and be supported by legs 52, having rubber tips so that the machine may be placed on a desk or table without marring the surface thereof. 50 indicates generally a magazine for cards having names and mailing addresses stenciled therein, which stencils are to be pulled out one by one, fed through guides to and through a printing zone, together with post cards or other articles to be addressed, which latter are stacked in a magazine indicated generally at 24, which has a skeleton bottom and back formed by bent wire 53. At the other end of frame 51 is the collector 28 used for stencils which are discharged into it from the end of the usual grooved stencil guides 9 and 99, while the printed post cards or other printed articles are deposited in receptacle 27. 74 is an adjustable end wall for card receptacle 27, and 73 is a clamping nut therefor. 1 is a hand crank mounted on the end of revoluble shaft 2 journaled in housing 67, and having a considerable portion of its length projecting beyond such single journal bearing. Said housing 67 has an edge flange 78 for protecting a pair of gears 6, 6, the upper one of which is fast on shaft 2, while the lower one is fast on shaft 55 which is journaled in a swinging frame (not shown) so as to have a slight range of vertical adjustment according to the thickness of the cards or sheets which are to be fed through the printing zone. Stencils 7*a* in the address printing operation are fed along guides 9 and 99 from a magazine generally indicated at 50, by slide 41 (Fig. 5) mounted on guide 99 carrying feed claw 43 and provided with guide ears 42, 42, which hook around the outer edge of stencil guide 99. This slide is actuated by connecting rod 39 pivoted at one end on pin 40 on slide 41 and at the other on crank pin 49 on crank disc 38 on the outer end of sleeve 37 which can be slid on or off the portion of revoluble shaft 2 projecting beyond its single journal bearing in housing 67. Said shaft similarly carries the ink-bearing platen sector 3*a* after sleeve 37 has been slipped off and the said sector 3*a* slipped on in its place.

Casting 101 is fastened at one end to slide bar support 95, as indicated in Fig. 5, and casting 98 is similarly fastened to slide bar 94, both these bars being adjustable in an endwise direction in the housing 96 (Fig. 1) which has a cover plate 96*b* provided with a vertically bored boss 96*a* in which is mounted a vertically sliding pin controlled by knurled sleeve 106 for holding these bars 94 and 95 in various positions of adjustment. The stencil guide 99 is fastened to the bottom of casting 98, while 9 is fastened to the bottom of casting 101, with the result that these stencil guides are adjustable toward and from one another.

The other ends of the stencil guides carry clips 93, 93, which have sliding engagement with the horizontal bracket 92, supported from the arm extension 76 which is fastened to the forwardly extending arm 68 projecting from one end of the main frame 51. As shown in Fig. 1, 76 is fastened to 68 by screws 76*a*. Bracket 92 is notched at 92*a*, 92*a*, to limit the movement of the guides 9 and 99 toward and from one another and these are held in such adjustment by means of the swinging latch 19 pivoted at 20 to guide 99 and provided with two notches 25 and 30 either of which is adapted to engage vertical pin 31, carried by guide 9. When the guides are drawn together so that notch 25 may engage pin 31, the guides are spaced apart a distance such as shown in broken lines in Fig. 1, so that they will receive and hold in their oppositely disposed grooved faces the address bearing stencils 7*a*, 7*a*. When the guides are pushed apart so that the groove 30 engages pin 31 a much larger portion of the face of the lower platen sector 5 is left free and exposed so that a wider printing zone is created, as indicated in full lines in Fig. 1.

The stencil magazine 50 is formed by the rear upright 100 carried by casting 98 and the two front uprights 102, 102, carried by the casting 101. Consequently when the stencil guides are brought near enough together to handle the address bearing stencils 7*a* the two halves of the magazine thus formed will be similarly brought near enough together to hold and guide a stack of such stencils.

The mechanism for guiding and feeding postcards or other cards to be printed comprises the magazine represented generally at 24 composed of the vertical side plates 109, 109 (see Figs. 1 and 3) which are supported by horizontally extending feet 110, 110, which are slotted at 111 to receive a thumbscrew 112 so that they may be adjustable toward and from one another. Thumbscrew 112 screws into the table 66 and so clamps the card magazine in proper position relative to the printing mechanism. The bottom and back of the card magazine is formed by the bent U-shaped wire 53. A rotary feed drum 23 carried by horizontal shaft 54, is provided with a roughened circumferential strip 35 for engaging the bottom card in the magazine 24, and feeding it forward under pressure roller 132, into card guides 22, the other ends of which terminate under stencil guides 9 and 99 adjacent the lower platen sector 5 so that as each one of the postcards 21 is fed forward along guides 22, its forward end is pushed up against the under surface of the stencil guides 9 and 99 in a position ready to be gripped between the oppositely disposed platen sectors, as indicated in broken lines in Fig. 4. Guides 22 are supported by extensions 114 of the card magazine side plates 109. Drum 23 is driven by sprockets 57 on the rear end of shaft 54, over which sprocket chain 58 runs to sprocket 56 on the rear end

of shaft 55. The usual slack take-up 59 is provided for this chain. Pressure roller 132 is journaled in housing 131 carried by the lower end of spring 130 which itself is carried by the sliding gate 123 which forms the lower portion of the front of the postcard magazine. Spring plates 124 are also carried by main gate 123 and project below it so as to prevent all except the bottom postcard 21 from being dragged out of the magazine by the feeding drum 23. Gate 123 may be raised and lowered by rod 126, the upper end of which has a swiveling connection to the lower end of adjusting screw 126*a* (see Fig. 1) which is threaded into block 122*b*, which is supported on the upper end of plate 122 forming the main front of the postcard magazine. Block 122*b* has a slot 128 (see Fig. 6) extending from one side of it to the threaded bore in which screw 126*a* rests. One of the screws 127 holding block 122*b* to plate 122 passes across this slot and threads into the block portion beyond said slot. Consequently when this screw 127 is set up tightly it clamps adjusting screw 126*a* in any position of adjustment it may then be occupying.

After each card or sheet or envelope has passed through the printing zone and is no longer grasped between the revolving sectors it bears on the rotating friction wheels 36, 36 (Figs. 2 and 3). These are carried by shaft 61 journaled in housing 69 pivoted to the front of main frame 51 at 83 and carrying a set screw 60 (Fig. 3) which bears on the face of said main frame. After loosening setscrew 60 the housing 69 may be swung on pivot 83 to raise or lower the ejector friction wheels 36, 36, and the screw then forced against the main frame to hold them in the position so assumed. Shaft 61 is rotated by belt 178 running over pulley 177 on its outer end and driven by pulley 176 on shaft 54.

The inking apparatus here shown is in the form of a unit pivoted on the horizontally extending shaft 142 which is fast in the bracket 141 extending horizontally from the upper portion of the housing 67. On this shaft is pivoted the forked housing 143 by means of the perforated lug 143*b* (see Fig. 3). This housing has an upwardly extending portion 143*a* terminating in a horizontally extending portion, one end of which is equipped with forks 146 in which the shaft 145 of the inking roll 4 is loosely journaled and prevented from removal by the split pins 150. At the other end this housing is equipped with the upwardly projecting forks 151 in which the shaft 82*a* of the rotary ink fountain 82 is journaled, being retained therein by split pins 152. The transfer roll 88 carried by shaft 88*a* is journaled in this housing beneath the ink fountain 82, and adjacent the inking roll 4. The latter is pulled toward the transfer roll 88 by means of springs 148 anchored at 149 and having their other ends connected to clips 147 which are loosely mounted on the ends of the inking roll shaft 145. A double grooved cam 90 on the rear end of shaft 88*a* of the transfer roll cooperates with the pivoted crescent pin 91 to produce an endwise sliding of the roll as it rotates. 179 is a crank on said shaft by which said roll may be rotated by hand when it is desired to transfer a larger quantity of ink to the roll 4 than would result from normal operation. 4*a* is removable cover for the ink-supplying rolls.

The inking unit above described would obviously be supported at its free end by the roll 4 resting on the upper sector of the ink impression apparatus and thus transferring a certain quantity of ink from roll 4 to the upper sector 3 or 3*a*, whichever might be in position on shaft 2. I have found, however, that frequently more pressure is required for this purpose than is produced by the weight of the parts and accordingly the U-shaped housing 144 is pinned on shaft 142 so as to embrace the pivoted housing lug 143*b* (as shown in Fig. 3) and positive pressure means are mounted on this housing 144 to cooperate with the loose anti-friction sleeve 164 which is held by screw 165 on the rear end of housing 143 so as to positively swing the inking unit upward or downward.

Housing 144 may be fastened on shaft 142 by pins 33, 33 (Fig. 3) and by providing various sets of holes in shaft 142 for these pins, the housing and the entire ink supplying unit may be moved to one side or the other of the machine and fastened in various positions so assumed to produce any desired adjustment of the inking unit with reference to the ink bearing sectors 3 and 3*a*.

The preferred form of pressure apparatus for the inking roll 4 comprises the sleeve 161 mounted on vertical shaft 157 which is held in housing 144 by cross pin 158, said sleeve being provided with a radially projecting upper fin 163 and a lower radially projecting fin 167, which fins are respectively adapted to bear upon the anti-friction roller 164 when sleeve 161 is rotated on vertical shaft or pin 157 by means of the radially projecting handle 162. This sleeve is held against the housing 144 normally by spring 160 confined between the lower end of said sleeve and the head 159 on the lower end of shaft or pin 157. Its turning movement on shaft 157 is limited by pin 168 set in housing 144. The set screw 166 also set in housing 144 limits the upward movement of the rear end of swinging housing 143 when there is no support for the other end of said housing. Consequently the adjustment of screw 166 will limit the distance through which inking roll 4 will drop down when the space 26 between the ends of the curved face of the upper platen sector comes opposite said roll. The amount of ink to be delivered to the ink

impression apparatus at each operation of the machine is dependent on the pressure with which inking roll 4 is forced down on said sector face, and this pressure is determined by the angle through which fin 167 is swung under anti-friction roller 164, and the consequent extent of compression of spring 160 which results from the inclined upper face of lower fin 167 being forced under anti-friction roller 164 by a counter clockwise rotation of handle 162 and sleeve 161, so as to force said sleeve downward and so compress spring 160 more or less. When the operator turns sleeve 161 in a clockwise direction the inclined under surface of the other radial fin 163 engages the anti-friction roller 164 and lifts inking roll 4 upward slightly, so as to cause it to clear the sector. The upper platen sector then in position can then be removed to permit the substitution of another, or for any other purpose. Also the inking roll 4 can thus be freed from contact with the upper sector before the inking members are rotated by handle 179 to accumulate more ink on said roll 4. The above described construction of floating inking unit is fully illustrated and further described in my co-pending application Ser. No. 572,481, filed of even date herewith.

The printing of the addresses is done with the stencils 7*a* and the narrow ink-bearing sector platen 3*a*, as shown in Fig. 5. When a message, or other matter requiring a larger area for the impression, is to be printed on the other side of each postcard or upon sheets of paper, the sector 3*a* is slipped off of shaft 2, the stencil guides 9 and 99 are moved apart to expose a wider area of the lower sector 5, and the type-bearing sector 3 (best shown in Fig. 9) is slipped on to shaft 2. The type 7, having been slid into the circumferential undercut grooves 8 on said sector, are held in place by plates 8*a*, fastened by screws 8*b*, said plates then covering the ends of said grooves. When sector 3 has been thus slid on to shaft 2, the radial groove 48 cut in its inner end engages the radial drive pin 47 on shaft 2 and thus the sector is compelled to revolve with the shaft. It is yieldingly held in this position by radial pin 44, mounted in sleeve 34, which sleeve forms the hub of the sector. This pin is pressed inward by plate spring 46 to engage the circumferential groove 45 on shaft 2 near the latter's outer end. Sleeve 37 carrying sector 3*a* is similarly constructed so as to slide on and off of shaft 2. A knurled projection 113 from the other end of sleeve 34 is provided to be grasped by the operator when installing or removing the type faced sector carried by that sleeve.

The stencil feed slide 41 is left idle when type-bearing sector 3 is installed, and stencil guides 9 and 99 then merely continue to perform their subordinate but important functions as guides for the post cards during the latter portion of the travel of said cards to the printing zone, and while being discharged therefrom. If cards or sheets of paper to be printed are fed by hand to the printing zone, the surfaces of 9 and 99 then form the only guides for such hand fed articles. Ink is taken by the surfaces of type 7 on sector 3 from inking roll 4 and applied to the postcard or other article being printed. In all cases the lower sector 5 performs the same function, that of a pressure platen cooperating with the ink impression element, of whatever character which is in position above it, to force the card or sheet or stencil against the ink bearing surface of the latter. When the smooth faced sector 3*a* and the stencils are used, only a portion of the ink carried by said sector reaches the surface to be printed, the remainder being intercepted by the impervious portion of the stencil. When the type-faced sector 3 is used, all of the ink carried by it is transferred to the postcard or letter sheet.

The combined addressing and printing machine hereinbefore described is so designed as to be operated either by hand or by power and a particular construction of portable power unit and supporting stand or table on which the addressing and printing machine may be placed for the purpose of enabling it to be power driven, is shown in Figs. 1, 2, 3, 7 and 8 of the drawings. Power is transmitted to the main driving shaft 2 through the sprocket gear wheel 206 which is fastened on said shaft inside of the hand crank 1. Said fastening may be effected by means of setscrew 206*a* in the hub 206*b* of the gear wheel, as shown in Fig. 2. The machine is set on the table top 180 supported by legs 181 and supporting from its under side the electric motor 182. Any desired train of gearing may be employed for transmitting the rotation of the motor shaft 183 to sprocket wheel 206 and reducing the speed of such rotation to the desired extent, but I have illustrated a special form of gearing and clutch, all of which is carried by the table 180, except one pair of belt pulleys 186 and 187 which are fastened together side by side to form a unit which may be mounted on the projecting end of shaft 54 to rotate loosely thereon, being retained in position by collar 209 and spacing sleeve 208, as best shown in Fig. 2. Belt 185 runs over drive pulley 184 on the end of the motor shaft and transmits motion to pulleys 186 and 187, and belt 188 runs over pulley 187 and loose pulley 189 on the stub shaft 190 (Fig. 8) which is held fast in bracket 191 set on the upper surface of table top 180. Pulley 189 is held on shaft 190 by collar 192. A sprocket gear wheel 193 is also loosely mounted on shaft 190 beside pulley 189 and carries a clutch pin 195 which can be slid in and out along a line par-

allel to the axis of shaft 190 and is normally held in the slightly projected position shown in Fig. 8 by spring 196. A clutch screw 194 is set in the inner face of pulley 189 in a position such that it will strike against pin 195 when the latter is thus projected and so cause the sprocket gear 193 to rotate with pulley 189. Sprocket chain 205 then transmits motion from 193 to sprocket wheel 206 previously described as being fast on shaft 2 so that the rotation of motor 182 is transmitted to the addressing and printing machine set upon the table top 180, as shown.

A suitable throwout mechanism for the clutch, formed by the engagement of screw 194 and pin 195, is provided by which the transmission of power from motor 182 to shaft 2 may be interrupted. This is shown more in detail in Figs. 7 and 8. It comprises a hook-shaped clutch throwout lever 198 pivoted at 200 (see Fig. 1) to a bracket carried by table top 180 and having the inner edge of the hook-shaped portion on its free end provided with a laterally inclined surface 199 adapted to enter the annular groove 197 on sliding pin 195 and thereby withdraw said pin into its socket in the hub of gear 193 so that it will no longer engage screw 194, on pulley 189, thus throwing the clutch out of gear at a given point in the rotation of gear wheel 193. For this purpose lever 198 is guided by the groove 207 in the hub of said gear wheel. 201 (see Figs. 1 and 2) is a link connecting lever 198 with the foot pedal 203 pivoted on shaft 204, which is supported by the legs 181. Normally pedal 203 and clutch lever 198 are held up by spring 202, the upper end of which is anchored on table top 180. Normally therefore the clutch will be thrown out at a given point in each revolution and the pulley 189 allowed to rotate idly on shaft 190 until the operator presses down on pedal 203. Downward movement of this pedal withdraws the hook-shaped end of the clutch lever from the position in which its inclined surface 199 engages the annular groove 197 in pin 195, this permitting spring 196 to force the pin outward so that the head of screw 194 will strike it when the pulley 189 has revolved to the necessary extent, and the clutch is then closed and so long as the pedal is held down the motor 182 will drive the addressing and printing machine continuously.

The addressing and printing machine may be sold separately to be operated by hand by the crank 1 and the supporting stand and attached power unit may be sold separately as a unit to the users of the hand operated machines, which can then be placed on the table top 180 when it is desired to use electrical power, and can then be connected up to the power unit by merely installing the sprocket gear 206 on shaft 2, and the loose pulleys 186 and 187 on the projecting end of shaft 54, together with the connecting belts 185 and 188 and sprocket chain 205, as above described.

Conversely, by tipping up the machine on its front legs 52, 52, far enough to produce the slight needed amount of slack in sprocket chain 205, said chain can be slipped off the sprocket gears, and, on removing the compound pulley 186—187 from the end of shaft 54, together with the belts 185, 188, the machine becomes hand operable and easily portable for use in other places when placed on a table or desk or other support.

Various changes in the details of construction here shown could be made without departing from the underlying principles of the invention as above explained or as may be obvious to those skilled in the art.

Thus the type 7 may be formed either of type metal or of a slightly elastic conposition, or they may be moulded on the face of a single rubber sheet or block, as in making rubber stamps.

Having described my invention, I claim:

1. In an addressing machine employing stencils and provided with laterally adjustable grooved guides along which said stencils may be fed, the combination, with said above described apparatus, of means for locating and holding said guides in one or another position of adjustment, which comprises a latch pivoted to one guide and having a plurality of notches in one edge thereof, and a pin set in the other guide adapted to engage one or the other of such notches.

2. In a printing apparatus employing stencils comprising a pair of oppositely rotating platen sectors journaled one over the other, a pair of oppositely grooved guide rails adapted to guide a stencil between said sectors, a rotary ejecting means located under said guide rails adjacent to said lower sector, the combination with said above described apparatus of journal bearings for said rotary ejecting means adjustable toward or from the under side of said guides.

3. An addressing machine having two oppositely rotating platen sectors journaled in a main frame between which sectors stencils and articles to be printed may be passed, parallel grooved guide bars for said stencils and a rotary member located under said guides and onto which the printed articles may be discharged, the combination, with said above described apparatus, of a housing for said rotary ejector pivoted to the front of said main frame so as to render said ejector movable toward and from said guides, and a setscrew mounted in said housing adapted to bear on the front of said frame and thereby hold said housing in various positions of adjustment.

4. The combination, with a portable addressing machine adapted to stand on a table top and having a revoluble driving shaft

projecting from one side thereof provided with a hand crank mounted on the end thereof and a sprocket gear mounted on said shaft adjacent said hand crank, of a portable power unit comprising a table, a motor mounted on the under side of the table top, a sprocket wheel journaled on said table top, speed reducing gearing connecting said motor to the last mentioned sprocket wheel, and a sprocket chain running around both said sprocket wheels; whereby when said addressing machine is placed on said table top with its sprocket wheel projecting over the sprocket wheel carried by said table and said chain is in place, the machine may be power driven, or by tilting the machine to loosen and remove said chain, the machine may be left free to be operated by the hand crank.

5. A combination such as defined in claim 4 in which said speed reducing gearing comprises a plurality of belts and pulleys, some of which latter are mounted to revolve freely on the projecting end of another shaft forming part of said addressing machine mechanism.

Signed at Cambridge in the county of Middlesex and State of Massachusetts this 30th day of October A. D. 1931.

HARMON P. ELLIOTT.