

Feb. 16, 1960

R. H. WILLIAMS
ADDRESSING MACHINES

2,925,031

Filed July 10, 1957

4 Sheets-Sheet 1

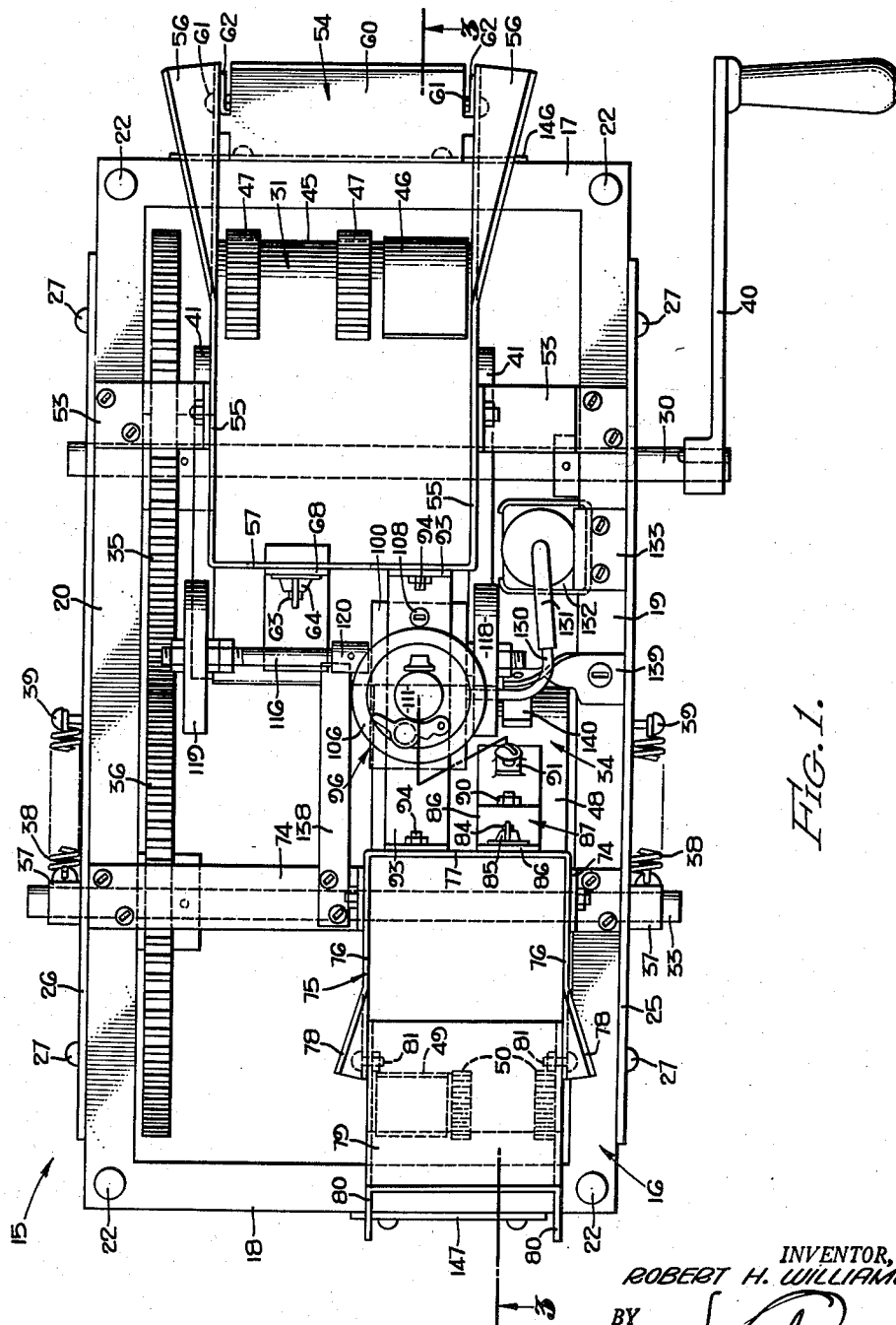


FIG. 1.

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4 Sheets-Sheet 2

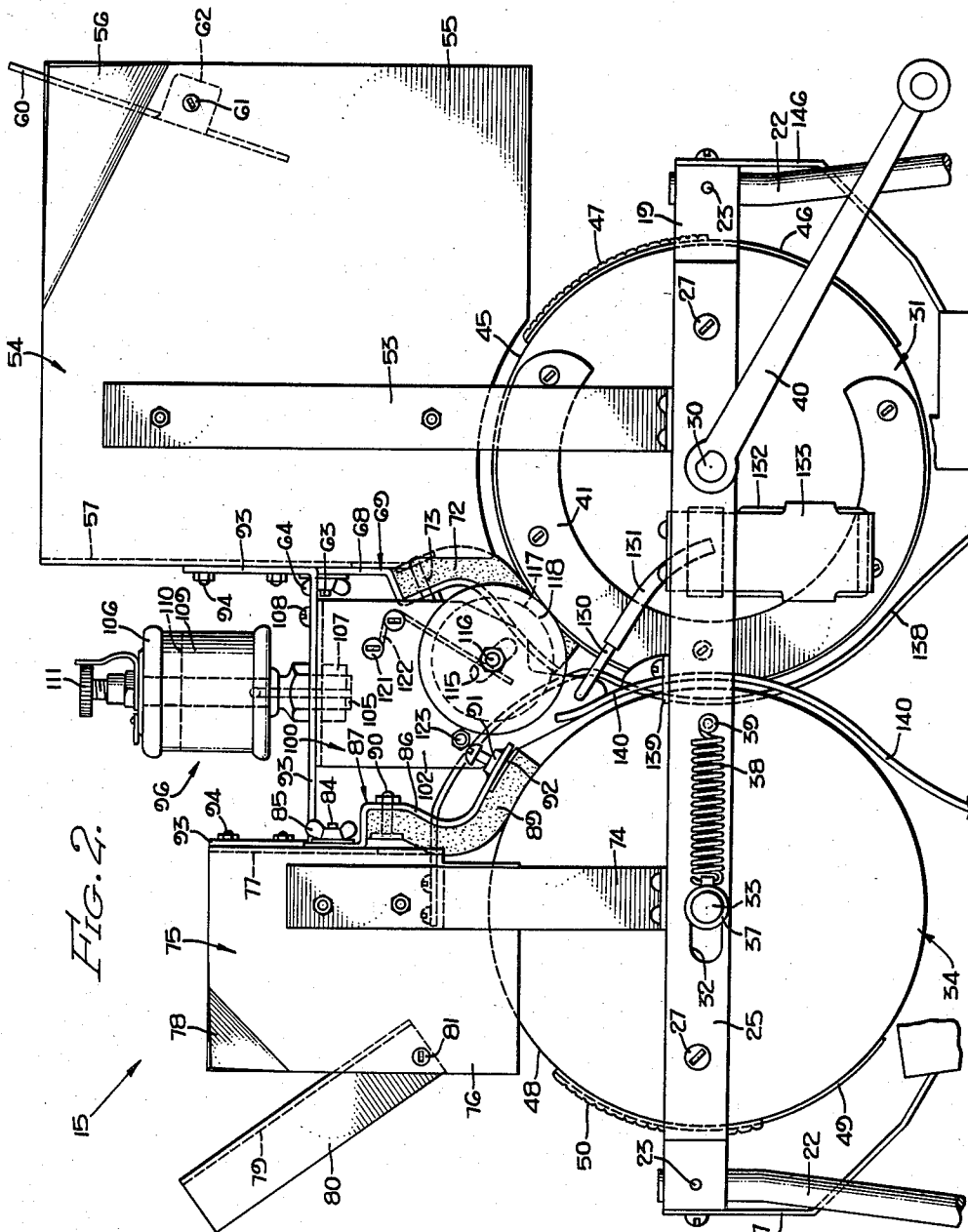


FIG. 2.

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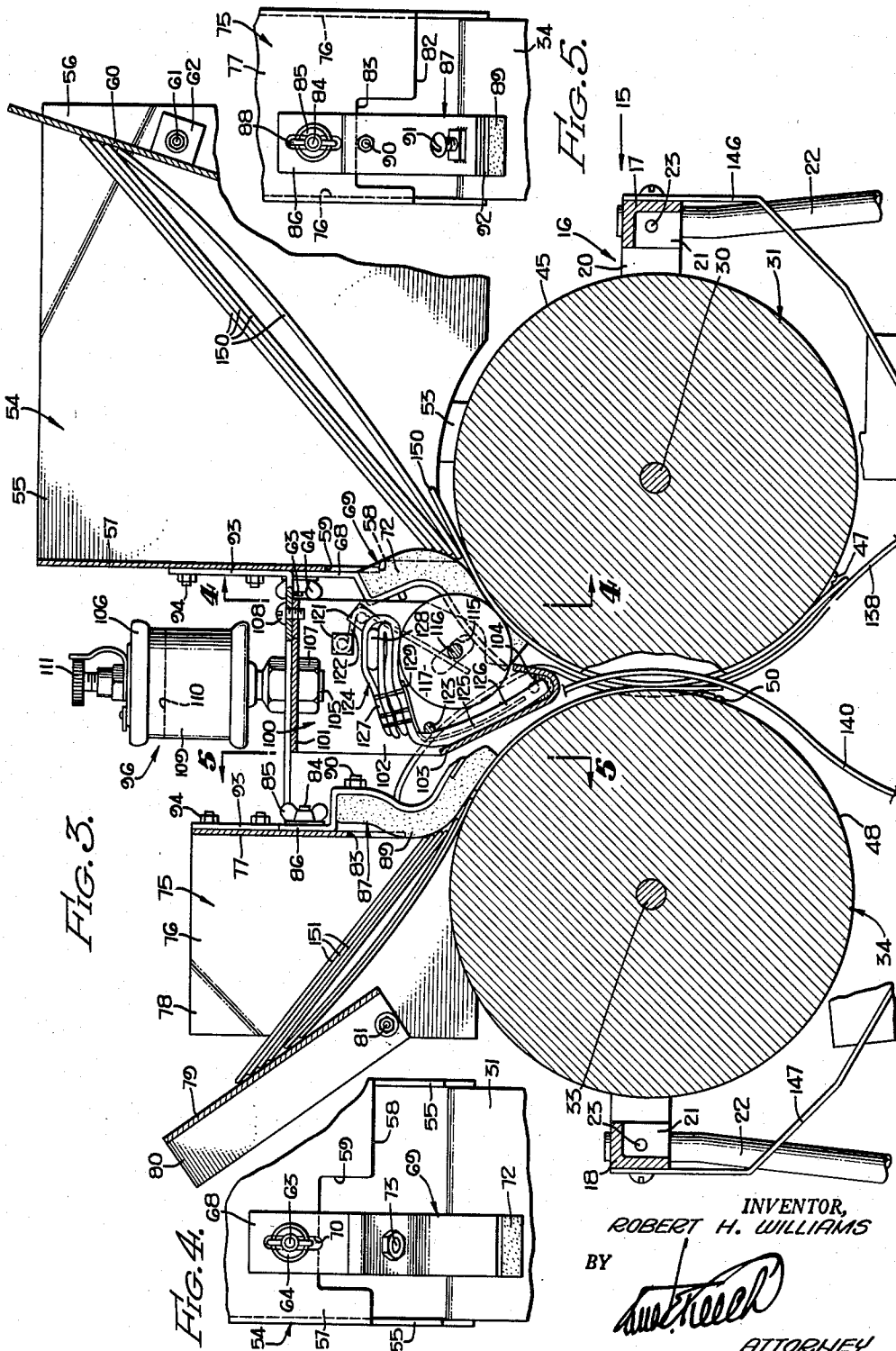
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4 Sheets-Sheet 4

FIG. 6.

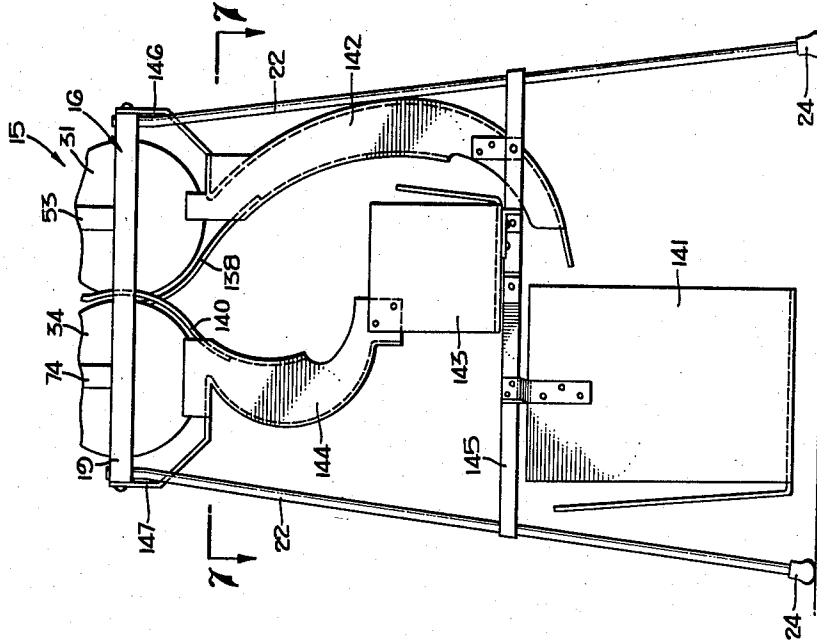


FIG. 7.

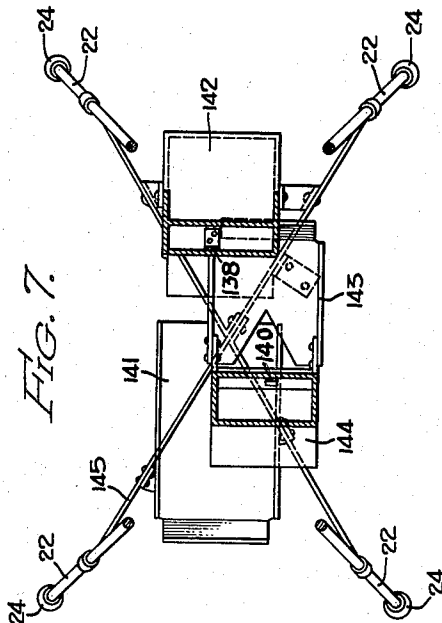


FIG. 8.

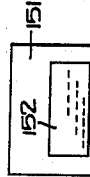


FIG. 9.

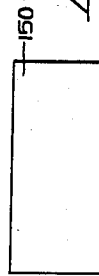


FIG. 10.

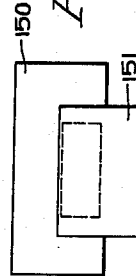
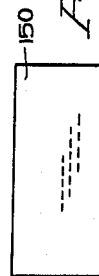


FIG. 11.



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1

2,925,031

ADDRESSING MACHINES

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Application July 10, 1957, Serial No. 673,553

19 Claims. (Cl. 101—132.5)

This invention relates to printing machines wherein a master copying sheet, generally in the form of a card, is provided with a negative type original in suitable copying ink and the blank sheet to be printed on is previously moistened with a quick diffusing and quick drying solvent, and said sheets are then pressed together face to face to transfer the negative image from the master sheet onto the blank sheet.

It is a broad object of the invention to provide such a printing machine which comprises relatively few parts and yet performs all the required functions of the printing method above noted quickly and efficiently.

Certain prior printing machines employing this method depend, for accurate control of the printing sheets (master and blank) on clamps carried on the printing rollers to which the sheets are fed in timed relation by feed mechanisms external to said rollers.

Another object of the invention is to provide a printing machine of the general type above mentioned which dispenses with clamps for controlling the master and blank sheets and yet functions rapidly and uniformly, first to bring these sheets together in accurate superimposed relation to perform the printing operation, and then to positively segregate said sheets in separate stacks.

Addressing machines operating by the above mentioned printing principle and having the master for each addressing operation formed on an individual card are well known in the art, but these machines are complex in structure and expensive to manufacture.

It is an object of the present invention to provide a relatively simple addressing machine employing said principle which can be produced inexpensively and sold at a low price and which will have a relatively large capacity considering its cost.

Another object is to provide such a machine which will permit continuous loading of master cards and envelopes, which will re-stack the cards in the same order in which they are fed in and face up, and will stack the envelopes, addressed side up.

A still further object is to provide such a simple, inexpensive addressing machine which can be sold at a low price for manual operation but which, by the simple addition of a drive motor, can be converted into a motor-driven addressing machine having a relatively high capacity.

The manner of accomplishing the foregoing objects as well as further objects and advantages will be made manifest in the following description taken in connection with the accompanying drawings in which

Fig. 1 is a plan view of a preferred embodiment of the invention.

Fig. 2 is a side elevational view of Fig. 1.

Fig. 3 is a diagrammatic vertical sectional view taken on the line 3—3 of Fig. 1, and illustrating the operation of the invention.

Fig. 4 is a fragmentary detail view of the envelope separator taken on the line 4—4 of Fig. 3.

2

Fig. 5 is a fragmentary detail view of the card separator taken on the line 5—5 of Fig. 3.

Fig. 6 is a diagrammatic fragmentary front elevational view of the invention and particularly illustrating the separate card and envelope stacking means.

Fig. 7 is a horizontal sectional view taken on the line 7—7 of Fig. 6.

Fig. 8 is a diagrammatic face view of an address card used in the invention.

Fig. 9 is a face view of a piece of mail matter, such as a mailing envelope, which the invention is adapted to address.

Fig. 10 is a view similar to Fig. 9, showing the card of Fig. 8 reversed and overlying said envelope, as takes place in the operation of the invention, during which said envelope is first spirit moistened, the card placed there-against as shown in this view, and then the two pressed together to transfer an address from said card onto said envelope.

Fig. 11 is a face view of an envelope after this has been separated from said card and diagrammatically showing the address received by said envelope from said card.

Referring specifically to the drawings, the addressing machine 15 shown therein has a rectangular frame 16, end angle members 17 and 18 and side angle members 19 and 20 which are preferably cast integral to form corner bosses 21 which are vertically apertured to receive rod legs 22, the latter being secured to the frame by pins 23. Legs 22 are bent slightly just below the frame 16 to spread apart symmetrically as shown in Figs. 4 and 5, said legs having rubber tips 24 on their lower ends.

Bars 25 and 26 extend alongside and are secured to frame side members 19 and 20 by screws 27. These bars are apertured to form bearings for a roller shaft 30 on which is fixed an envelope feed and printing roller 31. Bars 25 and 26 also have horizontal slots 32 for rotatably receiving a shaft 33 on which is mounted a card feed and printing roller 34 which is preferably the same diameter as roller 31 and disposed in offset relation therewith (Fig. 1).

Shafts 30 and 33 also have fixed thereon gears 35 and 36 which are constantly in mesh to cause these shafts to rotate in one-to-one relation.

Rotatably slipped over the extending ends of shaft 33 are collars 37 which are connected by springs 38 to pins 39 fixed in bars 25 and 26 so as to constantly and yieldably urge rollers 31 and 34 into rolling relation and to constantly hold gears 35 and 36 in mesh, and to supply the yieldable pressure necessary for the printing operation.

Fixed on one end of shaft 30 is a crank handle 40 for manually operating the machine 15.

Secured to opposite end faces of the roller 31 are cams 41, the purpose of which will be made clear hereinafter.

The peripheral surface 45 of roller 31 is preferably smooth so as to produce a minimum of friction between said surface and envelopes being fed by said roller. Secured to said surface in the particular locations shown in Figs. 1 and 2 are rubber printing cushion 46 and a pair of spaced rubber envelope feeding strips 47 which are preferably transversely corrugated on their outer surfaces.

Outer surface 48 of roller 34 is likewise polished smooth and is provided with a rubber printing cushion 49 and spaced rubber card feeding strips 50, the outer surfaces of which strips are preferably transversely corrugated.

Supported above roller 31 by metal straps 53, which are fixed to side frame members 19 and 20, is an envelope hopper 54. This hopper has side walls 55, the upper rear corner portions 56 of which are flared outwardly,

and an end wall 57. Inner faces of the side walls 55 are preferably in the same planes as end faces of the roller 31. End wall 57 has a lower edge 58 in which a separator mounting recess 59 is formed.

A back rest plate 60 is pivotally and adjustably mounted on and between hopper side walls 55 by bolts 61 extending through ears 62 bent from said plate.

Provided on hopper end wall 57 and extending outwardly therefrom is a screw stud 63 on which a wing nut 64 is screwed. This stud and nut secure the back plate 68 of an envelope separator 69 to said wall 57, for vertical adjustment of said separator on said wall. This is accomplished by providing a vertical slot 70 (Fig. 4) in the plate 68 which is slipped over the stud 63 before the wing nut 64 is screwed on the latter.

The plate 68 is contoured as shown in Fig. 2 so as to receive a rubber roller wiping element 72, the upper end of which is secured to plate 68 by a bolt 73. The element 72 is distorted by the plate 68 from its normally straight form and caused to yieldably press itself against the roller 31.

The lower portion of the plate 68 is also arched and positioned so as to hold the lower portion of rubber element 72 pressurably against and in conformity with the surface 45 of roller 31. These features result in the element 72 being pressurably applied to the topmost envelopes of those placed in the hopper 56 so that these are held back, while only the single, lowermost envelope is being fed past element 72 by engagement of envelope feeding strips 47 therewith.

Mounted above the card roller 34 on metal straps 74, lower ends of which are fixed on frame side members 19 and 20 is a card hopper 75 having side walls 76 and an end wall 77. Upper rear corner portions 78 of side walls 76 are outwardly flared, and a card back rest plate 79 having side flanges 80 is pivotally supported by bolts 81 on side walls 76 so as to be adjustable about the axis of said bolts. Inner faces of side walls 76 of hopper 75 are preferably in the same planes as the end faces of roller 34 (Fig. 1). End wall 77 has a lower edge 82 in which a separator receiving recess 83 is formed (Fig. 5).

Provided on hopper front wall 77 and extending outwardly therefrom is a screw stud 84 having screwed thereon a wing nut 85. A back plate 86 of a card separator 87 has a vertical slot 88 (Fig. 5) in an upper portion thereof which fits over stud 84 and the separator is secured on hopper wall 77 by the wing nut 85 to allow vertical adjustment of said separator. The card separator 87 is constructed similarly to envelope separator 69, a rubber roller wiping element 89 being secured at its upper end to plate 86 by a bolt 90. The plate 86 is shaped to hold the wiping element 89 in tension against card feeding roller 34, and has a screw jack 91 mounted on its lower end for applying adjustable pressure downwardly against a plate 92 bonded to the upper surface of element 89 at its lower end. The jack 91 permits the pressure with which the plate 86 holds the wiping element 89 against card roller 34 to be manually adjusted to make certain that only one card at a time is fed from the card hopper 75.

It is to be noted in Fig. 1 that envelope feed strips 47 are spaced apart on roller 31 to closely by-pass envelope separator 69. The card feed strips 50 are likewise spaced on roller 34 so as to closely by-pass card separator 87.

The end hopper walls 57 and 77 are held in spaced relation by a U-shaped moistener mounting strap 93 which is secured to said walls by bolts 94 and has a horizontal middle portion 95 on which a moistener 96 is mounted.

The moistener 96 includes an inverted U-shaped housing 100 having an upper wall 101, side walls 102 and a bottom wall 103 forming a solvent drain sump 104, which is shaped as shown in Fig. 3. The frame 100 is secured to mounting strap 93 by a threaded nipple 105,

provided on a solvent supply unit 106, being extended downwardly through suitable apertures in strap portion 95 and upper wall 101 and having a nut 107 screwed on said nipple. A screw 108 is also extended downward through a suitable aperture in strap portion 95 and screwed into a tapped hole provided therefor in upper wall 101.

The unit 106 is preferably a standard visible oil reservoir unit having a glass tank 109 for holding solvent 110, and a needle valve 111 for regulating the gravity flow of solvent from the tank 109 downwardly and out of the nipple 105, or shutting off said flow as desired.

Provided in moistener housing side walls 102 are aligned slots 115 through which a shaft 116 extends. Rotatably mounted on said shaft between said walls is a moistener roller 117, while fixed to opposite ends of said shaft outside said walls are cam follower rollers 118 and 119. The hub of roller 118 abuts against the adjacent side wall 102 and a collar 120 fixed on shaft 116 abuts against the other side wall to position shaft 116 axially.

Fixed at their upper ends by bolts 121 on side walls 102 are wire springs 122, the lower ends of which springs lie between moistener roller 117 and walls 102 and press against shaft 116 to yieldably urge roller 117 towards roller 31.

The cam follower rollers 118 and 119 are aligned with the cams 41 on roller 31 and are engaged by same cams, when the latter are opposite rollers 118 and 119, to lift moistener roller 117 out of contact with envelope feed roller 31.

Walls 102 also have aligned apertures for receiving a bolt 123 which cooperates with lower housing wall 103 to determine the position of a moistener wick 124 which comprises an inverted L-shaped sheet metal core 125 covered by a felt sheath 126 and extended downward into the bottom of sump 104.

Connected with the upper end of sheath 126 is a felt pad 127 made of several thicknesses of felt and embodying a metal weight 128. The upper end portion 129 of metal core 125 is inclined upwardly beneath a portion of pad 127 so as to convey back to sheath 126 any excessive amount of solvent released onto said metal core portion 129 whereby no excessive amount of solvent may be delivered onto moistener roller 117.

The pad 127 extends beyond the inner extremity of core portion 129 and the extending portion of the pad overlies the moistener roller 117 and is held down against this by weight 128.

Being directly beneath the nipple 105 of the solvent supply unit 106, pad 127 receives any solvent dropping from said nipple when valve 111 is opened. The pad 127 becomes saturated with solvent by the solvent spreading by wick action to its opposite ends. The weighted half of pad 127, overlying and resting on moistener roller 117, is thus kept wet with solvent without the solvent accumulating in the weighted pad end enough to cause this solvent to run down the smooth peripheral surface of moistener roller 117. In this manner, the latter roller always picks up a coating of solvent from pad 127 when roller 117 is rotated, but so long as it is not rotated, the portions of the surface of this roller not in actual contact with pad 127, quickly become and remain dry.

To prevent the sump 104 overflowing, a drain tube 130 (Fig. 2) is fixed in the front wall 102 to draw off solvent accumulating in the sump above a given level. Tube 130 extends downwardly and has a flexible tubular extension 131 which is inserted in the apertured cap of a solvent overflow bottle 132 supported on a bracket 133 fixed on front side frame member 19.

Fixed at its upper end on the back side card hopper strap 74 is a metal envelope guide rail 138 which extends toward envelope roller 31 (Figs. 1 and 2) and is then shaped to follow the curvature of said roller downwardly while slightly spaced from said roller.

5

Fixed near its upper end on a bracket 139 mounted on front side frame member 19 is a metal card guide rail 104 which is spaced a slight distance from card feed roller 34 and follows the curvature of the latter downwardly.

The guide rail 138 is located opposite the rear portion of envelope feed roller 31 which is offset from roller 34, while the guide rail 140 is located opposite the front portion of card roller 34 which is offset from roller 31. The significance of this feature will be made clear hereinafter.

Referring now to Figs. 6 and 7, the addressing machine 15 is seen to be provided with an addressed envelope bin 141, a chute 142 for directing the addressed envelopes thereto, a used card bin 143 and a chute 144 for directing used cards thereto. A cross truss 145 connects the legs 22 just below their midpoints. The envelope bin is suspended from truss 145. The card bin 143 rests on and is secured to said truss.

Chute 142 connects at its upper end to and receives envelopes from guide rail 138. It also connects at its upper end with a bracket 146 which is secured to frame end member 17.

Chute 144 connects at its lower end with card bin 143 and at its upper end with card guide rail 140 from which cards are delivered thereto. Its upper end is also supported by a bracket 147 secured to frame end member 18.

It is to be noted (Fig. 7) that envelope bin 141 and chute 142 are in transverse alignment with envelope feed roller 31 so as to receive and collect envelopes fed from the latter. Likewise, card bin 143 and chute 144 are transversely aligned with card feed roller 34 so as to receive and collect cards fed from hopper 75 by roller 34. It is also to be noted that envelopes thus collected in bin 141 are deposited therein, addressed side up, while the cards are deposited in bin 143 with their copy-material-bearing faces upwardly exposed, and in the same order in which they are fed into said card hopper.

Bins 141 and 143 are each open at one end to permit envelopes and cards accumulating therein to be readily removed from time to time.

Operation

While machine 15 is broadly applicable to addressing various types of thin flexible pieces of mailing matter, such as cards, folders, pamphlets and the like, it is, for illustrative purposes, disclosed as used in addressing envelopes 150.

Cards 151 (Fig. 8), each of which has pasted thereon a strip 152 of tape carrying in negative form an address in copying ink, are employed in this addressing operation.

The envelopes 150 are placed in hopper 54 with their faces exposed upwardly and in fanned relation as shown in Fig. 3. In like manner cards 151 are placed in card hopper 75. The needle valve 111 of moistener 96 is now opened to allow solvent 110 to drip from supply unit 106 onto pad 127 until the latter is saturated. Addressing operations are now started by turning crank 40 to rotate shaft 30 in a counter clockwise direction.

This results, through gears 35 and 36, in shaft 33 being turned clockwise in one-to-one relation with shaft 30.

As long as only the smooth peripheral surfaces of feed rollers 31 and 34 are disposed opposite and in contact with the bottom surfaces of the lowermost envelope 150 and card 151 in the hoppers 54 and 75, rotation of rollers 31 and 34 does not cause the feeding of an envelope or a card. This is the reason these peripheral roller surfaces are made smooth. When the corrugated rubber feed strips 47 and 50, however, are brought by rotation of rollers 31 and 34 into frictional contact respectively with said lowermost envelope and lowermost card, these are propelled past the separators 69 and 87 and move downwardly with the rotating rollers 31 and 34 so as to be rolled together when said envelope and card pass between rollers 31 and 34.

6

Just as the feeding of an envelope and a card thus commences, the cams 41 ride downwardly away from supporting relation with cam follower rollers 118 and 119, whereupon the moistener roller 117 is shifted downward by springs 122 into rolling engagement with the envelope being fed, this engagement causing roller 117 to rotate and transfer solvent from the pad 127 to the envelope. Thus the envelope surface is damp with solvent where it is to be pressed against card 151 as the envelope and card are rolled downwardly between rollers 31 and 34.

Rubber cushions 46 and 49 on the rollers 31 and 34 are located on these rollers so as to cooperatively appear opposite the printing area during each printing operation. These cushions yieldably press the envelope and card together in this area to produce a good printing job.

The offset relation between rollers 31 and 34 has many advantages. It permits separate, positive envelope and card guide rails 138 and 140 to be provided as well as gravity chutes and bins associated with these for separately collecting the envelopes and cards, face up. It likewise permits the use of relatively thick and thus effective and long wearing corrugated feed strips 47 and 50 which need not pass between rollers 31 and 34 and therefore do not interfere with the printing operation.

The separators 69 and 87 also possess many advantages in their simplicity, low cost, long life, and yet reliability as "hold-back" restraining means to insure the feeding of only one card and one envelope at a time. Furthermore the wiping elements 72 and 89 of these separators are self adjusting over long periods of use providing they are made of suitable material. The best material tried out for these elements is a half-inch-thick piece of what is commercially known as "semi-crepe sole rubber." It is soft and yet requires substantial pressure to deform the same. It is semi-spongy in character and retains a fairly high coefficient of friction even as it wears down in use.

Adjustment of this friction for one of these separators may always be made by loosening the wing nut 64 or 85 by which this is mounted, and, after adjusting the separator downwardly, resetting said nut.

The slanted back rest plates 60 and 79 may be readily adjusted about their pivotal supports to those angles (such as shown) in which these plates tend to keep the envelopes and cards "fanned" whereby these will automatically feed from their respective hoppers, one at a time for each revolution of the rollers 31 and 34, and in proper timed relation. Suitable marks may be applied to the hopper side walls at the factory indicating the location of proper positions for plates 60 and 79.

The hoppers 54 and 75 are replaceable by like hoppers differing only in dimensions for handling cards and envelopes of other sizes than envelopes 150 and cards 151. On the other hand, hoppers 54 and 75 may be modified by auxiliary spacers etc. to adapt them for handling different sizes of envelopes and cards.

One of the distinct advantages of the invention is the continuous feeding of envelopes and cards made possible by the separators 69 and 87 and the angled back rests 60 and 79. Figs. 3, 4 and 5 illustrate this operation. While only a few envelopes 150 and cards 151 are shown in hoppers 54 and 75, these hoppers may be kept filled with envelopes and cards and these will be properly fed by the separators 69 and 87 therefrom.

It is to be noted that convex curved portions of the separators 69 and 87 extend just into their respective hoppers and then downwardly into tangency and pressural relation with their respective feed rollers. This feature and the location of lower edges 58 and 82 of hopper end walls 57 and 77 approximate where inner faces of these walls intersect said convex portions of the separators, prevents bridging of the cards and envelopes when placed in the hoppers in fanned relation. A continuous, concurrent and properly timed feeding of envelopes and cards is thus assured.

The steeply angled back rests 60 and 79 are important factors in this feeding and cause the last few cards and envelopes to feed properly although having practically no weight pressing them downwardly. It will be noted that these back rests hold the lowermost envelope and card so the lower ends of these substantially bisect the angles formed by the separators 69 and 87 with the rollers 31 and 34 where said separators bend out of contact with said rollers. Thus it is almost impossible for the lowermost envelopes and cards not to feed through beneath separators 69 and 87 and the rollers 31 and 34 when said envelopes and cards are engaged by corrugated rubber feeding strips 47 and 50.

While only a single embodiment of the invention is here disclosed, it is to be understood that many modifications are possible in the details of this without departing from the spirit of the invention and the scope of the appended claims.

This application is a continuation of my co-pending application Serial No. 423,117, and is substituted for the latter application which is hereby abandoned.

The claims are:

1. In an addressing machine the combination of: a smooth surfaced cylindrical roller for feeding flat articles to be addressed; a smooth surfaced cylindrical roller for feeding cards carrying soluble transfer material; means for rotatably mounting said rollers on parallel axes located in a substantially horizontal plane and with said rollers in substantially rolling relation; a pair of hoppers disposed above and associated respectively with said rollers for confining stacks of said articles and cards in fanned relation with lower ends of the lowest article and card in said hoppers resting respectively upon upper surfaces of said rollers and inclined in the respective directions of movement of said roller surfaces; a pair of stationary rubber separators wiping said roller surfaces just in advance of said lower ends of said lowest article and card to temporarily prevent movement of said article and card with said roller surfaces; rubber friction strips on said rollers in limited circumferential areas thereof for engaging respectively said lowest article and lowest card, gripping the same and feeding them past said separators, and between said rollers, with said article and card overlapping in a predetermined relation; and means for moistening said article with a solvent for said transfer material as it is fed from said article hopper, whereby the pressure applied by said rollers to said article and card as they pass therebetween transfers a portion of said material onto said article to reproduce the pattern of said material on said article.

2. A combination as in claim 1 in which separate receptacles are provided for said articles and cards after the same have passed between said rollers; and guides for directing said articles and cards to deliver the same face-up to their respective receptacles.

3. A combination as in claim 1 in which said article roller and card roller are arranged in axially staggered relation so that a certain end portion of each of said rollers is in non-overlapping relation with the other roller; separate receptacles for receiving said articles and cards after the printing operation; and individual guides disposed respectively opposite said non-overlapping portions of said article roller and card roller for delivering said articles and said cards to their respective receptacles.

4. In an addressing machine, the combination of: a smooth surfaced cylindrical blank feed roller rotatably mounted on a horizontal axis; a feed hopper disposed over said roller for confining a stack of fanned blanks, such as blank envelopes, cards, and the like, with the latter inclined obliquely with their upper edges supported on said hopper and their lower edges resting on-end on and supported by said roller; a stationary rubber

separator provided on said hopper and bearing against said roller just in advance of said lower edges of said blanks; segmental frictional feed means provided on the periphery of said roller for sequentially engaging the lowermost blanks in said stack as said feed roller rotates to feed said blanks one at a time between said roller and said separator; a moistening roller mounted on said hopper for rotational engagement with each blank, as it is thus fed between said separator and said feed roller, for moistening said blank with a solvent; and a printing roller mounted to bear against and rotate with said feed roller in parallel relation therewith so that each of said blanks passes between said feed and printing rollers immediately following contact of said blank with said moistening roller whereby cards carrying soluble transfer material may be individually inserted downwardly between said feed and printing rollers in timed relation with the feeding of said blanks between said rollers with each card in overlapping relation with one of said blanks so that said overlapping card and blank travel between said rollers together, said rollers thereby pressing the transfer material on said card against the moistened area on said blank and transferring said material to said blank.

5. A combination as in claim 4 in which a card diverting means is provided opposite one end of said blank feed roller whereby transfer material cards inserted between said rollers as aforesaid with marginal portions of said cards overlapping said diverting means will engage the latter as said cards pass between said rollers whereby said diverting means will divert said transfer cards away from the blanks passing between said rollers to facilitate independent stacking of said cards and blanks.

6. A combination as in claim 5 in which said card diverting means turns said cards to present the card printing face upwardly; a card stacking receptacle positioned to receive said cards as so turned; blank diverting means engaging said blanks so they are discharged downwardly from between said rollers and turning said blanks to present their printed faces upwardly; and a blank stacking receptacle for receiving said blanks as so turned.

7. In an addressing machine, the combination of: a smooth surfaced cylindrical blank feed roller rotatably mounted on a horizontal axis; a feed hopper disposed over said roller for confining a stack of fanned blanks, such as blank envelopes, cards, and the like, with the latter inclined obliquely with their upper edges supported on said hopper and their lower edges resting on-end on and supported by said roller; a stationary rubber separator provided on said hopper and bearing against said roller just in advance of said lower edges of said blanks; segmental frictional feed means provided on the periphery of said roller for sequentially engaging the lowermost blank in said stack as said roller rotates to feed said blanks one at a time between said roller and said separator; a moistening roller mounted on said hopper for rotational engagement with each blank as it is thus fed between said separator and said feed roller, for moistening said blank with a solvent; a printing roller mounted to bear against and rotate with said feed roller and in parallel relation therewith so that each of said blanks passes between said feed and printing rollers immediately following contact of said blank with said moistening roller; and guide means for guiding a series of cards carrying soluble transfer material while said cards are delivered downwardly between said feed and printing rollers in overlapping relation with said blanks whereby the transfer material on each of said cards will be pressed against the moistened area on one of said blanks and said material transferred to said blank by the simultaneous compression of said blank and card between said feed and printing rollers.

8. A combination as in claim 7 in which said guide means positions said transfer card in offset relation with said blank feed roller when said card is delivered into

overlying relation with a blank passing between said feed and printing rollers; and diverting means disposed opposite a portion of said transfer card which, by virtue of said offset relation of the latter, extends beyond one end of said feed roller, said means diverting said transfer card away from the blank onto which it has just delivered transfer material whereby said blank and said card are separated for independent stacking.

9. In a spirit printing machine the combination of: a smooth surfaced cylindrical blank feed roller rotatably mounted on a horizontal axis; a feed hopper disposed over said roller for confining a stack of fanned blanks, such as blank envelopes, cards, and the like, with the latter inclined sharply with the upper end of said stack supported on said hopper and its lower end resting on said roller; a stationary but yieldable frictional blank separator bearing against said roller just in advance of and forming a stop for the lower end of said stack of blanks; segmental frictional feed means on said roller for sequentially engaging the blanks in said stack, as said roller rotates, to feed said blanks, one at a time, between said feed roller and said separator; spirit moistening means closely juxtaposed relative to said feed roller in advance of the lower end of said stack of blanks whereby each blank issuing from between said feed roller and said separator, while still in contact with said feed roller, is thus propelled against said moistening means to moisten an area on said blank with spirit to prepare this for receiving an imprint applied with soluble transfer material; and means cooperating with said feed roller to effect a spirit printing operation on said moistened blank.

10. A combination as in claim 9 in which said cooperating means includes a printing roller juxtaposed relative to said feed roller in advance of said spirit moistening means and positioned to roll each moistened blank against said feed roller whereby the insertion of a master printing card, having a negative thereon in soluble transfer material, between said printing roller and said blank with said material facing said blank opposite said spirit moistened area, causes said card to be rolled by said printing roller against said blank, printing a positive reproduction of said negative thereon.

11. A combination as in claim 10 including means for advancing a master printing card into guided relation with each blank in proper timed relation with the advancing of the latter towards said printing roller so as to cause said positive reproductions to be uniformly spaced from the leading edges of said blanks.

12. In a spirit printing machine the combination of: a smooth surfaced cylindrical roller rotatably mounted on a horizontal axis; a feed hopper disposed over said roller for confining a stack of fanned master printing cards, each having a negative thereon in soluble transfer material, with said cards inclined sharply with the upper end of said stack supported on said hopper and its lower end resting on said roller; a stationary but yieldable frictional card separator bearing against said roller just in advance of and forming a stop for the lower end of said stack of cards; segmental frictional feed means on the periphery of said roller for sequentially engaging the cards in said stack as said rollers rotates, to feed said cards, one at a time between said roller and said separator; an impression roller juxtaposed in parallel rolling relation with said first roller at a point in advance of said card separator; and means cooperating with said card feed roller to deliver a spirit moistened blank between said card feed roller and said impression roller, with each card fed from said hopper, to effect a spirit printing operation by pressing said card against said blank.

13. A combination as in claim 12 in which said blank is discharged from between said rollers along a given path in which said hopper and feed means feed said cards between said first roller and said separator with a substantial marginal portion of each card extending axially beyond one end of said impression roller; and an

arcuate guide disposed axially beyond said end of said impression roller and extending between the axes of said rollers so as to be engaged by each card so fed whereby said guide directs said card between said rollers and then continues in contact with said card to deflect said card, after the latter passes between said rollers, along a path diverging from said given path followed by said blank to positively segregate said cards from said blanks.

14. In a printing machine, the combination of: primary and secondary rollers mounted in parallel rolling relation with each other; means for driving said rollers for simultaneously drawing therebetween a blank to be printed which has been moistened with a spirit, and a master printing card having a negative provided thereon in soluble transfer material on the face of said card turned toward said blank, whereby a positive print of said negative is transferred to said blank as said blank and said card are compressed together between said rollers; means for feeding a blank and a master printing card between said rollers with said blank contacting said primary roller, and said card contacting said secondary roller to effect the printing operation aforesaid with a marginal portion of said master card extending axially beyond one end of said primary roller; and an arcuate guide disposed axially beyond said end of said primary roller and extending between the axes of said rollers and closely spaced from said secondary roller whereby said guide is engaged by and guides said master card between said rollers and then continues in contact with said card to deflect said card, after the latter passes between said rollers, along a path diverging from the path followed by said blank to positively segregate said master cards from said blanks.

15. In a printing machine, the combination of: primary and secondary rollers mounted in parallel rolling relation with each other; means for driving said rollers for simultaneously drawing therebetween a blank to be printed which has been moistened with a spirit, and a master printing card having a negative provided thereon in soluble transfer material on the face of said card turned toward said blank, whereby a positive print of said negative is transferred to said blank as said blank and said card are compressed together between said rollers, said blanks and printing cards comprising primary and secondary sheet elements in said printing operation; means for feeding said sheet elements between said rollers to effect a printing operation aforesaid with a marginal portion of one of said sheet elements extending axially beyond an end of said primary roller; and guide means disposed axially beyond said end of said primary roller and extending between the axes of said rollers in a position to be engaged by said marginal portion of said one sheet element to deflect this one sheet element between said rollers, and then continue in contact with said one sheet element after the latter passes between said rollers to guide said one sheet element along a path diverging from the path followed by the other sheet element to positively segregate said primary and secondary sheet elements.

16. A combination as in claim 15 in which said primary sheet element has the extending marginal portion aforesaid, and in which said secondary sheet element is also fed by said feeding means between said rollers with a marginal portion thereof extending axially beyond an end of said secondary roller; and secondary guide means disposed axially beyond said secondary roller end and extending between the axes of said rollers in a position to be engaged by said marginal portion of said secondary sheet element to deflect this between said rollers and then continue in contact with said secondary sheet element to direct this along a path diverging from the path followed by said primary sheet element to positively segregate said primary and secondary sheet elements.

17. A combination as in claim 16 in which said marginal portion of said primary sheet element extends axially beyond an end of said primary roller while said marginal

11

portion of said secondary sheet element extends axially beyond the opposite end of said secondary roller.

18. A combination as in claim 17 in which said rollers are disposed in offset relation endwise so that said marginal portion of said primary sheet element passes partially around and is supported inwardly by an end portion of said secondary roller which extends axially beyond the adjacent end of the primary roller, and said marginal portion of said secondary sheet element passes partially around and is supported inwardly by an opposite end portion of said primary roller, which extends axially beyond the adjacent end of said secondary roller.

19. In a printing machine, the combination of: primary and secondary rollers mounted in parallel rolling relation with each other; means for driving said rollers for simultaneously drawing therebetween a blank to be printed on, and a master printing card having a negative provided thereon in transfer material on the face of said card turned towards said blank, whereby a positive print of said negative is transferred to said blank as said blank and said card are compressed together between said rollers, said blanks and printing cards comprising primary and secondary sheet elements in said printing operation; means for feeding said sheet elements between said rollers to effect a printing operation as aforesaid, with said primary sheet element contacting said primary roller and said secondary element contacting said secondary roller,

12

and with a marginal portion of said primary sheet element extending axially relative to said rollers from an adjacent edge of said secondary sheet element; and guide means disposed in close concentrically spaced relation with a portion of said primary roller in a radial plane parallel with the direction of travel of said sheet elements between said rollers, said plane intersecting said marginal portion of said primary sheet element, said guide means engaging said marginal portion of said primary sheet element and guiding said primary sheet element away from said secondary sheet element as said elements pass from between said rollers to effect segregation of said sheet elements following the printing operation.

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