March 28, 1950 H. P. ELLIOTT 2,502,133

RIBBON INKER IN RECIPROCATING PRINTING MACHINES

Filed Dec. 2, 1944 3 Sheets-Sheet 1

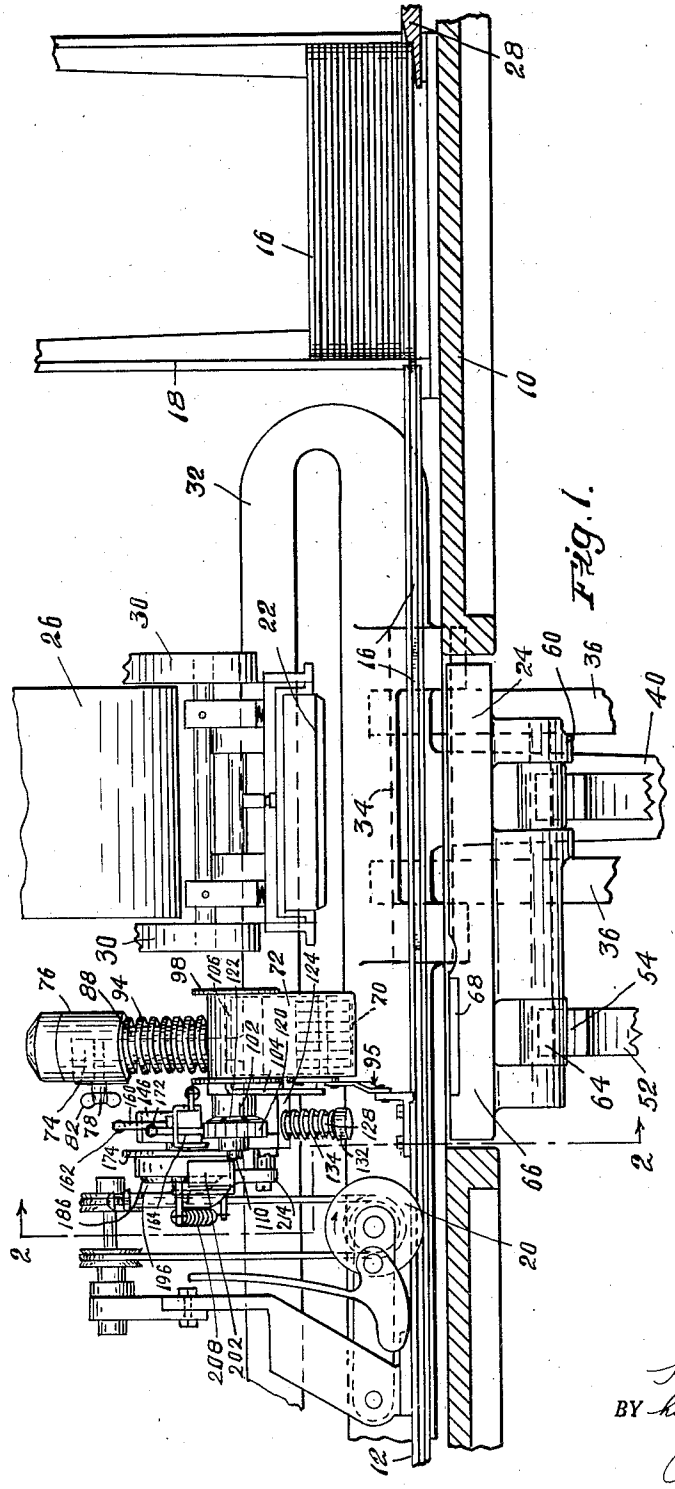


Fig. 1.

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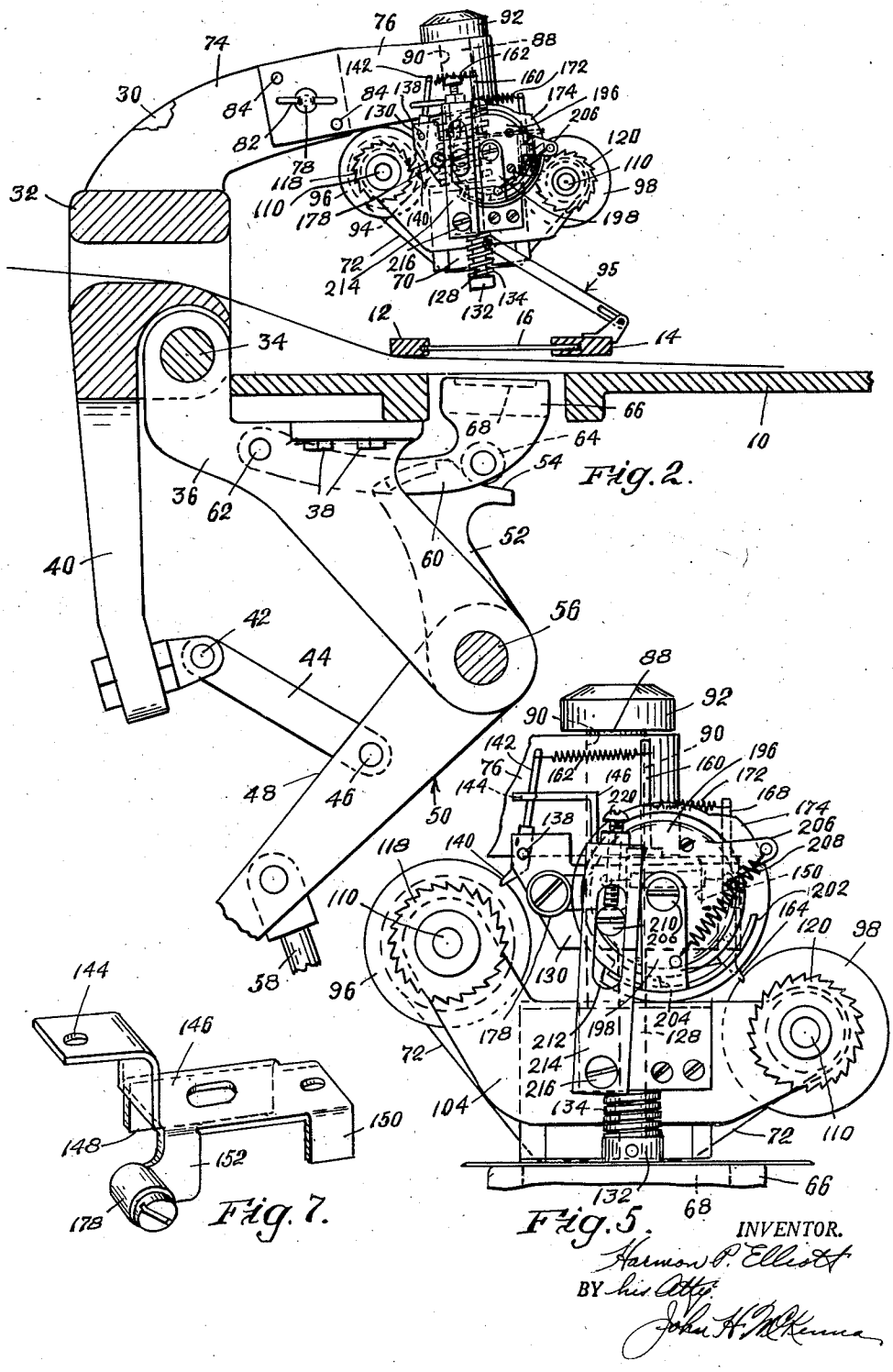


Fig. 2.

Fig. 7.

Fig. 5.

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Filed Dec. 2, 1944 3 Sheets-Sheet 3

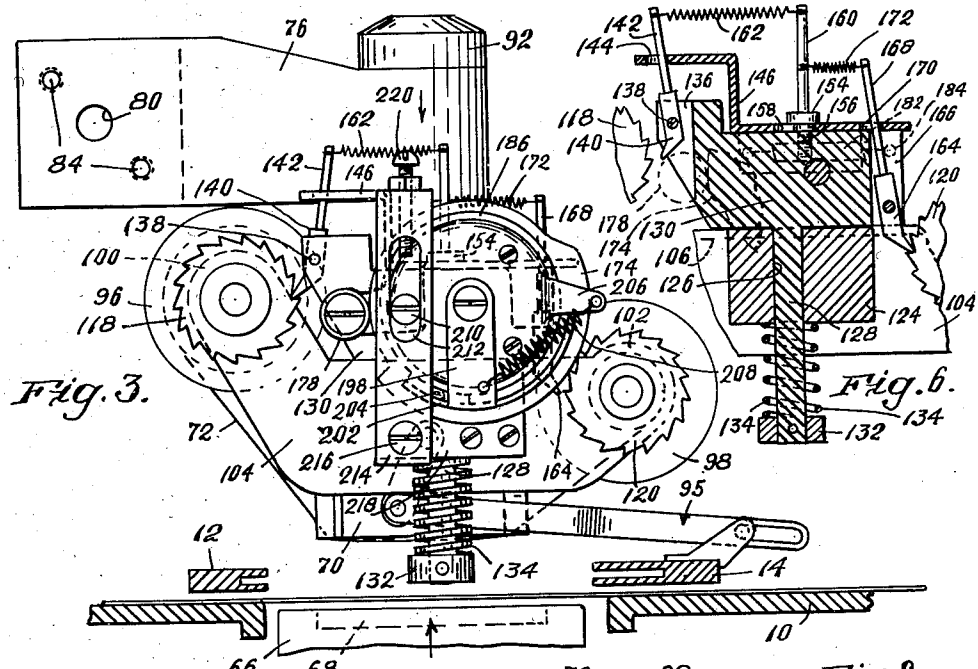


Fig. 3.

Fig. 6.

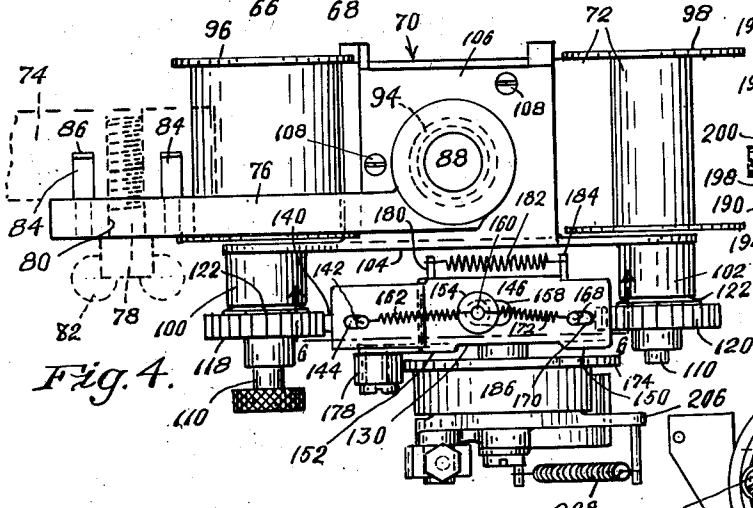


Fig. 4.

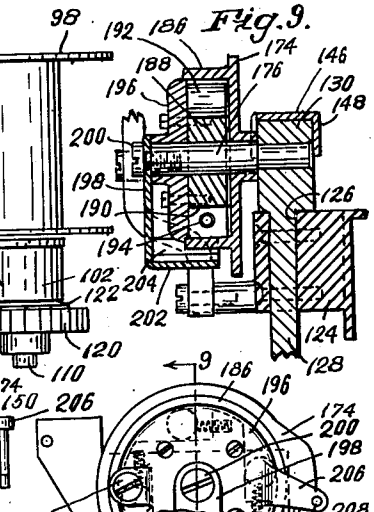


Fig. 9.

Fig. 8.

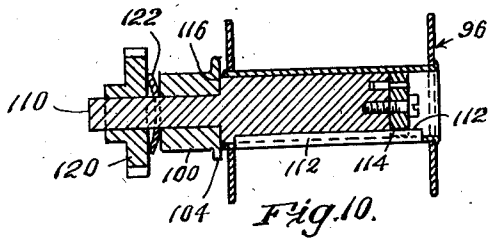


Fig. 10.

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UNITED STATES PATENT OFFICE

2,502,133

RIBBON INKER IN RECIPROCATING PRINTING MACHINES

Harmon P. Elliott, Watertown, Mass.

Application December 2, 1944, Serial No. 566,280

9 Claims. (Cl. 101—332)

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This invention relates to improvements in printing machines and especially addressing machines of the general type which employs a succession of address-bearing printing devices, such as stencils, for coaction with printing mechanism at a stencil printing position. Frequently such machines, in addition to printing data from successive stencils on successive work sheets or in succession on a continuous web, include mechanism for printing a date and for consecutively numbering the stencil-printed work sheets or associating the date and a number with each stencil impression in the case of a continuous web. Ordinarily the dating and numbering mechanism is separate from the stencil printing mechanism although preferably operable simultaneously therewith, and it is convenient to employ an ink ribbon for coaction with type characters to effect the dating and numbering. My present invention relates more particularly to means for mounting, feeding and reversing the ink ribbon so that the feed of the ribbon and its reversals may be entirely automatic in response to actuations of the printing mechanism.

It is among the objects of the invention to associate with conventional dating and numbering mechanism an ink ribbon having extent between two spools into coacting printing relation with date and number type characters with provision for automatic step by step advance of the ribbon in one direction in response to a predetermined substantial number of actuations of the dating and numbering mechanism, followed by automatic reversal of the direction of feed of the ribbon for a similar step by step advance of the ribbon in the opposite direction in response to a comparable substantial number of actuations of said mechanism.

Another object is to provide an ink ribbon feeding means including a cam and mechanism for automatic step by step advance of the cam to effect a reversal of direction of feed of the ink ribbon following a predetermined feed thereof in one direction.

Still another object is to mount an ink ribbon and feeding and reversing means therefor on a reciprocating printing mechanism including means whereby the ribbon feed and its reversals are responsive to reciprocations of the printing mechanism.

A further object is to associate an ink ribbon and feeding and reversing means therefor with a reciprocating printing mechanism, including means for automatic reversal of the direction of ribbon feed in response to a predetermined number of reciprocations of said mechanism.

It is, moreover, my purpose and object generally to improve upon prior printing machines and more particularly printing machines employing an ink ribbon.

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In the accompanying drawings:

Figure 1 is a front elevation showing the stencil printing mechanism and the dating and numbering mechanism of a well known type of addressing machine, the table being shown in longitudinal section, and the dating and numbering mechanism having features of my present invention associated therewith;

Figure 2 is a cross-sectional view approximately on line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 2 but on a larger scale and showing the dating and numbering mechanism and the associated mechanism of the invention moved down to a position approaching printing relation to the coacting anvil which moves up from below;

Figure 4 is a top plan view of the mechanism of Figure 3;

Figure 5 is a view similar to Figure 3 but with the dating and numbering mechanism in printing coaction with the anvil and showing the clutch mechanism and cam advanced counterclockwise one step;

Figure 6 is a sectional view on line 6—6 of Figure 4;

Figure 7 is a perspective of the ribbon feed reversing plate;

Figure 8 is an elevation, with parts in section, of the clutch and cam mechanism which controls ribbon feed reversals;

Figure 9 is a cross-sectional view on line 9—9 of Figure 8; and

Figure 10 is a sectional view through one of the ribbon spools and its support.

The invention is illustrated in connection with an addressing machine of the general type which prints names and addresses from a succession of printing devices, such as stencils, which advance step by step to a stencil printing position for coaction in succession with a printing mechanism operating intermittently at the stencil printing position.

The invention has to do with a dating and numbering mechanism located beside the stencil printing position and operable simultaneously with each stencil printing to associate a date and a number with each name and address on separate work sheets or on a continuous web of paper or the like which subsequently may be severed into separate sections or sheets. In particular the invention relates to mechanism for mounting an ink ribbon in coacting relation to the dating and numbering mechanism and for controlling and reversing its feed in response to operations of the printing mechanism.

Referring more particularly to Figs. 1 and 2 of the drawings, the machine herein represented has a generally horizontal table 10 mounting the tracks 12, 14 along which a succession of stencils 16 advance step by step from a stencil holder

18 at the right hand end of the machine to and through a stencil printing position. As each stencil moves out of stencil printing position, it engages in ejector means of a known type including a continuously rotating roller 20 which quickly moves the engaged stencil out of the way of the dating and numbering mechanism, later to be described, so that the latter mechanism may operate between the stencil tracks 12, 14 to effect its printings on successive work sheets or on a web.

At the stencil printing position, an upper impression plate 22 coacts with a lower platen 24 to press the stencil which is in stencil printing position into printing engagement with a work sheet or web. The face of plate 22 may be supplied with ink in any known manner, as by a wiper inking roll (not shown) which ordinarily sweeps across the impression face of plate 22 between operations of the latter, and then returns to rotational engagement with an ink distributor roll indicated at 26.

The stencils 16 may be intermittently advanced along tracks 12, 14 by mechanism including a pusher 28 which engages the lowermost stencil in holder 18 and pushes it and stencils in advance of it on the tracks one stencil length forward thereby to bring the stencils in succession to stencil printing position. The pusher 28 may be intermittently operated by mechanism as disclosed in my United States Letters Patent No. 2,344,345, dated March 14, 1944, or by any comparable mechanism capable of advancing the stencils in timed relation to the operations of the printing mechanism at the stencil printing position.

The upper impression plate 22 is mounted at the forward ends of a pair of arms 30 projecting forwardly from a yoke member 32 which is pivotally mounted at 34 in a bracket 36 secured at 38 to the under side of table 10 as best seen in Fig. 2. The yoke 32 has a depending arm 40 to the lower end of which is pivotally connected at 42 one end of a link 44 whose other end is pivotally connected at 46 to the depending arm 48 of a main operating lever 50 whose upper arm 52 is formed with a cam face 54. Lever 50 is pivotally mounted at 56 on a depending part of the bracket 36 and is adapted to be rocked intermittently on its pivot 56 by a connecting rod 58 which in turn may be operated by any suitable power mechanism such as is disclosed in my said Patent No. 2,344,345.

The lower platen 24 is carried at one end of a pair of arms 60 which are pivotally mounted at their other ends at 62 on bracket 36, a roller 64 being mounted between the arms and below the platen for riding on the cam face 54 of arm 52 of the main operating lever 50. This lower platen 24 has substantial extent beyond the stencil printing position, to the left as seen in Fig. 1, for constituting an anvil 66 at a date-and-number printing position immediately adjacent to the stencil printing position. Preferably a resilient pad 68, of rubber or the like, is inset in the face of platen 24 for a purpose which later will appear.

A dating and numbering mechanism is indicated generally at 70, being a known type of available mechanism including an automatic counting device for printing numbers consecutively on successive work sheets which simultaneously receive a stencil impression at the stencil printing position, each work sheet having extent into both printing positions. The

mechanism 70 includes also a dating device which may be changed manually as occasion may require. Both the date characters and the number characters which at any time are to print on a work sheet, are exposed at the under side of the mechanism 70 for coaction with an ink ribbon 72 which overlies the characters and whose feed and reversal are controlled automatically by my improved mechanism to be described.

The numbering and dating mechanism 70 is mounted at the forward end of an arm 74 projecting forwardly from the yoke member 32, comparable with the arms 30 which carry upper impression plate 22. However, the arm 74 preferably has a readily removable end part 76 on which the mechanism 70 is directly mounted, so that the mechanism 70 may be easily removed with the end part 76 of arm 74 to facilitate changing the date or to effect any other needed changes or adjustments. For this purpose, the arm 74 has a screw 78 engaging in threaded hole 80 in the end part 76 for clamping the parts together by means of the wing head 82, there being pins 84 on part 76 projecting into holes 86 in arm 74 preventing relative rotation of parts 74 and 76.

The numbering and dating mechanism 70 has a usual shank part 88 extending slidably through a hole 90 in the end of part 76, the shank having a head 92 limiting downward movement of mechanism 70, and a coil spring 94 around the shank intervenes between part 76 and the casing of mechanism 70 tending yieldingly to urge the mechanism 70 downward until the stud head 92 engages part 76 of arm 74. As a result, the mechanism 70 can yield in a usual manner when it is brought down into coacting relation with anvil 66 for a printing operation, and means 95 acts on each printing operation of mechanism 70 to advance the number in a well known manner.

According to my present invention, a pair of ink ribbon spools 96, 98 are mounted on opposite sides of the numbering and dating mechanism 70, they being rotatably supported in bearings 100, 102 on a vertical plate part 104 of a bracket which has a horizontal plate part 106 secured as by screws 108 to the top of the mechanism 70. A hole in the plate part 106 permits free movement therethrough of the shank 88 of said mechanism. The vertical plate part 104 of the bracket depends as an apron in front of the mechanism 70, and the spools 96, 98 are on its rear side so that the ink ribbon 72 can extend from one spool to the other in contact with the printing characters exposed at the under side of mechanism 70.

Each spool 96, 98 may be of usual typewriter ribbon spool construction with tubular axle for slipping axially on a supporting shaft 110 which is rotatably mounted in a bearing 100 or 102 on the vertical bracket plate 104, as best seen in Fig. 10. Each spool axle has an interior key element 112 for engaging a key way 114 in the shaft, thereby to prevent relative rotation of the spool and shaft but permitting the spool to be slipped from the shaft whenever desired. The shaft is reduced in size where it passes through a bearing 100 or 102 so that a shoulder 116 abuts against the bracket plate 104. A ratchet wheel 118 is fixed on the projecting reduced end of one spool shaft and a similar ratchet wheel 120 is fixed on the projecting reduced end of the other spool shaft, with a spring washer 122 between

the ratchet wheel and the bearing 100 or 102, maintaining the shafts with their respective shoulders 116 rotatably engaged with the bracket plate 104.

A laterally projecting lug or boss 124 on bracket plate 104 has a vertically extending non-round hole 126 therethrough for receiving slidably the correspondingly non-round depending shank 128 of a pawl-carrying member 130. Shank 128 projects a substantial amount below the boss 124 and has a collar 132 secured on its lower end. A coil spring 134 surrounds the projecting portion of the shank between the boss 124 and the collar 132 and tends yieldingly to maintain the pawl-carrying member in its lowermost position where it is in engagement with boss 124.

Pawl-carrying member 130 extends close up to the ratchet wheel 118 and has a groove 136 open toward the ratchet wheel within which is pivotally mounted at 138 a pawl 140. The pawl 140 has an upstanding shank 142 extending loosely through a hole 144 in a reversing plate 146 which is slidably mounted on the top of pawl-carrying member 130. Reversing plate 146 is shown in detail in Fig. 7, it having a depending rear flange 148 and two spaced apart from depending ears 150, 152. The plate rests on the top of pawl-carrying member 130 with the said flange 148 and ears 150, 152 depending in guiding relation to member 130. Plate 146 is slidably retained on the member 130 by the head 154 of a screw 156 which extends loosely through an elongated opening 158 in the plate and has threaded engagement in the top of member 130, the head being out of clamping engagement with the plate so that it may slide relative to member 130. A pin 160 upstands from the head 154 of the screw, and a coil spring 162 has one end connected to this pin and its other end connected to the shank 142 of pawl 140, tending always to swing the pawl 140 clockwise about its pivot and into position for ratchet wheel engagement. However, as shown in Fig. 6, this pawl 140 is held out of ratchet wheel engaging position by the reversing plate 146.

A similar pawl 164 is pivotally mounted in a groove 166 at the opposite side of member 130 for coaction with ratchet wheel 120, it having an upstanding shank 168 extending through a hole 170 in the reversing plate, and having a coil spring 172 constantly urging it into ratchet wheel engaging position. In Fig. 6 this pawl 164 is held by its spring 172 in ratchet wheel engaging position, the reversing plate in this view being in its moved-to-the-left position. A movement of plate 146 to the right, by mechanism to be described, releases pawl 140 for ratchet wheel engagement and swings pawl 164 clockwise and retains it out of ratchet wheel engaging position, as illustrated in Figs. 3 and 5.

The means for actuating reversing plate 146 to automatically reverse the direction of feed of ink ribbon 72 comprises a cam 174 mounted rotatably on a stub shaft 176 which is fixedly secured in the pawl-carrying member 130 as best seen in Fig. 9. The cam has its high and low portions substantially equal in extent and these high and low edge portions coact with a roller 178 on the depending ear 152 of the reversing plate 146, the rear depending flange 148 of said plate having a pin 180 thereon to which one end of a coil spring 182 is connected. The opposite end of spring 182 is connected to a fixed pin 184 on the pawl-carrying body 130. Hence the spring 182 constantly urges the reversing plate 146 to the right to keep roller

178 pressed against the edge of cam 174 at all times. In Figs. 3 and 5, the roller 178 is shown in engagement with the low part of cam 174 so that the reversing plate 146 is in its moved-to-the-right position and pawl 140 is free for operative engagement with ratchet wheel 118. Hence, on each printing movement of arm 74, 76, the ratchet wheel 118 will be advanced one tooth distance in clockwise direction to unwind a small amount of ribbon from spool 98 and wind substantially a like amount on spool 96, and this action will continue so long as roller 178 is in engagement with the low part of cam 174. However, the cam 174 is rotated counter-clockwise a small fractional part of a revolution on each printing stroke of arm 74, 76, so that the high part of cam ultimately engages roller 178 to effect a shift to the left of reversing plate 146, thereby to release pawl 164 for operative coaction with its ratchet wheel 120, and pawl 140 simultaneously is put out of action.

Cam 174 has a cylindrical flange 186 projecting forwardly therefrom and concentric with stub-shaft 176. Within this flange and rotatable on the stub-shaft is a clutch member 188 having four equally distributed cut-outs 190, as best seen in Fig. 8, within each of which is a spring pressed roller 192, each roller constantly urged by its spring 194 into wedging engagement with the flange 186 and a wall of a cut-out 190. A cover plate 196 is secured to the member 188 and is rotatable with said member on stub-shaft 176, both being retained on the stub-shaft by an arm 198 which is secured flatwise against the end of the stub-shaft by a screw 200. Arm 198 depends and carries the arcuate brake band 202 having the interior brake shoe 204, of leather or the like, as best seen in Fig. 8. The brake band extends around the lower side of flange 186 in spaced relation thereto, and brake shoe 204 is in this space in braking engagement with the flange 186.

Cover plate 196 has a projecting ear 206 to which is connected one end of a coil spring 208 whose other end is connected to depending arm 198, so that the spring constantly urges the cover plate 196 clockwise, and one end of the brake band 202 acts as a stop limiting its clockwise movement, as in Fig. 8. Cover plate 196 also has a projecting screw or pin 210 for slidably engaging in a slot 212 in a bar 214 pivotally mounted at 216 on a forwardly projecting part 218 of the bracket boss 124. Bar 214 extends substantially vertically but can swing a little to right or left. An adjustable stop screw 220 projects into the upper end of slot 212 for a purpose which will appear.

When arm 74, 76 moves downwardly on a printing stroke, the lower end of depending shank 128 of the pawl-carrying member 130 ultimately engages the anvil 66 and further movement of arm 74, 76 downward compresses spring 134 as the boss 124 and all other elements carried on the bracket plate 104 continue downward while the pawl-carrying member 130 and elements carried thereon remain relatively stationary. The slotted bar 214 being carried on the bracket plate 104 moves downward while screw 210 slidably engaging in slot 212 is held stationary, whereby there is relative movement of screw 210 toward the upper end of the slot. When screw 210 engages stop screw 220 in the slot, no further relative movement of the screw 210 along the slot is permitted. Hence the further and final downward movement of arm 74, 76 carries screw

210 down to produce a slight counter-clockwise rotational movement of cover plate 196 and clutch member 188. This movement wedges the clutch rollers 192 between member 188 and the cam flange 186 so that the cam moves with the clutch member the fractional part of a counter-clockwise rotation. On the up-stroke of arm 74, 76, the slotted bar 214 moves relatively to the screw 210, moving stop pin 220 upward which permits spring 208 to return the cover plate 196 and clutch member 188 clockwise to their position of Fig. 8. However, on this clockwise return of the clutch member, its rollers 192 are freed from the cam flange 186 and the cam, aided by the brake shoe 204 remains in its advanced position. Hence, on each down-stroke of arms 74, 76 the cam is advanced a little counter-clockwise, and it will be obvious that during these intermittent advances of the cam, the ink ribbon 72 will feed in one direction when the low side of the cam is in engagement with roller 178 of the reversing plate 146, and in the opposite direction when the high side of the cam is in engagement with roller 178.

It will be apparent from the foregoing description, in connection with the drawings, that I have provided an ink ribbon feeding and reversal control which is entirely automatic in conjunction with a printing mechanism, especially a printing mechanism acting in conjunction with the stencil printing mechanism of an addressing machine.

I claim as my invention:

1. In a printing mechanism having two coacting printing members at least one of which is pivotally mounted for reciprocating coaction with the other, one of said members having printing characters thereon, an ink ribbon mounted on said pivotally mounted printing member and having extent for coaction with said printing characters, a plunger carried on said pivotally mounted printing member and biased in general direction toward the other printing member, means on said other printing member for actuating the plunger against its said bias each time said pivotally mounted printing member approaches said other printing member, means responsive to each said actuation of the plunger for increment advance of said ink ribbon, and means for reversing the direction of advance of the ink ribbon, comprising an element which is slidably shiftable between two positions, a cam having a high part and a relatively low part for engaging said shiftable element and each determinative of one of the said positions of said shiftable reversing element, and means responsive to said actuations of the plunger for increment advance of the cam thereby to effect an ultimate sliding of the reversing element from one of its said positions to the other.

2. In a printing mechanism having two coacting printing members at least one of which is pivotally mounted for reciprocating coaction with the other, one of said members having printing characters thereon, an ink ribbon carried by said pivotally mounted member and having extent for coaction with said printing characters, a plunger carried on said pivotally mounted member and biased in general direction toward the other member, means on said other member for actuating the plunger against its said bias each time the pivotally mounted member approaches said other member, means responsive to each actuation of the plunger for increment advance of the ink ribbon, and means responsive to a predetermined number of actuations of the plunger for reversing

the direction of advance of the ink ribbon, the latter said means including a slidably mounted element and a cam coacting to effect a sliding movement of said element in one direction in response to a said predetermined number of actuations of said plunger.

3. In a printing machine having an anvil and a pivotally mounted reciprocating member carrying a printing head with printing characters exposed for coaction with the anvil, a pair of spools rotatably mounted on said printing head, an ink ribbon on the spools and having extent between the spools in coacting relation with said printing characters, spool feeding means mounted on the printing head and resiliently yieldable relative to the printing head and spools, and having a part projecting, in direction toward said anvil, beyond the plane of said printing characters whereby to engage the anvil prior to a printing coaction of the printing characters with the anvil and to cause yielding of said spool feeding means on each down-stroke of the reciprocating member, said spool feeding means recoiling on each up-stroke of the reciprocating member, a ratchet wheel rigid on each spool, a pair of pawls carried on said yieldable spool feeding means, means holding one pawl inactive while the other is active whereby one spool is rotated a fraction of a revolution in response to each cycle of yielding and recoiling of the spool feeding means thereby to feed the ink ribbon a predetermined amount in one direction, and means responsive to a predetermined number of cycles of yielding and recoiling of the spool feeding means for shifting said pawl holding means so that the pawl which had been active becomes inactive and the pawl which had been inactive becomes active, thereby to reverse the direction of feed of the ink ribbon.

4. In a printing machine having a pair of members relatively movable toward and away from each other at a printing position, an ink ribbon carried on one of said members with extent thereon for printing coaction between said members when the members move toward each other, a plunger mounted on the ribbon-carrying member and including a portion projecting beyond the latter said member toward the other member, means biasing the plunger in the direction of its said projection, means on the other member for actuating the plunger against its said bias each time the said members move relatively toward each other and prior to arrival of a said member at a limit of its movement, said biasing means restoring the plunger upon movement of said members away from each other, means responsive to each cycle of movement of the plunger for increment feed of said ink ribbon, and means responsive to a predetermined number of cycles of movement of the plunger for reversing the direction of said increment feed of the ink ribbon.

5. In a printing mechanism having a pair of coacting members of which one is movable toward and away from the other at a printing position, a pair of rotatable ink-ribbon spools carried on said movable member, a plunger mounted on said movable member and biased in general direction toward the other member, said plunger having a portion projecting beyond said movable member toward the other member, means on said other member for actuating the plunger against its said bias each time said movable member approaches said other member and prior to arrival of said movable member at the limit of

its travel toward said other member, a ratchet wheel on each said spool, a pair of pawls carried on said plunger, each pawl adapted for coaction with a different one of said ratchet wheels, a shiftable member on said plunger engaging both pawls and shiftable between two positions in each of which it holds a different one of the pawls out of operative relation with its ratchet wheel while the other pawl is in operative relation with its ratchet wheel for increment rotation of one spool in response to each said actuation of the plunger, and means responsive to a predetermined number of actuations of the plunger for shifting said shiftable member from one of its said positions to the other.

6. In a printing mechanism having a pair of members of which one is movable toward and away from coacting relation to the other at a printing position, a pair of rotatable ink-ribbon spools carried on said movable member, a plunger mounted on said movable member and including a portion projecting beyond the movable member toward the other member, means biasing the plunger in general direction toward the other member, means on said other member for engaging and actuating said plunger against its said bias each time the movable member approaches said other member and prior to arrival of said movable member in coacting relation to the other member, means responsive to each said actuation of the plunger for increment advance of one of said spools in one direction under the urge of said biasing means when said movable member moves away from said other member, and means responsive to a predetermined number of actuations of the plunger for increment advance of the other of said spools in the opposite direction.

7. An ink-ribbon feed and reversing mechanism comprising a frame, a pair of ribbon spools rotatably mounted on the frame, a ratchet wheel fixed on each spool, a plunger mounted on said frame having means biasing it in one direction relative to said frame, a pair of pawls carried by said plunger, each pawl being arranged and adapted for coaction with a different one of said ratchet wheels, a shiftable element mounted on said plunger and engaging both of said pawls, said element being shiftable in one direction to hold one pawl out of coacting relation with its ratchet wheel and being shiftable in the opposite direction to hold the other pawl out of coacting relation with its ratchet wheel, means for actuating the plunger in opposition to its said biasing means thereby to set one pawl for increment advance of its ratchet wheel and spool by said biasing means following each said actuation of the plunger, and means responsive to a predetermined number of actuations of the plunger for shifting said shiftable element thereby to hold a different pawl out of ratchet wheel engagement.

8. An ink-ribbon feed and reversing mechanism comprising a frame, a pair of ribbon spools rotatably mounted on the frame, a ratchet wheel fixed on each spool, a plunger mounted on said frame having means biasing it in one direction relative to said frame, a pair of pawls carried by said plunger, each pawl being arranged and adapted for coaction with a different one of said ratchet wheels, a shiftable element mounted on said plunger and engaging both of said pawls, said element being shiftable in one direction to hold one pawl out of coacting relation with its ratchet wheel and being shiftable in the opposite direction to hold the other pawl out of coacting relation with its ratchet wheel, a cam rotatably mounted on said plunger, a spring constantly biasing said shiftable member into engagement with the cam, means for actuating the plunger against its said biasing means, and coacting means on said frame and plunger for increment advance of said cam in response to each actuation of the plunger, said cam being adapted to shift said shiftable element in one direction in response to a predetermined number of increment advances of the cam.

9. In a printing mechanism having a pair of members of which one is movable toward and away from coacting relation to the other at a printing position, a pair of rotatable ink-ribbon spools carried on said movable member, a ratchet wheel fixed on each spool, a plunger mounted on said movable member and having a portion projecting beyond the movable member toward the other member, a pair of pawls pivoted on the plunger, one adjacent to each ratchet wheel, shiftable means on the plunger engaging both pawls and shiftable between a position to hold one pawl inactive and a position to hold the other pawl inactive, means biasing the plunger in direction for increment advance of the particular spool whose ratchet wheel and pawl are in coacting relation, the other pawl passing idly by its ratchet wheel, means on said other member for actuating the plunger against its said bias each time the movable member approaches said other member and prior to arrival of the movable member in coacting relation to the other member thereby to position the active pawl in position for said increment advance of its spool upon recoil of the plunger by said biasing means, and means for shifting said pawl holding means in response to a predetermined number of actuations of the plunger whereby it holds a different pawl inactive, for increment advance of the other spool.

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