March 22, 1932. C. CHISHOLM 1,850,922

ADDRESSING MACHINE

Filed Oct. 12, 1927 5 Sheets-Sheet 1

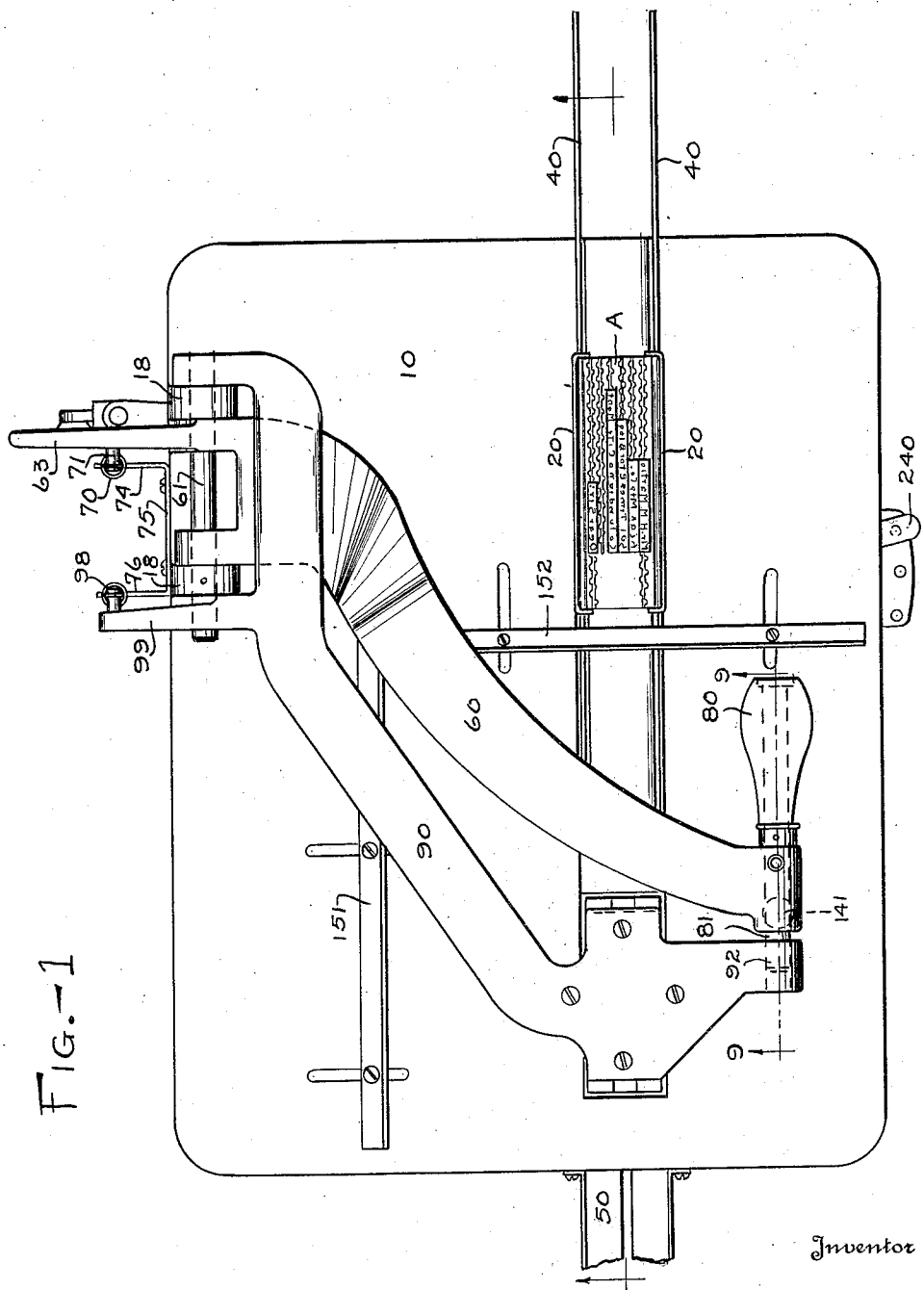


FIG. -1

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March 22, 1932. C. CHISHOLM 1,850,922

ADDRESSING MACHINE

Filed Oct. 12, 1927 5 Sheets-Sheet 2

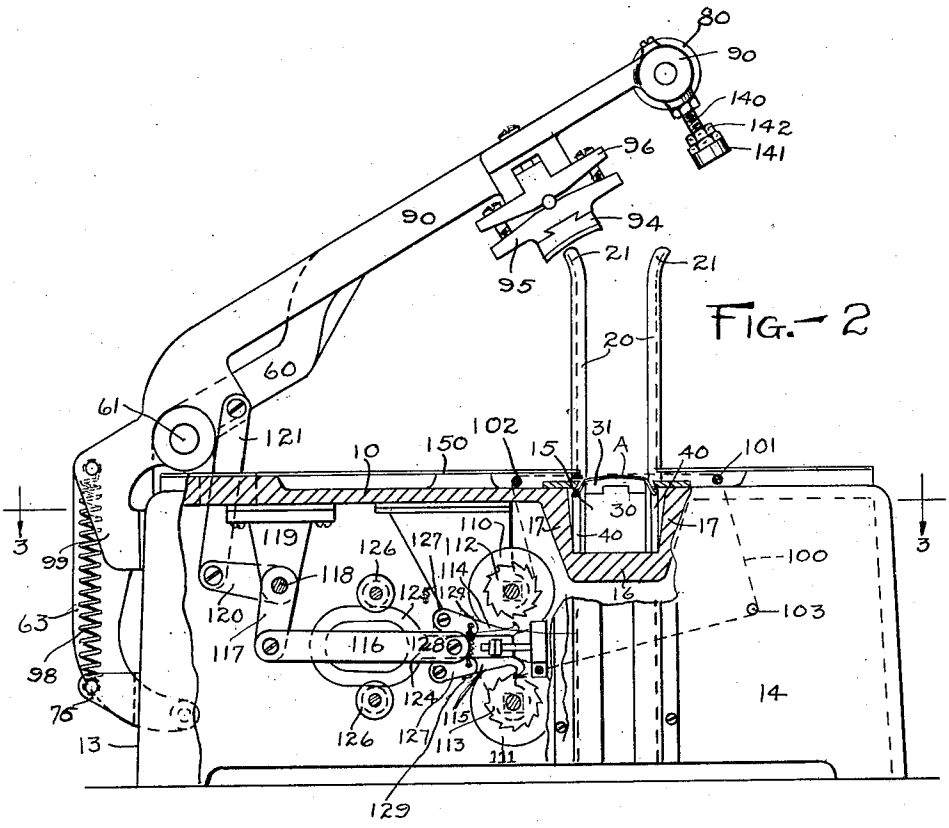


FIG.-2

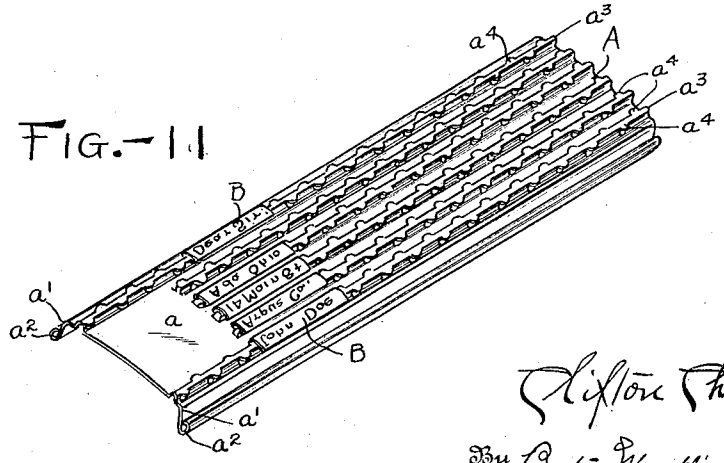


FIG.-1

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March 22, 1932. C. CHISHOLM 1,850,922

ADDRESSING MACHINE

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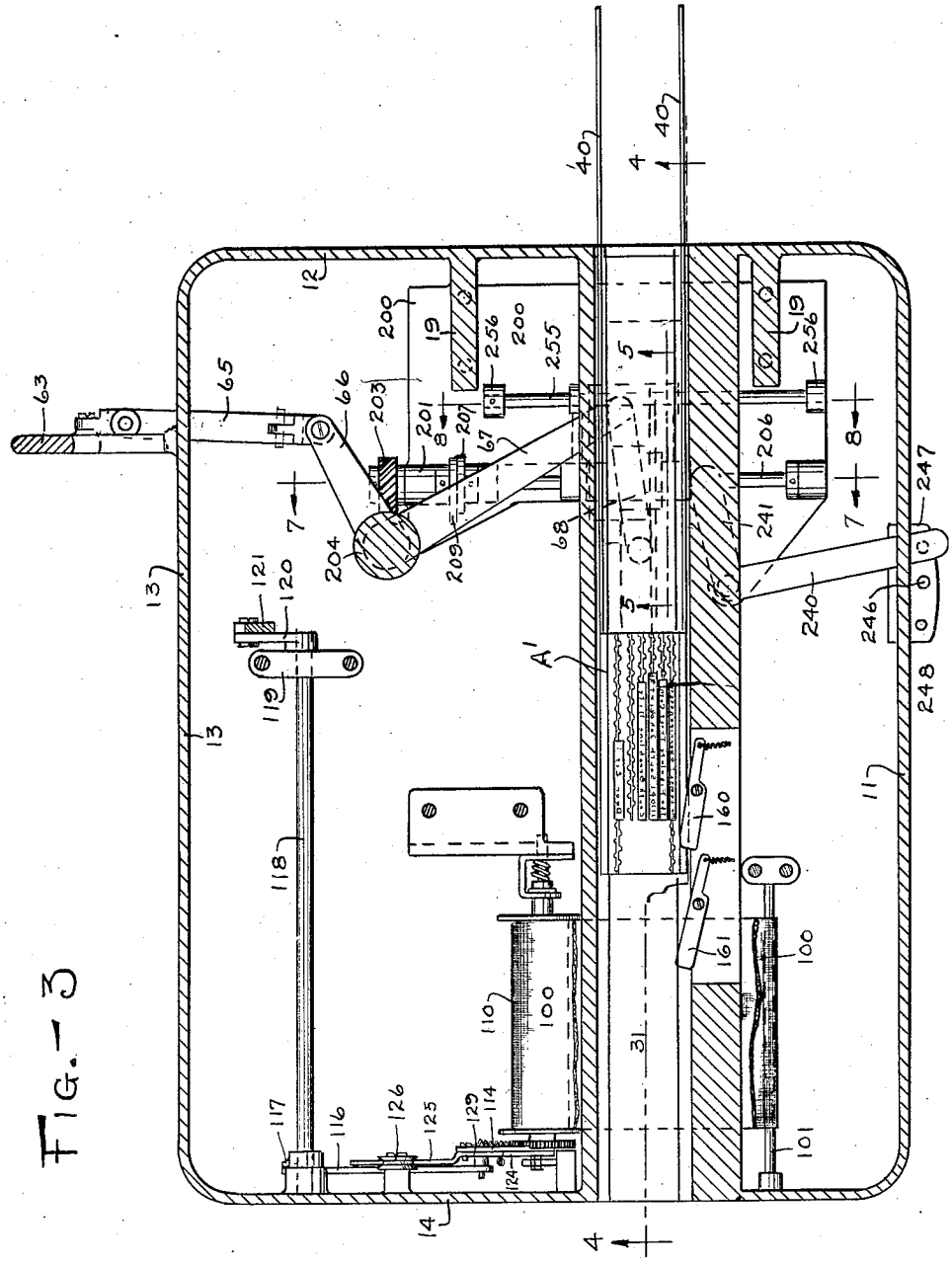


FIG. 3

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ADDRESSING MACHINE

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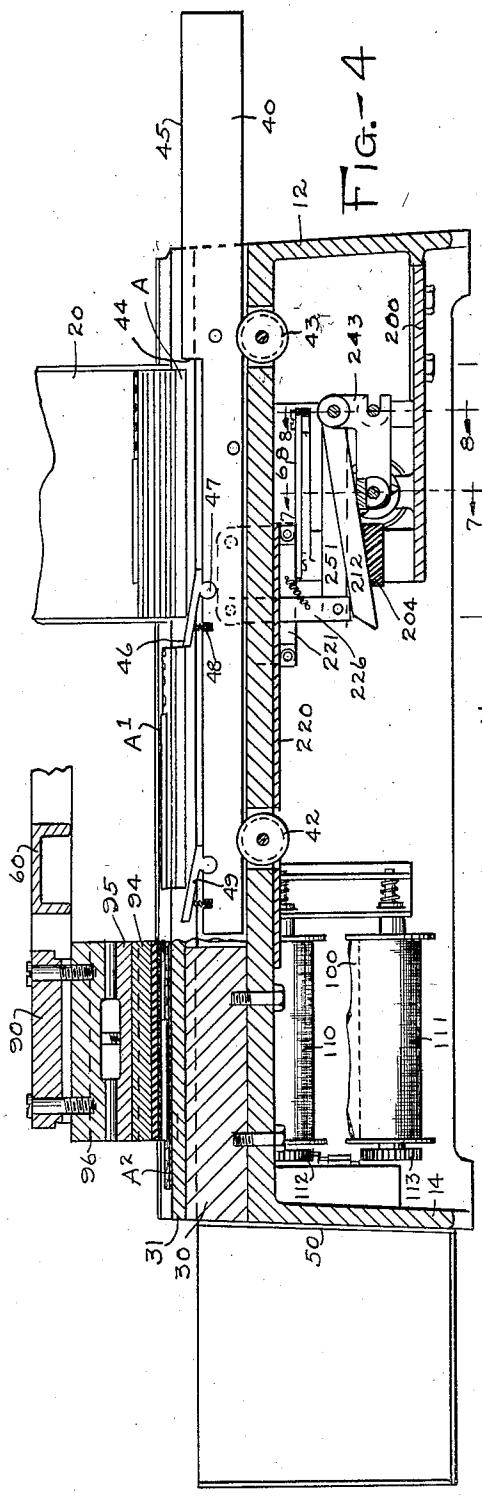


FIG.-4

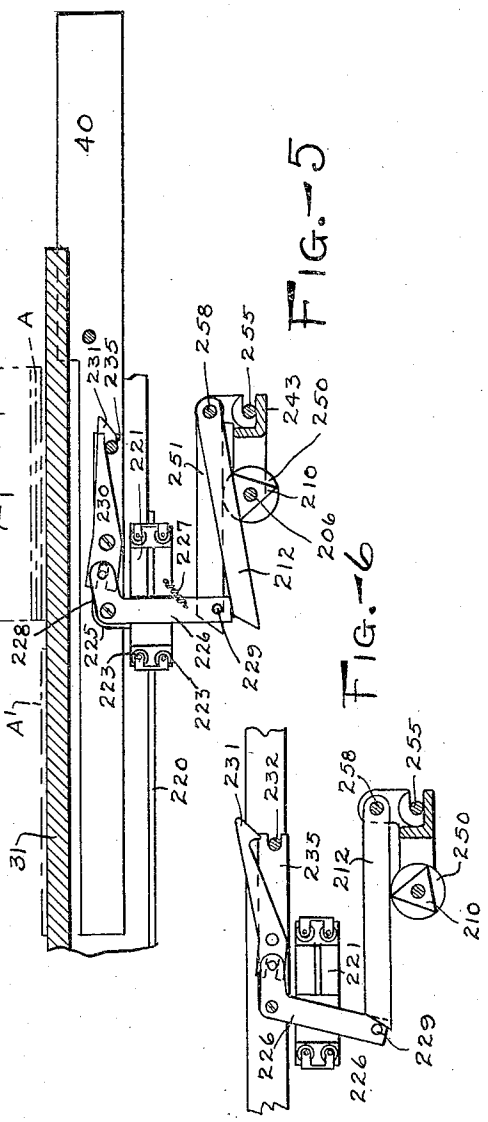


FIG.-5

FIG.-6

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ADDRESSING MACHINE

Filed Oct. 12, 1927 5 Sheets-Sheet 5

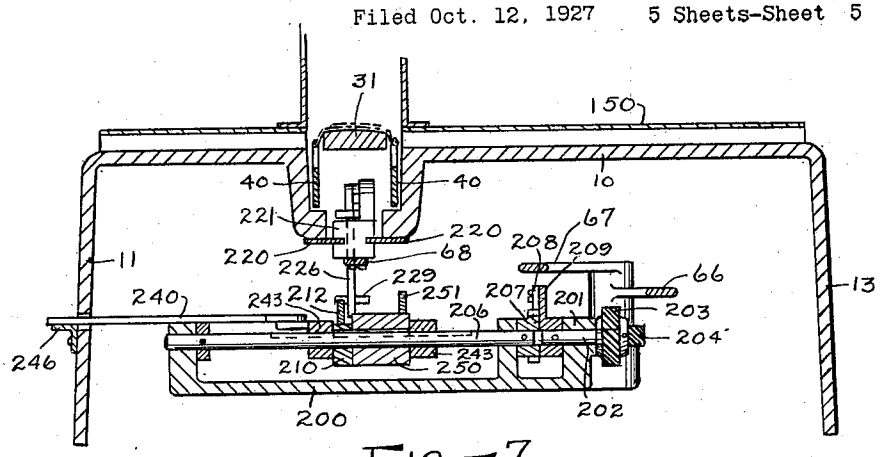
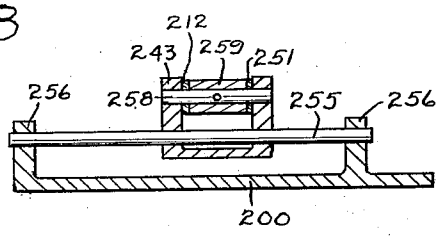


FIG.—7

FIG.—8



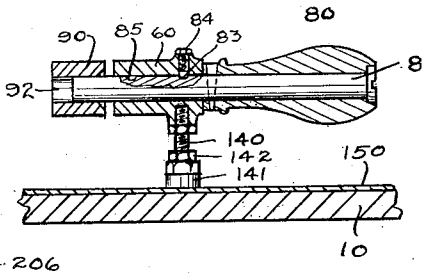


FIG.—9

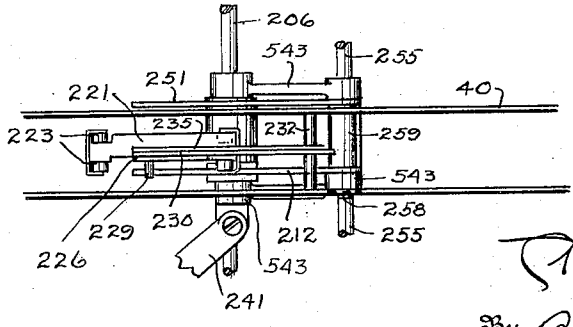


FIG.—10

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Patented Mar. 22, 1932 1,850,922

UNITED STATES PATENT OFFICE

CLIFTON CHISHOLM, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AMERICAN MULTIGRAPH CO., OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE

ADDRESSING MACHINE

Application filed October 12, 1927. Serial No. 225,634.

This invention relates to a machine for printing addresses on envelopes, cards, payroll lists, etc. The general object of the invention is to provide a simple, compact, readily operable machine, which on proper manipulation may feed plates from a magazine, print therefrom as desired, and thereafter discharge the plate.

The machine may be of that type wherein there is a stationary bed, an upright magazine from the bottom of which the plate is fed across the bed to a region of discharge at the opposite edge, and there is an impression arm pivoted adjacent one edge of the bed and carrying a platen which may be forced down to coact with the positioned address plate. A suitable inking ribbon preferably extends across such positioned address plate and is automatically and periodically fed by the operation of the machine.

An important feature of the present invention is the provision of a manually operated arm independent of and disconnectable from an impression arm carrying the platen, this manual arm being connected with the feed mechanism, the result being that when the two arms are connected, a plate may be automatically fed and printed from, whereas when the arms are disconnected, plates may be fed without printing, thus enabling a selection of any desired plate for printing.

In my machine, the automatic ribbon feed is connected with the impression arm but not with the operating arm, so that whenever there is printing, there is a feed of the ribbon, whereas a feeding of unprinted plates is not accompanied by any feed of the ribbon, and thus there is no waste of inked portions of the ribbon. This is also a feature of my invention.

Another feature of the invention relates to provision of a manual-arm printing device arranged to print by blow impressions on a curved address plate. This enables me to use the same plate as is used, for instance, in the rotary addresser shown in Patent No. 1,627,240 of my assignee, the American Multigraph Company.

Another feature of the invention relates to a removable, self-contained controlling device for enabling duplicate impressions or continuous printing from one plate, as desired. Other features of the invention will be apparent from the following description of the preferred embodiment shown in the drawings.

In the drawings, Fig. 1 is a plan of the machine; Fig. 2 is an end view of the machine with part broken away; Fig. 3 is a horizontal section along the line 3—3 on Fig. 2; Fig. 4 is a horizontal section on the offset line 4—4 on Fig. 3; Fig. 5 is a fragmentary vertical section on the line 5—5 on Fig. 3; Fig. 6 is a sectional elevation showing the parts of Fig. 5 in a different position; Fig. 7 is a vertical cross section on the line 7—7 on Fig. 4; Fig. 8 is a vertical cross section on the line 8—8 on Fig. 4; Fig. 9 is a vertical cross section along the axis of the operating handle, as indicated by the line 9—9 on Fig. 1; Fig. 10 is a plan of the linkage system shown in Figs. 5 and 6; Fig. 11 is a perspective of an address plate which may be employed in the particular machine shown.

The bed of the machine is preferably a hollow rectangular casting having a substantially flat top 10 and approximately vertical edge walls 11, 12, 13 and 15. Extending longitudinally of the bed parallel with its front and rear edges is a channel 15 caused by depressing the material of the top 10 in this region, this depressed portion having a horizontal web 16 connected by nearly vertical webs 17, Fig. 2, with the rest of the top.

The machine of the particular proportions shown is designed to operate with address plates of the character illustrated in Fig. 11, and which correspond substantially with the plates shown in prior Patents Nos. 1,628,630 and 1,628,631 of my assignee, the American Multigraph Company. Briefly, such a plate, designated A, comprises a trough-shaped piece of sheet metal having an arcuate body portion a, downwardly extending edge portions a^1 and curled beads a^2. The intermediate portion is upwardly corrugated to provide longitudinal ribs a^3 from the top portions of which project lateral lips a^4. The printing members for this plate comprise embossed strips B, which may be made in ac-

cordance with claim 205 of Patent No. 1,557,754 of the American Multigraph Company, and have bent-in edge flanges, whereby such strips rest on top of the ribs a^3 and are retained in place by reason of the edge flanges underhanging the lips a^4 of the plate. While the particular machine shown has been designed to cooperate with such a plate, it should be understood that the invention is not limited thereto.

The plates described are stacked, manually or otherwise, one above the other, in a magazine supported by the bed, and drop from the magazine by gravity as the bottommost plate is fed out of the magazine. As shown in Figs. 1, 2 and 4, this magazine consists simply of a pair of wide channel plates 20 secured in vertical position on the bed with their channels facing each other. The width of the channels and their space apart enable them to freely receive the address plate, as illustrated in Fig. 1. The upper edges 21 of the channel members, however, are preferably rounded outwardly, as in Fig. 2, to facilitate the insertion of the plates. The magazine is directly over the trough 15, in which operates feeding mechanism to be presently described.

In the trough 15 adjacent the end of the machine distant from the magazine is secured an anvil block 30, which stands beneath the platen and is adapted to receive the blow on the plate during the printing. Reciprocably operable from the channel is a feed slide for transferring the bottommost plate from the magazine to the anvil. This slide comprises a pair of vertical bars 40 riveted to an intermediate distance piece. These bars ride on rollers 42 and 43 mounted in the bed. They extend beneath the side edges a^1 of the plates and have shoulders 44 adapted to engage the ends of such portions of the bottommost plate.

When the feed slide is moved from the position shown in Fig. 4 toward the left, the shoulders 42 engage the bottommost plate and shove it toward the left out of the magazine. Preferably, the machine is designed with space for one standing plate between the magazine and the anvil. At the same time with the feeding from the magazine, the standing plate (A^1, Figs. 3 and 4) is shoved to the left, onto the anvil, by reason of a pair of spring pressed dogs 46 on the slide engaging the end of this plate. These dogs preferably are mounted on the slide by reason of partially circular portions 47 of the jog dogs occupying correspondingly shaped recesses in the edges of the bars 40, a compression spring 48 tending to push the front end of the dog upwardly. The left hand movement of the slide 40 besides moving the bottom plate A from the magazine and the intermediate plate A^1 onto the anvil, also causes another dog 49 to engage the plate A^2 on the anvil and shove it off of the anvil into a position where it drops by gravity into receptacle 50.

In the feeding stroke described, the straight top edges 45 of the bars 40 support the rest of the plates in the stack, as the bottommost plate clears the stack. On the return stroke, as the dogs 49 and 46 pass idly under the plate on the anvil and the intermediate plate, and the supporting edges 45 clear the magazine whereupon the stacked plates drop a distance of one plate, bringing a fresh plate into position in front of the shoulders 44.

It is to be understood that the anvil block 30 is narrower than the trough 15, and thus leaves on opposite sides of it space for the travel of the bars 40. This anvil block may be made with its top portion 31 a separable member, whereby the same machine may be readily altered for different forms of address plate. My machine is especially well adapted for carrying trough-shaped convex address plates as shown in Figs. 2, 7 and 11, and in such case, the block 31 has a convex surface and a platen hereinafter described as correspondingly concave. This enables me to employ a plate suitable for use alternately in this machine or in a rotary printing machine.

Means for operating the reciprocating slide 40 comprises a manual arm 60 pivoted by a rod 61, mounted in upstanding ears 18 of the bed adjacent its rear edge, and suitable lever and linkage mechanism connecting the arm with the slide. As shown, the lever 60 has a rearwardly extending arm 63 which bends downwardly at the rear of the bed, and to the lower end of this arm is connected a link 65, the forward end of which is connected to an arm 66 of a bell crank. The other arm 67 of this bell crank is pivoted to a link 68 which is connected to the slide 40. This connection may be by a simple pivot pin, or there may be interposed at this point the duplication control hereinafter described. The connection of the link 65 with the arms 63 and 66 is preferably by a universal joint at each end, as shown in Fig. 3.

It results from the lever and linkage described that when the forward end of the arm 60 is being depressed, the link 65 is pulled rearwardly and the bell crank is swung to move the slide 40 toward the right into position to cause the shoulders 44 to clear the bottommost plate of the magazine. Then when the operator's pressure on the arm 60 is relieved, a tension spring 70 (Fig. 1) restores the arm to the normal elevated position, and thereby may operate the slide to feed the bottommost plate in the magazine, and any other plates on a horizontal path in front of it, toward the left, a distance somewhat greater than the length of the plate.

I find it convenient to anchor the tension

spring 70 at its upper end to a pin 71 in the side of the arm 63, and at its lower end to an arm 74, of a suitable bracket 75 secured to the rear wall 13 of the bed.

To operate the arm 60 manually, I provide a suitable handle 80 at one side thereof, secured by a rod 81 extending through the forward portion of the arm. The operation of this arm, while it may feed the plates as I have described, does not of itself effect a printing impression. The impression is made by an entirely separate arm which may or may not be coupled to the manual arm 60.

The separate impression arm, designated 90, is preferably mounted on the same pivot pin 61 as the arm 60. The forward end of the impression arm extends alongside the operating arm, and has a socket 92 aligned with the handle rod 81 of the operating arm. This rod is slidably mounted in the operating arm, and thus may project into the socket, as shown in Fig. 1. In this position the two arms are coupled together, and the feeding operation (on its return, or downward stroke) is thus accompanied by a printing operation. When, however, it is desired to feed the plates without printing, it is only necessary for the operator to draw the handle 80 toward the right until the rod 81 is out of the socket 92, and thereafter the arm 60 may be operated independently and serve to feed any desired number of plates without printing.

To prevent inadvertent displacement of the handle 80, I spline or key the rod 81 in the arm 60, so that it may not rotate therein, and I provide a suitable detent, consisting of a ball or plug 83 pressed by a spring 84 to engage either of two notches in the rod 81. Fig. 9 shows this detent engaging the notch adjacent the handle 80, which is the position when the two arms are coupled together. When drawn to the outer position, this same detent may engage the notch 85 shown in this figure. The operation of uncoupling, or re-coupling the arms may be performed almost instantaneously, without noticeably diminishing the speed of operation of the machine.

The arm 90 carries an impression platen 94, Fig. 2. As shown, this platen is curved on its underside, corresponding to the curvature of the address plate, and its under face is preferably of rubber or other elastic material. Such rubber face is mounted on a block, which is shown as having a sliding dovetail connection with a plate 95 which is adjustably secured to a plate 96, which latter plate is adjustably secured to the underside of the arm 90. The adjustment between the plates 95 and 96 enables the plate 95 to be rocked with reference to the plate 96, while the adjustment of the plate 96 in the arm 90 enables it to be forced in or out or tipped about a transverse axis. This compound adjustment has long been customary in this type of machine. The arm 90 is given a tendency to stand in the upper inclined position shown in Fig. 2, by means of a tension spring 98 secured at its upper end to a rear arm 99 of the lever 90, and at its lower end to arm 76 of the bracket 75.

It will be understood from the description so far given, that if the arms 60 and 90 are coupled together, the machine may feed a plate, and print a plate, on each complete stroke; while if the handle 80 is pulled toward the right, disconnecting the arms, the arm 60 may be operated independently to feed plates, without printing. The operator may observe the feeding by reason of the visibly exposed intermediate plate, and when the desired plate comes beneath the platen, may then restore the connection and print from that plate. In this way, printing from selected plates is readily effected.

Should it be desired to print a plurality of impressions from the same plate, this may be effected by disconnecting the arms, holding down the operating arm 60 and successively operating the arm 90 by itself. However, I prefer to provide suitable duplicating and repeat mechanism controlling such successive impressions. Such mechanism will be later described.

I prefer to employ an inking ribbon to provide the ink for the impression. Such ribbon is indicated at 100 in Fig. 2, and extends over the anvil and the address plate thereon being supported by a pair of parallel rods 101 and 102 in front of and behind the anvil respectively. Beneath the rear rod 102 the ribbon passes downwardly to one spool 110, while near the front of the machine ribbon passes downwardly from the rod 101 about a rod 103, and thence to the other spool 111. Each of these spools have ratchet wheels 112 and 113, respectively, either of which may be engaged by a pawl 114 or 115. These pawls are suitably connected to a link 116, the other end of which is connected to a rock arm 117 on a rock shaft 118 mounted in bearings in the end wall 14 of the bed and in a bracket 119 depending from the bed top 10. Another arm 120 on this rock shaft is connected by link 121 with the lever 90 in front of its pivot.

It results from the construction described, that whenever the impression arm is moved downwardly, the pawls 114 and 115 are moved forwardly and then on the upward stroke of the impression lever moved rearwardly, so that the active pawl engages its ratchet and gives a slight turn thereto, thus feeding the ribbon. The ribbon feed, it will be seen, is operated by the impression arm, and has no connection with the operating arm 60, so that there is no idle feeding of the ribbon when the plates are fed idly to bring a selected plate to printing position. Thus the

ribbon is fed only as used, and is equally worn throughout.

It is desirable to make the ribbon feed automatically reversible, so that when the spool from which the ribbon is being fed becomes entirely empty, the mechanism will automatically shift to cause the winding in to change from that spool to the other spool. For this purpose I prefer to adapt the automatic reversing mechanism of Patent No. 997,615 of the American Multigraph Company. To that end I mount the pawls 114 and 115 on the opposite ends of an equalizing lever 124, which is pivoted intermediately on a sliding bar 125. This bar is guided by rollers 126 engaging opposite edges of the bar, as shown in Fig. 2. The pivot pin connecting the equalizing lever and the reciprocating bar also furnishes the connection for the link 116. The two pawls 114 and 115 are loosely pivoted to the equalizing lever 125, and mounted on their pivot pins are a pair of arms 127 drawn together by a spring 128, and each having a lip 129 overhanging the corresponding pawl 114, 115.

It results from the arrangement just described that the spring 128 normally holds the pawls 114, 115 close enough together so that only one of them is active, as shown in the case of the pawl 115 in Fig. 2. Now when this pawl 115 in its reciprocation has entirely filled spool 111 and entirely emptied the spool 110, it is not possible to feed the ribbon further because the end of the ribbon is attached to and anchored by the spool now empty. Therefore, on the next stroke of the ribbon feeding mechanism, the ratchet 113 interposes a resistance to the movement of the pawl 115 and forms an anchorage for the nose of that pawl. Accordingly, the rearward pull of the link 116 operates to swing the cross bar about its pivotal connection with the pawl 115 as a center. This movement swings the pawl 114 into engagement with the ratchet 112. This stretches the spring 129 so that on the forward stroke of the feeding mechanism, as soon as the pawl 115 is free from the overhang on its ratchet, the spring pulls it out of engagement with that ratchet, and thereafter the operations are only on the spool 110. This winds the ribbon onto that spool until it is filled and the automatic shifting again takes place to return the feed to the other spool. A somewhat fuller disclosure of this type of automatic reversing mechanism is found in the prior patent last referred to.

To prevent overfeeding of the plates by momentum, and thus insure the plate on the anvil standing directly beneath the ribbon, I prefer to provide suitable detent dogs having a frictional engagement with fed plates. As shown in Fig. 3, I provide two of such dogs 160 and 161, which are drawn by springs so that their noses bear against the intermediate plate A^1 and the plate A^2 on the anvil respectively.

To regulate the depth of impression of the printing, a suitable abutment may be carried by the operating arm 60. If this abutment is positioned to engage the paper, the regulation thus becomes independent of the thickness of the paper, and the same adjustment is effective for various thicknesses. To this end, I provide on the under side of the arm 60 near its forward end a downwardly extending pin 140, on which is adjustably mounted an abutment block 141, this abutment being shown in the form of a knob having a flat underface. The knob is preferably threaded on the pin and locked by a jamb nut 142.

It is desirable to provide a very smooth top over which the paper may be readily slid into position. I prefer, therefore, to make this top independently of the top 10 of the bed casting. The final top may accordingly be a polished brass plate 150 and may readily rest on the bosses formed at suitable intervals on top plate 10. This provides a shallow space between the top 150 and the general plane of the bed top. In a part of this space, the horizontal region of the ribbon 100 lies. The guiding rods 101 and 102 for the ribbon may be readily carried by the lugs on the underside of the smooth top plate 150. Suitable guides 151—152 are preferably provided for positioning the paper, and these guides may be angle bars clamped to the top plate by means of short screw bolts passing through slots in the top plate.

I have mentioned that each operation of the manual arm may result in the feeding of a plate. However, it is desirable to provide a settable mechanism to control this feed, so that the operation of the arm may, if desired, feed a plate on every alternate stroke. This allows duplication, that is, printing twice from the same plate, which is frequently desirable, as when printing the address on a letter and envelope, or in making payroll lists, etc. Such control mechanism may also be employed to disconnect the feed entirely to enable successive impressions of the same plate, even though both arms are operated as a unit. The control mechanism accomplishing this result is shown in Figs. 3 to 8 inclusive, and Fig. 10, and will now be described.

Formed integrally on the inner side of the frame wall 12 are a pair of webs 19 to the under side of which is bolted a plate 200. This plate forms a bed for the control mechanism. Mounted in an ear 201 on this plate (Figs. 3 and 7) is a short shaft 202 carrying a spiral gear 203 meshing with a spiral gear 204 on the hub or shaft of the bell crank 66, 67. Accordingly, whenever the bell crank is oscillated, the shaft 202 is oscillated. Aligned with the shaft 202 is a shaft 206 carrying a

ratchet 207. Cooperating with this ratchet is a pawl 208 on an arm 209 pinned to the shaft 202. Thus, the shaft 206 receives a step-by-step rotation in one direction for each complete oscillation of the bell crank.

Mounted on the shaft 206 is an angular cam 210, the cam being shown as triangular. Resting on the cam 210 is an arm 212 pivotally carried at one end as hereinafter described and free at its other end. Accordingly, if a flat face of the cam is adjacent the arm, the arm is in a depressed position as shown in Fig. 5, whereas if a point of the cam is adjacent the arm, the latter is in an elevated position as shown in Fig. 6. By providing the ratchet wheel 207 with as many teeth as the sum of the flat faces and points on the cam (for instance, three faces on the cam and six teeth on the ratchet) it will result that on one oscillation of the lever 60, a point of the cam will hold the arm 212 up, and in the next oscillation, a flat face of the cam will allow it to be depressed. By controlling the connection from the operating arm to the feed slide by the arm 212, I can thus make the connection alternately effective and idle.

On the under side of the floor 16 of the groove 15 in the main bed, I provide a pair of guiding strips 220 which extend inwardly on opposite sides of a slot through such floor. 221 (Figs. 5, 6 and 10) indicates a block slidably mounted on the guides 220, the block preferably having anti-friction rollers 223 which may bear on the top and bottom surfaces of the guides. The block 221 is the member to which the link 68 of the operating arm linkage heretofore referred to is connected. Accordingly, this block 221 is always connected to the operating arm, and whether such arm operates the feed bars 40 or leaves them standing, depends on whether the block 221 is connected with those rails or free therefrom, by means of a latch now to be described.

Pivoted to an ear 225 rising from the block 221 is a bell crank 226, the depending arm of which is normally held vertical by a spring 227. The other arm 228 of the bell crank, which is nearly horizontal, has a fork-and-pin connection with one arm of an intermediately pivoted lever 230. The opposite end of this lever is formed into a hook 231 which is adapted to overhang a pin 232 projecting from the side of one of the bars 40. The block 221 also carries a rigid extension 235 adapted to freely abut the left-hand side of this pin 232. The vertical arm 226 carries a pin 229 which may or may not abut an inclined end on the arm 212, depending upon the position of the latter.

When the controlling cam 210 is in the position shown in Fig. 5, the arm 212 is out of the path of the pin 229. The spring 227 maintains the bell crank 226 in the position shown, which maintains the hook 231 over the pin 232 so that the block 221 is locked to the slide 40. Accordingly, under these circumstances, the downward stroke of the arm 60 (by reason of the block extension 235) having shoved the slide 40 to the extreme right, on the upward stroke of the arm 60, the hook 231 draws the slide to the left to feed a plate, the operation being the same as if the link 68 were pivoted directly to the rails 40.

If, on the other hand, a point of the cam 210 is engaging the lever 212, the inclined left-hand end of that lever is in the path of the pin 229, and accordingly, on the downward stroke of the arm 60, the pin 229 engages the end of the arm 212, and the bell crank 226 is swung into the position shown in Fig. 6, raising the hook 231 clear of the pin 232. The extension piece 235 continues active to shove the slide 40 to its extreme right, but on the up stroke of the arm 60, the block 221, being now unlatched from the bar 40, travels to the left independently of it, and no feeding takes place.

It results, therefore, that when the angular cam 210 and its arm 212 are in action that the feed slide operates simply on every alternate stroke of the operating arm. To allow the normal action of a feed for every stroke of the operating arm, it is only necessary to move the arm 212 to a lateral position where it cannot engage the pin 229, whether the arm is up or down. To this end, I make the cam 210 and lever 212 slidable laterally and control them by a suitable shipper lever. This shipper lever consists of a horizontal bell crank having an outwardly extending arm 240 (Fig. 3) accessible at the front of the machine. The other arm 241 of this bell crank is linked to a yoke 243 which positions the cam 210 and the arm 212. When the parts are in the position shown in Fig. 3, the cam and arm are in their active position as shown in Fig. 7. If, however, the shipper arm 240 be swung toward the left into the intermediate position indicated by the detent depression 246 in a keeper plate 247, Fig. 3, the cam 210 and arm 212 are drawn forwardly; that is, toward the left in Fig. 7, so that they are entirely out of range of the pin 229. Accordingly, in that position of the shipper lever, connection is maintained between the block 221 and the slide 40, and the slide operates to feed on every upward stroke of the arm 60.

It is sometimes desirable to set the parts so that there is no operation whatever of the slide for successive operations of the operating arm, thus enabling an indefinite number of impressions to be taken from the same plate. In the present mechanism, I accomplish this by shifting the lever 240 to a third position indicated at 248, Fig. 3. When in that position a roller 250 on the shaft 206 and an arm 251 pivoted to the yoke and resting on that roller are moved forwardly sufficiently so that this arm is maintained in the path of the pin 229. This operates to swing the bell crank 226 on every downward stroke of the

operating arm 60, resulting in the release of the hook 231 so that the slide 40 is never fed toward the left.

It will be seen that with the left-hand position of the shipper arm, there may be continuous printing as long as desired from a single plate on the anvil block 30. A simple shifting of the shipper lever 240 back to its intermediate position results in a fresh plate being fed on the next complete stroke of the operating arm. Then, if desired, this may be printed from an indefinite number of times by returning the shipper lever to its left-hand position.

As above explained, the cam 210 and the roller 250 and the two arms 212 and 251, are all carried by the yoke 243, which is connected with the shipper lever. This yoke is slidably mounted on the shaft 206, and also on a rod 255 carried by ears 256 rising from the bed 200. The arms of this yoke embrace the cam 210 and the roller 250, which may be side by side, and slidable on the rod 206, as shown in Fig. 7. The arms 212 and 251 may be loosely mounted on a shaft 258 mounted in the yoke and carrying a distance boss 259 (Fig. 8) between the arms.

It will be noticed that the duplicating and repeat mechanism is a self-contained structure mounted on its own frame, readily separable from the rest of the machine. Accordingly the machine may be sold without such duplicating and repeat mechanism, the link 68 being fastened by its pivot screw directly to the feed slide. This reduces the initial price of the machine. Thereafter the duplicating and repeat mechanism may be sold as an attachment readily incorporated in the same machine by simply securing its frame to the webs 19 of the machine frame and changing the pivotal anchorage of the link 68 to the block 221, instead of to the feed slide. The keeper plate 247 may, if desired, be removable from the frame and mounted in place whenever the duplicating and repeat attachment is employed.

The foregoing description of my complete machine shows that by providing the independent operating and impression arms readily connectable or disconnectable, I am able to accomplish various desired results. The mere disconnection of the arms, accomplished almost instantaneously by longitudinal movement of the handle, allows the feed without printing of as many plates as desired. As these plates travel from the magazine through an open region where they may be read, it will be seen that this enables the ready selection of any desired plate for printing.

Another advantage possible with the independent impression and operating arms is that the ribbon feed may be coupled, as I have shown, with the impression arm only. Accordingly, there is no progression of the ribbon when plates are fed idly to select a desired plate. This prevents unused patches of the ribbon being wound onto the take-up spool which would present an unevenly inked ribbon region to some subsequent plate, causing part of the address thereby printed to be of less depth of impression than the remainder.

Finally, among the advantageous features of my machine should be listed the provisions for printing in this flat bed machine from a curved plate such as may also be used in a rotary machine; the adjustable stop engaging the paper and limiting the depth of impression irrespective of the thickness of the paper; the self-contained removable duplication control mechanism.

I claim:

1. In an addressing machine, the combination with an arm carrying the platen, a plate feeding mechanism having a manual operating arm adjacent the platen arm, and mechanism carried by one of said arms and operable at will to connect said arms or disconnect them.

2. In a machine of the character described, the combination with mechanism for feeding plates, an operating arm therefor, a platen arm, a handle movably mounted on one of said arms and furnishing manual means for moving it and also movable to connect it to or disconnect it from the other arm.

3. The combination with feeding mechanism, an arm for operating the same, an adjacent arm carrying the platen to print by means of a fed plate, a handle movably mounted on the operating arm and adapted by a movement of its own to control the connection between the arms.

4. In a duplicating machine, the combination of a plate feeding mechanism, an operating arm therefor, an adjacent arm carrying a platen, a rod slidably mounted in one of said arms and adapted to engage a socket in the other, and a handle on said rod serving to move it longitudinally and also serving to move the arm which carries the rod.

5. In a duplicating machine, the combination of a plate feed mechanism, an operating arm therefor, an adjacent arm carrying a platen, a member slidably mounted in one of said arms adapted to engage the other, a handle on said member serving to move it, and detent mechanism for holding it in either position against inadvertent displacement.

6. In an addressing machine, the combination of a bed having a plate guideway, a magazine at one end of the guideway and a receptacle at the other end, a feed slide reciprocable in the guideway to carry the bottommost plate from the magazine along the guideway and deliver it to the receptacle, a pair of arms mounted on a common axis adjacent the rear of the machine, said arms ex-

tending forwardly transversely of the guideway, feed mechanism for the slide connected with one of the arms, a platen to cooperate with a fed plate mounted on the other arm, a rod slidably mounted in one of the arms and adapted to bolt it to the other arm or leave it free therefrom, and a handle on said rod furnishing means for moving the rod and also for operating one or both arms according to the position of the rod.

7. The combination of means for effecting an impression on a fed printing member, a separate manually operable device for feeding the printing member and also adapted to operate said means for effecting the impression, said device being manually adjustable by the operator's hand while in normal position to cause the feeding of the plates without effecting an impression.

8. In an addressing machine, the combination with a bed, a plate magazine and feed mechanism, of an operating arm pivoted adjacent the rear of the machine and extending forwardly across the feeding pathway, an impression arm pivoted on the same axis with the operating arm, the forward ends of said arms being adjacent, and a handle located at the side of one of the arms near its forward end and mounted on a rod extending through such arm and adapted to occupy a socket in the other arm.

9. The combination with a plate feeding mechanism, of an operating arm connected therewith, an adjacent arm, a platen carried by the latter arm between its pivot and its free end, and a handle slidably mounted at the forward end of the operating arm adapted to engage the platen arm in front of its platen.

10. The combination with a plate feeding mechanism, of an operating arm connected therewith, an adjacent arm, a platen carried by the latter arm between its pivot and its free end, and means for connecting the operating arm to the platen arm in front of its platen, the extension of the platen arm in front of the platen being substantially centrally of the platen to insure an even impression throughout the platen length.

11. In an addressing machine, the combination of a horizontal bed having a channel extending across it substantially parallel with the front and rear of the bed, a pair of arms pivoted adjacent the rear of the bed and extending forwardly across the channel, a platen carried by one of the arms and adapted to coact with a fed plate in the channel, means for locking the two arms together, the arm which does not carry the platen having a downward connection to a region beneath the top of the bed, a bell crank on the underside of said top mounted on the vertical axis, a connection between one arm of the bell crank and the operating arm, and a connection between the other arm of the bell crank and the feed slide.

12. In a machine for printing with changeable forms, the combination of impression mechanism, form feeding mechanism, operating mechanism for the latter connectable to the impression mechanism or disconnectable therefrom, and ribbon feeding mechanism controlled by the impression mechanism independently of the operating mechanism.

13. In a machine for printing, the combination of an impression arm, an operating arm connectable to the impression arm or disconnectable therefrom, and ribbon feeding mechanism controlled by the impression arm but not by the operating arm itself.

14. In an addressing machine, the combination of means for feeding plates, means for effecting an impression, including a platen and an ink ribbon between it and a fed plate, operating means for feeding the plates connectable to or disconnectable from the impression means, and means for feeding the ribbon consequent upon the operation of the impression means but not of the operating means alone.

15. In an addressing machine, the combination of two independently movable pivoted arms, plate feeding mechanism controlled by one of said arms, a platen carried by the other arm, and a ribbon feeding mechanism connected for operation with the latter arm.

16. In an addressing machine, the combination of a magazine for address plates, a feed slide therefor, an operating arm, connecting mechanism between the same and the feed slide, an impression arm, ribbon feeding mechanism connected with the impression arm, and means on the operating arm movable to connect it to the impression or disconnect it therefrom.

17. In an addressing machine, the combination of a bed having a channel along it, reciprocating plate-feeding mechanism in said channel, an inking ribbon extending crosswise of the channel, a pair of spools beneath the bed carrying the wound up ends of the ribbon, a pivoted arm carrying a platen adapted to coact with an address plate beneath the ribbon, ratchet mechanism for feeding a spool coupled with said impression arm, and means adapted to be independent of the impression arm for operating the feed slide.

18. In an addressing machine, the combination of a bed having a channel along it, reciprocating plate-feeding mechanism in said channel, an inking ribbon extending crosswise of the channel, a pair of spools beneath the bed carrying the wound up ends of the ribbon, a pivoted impression arm carrying a platen adapted to coact with an address plate beneath the ribbon, ratchet mechanism for feeding a spool coupled with said impression arm, an operating arm alongside of the im-

pression arm, mechanism connecting the same with the feed slide and mechanism for coupling the operating arm to the impression and for disconnecting it therefrom, as desired.

19. In an addressing machine, the combination with mechanism for feeding address plates, of an operating arm for actuating said mechanism, an adjacent impression arm carrying a platen to coact with a fed plate, means for coupling said arms together, and an adjustable stop carried by the operating arm.

20. In an addressing machine, the combination of a feed slide, an operating arm, mechanism adapted to be positively connected to both the feed slide and the operating arm, whereby the movement of the arm in one direction operates the feed slide in one direction, and the movement of the arm in the other direction operates the feed slide in the other direction, a single spring serving to return the operating arm and thereby operate the feed slide, and means operable at will for interrupting the connection between the operating arm and feed slide.

21. In an addressing machine, the combination with a magazine, of a feed slide, an operating arm, mechanism connecting the operating arm with the feed slide, including a slidable block connected with the operating arm and guided to move parallel with the feed slide, and means under the control of the operator for latching the block to the feed slide or unlatching it therefrom.

22. In an addressing machine, the combination with a magazine, of a feed slide, an operating arm, mechanism connecting the operating arm with the feed slide, including a slidable block connected with the operating arm, means for latching it to the feed slide, an abutment for moving said latch to unlatching position, and mechanism for alternately moving said abutment to active position and causing it to return to inactive position.

23. In an addressing machine, the combination with a magazine, of a feed slide, an operating arm, mechanism connecting the operating arm with the feed slide, including a slidable block connected with the operating arm, an abutment on the block for positively moving the feed slide in the idle direction, means for latching the block to the feed slide to move it in the active direction, and mechanism for alternately moving said latch to engage and release the feed slide.

24. In an addressing machine, the combination of a horizontal bed having a plate, an impression arm and an operating arm pivoted adjacent one edge of the bed and extending across the plate channel, a platen carried by the impression arm and adapted to coact with a fed plate in the channel, means for locking the two arms together, a bell crank beneath the bed, a connection between one arm of the bell crank and the operating arm, a connection between the other arm of the bell crank and the feed slide, and means for automatically and alternately interrupting and restoring the latter connection.

25. In an addressing machine, the combination with an anvil having a removable top, a platen arm carrying a platen with a removable bottom to coact with the anvil, whereby the coacting faces of the platen and anvil may be caused to conform to different shapes of plates, and means for feeding a plate between the platen and anvil.

26. In an addressing machine, the combination with means for feeding address plates, of an anvil adapted to support a plate in printing position, a pivoted impression arm having a platen formed to deliver a printing blow to an address plate in such position, a manually operable pivoted actuating arm, means for connecting said arms together for causing the platen to deliver such blow when the manual arm is operated, and an adjustable stop carried by the impression arm and adapted to engage a cooperating member carried by the frame of the machine, whereby the depth of impression may be standardized.

27. In an addressing machine, the combination of means for carrying address plates, plate feeding mechanism, printing mechanism, a handle mechanism adapted to operate the printing mechanism on the down stroke of the handle and the feeding mechanism on the upstroke thereof, and means controllable by movement of the handle actuated by the hand of the operator while in engagement with the handle for controlling the printing mechanism, whereby printing on the down stroke may be interrupted without interfering with the operation of the feeding on the upstroke.

28. In an addressing machine, the combination with means for feeding address plates, of a platen adapted to coact with a plate to print, handle mechanism for operating the plate feed on the upstroke of said handle mechanism, means for connecting the handle mechanism with the platen to enable the printing of a plate on the down stroke of said handle mechanism, and means whereby the handle itself may be moved by operator without removing his hand therefrom to interrupt the printing operation, enabling the feeding of a plate without printing.

29. In an addressing machine, the combination with a magazine for address plates, reciprocating mechanism for feeding them one after the other to bring them to printing position successively, a platen adapted to coact with a plate at printing position, an arm carrying said platen, a handle adapted to actuate the arm to effect printing and also to actuate the feeding mechanism, and means

controllable by the hand of the operator while on the handle for withdrawing it from co-operation with the platen arm to prevent the printing operation without interfering with the plate-feeding operation by said handle.

In testimony whereof, I hereunto affix my signature.

CLIFTON CHISHOLM.