

Sept. 22, 1936.

S. P. WIMPEE ET AL

2,054,844

FEED MECHANISM

Filed Feb. 10, 1931

3 Sheets-Sheet 1

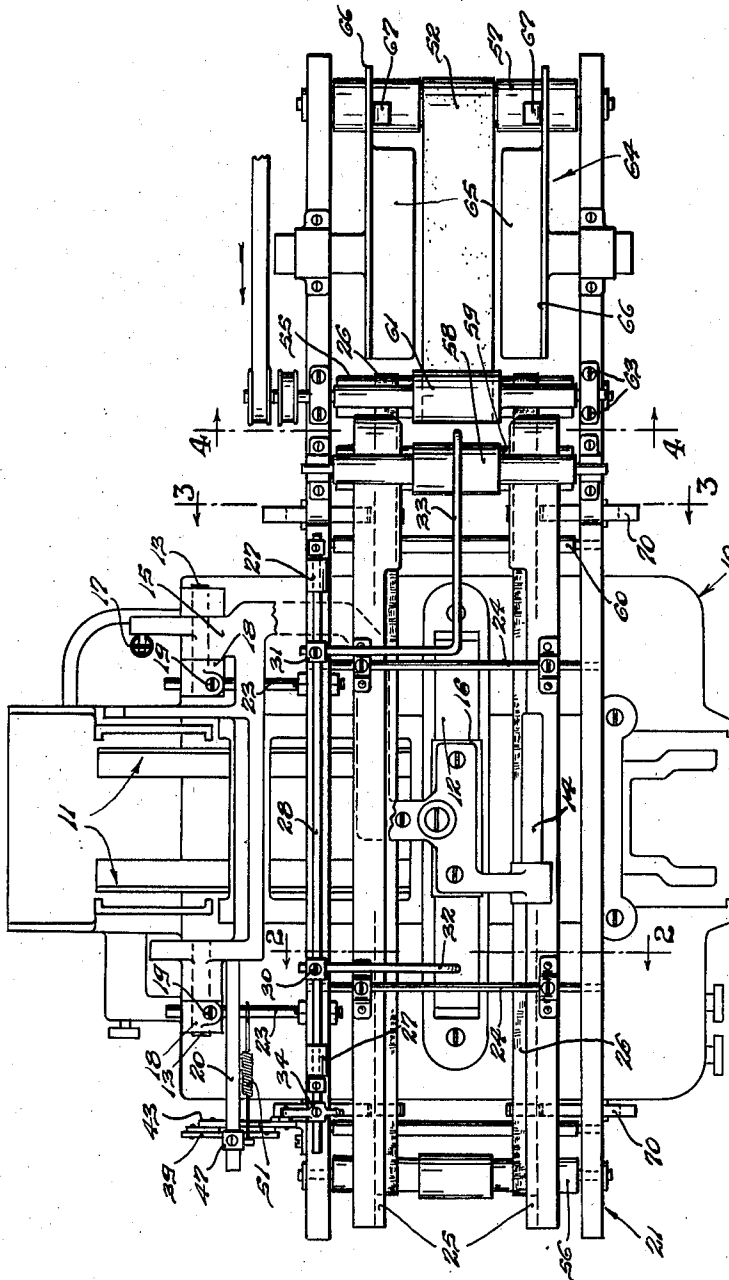


Fig. 1.

INVENTORS
S. P. Wimpee
S. P. Wimpeg Jr.
BY *Edward E. Parmer*
ATTORNEY

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3 Sheets-Sheet 2

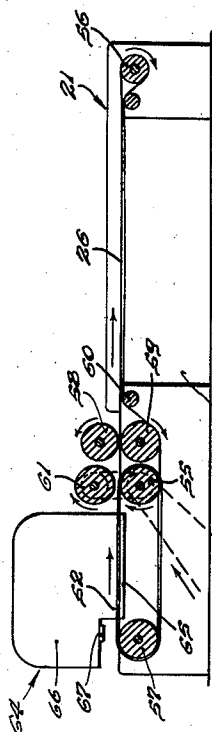


Fig. 5.

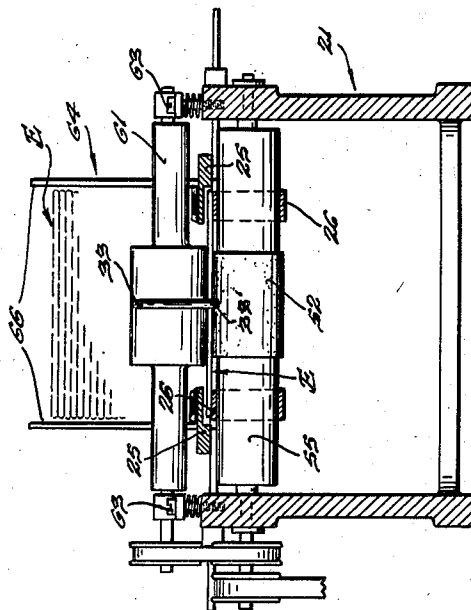


Fig. 4.

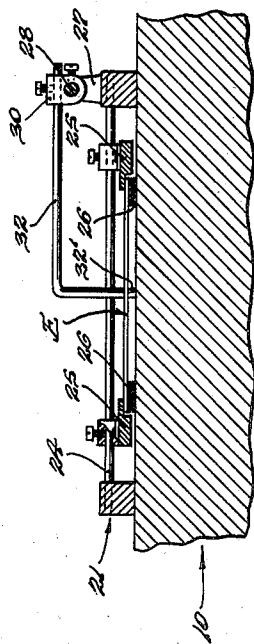


Fig. 2.

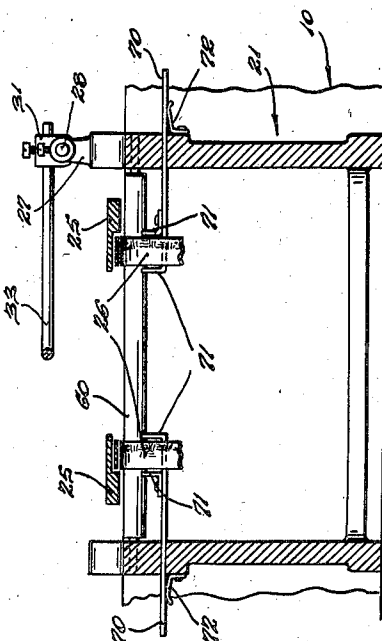


Fig. 3.

INVENTORS
S. P. Wimpee
S. P. Wimpee Jr.
BY *Edward E. Powers* ATTORNEY

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3 Sheets-Sheet 3

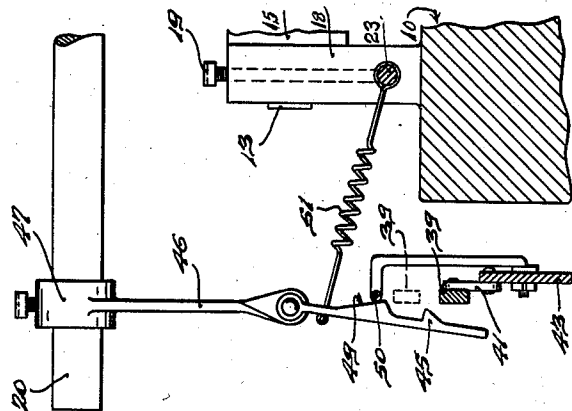


Fig. 7.

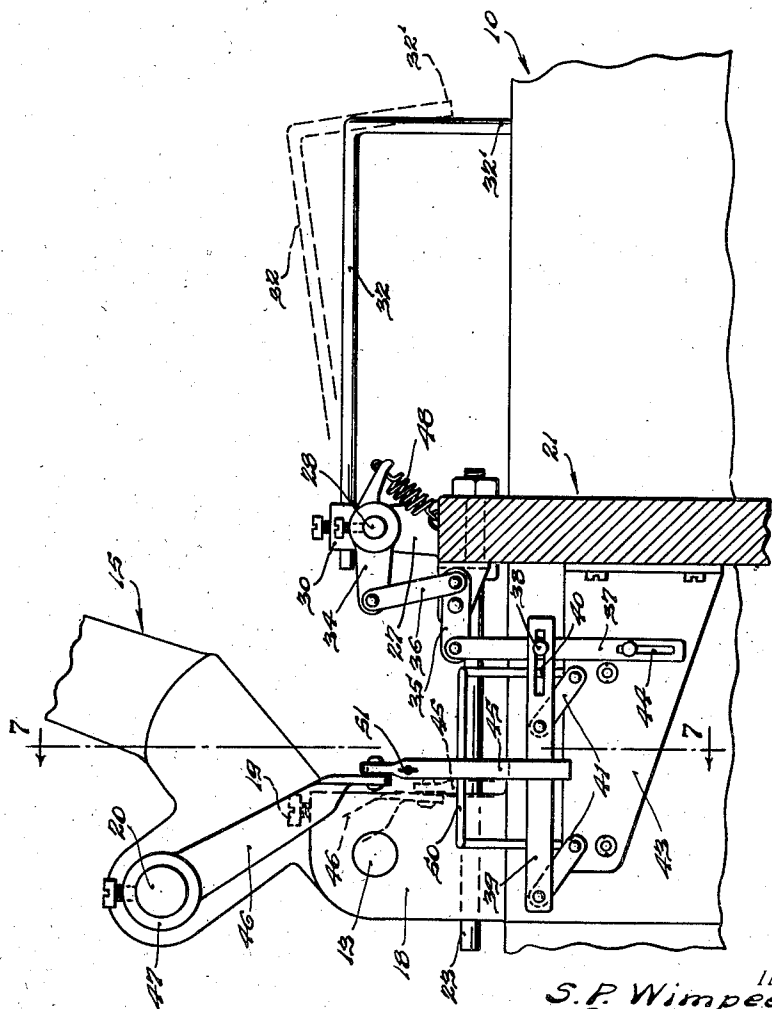


Fig. 6.

INVENTORS
S. P. Wimpee
S. P. Wimpee Jr.
BY Edward E. Bauer
ATTORNEY

UNITED STATES PATENT OFFICE

2,054,844

FEED MECHANISM

Sidney P. Wimpee and Sidney P. Wimpee, Jr.,
Seattle, Wash.; said Wimpee, Jr., assignor to
said Sidney P. Wimpee

Application February 10, 1931, Serial No. 514,756

21 Claims. (Cl. 271—13)

Our invention relates to feeding devices, and is particularly adapted for use in the feeding of envelopes to most efficiently locate and remove the same to and from dispositions advantageous for addressing or otherwise stenciling the same. While the illustrated embodiment of the invention is particularly designed for detachable securement to that character of addressing machine in most general use at the present time, its ready adaptability, with minor structural alterations, to other forms of machine or character of work is believed evident.

To such end, the present invention has for an object, generally stated, the provision of most efficient feeding devices providing a simplified control so devised as to render the machine capable of use in conjunction with practically any form of mechanical movement which may constitute the motive source of such various machines as have heretofore or may hereafter be employed for the purpose of addressing envelopes, or in the accomplishment of such other pertinent form of work as may be desired.

More particularly, the present invention has for an object the provision of a continuous uninterrupted feed medium which may be collectively or individually driven with or from a work-performing machine proper, and wherein the responsive progression of the work on said medium is intermittently interrupted responsive to rocker-arm activity readily controlled through adaptability to reciprocatory, rotary or such other form of energy as might be utilized by a selected machine in the performance of its work objective.

Other objects and advantages, together with the foregoing, will appear throughout the course of the following description and claims, the invention consisting in the novel construction, the adaptation, and the combination of parts as hereinafter described and claimed.

In the drawings, wherein a preferred embodiment of the invention is particularly designed for use with a reciprocating type platen addressing machine of the embossed-plate type,

Figure 1 is a top plan view of our invention, portions of the addressing machine shown therein, as indicated by the broken-line continuity between cooperating parts, being broken away.

Figs. 2, 3, and 4 are transverse vertical sections taken substantially on the lines 2—2, 3—3 and 4—4, respectively, of Fig. 1, eliminating a sectional showing from the former of operating mechanism contained in the addressing machine.

Fig. 5 is a diagrammatic longitudinal vertical

section of the drive arrangement of the invention.

Fig. 6 is an enlarged detail front elevation of the rocker control devices, the frame indicated in transverse section, and the addressing machine shown in outline, and

Fig. 7 is a longitudinal vertical section thereof, taken on line 7—7 of Fig. 6.

With respect to the addressing machine proper, the numeral 10 represents a base, a transverse carriage 11 therein being arranged to intermittently feed the embossed addressing plates into suitable dispositions below an ink-impregnated ribbon 12.

Said plate feed constitutes operative interconnection, not shown, from a manually or otherwise controlled beam 15 pivoted at 13 and supporting a platen 16 adapted for pressure engagement to an envelope superposed over the ribbon.

The manual control illustrated comprises a handle projection 14 depressibly actuating said beam in opposition to a retractile spring 17. In the operation of the illustrated addressing machine, the envelopes constituting the work have been heretofore manually positioned through the medium of a guide rail having parallel pins integrally carried thereby for engagement through the upstanding ears 18 constituting the bearing boxes for the beam activity, said pins and the guide rail being transversely adjustable as by set screws 19.

Such illustrated machine, furthermore, is characterized by a shaft 20 mounted in the beam in offset disposition of the beam axis for responsive arcuate reciprocation in dislodging the imprinted work through suitable ejection devices.

It is to be understood that such aforesaid guide rail and the ejection devices, as heretofore used, are eliminated, our invention replacing the former with one of two transversely spaced interconnected parallel side rails conjointly constituting a frame, the shaft 20, however, being utilized in the present illustrated embodiment as an operating medium for rocker-arm control devices, hereinafter described.

With particular reference to the present invention, said frame, generally represented as 21, is cut away as at 22 for detachable engagement in selected transverse dispositions over the machine base, laterally projecting parallel rods 23 replacing the aforesaid guide rail connection.

Said frame, moreover, carries longitudinally-spaced bars 24 for supporting transversely-adjustable laterally-spaced channel members 25, said channel members co-operating with endless

spaced-apart friction feed belts 26 for guiding selective widths of envelopes longitudinally of the frame.

The invention is conceived to control the progression of said envelopes through an interruption of the same at responsive intervals of the addressing process. To such end, we provide bearing boxes 27 secured to the frame for supporting a longitudinal rock-shaft 28, said rock shaft 10 carrying boxes 30, 31 in spaced-apart disposition of its length for interconnection with slidably adjustable rocker-arms as represented by 32, 33, each of said rocker arms conformed to present downturned intercepting terminals 32¹, 33¹ normally projecting below the path of travel of the work. In actuating the same, said rock-shaft 15 carries a bell-crank 34 having a connecting arm 36 therebetween and a medially pivoted link 35, said link actuated through elevation of a lever 20 37 having a projecting pin 38 arranged for tracking engagement in the slot 40 of a bar 39 retained horizontally through parallel links 41 pivotally supporting the same above a frame-secured bracket 43. 44 represents a guide slot for the 25 terminal end of lever 37.

Vertical activity is imparted to bar 39 through a dog 45 arranged for engagement to the same, being pivotally supported by and controlled through vertical activity of a pitman 46 having 30 its hub 47 sleeved over the aforementioned shaft 20, said dog advantageously controlling the rocker-arm operating bar 39 to retain said rocker-arms in their elevated work-releasing dispositions for selected intervals only, spring 48 returning 35 respective elements to normal positions responsive to riding engagement of a releasing cam face 49 of the dog over a bracket-supported horizontal arm 50 in opposition to the retractive energy of an extension spring 51.

Reverting more particularly to belts 26, and a cooperating medially disposed feed belt 52 for introducing a leading edge of successive envelopes to the channel-way described, said belts are each 40 arranged for passage about a drive roll 55 and in oppositional directions therefrom to respective idler rolls 56, 57 journaled in extreme ends of the frame. Horizontally spaced from said drive roll, presser rolls 58 and 59 are disposed above and below the progressive surfaces of belts 26, the 45 latter driven responsive to frictional engagement of the belt return surfaces responsive to passage over a tension roll 60. 61 indicates a driven roller operating in an oppositional direction to the work progression and vertically adjustable through 50 cap screws 63 for regulating the same above the drive roller 55, said roller 61 preventing admission of a plurality of envelopes superposed one above the other in a magazine 64.

Relative thereto, said magazine, comprising individually adjustable plates conformed to present 60 floor portions 65 and wing sides 66, provides inwardly projecting fingers 67 serving to elevate the rear portions of the envelopes out of engagement with the belt 52, and co-operating with the 65 aforescribed driven roller 61 to prevent a crowding of the envelopes responsive to belt friction. As designed, the belt 52 dislodges the lowermost envelope in the magazine by its initial engagement with the leading edge thereof.

In the adaptation of the invention to varying widths of work, namely, the lateral adjustability of the magazine and the channel members 25, we provide belt guides, as best illustrated in Fig. 3, which may comprise bars 70 slidable in 75 grooves of the frame side rails, said bars pro-

viding upstanding fingers 71 engaging oppositional sides of the belts 26 and retained in selected dispositions through the medium of leaf springs 72. The movement of the guides transversely of the frame advantageously controls selective dispositions of the belts.

In operation, assuming an envelope E to be disposed to have its leading edge abut terminal 32¹ of the rocker-arm 32, a succeeding envelope 10 having been previously dislodged from the magazine to abut terminal 33¹ of rocker-arm 33, the operator depresses the beam supported platen 16 to compress the envelope therebetween and an embossed plate disposed in the machine carriage 11, said plate simultaneously elevated 15 against the ribbon 12. More particularly however, said beam depression disposes pitman 46 into its dotted line position, as illustrated in Fig. 6, responsively to which the ratch of dog 45 engages below bar 39 through disengagement of 20 the horizontal arm 50 from the extreme projection of cam face 49.

As beam 15 is released, allowing retraction to normal position, dog 45 elevates horizontal bar 39, subsequent rock-shaft activity elevating 25 rocker-arm terminals (Fig. 6) in allowing belts 26 to frictionally carry the work in discharging the imprinted envelope and simultaneously feeding the succeeding envelope progressively to its printing disposition. Release of the bar 39 from 30 its dotted line position, responsive to cam-controlled activity of the dog ratch, drops the rocker-arms over the progressing envelope surfaces, the rocker-arms riding thereon and subsequently dropping to intercept succeeding envelopes, completing a cycle of operation.

As is believed apparent, the leading edge of the magazine-retained work is prevented crowding the preceding arm-intercepted envelope through adverse directive rotation of the roller 61 conjunctively with the elevating fingers 67. Adjusting 40 the relative dispositions of the channels and belts 26, one with the other, together with the magazine width, accommodates various sized work, the horizontal arrangement of the bar 39 45 and cam-operating arm 50, moreover, affording operative activity from the dog 45 irrespective of transverse location of the feed frame.

While not illustrated in the accompanying drawings, it has been found advantageous to attach a conventional-type ball-roll caster to the 50 feet or terminals of the respective rocker-arms in eliminating frictional drag of the same to the surface of the progressing envelopes.

The invention is believed clear from the foregoing. It is not our intention that the same be limited, except as by the scope of the hereto annexed claims and where reference therein is made to a "printing" machine, the same obviously includes any machine or mechanism to 60 which the invention is adapted.

What we claim, is,—

1. In work-feeding control mechanism for a printing machine of a character utilizing a reciprocating platen-supporting platen-operating 65 arm, a belt feed, lateral guide-rails co-operating with said belt feed, a work-holding magazine, means for introducing successive work from said magazine to the belt and between said guide-rails, and means controlled by the movement of said reciprocating arm of the machine for selectively interrupting the progressive travel of the work longitudinally of the belt feed.

2. Apparatus including a work-holding magazine, means for dislodging the work from said 75

magazine, means comprising a roller having its work engaging surface movable in a direction conversely to the direction of dislodgment for dislodging said work one at a time only, and means for intermittently feeding said dislodged work in intermittent progression from said magazine.

3. In work feeding apparatus for a manually controlled printing machine including a reciprocating platen, the combination with a continuous-feed belt adapted to support and frictionally feed successive envelopes individually introduced over the same, of reciprocating devices operative automatically in response to successive manually impelled reciprocatory actions of the platen for controlling the movement of the work on the belt into printing position below the platen.

4. In apparatus for feeding unprinted work to a printing machine, the combination with a continuous-feed friction belt adapted to progressively feed the envelopes, work-confining side rails, and means affording adjustment of said side rails to vary the space therebetween, of an envelope-containing magazine, and means for introducing said envelopes, one at a time, from said magazine to the belt.

5. In printing machine apparatus, a machine for feeding envelopes and the like thereto, comprising in combination, a frame having transversely-adjustable guide rails disposed longitudinally of the same, endless longitudinally disposed feed belts adapted to have respective upper progressive surfaces co-operate with the guide rails to afford channel-ways therebetween, devices for regulating respective belts transversely of the frame, a magazine for containing the envelopes, means to discharge the envelopes, one at a time, from said magazine and introduce the lateral edges thereof within the channel-ways, means for intermittently interrupting the progression of said envelopes both in their initial progression in said channel-ways and in working dispositions relative to the printing devices of the machine, and means co-operating with said initial interruption serving to prevent subsequent discharge of succeeding envelopes from the magazine during said periods of feed interruption.

6. In feeding apparatus, a pair of longitudinally-spaced rollers, a pair of endless spaced-apart carrier belts passing about said rollers, and devices engaging lateral edges of respective belts and adapted to transverse regulation for governing the disposition of said belts on said rollers.

7. In feeding apparatus having a work-containing magazine comprising transversely spaced upright wing elements, a belt, and a pair of driven rollers supporting said belt to dispose the progressive upper surface thereof as the magazine floor, a roller disposed in spaced disposition above said belt surface, said last named roller and the belt rollers being driven in similar directive rotations, and means disposed to elevate the rear edge of the work in said magazine out of engagement with said belt floor and co-operating with the last named roller to prevent duplicate feeding of the work from said magazine to the belt.

8. In feeding apparatus comprising a table, and means for conveying the work longitudinally of said table, a rocker-arm having a normal disposition within the path of travel of the work on said table, and means affording intermittent activity of said rocker-arm out of the path of travel of said work, said means comprising a

lever member, a dog, and means for intermittently engaging said dog with said lever member.

9. In mechanical movements, a rocker-arm, a rock-shaft therefor, a horizontal arm having parallel links pivotally interconnecting the same with a frame, link interconnection affording rock-shaft activity responsive to vertical action of said horizontal arm, a dog engageable with said horizontal arm, and means for imparting reciprocatory vertical activity to said dog.

10. In feed mechanism comprising a magazine for containing a stack of the articles to be fed, and including a driven belt having its upper progressive surface located to engage the forward tip only of the lowermost article in said magazine, a roller located above said progressive surface of the belt, and means for driving said roller to revolve its lower surface in a direction conversely to the direction of discharge of the articles, said converse directional travel preventing duplicate feeding of the articles by resisting the frictional drag imparted to a succeeding article in the magazine by the forward movement of the discharged article.

11. In feeding apparatus comprising a table, and means for conveying the work longitudinally of the table, a stop finger normally located to interrupt the travel of the work on said table, a reciprocatory head controlling said finger, and means alternatively engaging and disengaging the head with and from the finger affording, in response to the movement of the head, operation of the finger from its normal work-interrupting position out of and into said work-interrupting position, intermittently.

12. In feeding apparatus, a table, means for conveying the work on said table, stop mechanism normally located in the path of travel of the work to interrupt the same, a head manually impelled for reciprocatory activity, and means acting automatically in response to one reciprocatory cycle only of said head for effecting movement of said stop mechanism from its normal work-interrupting position out of and into the path of travel of the work.

13. In apparatus including a belt feed, and a channel co-operating with the belt for guiding the work longitudinally of the same, control devices movable into and out of the path of movement of the work for interrupting the progress of the work on the belt, and means including a dog supported for reciprocatory activity and operative to alternately engage and release said control devices for rendering the latter operative to interrupt the work.

14. In apparatus including feed mechanism, a work-holding magazine, and means operative to dislodge and introduce successive work from the magazine to the feed mechanism, devices arranged for rocker activity into and from the path of travel of the work in said feed mechanism for intermittently interrupting the progress of the work, and means including a dog alternately operative to engage and release said devices for imparting rocker activity to the same.

15. In apparatus including feed mechanism, control devices movable into and out of the path of movement of the work for interrupting the travel of the work in said feed mechanism, and means including a dog supported for reciprocatory activity and operative to alternately engage and release said control devices for rendering the latter inoperative and operative, respectively to interrupt the work.

16. In apparatus for feeding the work to a printing machine or the like of the character including a manually reciprocated platen, the combination of a work-holding magazine, feed mechanism for progressively advancing the work from said work-holding magazine, means to dislodge the work from the magazine to the feed mechanism, and means comprising plural stop fingers operating in unison automatically in response to manual reciprocation of the platen to interrupt the work in positioning the work for printing the same.
17. Work-feeding apparatus for a manually-controlled machine including a platen mounted for reciprocatory movement comprising, in combination, mechanism operative to progressively feed successive work individually introduced to the same, and devices operative automatically in response to successive manually impelled reciprocatory actions of the platen for controlling the movement of the work on said feed mechanism into printing position with respect to the platen.
18. In mechanism for converting the work feed of a machine including a manually-operated platen from a normal manual to automatic, the combination of a continuous-feed belt, a work-holding magazine, means for feeding the work from said magazine to the belt, and means controlled automatically in response to the operation of the machine platen for intermittently interrupting the progression of the work on said belt.
19. A feeding device for delivering envelopes and the like adapted for use with a machine of the character described, said feeding device comprising a frame providing means for detachably mounting the same in transversely adjusted posi-

tions on the machine, and means provided by said device rendered intermittently operative and inoperative in a cycle of operation of the machine for successively interrupting and conveying the work longitudinally of the frame.

20. Detachable feed mechanism adapted for use with a machine of a character including means for supporting a plurality of printing plates, a platen, and means for locating successive of said plates in position for compressing an envelope or the like therebetween and the platen to print the envelope, said feed mechanism providing a continuously moving work-feeding carriage, devices carried by said feed mechanism for interrupting the conveyance of the work longitudinally of the carriage, and means supported by the feed mechanism for interconnecting said interruption devices with the operative mechanism of the machine for rendering said interruption devices intermittently operative and inoperative to the work on said carriage throughout a cycle of operation of the machine.

21. A feeding device adapted for use with a machine of a character providing printing plates or the like and a platen co-active with the plates to compress the work between the platen and the plates, said feeding device comprising, in combination with a feed carriage for the work adapted to conduct the work into position for effecting the printing operation thereon, means for adjusting the carriage transversely of the machine to afford regulation for various widths of work in accommodating the work relative to the position of the machine platen.

SIDNEY P. WIMPEE,
SIDNEY P. WIMPEE, JR.