Aug. 4, 1931. H. L. CHENERY 1,817,235

ENVELOPE FEEDING APPARATUS FOR TYPEWRITERS

Filed March 26, 1930 4 Sheets-Sheet 1

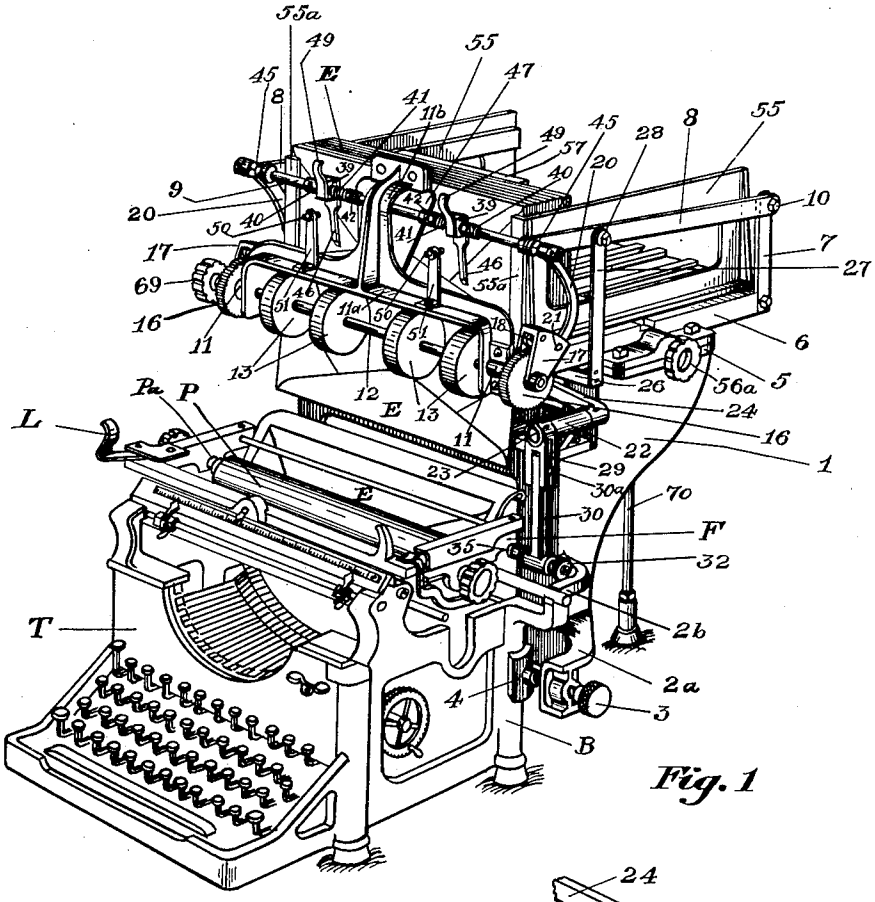


Fig. 1

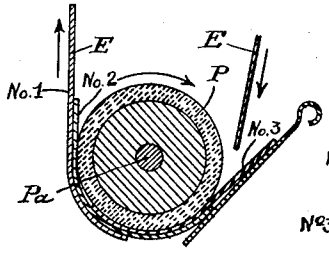


Fig. 3

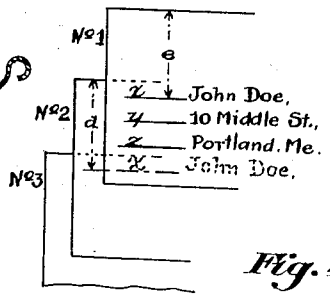


Fig. 4

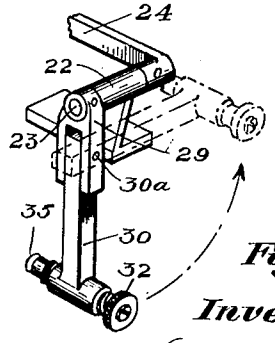


Fig. 2

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ENVELOPE FEEDING APPARATUS FOR TYPEWRITERS

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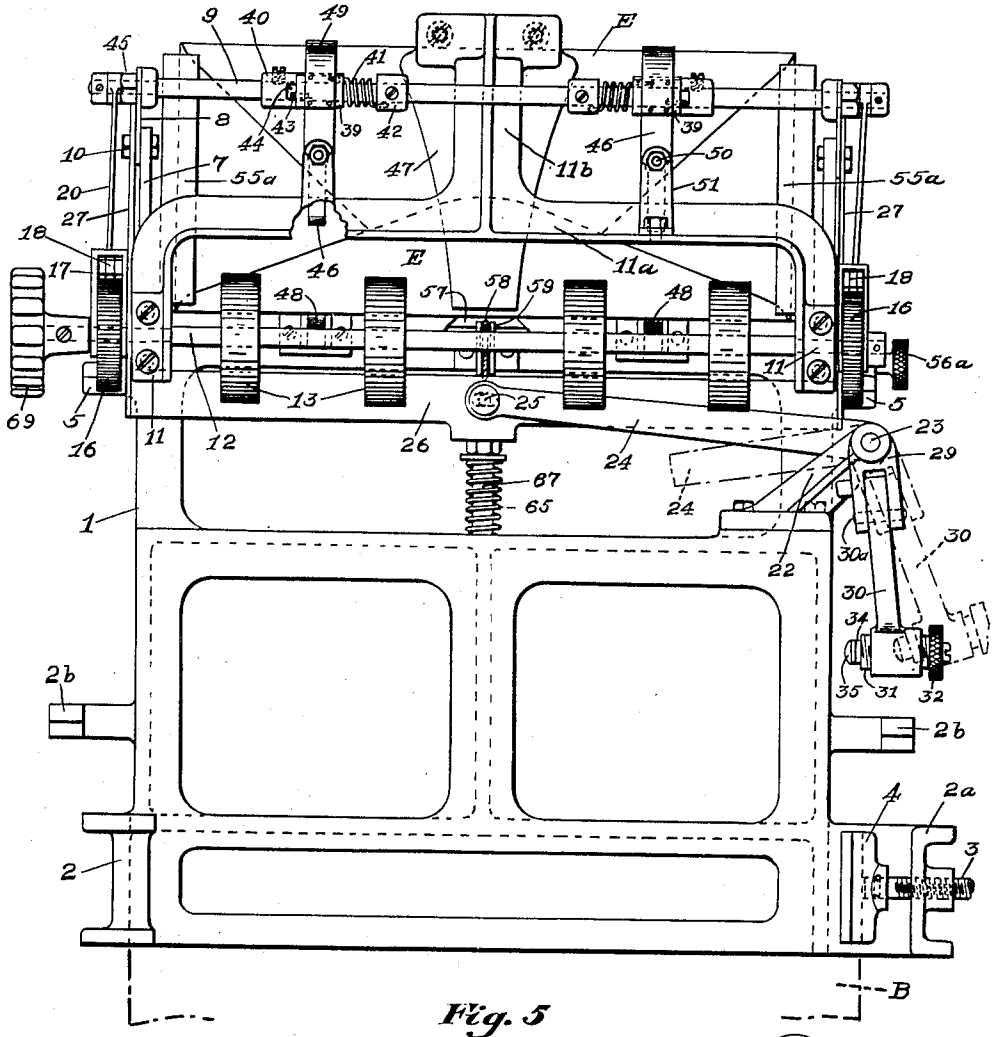


Fig. 5

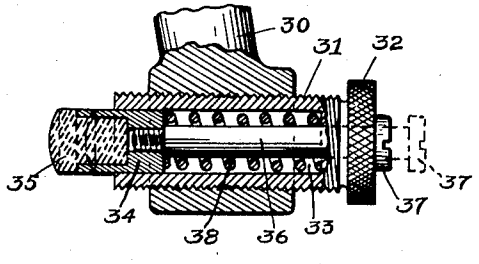


Fig. 6

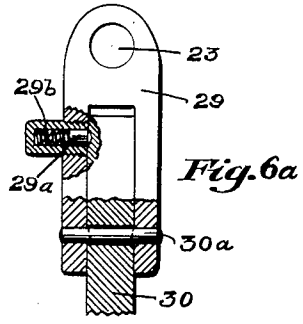


Fig. 6a

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ENVELOPE FEEDING APPARATUS FOR TYPEWRITERS

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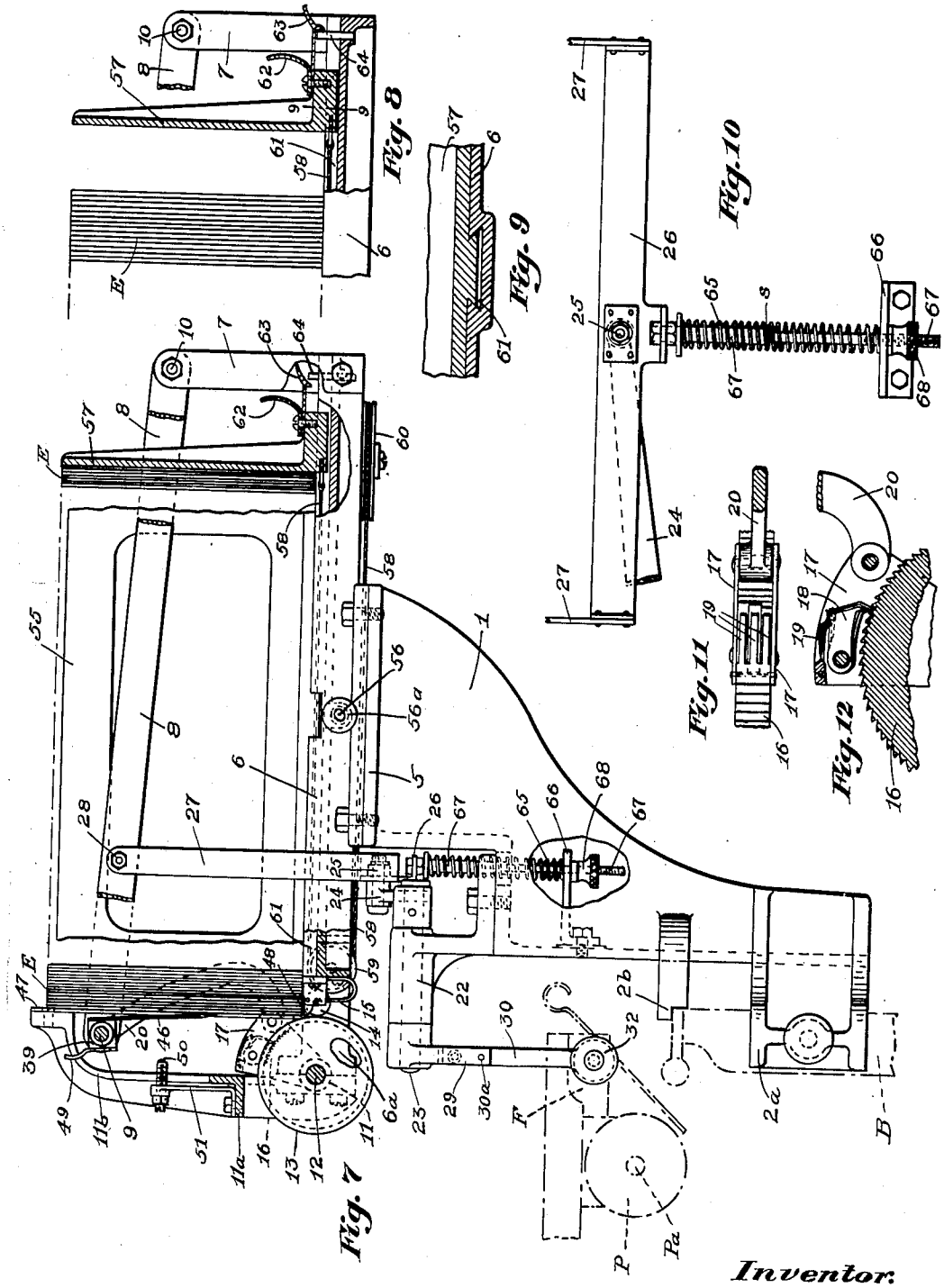


Fig. 8

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 7

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ENVELOPE FEEDING APPARATUS FOR TYPEWRITERS

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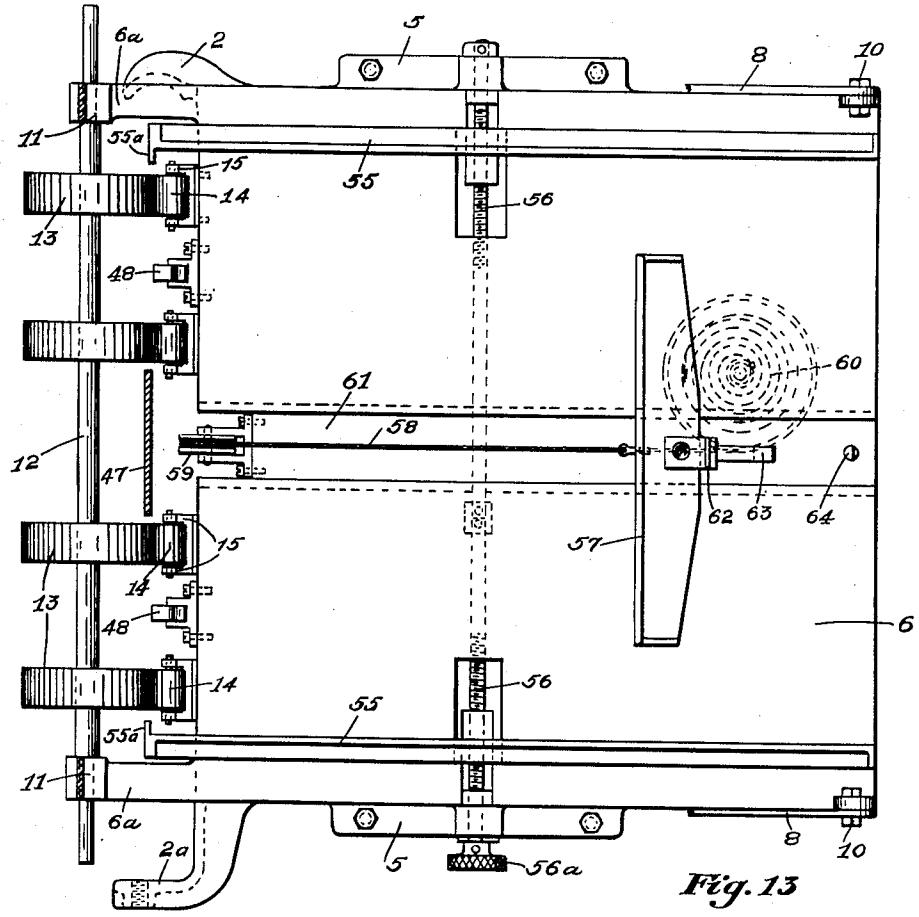


Fig. 13

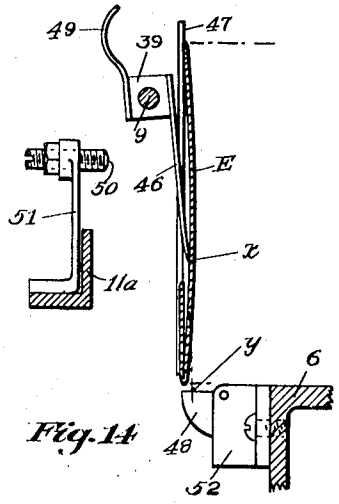


Fig. 14

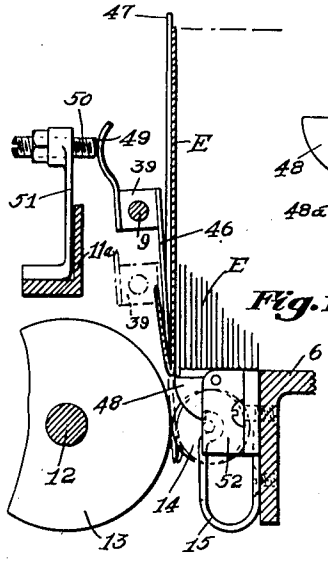


Fig. 15

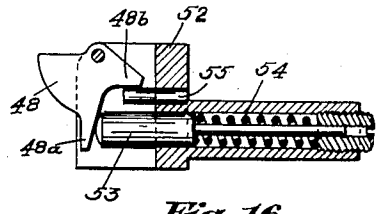


Fig. 16

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Patented Aug. 4, 1931 1,817,235

UNITED STATES PATENT OFFICE

HENRY L. CHENERY, OF PORTLAND, MAINE, ASSIGNOR TO DANA H. EDES, OF GUILFORD, MAINE, AND HOWARD F. SAWYER, OF FREEPORT, MAINE

ENVELOPE-FEEDING APPARATUS FOR TYPEWRITERS

Application filed March 26, 1930. Serial No. 439,245.

The invention hereinafter to be described relates, generally, to office equipment but deals more particularly with apparatus for automatically feeding envelopes into typewriters.

I am aware of the fact that various devices have been in commercial use for addressing envelopes, but these machines are usually one-purpose affairs and when not employed for the particular purpose for which they are made are useless equipment, for they are adapted for no other service.

In the conception of my present invention I have had in mind the utilization of one of the commonest articles of office equipment—the typewriter, upon which I mount the apparatus which is the subject of this invention and by which it is possible to quickly and conveniently feed envelopes from a pack or tier arranged on a table of the device, directly into the typewriting machine. By so doing I am enabled to conserve much of the time consumed in the ordinary process of manually placing them, one at a time, in the typewriter for the purpose of typing the address thereon.

The apparatus under consideration embodies several features which I believe to be novel and of particular advantage for the class of work for which the machine is especially adapted, and among the objects which I have sought to accomplish are—

1. Envelope-flap-engaging fingers which positively start the movement of each envelope out of the pack and deliver it a short distance therefrom into firm embrace of the feed rolls.

2. Synchronized movements of the reciprocataing fingers and revoluble feed rolls.

3. Stop elements to resist movement out of the pack of more than one envelope at one time.

4. Feeding mechanism incorporated in the apparatus wholly distinct and separate from that of the typewriter platen feed.

5. Actuation of the feed arm of the apparatus accomplished by the impact of the typewriter carriage thereon.

6. Availability of the typewriter for letter writing or other purposes while the apparatus is still mounted thereon, and

7. Adaptability of the apparatus for handling various widths of envelopes.

The character of the invention may best be understood by reference to the description found in the following specification when taken in connection with the accompanying drawings, forming a part thereof, and in which is disclosed an embodiment wholly illustrative in character but which, at the present time I consider preferable to other possible forms in which the invention might be carried out.

In the drawings—

Fig. 1 is a somewhat abbreviated perspective view of a typewriter with my apparatus mounted thereon;

Fig. 2 is a perspective of the feed arm;

Fig. 3 and Fig. 4 illustrate certain features in connection with the disposition of the envelopes in the typewriter;

Fig. 5 is a front elevation of the apparatus;

Fig. 6 is a longitudinal sectional view through the lower end of the feed arm;

Fig. 6*a* is a view, partly in section of the upper end of the feed arm;

Fig. 7 is a side elevation partly in section of the apparatus;

Fig. 8 is a fragmentary view of Fig. 7, showing the follow-up gage locked in rearward position;

Fig. 9 is a section taken on line 9—9, Fig. 8;

Fig. 10 is an end elevation of the main feed frame;

Figs. 11 and 12 are fragmentary views of the ratchet feed mechanism;

Fig. 13 is a general plan of the envelope table and gages and portions of the feeding mechanism;

Figs. 14 and 15 represent details connected with the feed fingers and envelope stop elements, and

Fig. 16 is a longitudinal sectional elevation through the stop element and its housing.

Similar reference characters are employed

to identify like parts in all the different views of the drawings.

Referring to the drawings, B represents the rear standards or body portion of a typewriter T, F the frame structure of its carriage, P the platen and P*a* the platen shaft. For the sake of clarity, much of the minor structure of the typewriter has been omitted from the drawing (Fig. 1).

1 is the frame of my envelope feeding apparatus, on the lower portion of which are forwardly extending lugs 2 and 2*a*, the latter being provided with a clamp screw 3 serving in conjunction with the clamp jaw 4 to secure the apparatus to the standards B of the typewriter. The lugs 2*b* assist in carrying the weight of the apparatus and in locating it in proper vertical alignment with respect to the typewriter.

The frame 1 extends upwardly for a considerable distance above the typewriter, and mounted on and secured to the rearwardly projecting, bracketed portions 5 is a table 6 upon which the envelopes to be fed to the typewriter are placed in a horizontal pack or tier. The flaps of the envelopes are at the bottom and disposed in a direction toward the front end of the table—or toward the typewriter.

At each rearward corner of the table 6 is a standard 7 to each of which is pivotally secured a side bar 8. A tumble shaft 9 connects with and is rigidly fixed to the free ends of the side bars and the whole structure is subject to oscillatory movement from the points of connection of the side bars with the standards 7, at 10.

The table has forwardly extending portions 6*a* in each of which is a bearing 11, the two bearings being connected by a cross tie member 11*a* having a centrally disposed, upwardly extending bracket 11*b*.

Journalled in the bearings 11 is a feed-roll shaft 12 carrying a plurality of feed-rolls 13, preferably faced with rubber. Rearwardly of the rolls 13 are smaller rolls 14 held, respectively, in yielding engagement with the rolls 13 by spring bearing members 15.

A ratchet wheel 16 is fixed on each end of the shaft 12, outwardly of the bearings 11, and operating with each ratchet wheel, between the pawl carriers 17, are pawls 18.

In order to obtain closer limits of ratchet feed I preferably construct the pawls as illustrated in Figs. 11 and 12, in which are shown a plurality of these members cut to unequal lengths, the difference between the longest and shortest pawl being slightly less than the space between adjacent teeth in the ratchet wheel. Thus the certainty of one of the pawls engaging a tooth on the downward stroke of the carrier, with the least appreciable lost motion, is apparent. A multiple leaf spring 19 engaging the tops of the pawls insures their continuous contact with the teeth of the ratchet wheel.

A connecting-rod 20, the lower end pivotally connected to the pawl carriers at 21 and the upper end swinging on and with the shaft 9 supplies the means to actuate the ratchet wheels—and incidentally the feed-rolls 13.

To prevent undue distortion or twisting of the horizontal, U-shaped structure embracing the side-bars 8 and the tumble shaft 9, I provide similar ratchet feed equipment on both ends of the feed-roll shaft 12.

Journalled in a bracketed bearing 22 is a shaft 23 and fixed on one end thereof is a lever 24 extending in a generally horizontal direction to the longitudinal center line of the apparatus. At this point the lever makes a sliding connection, at 25, with the transverse bar 26, the latter being one member of a vertical, U-shaped combination including the lateral upright members 27 which straddle the frame 1 and table 6 and at their upper ends make pivotal connection with the side-bars 8, at 28.

Fixed to the forward end of the shaft 23 is a yoked hub 29 (see Fig. 2) to which is pivotally secured, between the bifurcations, the impact feed-arm 30, the lower end of which is shown in sectional detail in Fig. 6. The arm 30 may be retracted or swung backwardly on its pivot 30*a* so as to enable the operator of the typewriter to employ it for letter writing or other purposes, even though the apparatus is in place thereon. The fact that the feed-arm 30 is normally located in the path of movement of the carriage of the typewriter during envelope addressing operations—this movement being in short strokes only—necessitates the removal of the feed-arm out of this path when the full travel of the carriage is required.

The feed-arm is held in normal position in the yoked or bifurcated hub by means of a plug 29*a* engaging an indent in the feed-arm and yieldingly held therein by the spring 29*b*.

In Fig. 6 is shown a sectional view of the lower end of the feed-arm. The hub is bored and tapped for screw-threaded engagement of the sleeve 31 provided at its outer end with a knurled head 32 by which to actuate it, and an axial bore 33 in which reciprocates the plunger 34. This plunger preferably has a rubber bumper head 35 which receives the shock incident to the impact of the typewriter carriage on retun strokes thereof during envelope feeding operations, and it also has an extended, smaller portion 36 with a head 37 thereon to prevent complete displacement of the plunger from out of the bore 33 caused by the expansive force of the spring 38.

By this construction the plunger may be placed in various positions, relative to the

feed-arm, so as to accommodate itself to close adjustments of the carriage stops with which all typewriters are equipped. While the rubber bumper head is slightly yielding in character and is preferred to a metallic substitute as being less noisy when in contact with the carriage, it is not absolutely essential as yieldability of the feed-arm is taken care of by the spring 38, the function of which is to absorb the shock caused by the impact of the carriage on the feed-arm.

From the foregoing recital it is obvious that, when the typewriter carriage F impacts on the feed-arm bumper head 35—swinging the feed-arm as shown in dotted lines, Fig. 5, a downward, slightly arcuate movement of the tumbler shaft 9 takes place, and a rotary movement of the shaft 12 and the feed-rolls 13 obtains.

Referring to Fig. 5 it will be observed that on the shaft 9 are rotatively mounted two blocks 39, on the outer sides, respectively of which are secured to the shaft the collars 40. Adjacent the inner sides, respectively, is a torsional spring 41, one end being secured in the block and the other in the fixed collar 42; and to control and restrict the rotary movement of the block to within fixed limits a pin 43 projects out of its side into the space 44 made in the side of the collar 40.

On each block 39 is secured, by any suitable means—as by pinning or brazing—a feed-finger 46 which normally contacts with a slight yielding pressure on the side of the envelope E (see Fig. 14). Due to the fact that envelopes are usually bent, or in other words, their surfaces do not present or lie in true planes, it is necessary to allow ample inward placement of the point or lower end of the feed-finger, as at *x*, Fig. 14, and sufficient thrust pressure on the face of the envelope to insure positive engagement of the feed-finger with the flap of the envelope, on the downward movement of the shaft 9.

Should the feed-finger descend from the position shown in Fig. 14 and its lower end, as at *x* fall in a plumb line it would contact with the yielding retarder or hold-back member 48 at a point thereon marked *y*—or possibly even nearer the pivotal point of the latter. This would tend to increase the power required to actuate the feed-fingers—and is objectionable on that account.

To prevent the occurrence of the trouble just mentioned I secure to the front side of the blocks 39 an arcuate shaped fender 49 which, when the tumbler shaft 9 descends sufficiently to bring the lower end of the feed-finger to within a short distance—say ¼ inch—of the top of the member 48, engages the point of the screw 50 adjustably mounted in the bracket 51, and this action draws the end of the feed-finger forwardly (see Fig. 15) so that it passes downwardly with but a barely perceptible contact with the end of the member 48 and moves the envelope into engagement with the rolls 13 and 14.

The function exercised by the feed-fingers is to separate the outer envelope from the rest of the pack and carry it downwardly, by positive engagement with its flap, for a distance of not more than ½ inch where it is grasped by the feed-rolls the peripheries of which travel at substantially the same speed as does the feed-fingers.

The construction of the retarder unit is clearly shown in sectional detail in Fig. 16. Pivoted between the forks of the bifurcated housing 52, the lower leg 48*a* of the retarder is engaged by the plunger 53 which, through the agency of the spring 54 forces the arm 48*b* into yielding contact with the pin 55—this position, shown in Fig. 16, is the one in which the retarder is normally disposed. It may yield slightly, however, should the second envelope start to move down while the fingers are moving the first one into position, but never under any ordinary condition can it pass the retarder until the first envelope has been completely withdrawn from the pack on the table.

In theory, the retarder member 48 might possibly be made as a fixed element. This would imply, however, that the fender 49 and the screw 50 acted unfailingly to withdraw the end of the feed-finger on its downward movement out of contact with the top of the retarder which, in practice might be an uncertain and questionable proposition. With the preferred construction—a yielding retarder—all uncertainty is done away with, as, in case of disadjustment of the screws 50, allowing the fingers to impact on the top of the retarders, no harm can result as the latter will simply swing downwardly and allow the fingers to pass.

Side gauges 55, actuated either independently or as preferred, in synchronism by means of a right and left hand screw 56, serve to locate the envelopes laterally of the table 6, and a rear, follow-up gauge 57 moves the body of envelopes into contact with the front gauge 47 and the inwardly projecting flanges 55*a* on the inner ends of the side gauges 55.

A yielding tension is constantly maintained on the follow-up gauge 57 by means of a cord 58 passing around a pulley 59 and returned, under the table, to a clock spring device 60, a pulley on which winds up the cord as the follow-up gauge passes toward the front end of the table.

The base of the follow-up gauge is fitted as a dovetail slide operating in the slide-way 61 in the top of the table. On the rear of the gauge is a finger-hold 62 by which the gauge may be withdrawn from out of contact with the envelopes, and a spring latch

63, adapted to engage the pin 64, positively holds the gauge at the rear end of the table while it is being loaded with envelopes.

The actuation of the feed elements is intermittent. The feed-fingers start an envelope from the pack or tier on the table on every third downward movement of the tumbler shaft 9—the two intervening strokes of the fingers simply fanning, so to speak. The feed-rolls, however, act to move an envelope one feed stroke, once it is in their grasp, on every down movement of the tumbler shaft. The down, or feed movements of the actuating parts are positively accomplished by the impact of the typewriter carriage on the feed-arm, whereas the return of these parts is effected by a spring 65 (see Fig. 10) which is disposed between the transverse member 26 and the bracket 66 secured to the frame 1 of the apparatus.

The down stroke of the feed-fingers is supposed to terminate uniformly, or at a fixed point, a shoulder *s* on the plunger 67 located within the spring 65 coming to a seat on the top of the bracket 66 preventing further downward movement of the member 26 and interconnecting parts.

But, due to the fact that various lengths of feed are required at each rotative movement of the feed-rolls on account of the difference in the widths of envelopes, provision must be made to vary the stroke of the feed parts. This is accomplished by means of the thumb nut 68 operating on the screw threaded portion of the plunger 67, the nut contacting on the under side of the bracket 66. By shortening the distance between the shoulder *s* and the top of the bracket 66 the stroke is shortened, and conversely, if the distance is made greater the stroke is lengthened.

It is sometimes desirable to manually actuate the feed-rolls independently of the regular mechanism for doing this. A knob 69 is provided for this purpose.

It may also be found desirable, especially when the typewriter is not secured to a table or desk, to supply a leg or standard 70 to keep the apparatus in better balance.

In operation, the table is loaded with envelopes and the follow-up gauge released to bear on the rearward end of the tier. The proper feed is next looked after by adjusting the nut 68 to accommodate the particular width envelope with which the table is loaded.

The carriage stop on the typewriter should now be set so that when the feed-arm is fully extended, outwardly, bringing the feed-fingers to their lowest possible position, the frame F of the carriage will abut on the bumper head 35 of the feed-arm. Close adjustment between the carriage frame and the bumper head can be made by actuation of the sleeve 31. Everything is now set for operating the feed and addressing the envelopes.

While the foregoing briefly summarizes the steps to be taken in putting into operation the envelope-feeding apparatus, it seems necessary to describe further some features connected with the disposition of the envelopes in the typewriter itself, and to obtain a clearer understanding of the points to be considered, reference should be had to Figs. 3 and 4 of the drawings.

Addresses on enevelopes usually include three lines of double-spaced type—the addressee's name, his street and number and the city or town in which he lives.

In typing the address, the operator uses the finger lever L on the carriage of the typewriter and each actuation of this lever toward the right rotates the platen P two spaces.

Now, designating the starting point as at the first line in the address, and having completed this, the operator is required to have actuated the lever L twice before the full address has been typed.

Referring to Fig. 4, the first line, *x* is that on which the party's name, "John Doe" is written; the first actuation of the lever L brings the envelope up to the next line, *y*, and "10 Middle St." is typed; and the last or second movement of the lever moves the envelope so that line *z* constitutes the printing line, and the words, "Portland, Me." finishes the address on the outlying or No. 1 envelope.

It will be understood, of course, that while the No. 1 envelope is being fed, all the other underlying envelopes—No. 2 and No. 3 also are coming into the typing position at the front side of the platen.

At this particular point in the addressing operation the line *z* is still on the typing line, but upon moving the lever L once more—making three movements from the start of operations—the envelope No. 1 will be in a position to be easily pulled off the platen, leaving the second or No. 2 envelope exposed.

But the last, or third movement of the lever L brought the envelope No. 2 into the same relative position with respect to the platen and the typing line as was assumed by the first envelope when the first line thereon was typed. In other words, the dotted line *x* on which the name "John Doe" is depicted in dotted lines is the same distance, *d* from the top of envelope No. 2 as was the corresponding line *x*, distance *e*, from the top of No. 1 envelope.

It is therefore obvious that in every three movements of the lever L, and rotary movements of the platen P, an envelope is withdrawn from the platen of the typewriter. It follows also that if an envelope is removed after every third rotation of the

platen an envelope must be fed to the platen to replace the one withdrawn. So it becomes necessary to feed an envelope from the apparatus in three movements of the apparatus feed. But the apparatus feed must cover in the three separate movements the whole width of the envelope, whereas the platen feed of the three spaces covers only a part of the width of each envelope. Overlapping of the envelopes in the typewriter is therefore necessary to provide a synchronization of the two separate feeds.

One feature characterizing the present invention is the complete dissociation of its feeding mechanism from that of the platen feed of the typewriter. The operator is, therefore, not compelled to actuate both feeds simultaneously, as is the case with certain other types of envelope feeding machines.

She first rotates the platen of the typewriter by means of the small lever L, this act bringing the envelope into proper position to register the respective lines of the address; then, on the return stroke of the carriage, which gains momentum as it proceeds, it impacts strongly on the feed-arm 30 and with such force as to reduce to a minimum the manual effort required to actuate the apparatus feed.

Furthermore, due to the fact that the two feeds are entirely distinct and separate, slight irregularities in the position of the envelopes, with respect to over or under feeding, may be corrected by adjusting one without disturbing the other.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In envelope-feeding apparatus for typewriters having a reciprocating carriage, comprising a table adapted to support a body of envelopes, reciprocating elements adapted to engage the flap of the foremost envelope in said body of envelopes, associated with rotary elements to continue the movement imparted to said envelope by said reciprocating elements to continue, intermittently, the movement of said envelope toward said typewriter, and means operable by the impact of said carriage thereon to actuate both the reciprocating and the rotary feeding elements in said apparatus.

2. In envelope-feeding apparatus for typewriters, comprising in combination with the reciprocable carriage for said typewriter, a table adapted to support a body of envelopes with their flap edges downwardly disposed and their flaps presented in a direction toward the typewriter, reciprocable elements adapted, on their downward stroke, to engage the flap of the foremost envelope and start it from the body of envelopes on said table, rotary elements adapted to seize the envelope from said reciprocable elements and continue its movement, intermittently, toward the typewriter, a feed-arm, actuated in one direction by the impact of said carriage thereon, operable to set in motion both the reciprocatory and the rotary feeding elements in said apparatus, and means to vary the extent of movement of said side arm whereby different lengths of feed may be provided, to accommodate different widths of envelopes being used.

3. In apparatus for automatically feeding envelopes to a typewriter, comprising in combination with the carriage for said typewriter, a frame secured to the body of said typewriter, an envelope-supporting table on said frame disposed at a higher elevation than said typewriter, reciprocable elements adapted to engage the flap of the foremost envelope and start it from out of the body of envelopes on said table, feed-rolls adapted to grip said foremost envelope and continue its movement toward said typewriter, means acting on the rearward end of said body of envelopes to bring them, consecutively, into engagement with the said reciprocable elements, a feed-arm operable to actuate both the reciprocable and the rotary feeding elements through the agency of the impact, on its backward stroke, of the said carriage on to said feed-arm, yielding means on said feed-arm to receive the shock, incident to the impact of said carriage thereon, and means to yieldingly bring the actuating elements of the feeding mechanism to their starting points.

4. In apparatus of the class described, applicable for use when mounted on a typewriter having a reciprocable carriage, comprising a frame, an envelope-supporting table on said frame, side gauges on said table to laterally guide the envelopes as they move forwardly on said table, a follow-up gauge yieldingly forcing the envelopes forwardly on said table, a latch on said follow-up gauge to lock it in its rearwardmost position on said table, a plurality of reciprocable feed-fingers adapted to engage the up-turn flap of each envelope as it is forced by said follow-up gauge into foremost position on said table and move it a short distance out of its original position in the supply of envelopes on said table, feed-rolls adapted to seize the envelope as it is advanced by said feed-fingers, a feed-arm operable to reciprocate said feed-fingers and rotate said feed-rolls in timed relation, and means to vary the feed stroke of said feeding elements.

5. In envelope-feeding apparatus of the class described, applicable for use on a typewriter, comprising in combination with the carriage for said typewriter, a frame secured to the body of said typewriter and extending upwardly therefrom, a table on said frame serving to support a body of

envelopes, a hold-back member on the end of said table, beneath a plurality of the foremost of said envelopes, adapted to prevent feeding two envelopes simultaneously from said body of envelopes, a tumble shaft, a block rotatively mounted on said shaft, a feed finger depending from said block, a fender on said block, a screw adjustably positioned on said apparatus to engage said fender on the downward movement of said tumble shaft, whereby the lower end of said feed-finger may be drawn forwardly out of contact with said hold-back member as said feed-finger passes downwardly and below said member, and a pair of engaging rolls aligned to receive and further feed the envelope as it is moved from the body of envelopes by said feed-finger.

6. In apparatus of the class described comprising a frame adapted to be attached to the body portion of a typewriter, a horizontally disposed table on said frame adapted to support a tier of envelopes, a side arm pivotally attached to and on each side of said table, a tumble shaft connecting the free ends of said side arms, a depending feed-finger oscillatively mounted on said shaft and adapted, when said shaft is depressed, to engage the flap of the adjacent envelope in the said tier of envelopes and move it out of its position in said tier, an envelope-movement-retarding member on the end of said table adapted to support a plurality of the forwardly disposed envelopes in said tier, said member being in vertical alignment with said feed-finger and engageable therewith upon the depressing of said tumble shaft, and means to actuate said shaft.

7. In envelope-feeding apparatus for typewriters, comprising in combination with the carriage for said typewriter, a frame secured to said typewriter, a table on said frame adapted to support a tier of envelopes, reciprocable feed-fingers adapted to engage the flap of the outside envelope in said tier and move it partly therefrom, rolls adapted to seize said envelope as it is moved into engagement therewith by said fingers, a feed-arm oscillatively mounted on said frame, adapted to receive the impact of said carriage on its return stroke, and means operable by said feed-arm to actuate said feed-fingers and said rolls in timed relation, relatively.

8. In envelope-feeding apparatus for typewriters, comprising a frame located rearwardly of the typewriter, a table on said frame for the purpose of supporting a plurality of envelopes with their flap edges downwardly disposed and their flaps on their sides nearest the typewriter, a yieldable, envelope-movement resisting element on the forward end of said table, beneath a plurality of the forwardly positioned envelopes in said body of envelopes, a tumble-shaft in said apparatus adaptable of movements transversely of the envelopes, a block rotatively mounted on said tumble-shaft, a feed-finger depending from said block, the lower end thereof disposed superjacent the flap of the adjacent envelope when said tumble-shaft is in its uppermost position, a spring acting to maintain a yielding pressure on said block tending to swing said feed-finger into a lightly forced contact with the face of said envelope, above its flap, means to limit the rotary movement of said feed-finger toward said envelope, and means positively acting in opposition to said spring to draw the lower end of said feed-finger forwardly of the vertical plane in which it normally lies when at rest, said action occurring when the feed-finger is approaching and is relatively near the top of the said envelope-movement resisting element.

9. In apparatus of the class described adapted for use on a typewriter, comprising a frame, an envelope-supporting table on said frame, a side-arm disposed on each side of said table and making, respectively, connections at points thereon at its rearward end, lateral members depending from and making pivotal connections, respectively with said side-arms, a transverse beam disposed beneath said table and fixedly secured to the lower ends of said lateral members, a bracket, having a hole therein, projecting rearwardly from said frame, a plunger having its upper end secured in said transverse member and its lower end screw-threaded and operable in the hole in said bracket, a spring surrounding said plunger and disposed between said transverse beam and said bracket, a shoulder on said plunger adapted, when said transverse beam is in its lowermost position, to engage the top side of said bracket and prevent further downward movement of said beam, and a nut on the lower, threaded portion of said plunger, adapted to abut on the under side of said bracket for the purpose of locating, and holding against the expansive force of said spring, the said transverse beam in various vertical position, relative to said table.

10. In apparatus of the class described, comprising a frame adapted to be attached to the body portion of a typewriter, a table on said frame serving to support a tier of envelopes, a side arm oscillatively mounted on each side of said table, a tumble shaft connecting with and fixed in the free ends of said side arms, a plurality of depending feed-fingers mounted on said shaft and adaptable of slight oscillations thereon, said feed-fingers being so disposed that the lower ends normally engage with a yielding pressure the flap side of the adjacent envelope in said tier of envelopes, a plurality of yieldable, envelope-movement-re-

tarding members pivotally secured to the feed-operating end of said table, said members adapted to support a plurality of the envelopes nearest said feed-fingers, and so arranged in said apparatus that their forward ends lie in a transverse vertical plane in advance of the plane in which normally lie the lower ends of said feed-fingers when said shaft is in its uppermost position, means whereby upon the arrival of the lower ends of said feed-fingers, during their downward movement, at a point a short distance from the top of said retarder member, they may be advanced and may pass, enclosed within the flap and body of the envelope, the forward end of said retarder member with but slight frictional contact therewith, feed-rolls disposed across the end of said table, and means to reciprocate said feed-fingers in synchronism with the rotation of said feed-rolls.

11. In apparatus of the class described, adapted to be attached to the body of a typewriter having a carriage therefor, comprising a frame, means to fixedly secure said frame to the rearward portion of said typewriter, a table on said frame serving to support a supply of envelopes with their flaps down and presented toward the feeding end of said apparatus, a tumble shaft, a plurality of feed-fingers oscillatively mounted on said shaft, a transversely disposed feed-roll shaft journalled at the front end of said table, a plurality of feed-rolls fixed on said feed-roll shaft, yieldably mounted rolls engaging, respectively, the said feed-rolls, a purality of envelope-movement-retarding members, yieldable in one direction, mounted on the end of said table in substantially vertical alignment, respectively, with said feed-fingers, a ratchet wheel on said feed-roll shaft, a pawl carrier adjacent said ratchet wheel, pawls pivotally mounted on said pawl carrier, adapted to engage the teeth in said ratchet wheel, a connecting-rod swinging from said tumble shaft and making pivotal connection with said pawl carrier, a feed-arm journalled in said frame and operable to raise and lower said tumble shaft, and rotate said feed-rolls in one direction, whereby said feed-fingers, on their downward stroke, may engage the flap of the foremost envelope in said supply of envelopes and move it therefrom into engagement with said feed-rolls while the latter are rotating, the actuation of said feed-arm being accomplished by the impact of the carriage of said typewriter thereon.

In testimony whereof I affix my signature.

HENRY L. CHENERY.