Dec. 8, 1925. 1,564,937

L. M. CAMPBELL

ENVELOPE FEED AND DELIVERY ATTACHMENT FOR TYPEWRITERS

Filed Jan. 26, 1925 3 Sheets-Sheet 1

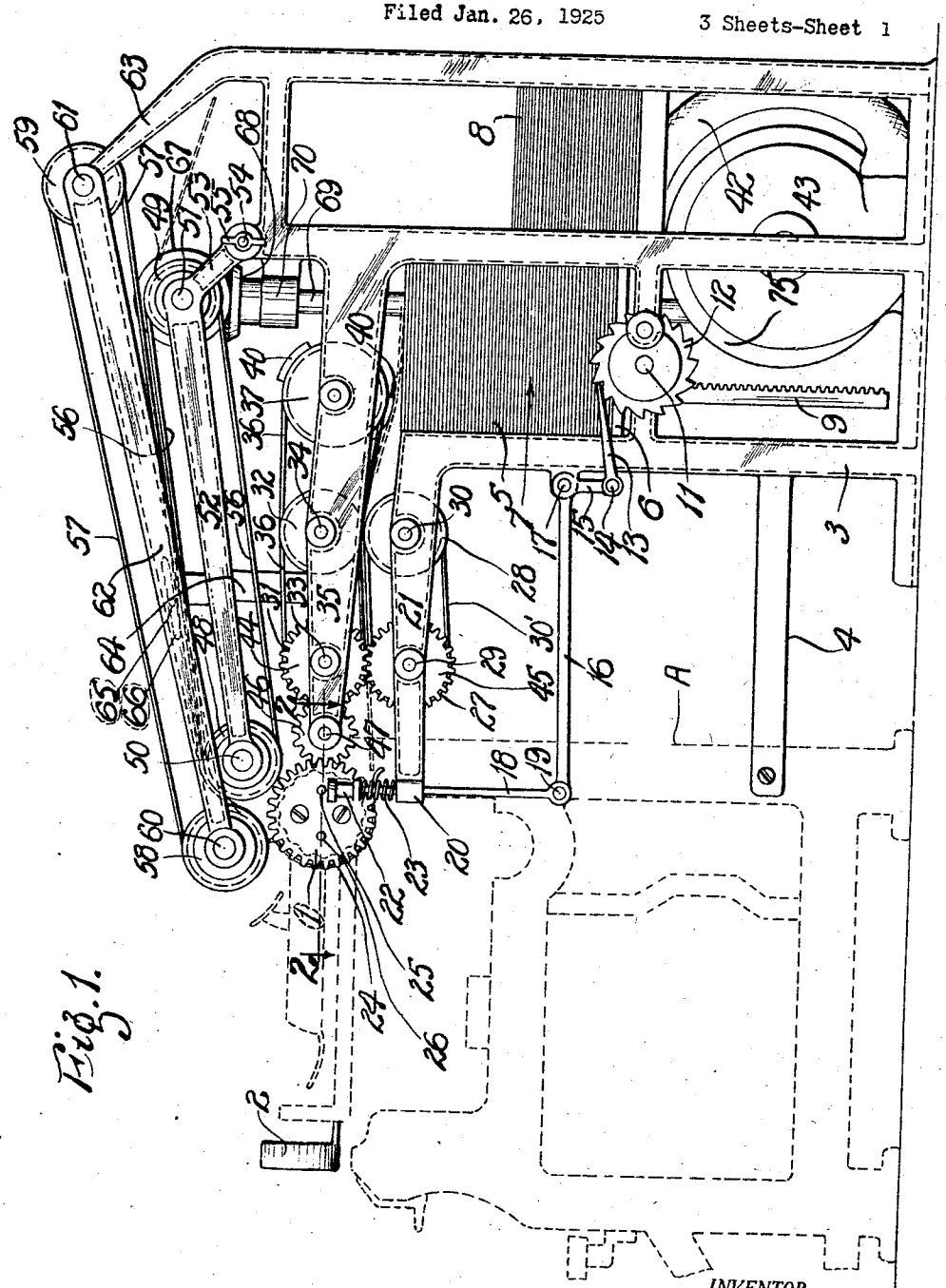


Fig. 1.

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Filed Jan. 26, 1925 3 Sheets-Sheet 2

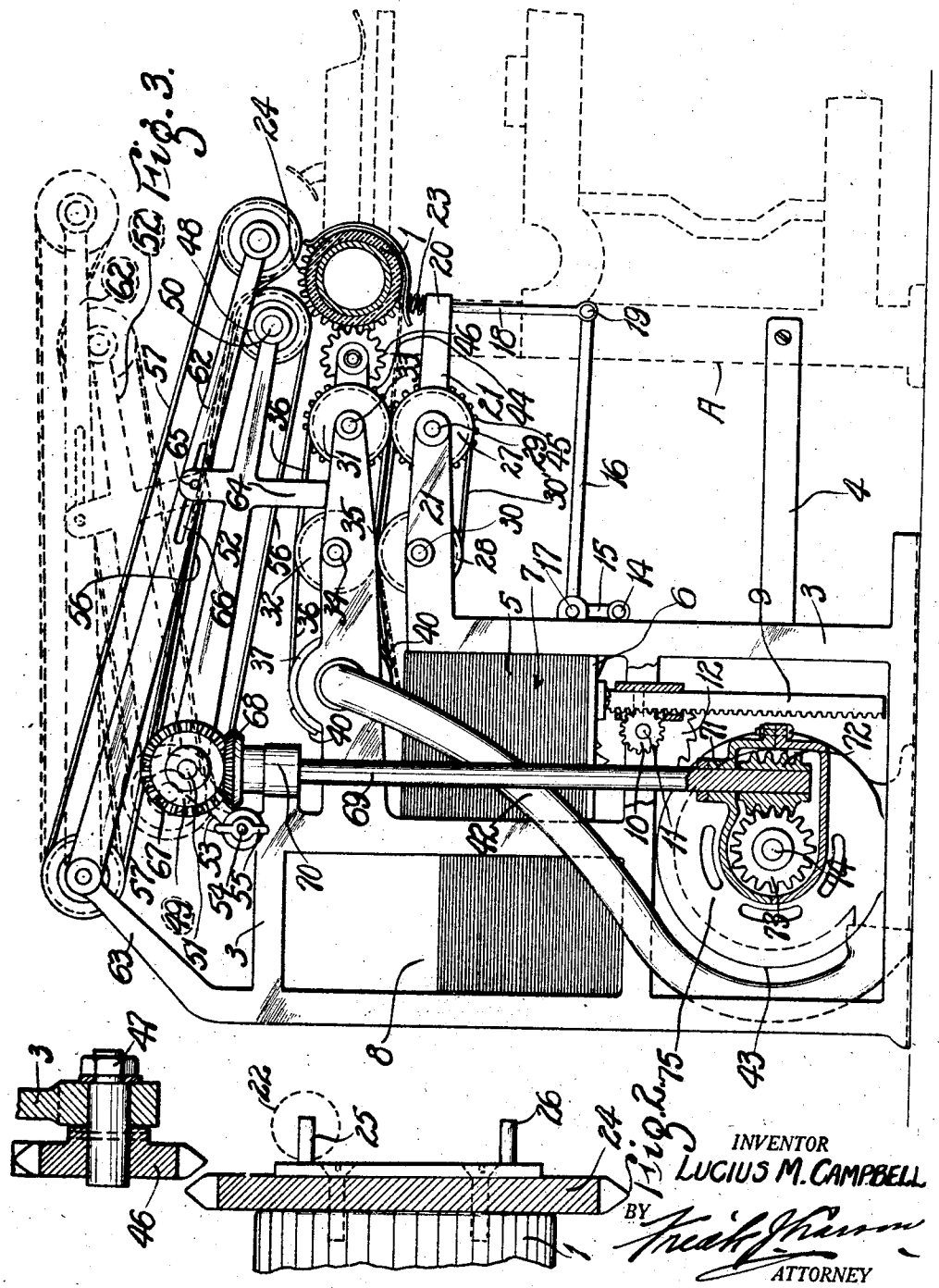


Fig. 3.

Fig. 2.

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Filed Jan. 26, 1925 3 Sheets-Sheet 3

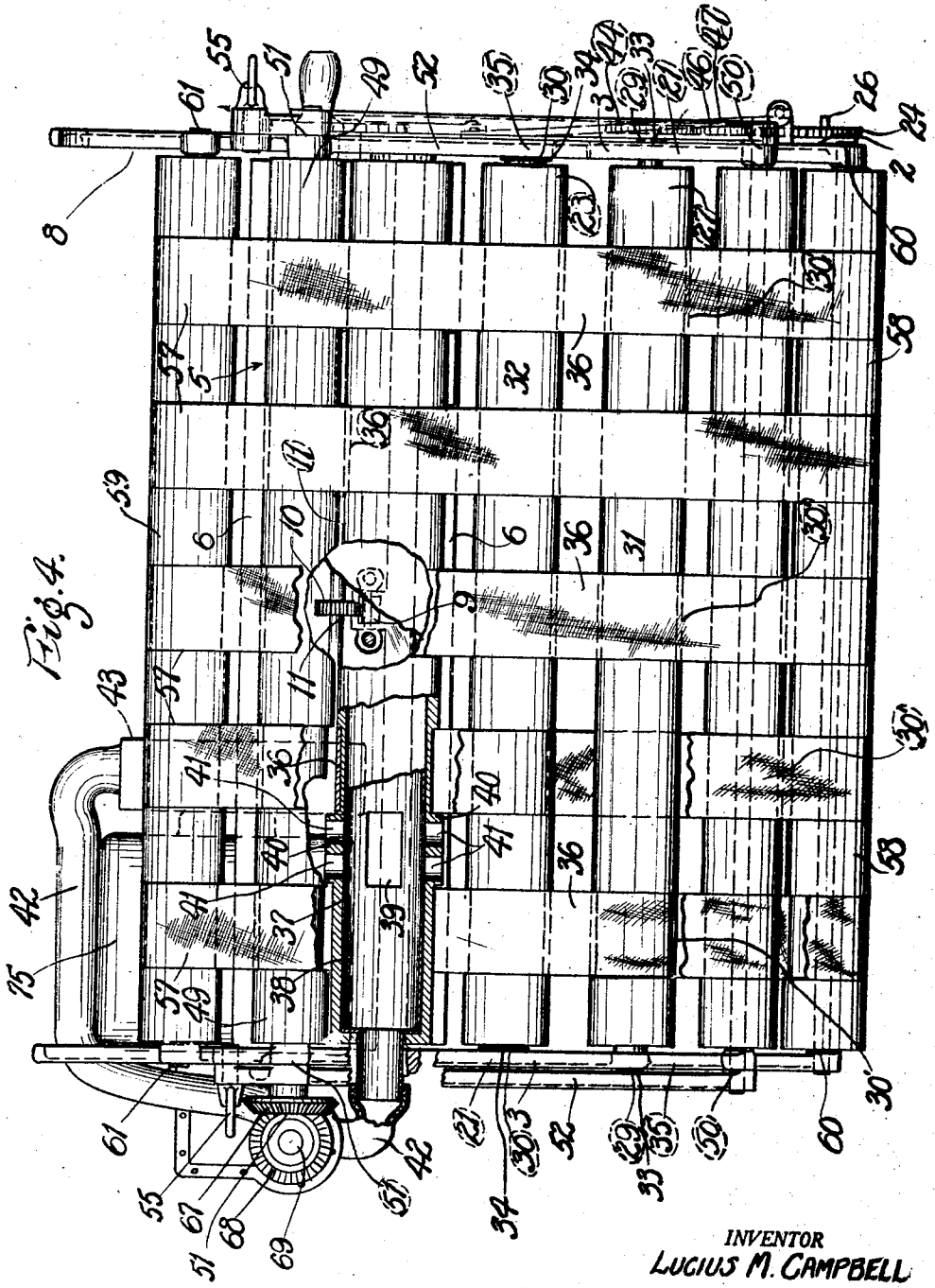


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ENVELOPE FEED AND DELIVERY ATTACHMENT FOR TYPEWRITERS.

Application filed January 26, 1925. Serial No. 4,733.

To all whom it may concern:

Be it known that I, LUCIUS M. CAMPBELL, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Envelope Feed and Delivery Attachments for Typewriters, of which the following is a specification.

My invention relates to an envelope feed and delivery attachment for typewriters, and, it is a distinct and practical improvement to overcome certain practical objections to, and defects in the present types of attachments for typewriters.

The object of my invention is to provide an attachment for typewriters which will elevate a supply stack of envelopes in a receptacle a predetermined distance and feed or deliver one envelope at a time from the top of the stack of envelopes to and between conveyor belts for delivery to the platen roll of a typewriter by the manual turning of the platen roll one half revolution in the usual manner, which turning movement of the platen positions the next envelope to be addressed on the platen, and during the same manual operation of the platen, the platen discharges the addressed envelope on the platen to and between the two continuously driven conveyor belts for delivery to an addressed envelope receiving receptacle.

An object of my invention is to provide means to raise a stack of envelopes to be addressed a predetermined distance and advance the top envelope thereof toward the platen of a typewriter a predetermined distance each time an addressed envelope is discharged from the platen.

A further object of my invention is to provide a platen actuated mechanism to raise a stack of envelopes in a supply receptacle a predetermined distance to each half revolution of the platen.

A further object of the invention is to provide a plurality of feed conveyor belts to be actuated or driven a predetermined distance through the manual rotation of the platen to feed an envelope between belts movable toward the platen and to discharge the preceding or addressed envelope from the platen.

A further object of the invention is to provide a vacuum roller having spaced opposed suction feet for lifting and forwardly feeding the top envelope of a supply stack to the mouth of feed conveyor belts.

A further object of the invention is to provide a plurality of upper and lower continuously driven conveyor belts for delivering addressed envelopes discharged from the platen to a receiving receptacle.

A further object of the invention is to provide means for raising the forward ends of the addressed envelope conveyor belts out of cooperative relation with the platen when the typewriter is used for purposes other than the addressing of envelopes to obviate the necessity of having to detach the attachment from the typewriter when it is desired to write letters, or the like.

A further object of the invention is the provision of an envelope feed and delivery attachment for typewriters, which will possess advantages in points of simplicity, efficiency, and, at the same time prove itself comparatively inexpensive in manufacture.

With the above and other objects in view, the invention consists in the novel features of construction, arrangement and combination of parts hereinafter more fully described and finally pointed out in the claims hereto appended.

Referring to the accompanying drawings forming a part of this specification, wherein like characters of reference denote similar parts throughout the several views:

Fig. 1, is a right side elevation of a device as attached to a typewriter and embodying the features of my invention.

Fig. 2, is a detail in sectional elevation taken on line 2—2 of Fig. 1, showing the platen gear disengaged from an idler gear which imparts movements to gears for driving the feed conveyor belts.

Fig. 3, is a left side elevation of the device as attached to a typewriter and embodying the features of my invention.

Fig. 4, is a top plan view of the attachment with portions thereof broken away and others in sectional elevation.

Referring to the drawings, the reference numeral A represents a typewriter which is shown in dotted lines. The typewriter is provided with the usual platen, or roll 1

and the platen actuating lever 2, which are shown in full lines.

In carrying out the aim of my present invention, which is in the form of a device to be readily attached to and detached from a typewriter, I employ a suitable supporting frame 3, adapted to be positioned to the rear of a typewriter and suitably connected thereto by means of suitable connecting straps 4, or their equivalent. The frame work 3 is so constructed as to provide an envelope supply or feeder receptacle 5 open at its top, closed at its bottom with a vertically movable floor 6 upon which is positioned a stack of envelopes 7 to be addressed, which envelopes have their flaps facing up and their sealing end at the front, as is manifest. The frame is also provided with an addressed envelope receiving receptacle 8 which is positioned to the rear of receptacle 5.

The means for elevating the floor 6 will now be described.

The mechanism, I have shown for elevating the floor 6, consists of a suitable rack gear 9 which is fixed to the lower face of the movable envelope supporting floor 6 and directed downwardly therefrom, and is of such length as to elevate the floor 6 to its uppermost position in the receptacle, which position is at the top of receptacle 5. The teeth of the rack gear 9 mesh with a pinion gear 10 fixed to the cross shaft 11 which is rotatably supported at its ends by the supporting frame 3. A suitable ratchet wheel 12 is fixed to one end of the right hand end of the cross shaft 11 and the teeth thereof are adapted to be engaged by means of a dog, or pawl 13 which is pivotally connected, as at 14, at its forward end to the lower end of the vertically disposed short arm 15 of the horizontally disposed lever arm 16, which is fulcrumed at its rear end to the frame 3, as at 17. A vertically disposed plunger rod 18 is pivotally connected at its lower end, as at 19, to the forward end of the lever arm 16 and is guided near its upper end by means of a suitable bearing sleeve 20 carried at the forward end of one of the frame arms 21, of which there are two in opposed relation, as shown in Figs. 1 and 3. The upper end of the plunger rod 18 is provided with a suitable head 22 and a coiled spring 23 encircles the plunger rod 18 between its head 22 and the bearing sleeve 20. The right hand end of the platen 1 adjacent the plunger rod head 22 is provided with a suitable gear 24 which is suitably fixed thereto and provided with a pair of oppositely disposed and suitably spaced outwardly directed plunger actuating pins designated 25 and 26. The foregoing mechanism, it will be observed, elevates the floor of the envelope supply receptacle the distance of the thickness of one envelope to each half turn of the platen or roll 1 due to either pin 25 or 26 depressing the plunger rod 18 during rotation of the platen 1 which in turn rocks the lever arm 16 causing the dog or pawl 13 to be moved rearwardly to direct its force against the teeth of the ratchet wheel 12 which revolves the shaft 14 and pinion gear 10 for elevating the rack gear 9 and the envelope supporting floor 6 on receptacle 5.

The mechanism for conveying the envelopes, one at a time, from the supply stack 7 to the platen 1 to be there addressed by the operator of the typewriter, will now be described.

The above referred to mechanism, consists of a pair of suitably spaced front and rear feed rollers designated 27 and 28. These rollers are rotatably supported at their ends, as at 29 and 30, respectively, by the arms 21 of the frame 3. The rear roller 28 is preferably positioned a little higher than the forward roller and a plurality of suitably spaced conveyor belts 30 ride over these rollers 27 and 28, as will be apparent from Figs. 1, 2 and 4. Positioned directly above the feed rollers 27 and 28 are a pair of feed rollers 31 and 32. These rollers are rotatably supported at their ends, as at 33 and 34, respectively, by means of the opposed side arms 35 which are positioned above the arms 21. A plurality of suitably spaced conveyor belts 36 ride over the feed rollers 31 and 32 and also over a vacuum feed roller 37 positioned to the rear of feed roller 32 and over the forward end of the envelope stack 7, as clearly shown in Figs. 1 and 2. The belts 36 are in opposed relation to belts 30.

As shown in Fig. 4, the vacuum feed roller 37 is rotatably mounted upon a metallic vacuum tube 38 reduced at its ends and suitably fixed to the side arms 35 of the frame 4. The vacuum tube 38 is provided at its lower side with a plurality of suitably spaced openings 39 and the vacuum roller 37 is provided with a pair of opposed suction feet 40 to each tube opening 39, which feet are each provided with a plurality of suction openings 41 adapted to register with their respective tube openings 39 when the vacuum roller 37 is revolved by means of the belts 36 thereby causing the top envelope of the stack 7 to be bodily lifted from the stack and carried forward by the suction feet 40 of the roller 37 and guided to enter between the conveyor belts to be thereby conveyed to the platen 2 for addressing. The vacuum tube 38 is connected by means of an air tube 42 with a suitably driven vacuum pump 43. The belts 30′ and 36 are driven by means of the rollers 27 and 31 which, in turn, are rotated by means of the meshing gears 44 and 45 and which gear 44 is driven by means of an idler gear 46 rotatably supported as at 47 by one of the arms 35 and which meshes with the

platen gear 24 which rotates it when the platen gear is to its extreme right hand position and it itself is rotated by manually turning the platen in the usual manner.

From the foregoing statement, it is evident that the feed mechanism described, lifts the top envelope from the supply stack 7 as the stack is elevated and carries this envelope forward to the mouth of the feed conveyor belts 30' and 36, from which point the conveyor belts deliver the envelope between them to the platen 1 where it is to be addressed in timed relation with the discharge or delivery of the addressed envelope from the platen 1, which movement of the envelope is only upon the manual rotation of the platen 1 by the operator of the typewriter.

The mechanism for conveying the addressed envelopes, as discharged, from the platen 1 will now be described.

The addressed envelope conveying mechanism consists of a pair of suitably spaced rollers designated 48 and 49 which are rotatably supported at their ends as at 50 and 51, respectively, by the opposed arms 52, which arms are pivotally connected at their downwardly directed extension ends 53 with the frame 3 by means of suitable bolts 54 provided with the winged nuts 55. A plurality of suitably spaced conveyor belts 56 ride over the rollers 48 and 49, as clearly shown in Figs. 1, 2 and 4. These conveyor belts 56 are disposed at a suitable incline with the forward end thereof adjacent the top of the platen 1. Positioned directly above the conveyor belts 56 and extending over the forward and rearward ends of the belts are a plurality of conveyor belts 57 riding over spaced rollers designated 58 and 59, which are rotatably supported at their ends as at 60 and 61 by means of a pair of side supporting arms 62. The rear ends of the arms 62 are hingedly connected to the arms 63 of the frame 3. The conveyor belts 57 are looser than the conveyor belts 56 so as to permit the upper front delivery roller 58 to over ride the lower front delivery roller 48 and be positioned adjacent the delivery end of the platen 1, as clearly shown in Figs. 1 and 3.

The lower supporting arms 52 are supported from extreme downward arcuate movement by means of the legs 64 resting upon the side frame arms 35. The pivotally supported roller supporting arms 52 and 62 are connected by means of the pin 65 carried by arms 52 and receivable in the slots 66 of arms 62, thus permitting both of the pivotally supported arms 52 and 62 to be raised simultaneously and without being separated. When it is desired to use the typewriter for any other purpose other than addressing envelopes, the pivotally supported arms 52 and 62 can be raised to the position shown in dotted lines in Fig. 3, and locked there by the bolts 54 and winged nuts 55.

The means for driving the conveyor belts 56, consists of a bevel, or miter gear 67 fixed to the conveyor roller 49 which meshes with a bevel or miter gear 68 fixed to the upper end of a vertically disposed drive shaft 69 mounted in the bearings 70 and 71. The lower end of the drive shaft 69 is provided with a worm 72 meshing with a worm gear 73 fixed to the vacuum pump shaft 74 for continuously driving the roller 49 which in turn drives the lower belt and which lower belt in turn drives the upper conveyor belts 57 by its overhanging contact with the front end of the lower conveyor belt 56.

In discharging an addressed envelope from the platen, it will be understood that the envelope is directed upwardly to enter between the conveyor belts 56 and 57 for delivery to the receiving receptacle 8.

It is evident from the foregoing description that I provide an attachment for typewriters for rapidly feeding envelopes to position on the platen 1 where they are addressed by the operator in the usual manner and for delivering the discharged addressed envelopes to a receiving receptacle 8 where they are deposited one above the other in a stack to the rear of the supply receptacle 5. It is also evident that the feeding mechanism is manually controlled whereas the delivery mechanism for the addressed envelopes is continuously driven by means of suitable motive power, such for instance, as an electric motor 75.

The many advantages of the herein described invention will readily suggest themselves to those skilled in the art to which it appertains.

I do not wish to be understood as having limited myself to the exact details of construction shown and described, but desire to have it understood that the invention I have shown in the drawings is merely illustrative, as it is manifest that various minor changes may be made in the exact construction and particular arrangement of parts without departing from the spirit of my invention, hence I reserve the right to make any such changes, or modifications, as may fairly fall within the scope of the appended claims when fairly construed.

What I claim is:

1. In a device for feeding envelopes to a typewriter and delivering them therefrom, the combination with the platen of the typewriter, of a frame structure embodying a supply receptacle and a receiving receptacle, means actuated by manually rotating the platen for elevating a stack of unaddressed envelopes a predetermined distance, means for advancing the top envelope of the stack

to and between opposed conveyor belts for conveying the envelope to the platen and means for receiving the addressed envelopes as it is discharged from the platen and conveying it to a receiving receptacle.

2. In an attachment structure for typewriters, the combination with the typewriter platen, a frame structure embodying a supply receptacle adapted to be filled with a stack of unaddressed envelopes and a receiving receptacle for addressed envelopes, an envelope conveyor, manually controlled means for advancing one envelope at a time in the supply receptacle to said conveyor, a train of gears connecting the conveyor with the platen for advancing the envelope from the supply stack to the platen, a conveyor for delivering the discharged addressed envelopes from the platen to the receiving conveyor and means for continuously driving said latter conveyor.

3. In an attachment structure for typewriters, the combination with the typewriter platen, a frame structure embodying a supply receptacle adapted to be filled with a stack of unaddressed envelopes and a receiving receptacle for addressed envelopes, of a plurality of feed rollers, belts riding over said rollers, suction feet carried by one of said rollers, means for rotating said feed rollers and driving said belts in timed relation with the rotation of the platen for feeding an envelope to and between said belts to position on the platen and advancing an envelope from the supply stack to the mouth of the said feed rollers and belts, a continuously driven conveyor belt for carrying the discharged addressed envelopes from the platen to a receiving receptacle.

4. In an attachment structure for typewriters, the combination with the typewriter platen, a frame structure embodying a supply receptacle adapted to be filled with a stack of unaddressed envelopes and a receiving receptacle for addressed envelopes, a gear fixed to one end of the platen, a spring supported plunger rod, a pivotally supported lever arm pivotally connected with the lower end of said plunger rod, a push pawl pivotally connected to one end of said lever arm, a ratchet wheel, a shaft for supporting said ratchet wheel, a pinion fixed to said shaft, a rack gear in mesh with said pinion, a palet fixed upon the upper end of the rack gear for supporting a stack of unaddressed envelopes, a pair of opposed pins directed outwardly from said gear for actuating the plunger rod to raise the envelope stack a predetermined distance, upper and lower feed conveyors, means for driving said conveyors in timed relation with the rotation of the platen for feeding one envelope at a time to the platen, a suction roller for raising one envelope at a time from the supply stack and advancing it to the feed conveyors, means for rotating said roller in timed relation with the rotation of the platen, upper and lower delivery conveyors, means for continuously driving said conveyors for delivering addressed envelopes discharged from the platen to a receiving receptacle to the rear of the supply stack of unaddressed envelopes.

5. In an attachment structure for typewriters, the combination with the typewriter platen, a frame structure embodying a supply receptacle adapted to be filled with a stack of unaddressed envelopes and a receiving receptacle for addressed envelopes, a gear fixed to one end of the platen, a spring supported plunger rod, a pivotally supported lever arm pivotally connected with the lower end of said plunger rod, a push pawl pivotally connected to one end of said lever arm, a ratchet wheel, a shaft for supporting said ratchet wheel, a pinion fixed to said shaft, a rack gear in mesh with said pinion, a palet fixed upon the upper end of the rack gear for supporting a stack of unaddressed envelopes, a pair of opposed pins directed outwardly from said gear for actuating the plunger rod to raise the envelope stack a predetermined distance, upper and lower feed conveyors, means for driving said conveyors in timed relation with the rotation of the platen for feeding one envelope at a time to the platen, a suction roller for raising one envelope at a time from the supply stack and advancing it to the feed conveyors, means rotating said roller in timed relation with the rotation of the platen, upper and lower delivery conveyors, means for continuously driving said conveyors for delivering addressed envelopes discharged from the platen to a receiving receptacle to the rear of the supply stack of unaddressed envelopes, means for pivotally supporting the upper and lower delivery conveyors at their rear ends, means for moving both of said conveyors in an arcuate path in connected relation with each other and means for locking the lower delivery conveyor in its upper and lower adjusted positions.

6. In an attachment structure for typewriters, the combination with the typewriter platen, a frame structure embodying a supply receptacle adapted to be filled with a stack of unaddressed envelopes and a receiving receptacle for receiving addressed envelopes, manually actuated means for feeding one envelope at a time from a stack of envelopes in the supply receptacle to a position at the platen and continuously driven means for delivering addressed envelopes discharged from the platen to a receiving receptacle.

7. In an attachment structure for typewriters, the combination with the typewriter

platen, a frame structure embodying a supply receptacle adapted to be filled with a stack of unaddressed envelopes and a receiving receptacle for addressed envelopes, manually actuated means for elevating the stack of unaddressed envelopes the distance of the thickness of a single envelope, a suction feed roller disposed above the stack of unaddressed envelopes, feed rollers in advance of said suction roller, conveyor belts connecting said feed rollers in pairs, conveyor belts connecting one of said feed rollers with the suction roller, a train of gears connecting a pair of said feed rollers with the platen and a pair of arcuately movable conveyors for receiving and delivering addressed envelopes discharged from the platen to a receiving receptacle.

8. In an attachment structure for typewriters, the combination with the typewriter platen, a frame structure embodying a supply receptacle adapted to be filled with a stack of unaddressed envelopes and a receiving receptacle for addressed envelopes, conveyors for advancing unaddressed envelopes to position at the platen, a suction pump, a vacuum tube having openings therein, a tube connection between the pump and tube, a roller having peripheral suction fingers provided with openings adapted for timed register with the openings of the vacuum tube for lifting one envelope at a time from the supply stack and advancing the same to said conveyors each time the platen is rotated one half of a revolution and continuously driven conveyors for receiving addressed envelopes discharged from the platen for delivery to a receiving receptacle.

In testimony whereof, I have hereunto signed my name to the specification.

LUCIUS M. CAMPBELL.