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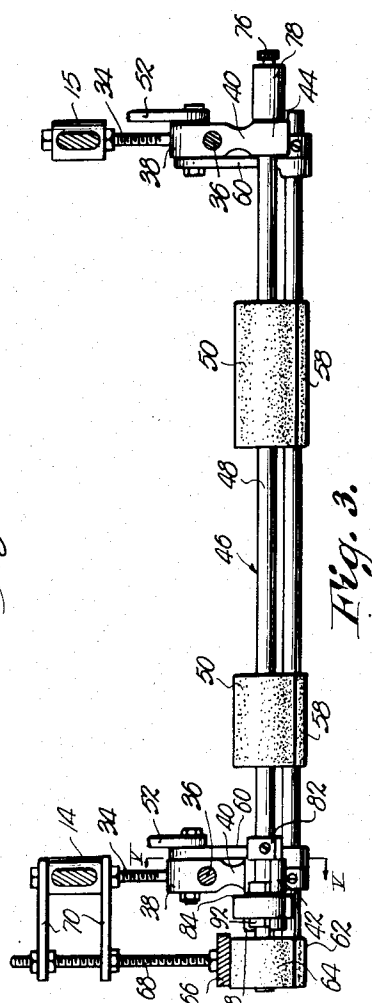
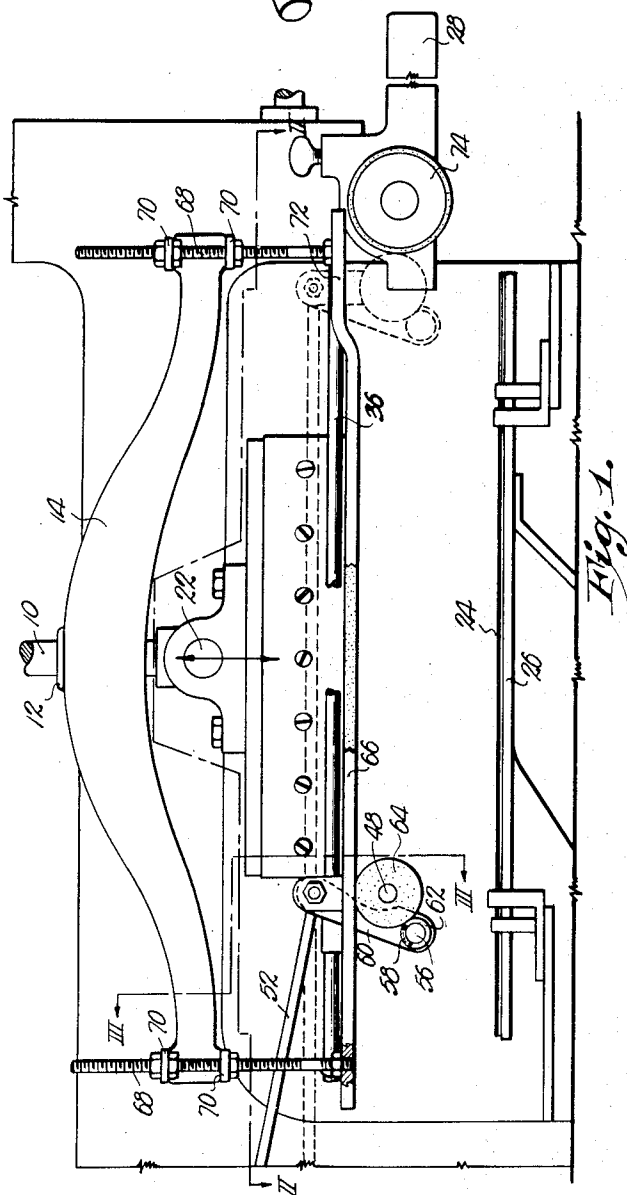
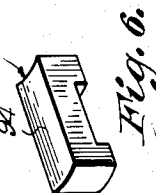
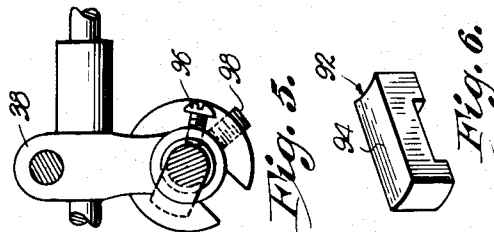
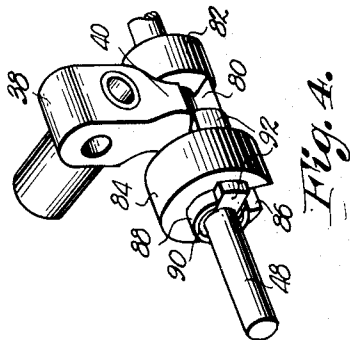
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2,659,280

GLUE DISPENSING ASSEMBLY FOR ENVELOPE HANDLING MACHINES

Filed May 22, 1950

2 Sheets-Sheet 1



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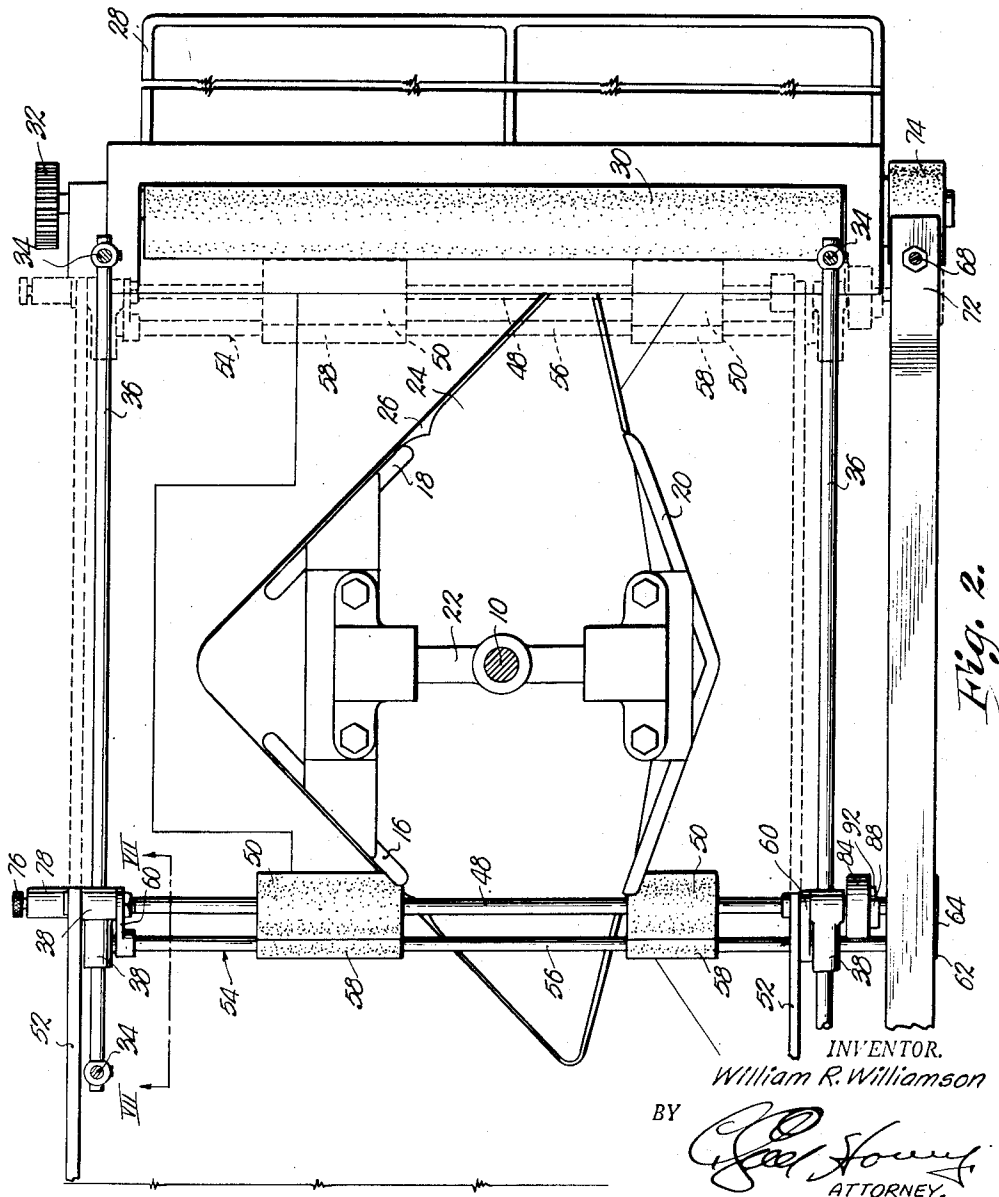
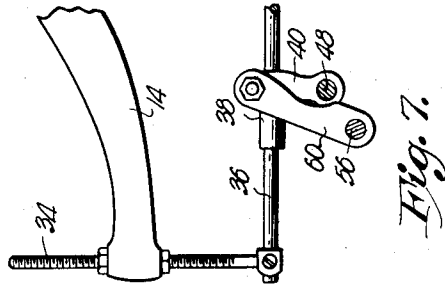
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,659,280

GLUE DISPENSING ASSEMBLY FOR
ENVELOPE HANDLING MACHINES

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Application May 22, 1950, Serial No. 163,355

4 Claims. (Cl. 93—68)

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This invention relates to machines for applying glue to articles of manufacture and has to do more specifically with an envelope machine of the kind including a gummer in the nature of a reciprocable roller, the primary object being to produce an attachment for such machine operable in conjunction with the gummer for maintaining an even distribution of the adhesive substance on the roller whereby envelopes can be fully and evenly gummed continuously without additional operator attention.

Envelope machines are conventionally provided with a gummer taking the form of a reciprocable roller movable to and from a position for receiving the gum from a reservoir therefor. The roller applies the gum to a plunger-type, vertically reciprocable applicator as it moves away from the glue reservoir and again as it returns to the latter.

Since only one reservoir is used in such machines, a relatively small amount of the glue is spread on the applicator on the return trip of the roller and accordingly, half of the envelopes are inadequately gummed. Furthermore, the gum is unevenly placed on the applicator resulting in an improper distribution of the glue on the envelope to be subsequently folded and removed from the machine.

It is accordingly, the most important object of the present invention to provide an attachment for machines of the above mentioned character for automatically spreading the glue on the roller as the same reciprocates and rolls whereby to not only produce an evenly gummed envelope, but to assure that every envelope is provided with a sufficient amount of the adhesive substance.

Another important object of the present invention is to provide a gum distribution mechanism including an auxiliary roller that is in rolling contact with the main gumming roller and having drive means for both rollers operable continuously as the rollers are reciprocated together.

A further object of the present invention is to provide means for simultaneously imparting rotative movement to the main gumming roller and the aforementioned auxiliary roller formed as to become inoperative as the rollers approach the glue reservoir and having operable interconnection with a glue roller that is commonly employed in the reservoir to the end that all three rollers rotate together while glue is being applied to the main gumming roller.

Other objects of the present invention relate to details of construction and will be made clear

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or become apparent as the following specification progresses.

In the drawing:

Fig. 1 is a fragmentary, front elevational view of a conventional envelope machine showing a glue dispensing assembly made in accordance with my invention operably attached thereto.

Fig. 2 is a transverse, cross-sectional view taken on irregular line II—II of Fig. 1, looking in the direction of the arrows.

Fig. 3 is a substantially vertical, cross-sectional view taken on irregular line III—III of Fig. 1, looking in the direction of the arrows.

Fig. 4 is a fragmentary, perspective view illustrating the manner of mounting the auxiliary roller at one end thereof.

Fig. 5 is a fragmentary, detailed, cross-sectional view taken on line V—V of Fig. 3, looking in the direction of the arrows.

Fig. 6 is a perspective view of the removable key utilized in the construction of the mounting means of Figs. 4 and 5; and

Fig. 7 is a fragmentary, transverse, cross-sectional view taken on line VII—VII of Fig. 2, looking in the direction of the arrows.

The envelope machine shown fragmentarily in the drawings and chosen for illustration of the attachment of this invention, is of conventional character and includes a platform or table for receiving a plurality of pre-cut blanks arranged thereon in stacked relationship.

When the machine is placed in operation, a gumming roller places gum on a vertical reciprocable applicator that moves downwardly and applies the gum to the uppermost envelope. As the applicator rises, mechanism moves the gummed blank to a position where the blank is folded and the folded flaps thereof caused to adhere together, thereby presenting a completed envelope.

The aforementioned reciprocable applicator is shown in Figs. 1 and 2 of the drawing, and includes a vertical shaft 10 mounted in bearing 12 carried by frame members 14 and 15. A plurality of applicators 16, 18 and 20 having their lowermost edges normally made of a rubber-like material, are carried by a cross head 22 that is in turn mounted upon the lowermost end of vertically reciprocable shaft 10.

Pre-cut blanks 24 capable of producing envelopes when properly gummed and folded, are stacked upon a vertically reciprocable table 26 that is positioned manually as desired, depending upon the number of envelope blanks 24 that are stacked thereon. It is noted that table 26

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and the blanks 24 are disposed directly below the applicators 16, 18 and 20. An elongated gum pot 28 is disposed at one end of the frame 14—15 and has an elongated drum 30 rotatably mounted therein and partially immersed within the gum of gum-pot or reservoir 28.

When the machine is in operation, drum 30 rotates continuously through the medium of a gear 32 at one end thereof operably interconnecting with motivating structure (not shown). Each frame member 14 and 15 has a depending screw 34 at each end thereof for receiving an elongated guide 36; there being, therefore, a pair of guides 36 in substantial parallelism and perpendicular to the axis of rotation of drum 30. Guides 36 carry reciprocable tubes 38 that are in turn provided with depending arms 40 and bearings 42 and 44 respectively.

A gumming roller broadly designated by the numeral 46, constitutes an elongated shaft 48 rotatably mounted in bearings 42 and 44 and having a number of gumming cylinders 50 mounted thereon and made from rubber or like resilient material. The number of cylinders 50 that are mounted on shaft 48 depends upon the particular type of envelope blank 24 to be gummed and varies accordingly. Reciprocation of the gumming roller 46 toward and away from the gum-pot 28, is caused by movement of a link 52 pivotally connected with each tubular member 38 respectively, said links 52 being actuated through mechanism not herein illustrated.

In normal operation, gumming roller 46 moves on guides 36 toward and away from the drum 30, while the shaft 48 and the applicators 16, 18 and 20 thereon are at the uppermost ends of their paths of travel. When the cylinders 50 are against the drum 30 as illustrated in dotted lines in Figs. 1 and 2, rotation of drum 30 through gear 32, imparts rotative movement to cylinders 50 and shaft 48 to apply the gum from pot 28, to the outermost surfaces of the resilient cylinders 50. As the gumming roller 46 moves away from the drum 30, the cylinders 50 roll along the lowermost edges of applicators 16, 18 and 20 and apply the gum thereto. While the gumming roller 46 is at the opposite end of its path of travel subjacent drum 30, applicators 16, 18 and 20 move downwardly to apply the gum thereon to the uppermost envelope blank 24. Applicators 16, 18 and 20 then rise and the gummed blank 24 is removed from the stack on table 26 and the gumming roller 46 returns along guides 36 toward the drum 30. On its return trip, gumming roller 46 again applies glue to the applicators 16, 18 and 20, the latter of which again moves downwardly to apply the adhesive substance to the uppermost blank 24 while gumming roller 46 is receiving more gum from drum 30.

While in this conventional envelope machine a fairly even coating of the gum is applied to the applicators 16, 18 and 20 as the gumming roller 46 moves away from drum 30, an uneven, patchy application is made by the cylinders 50 as gumming roller 46 makes its return trip to receive more gum from drum 30. These difficulties are obviated through use of the attachment forming the subject matter hereof and now to be described.

The improvements hereof include an auxiliary roller broadly designated by the numeral 54 including an elongated shaft 56 in parallelism with shaft 48 and having a resilient cylinder 58 for each cylinder 50 respectively. The diameter of cylinders 58 need not be great and is, therefore,

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appreciably less than that of the cylinders 50. The shaft 56 is rotatably carried by a pair of links 60 that are pivotally secured to the tubular heads 38. Accordingly, the cylinders 58 remain in rolling contact with the cylinders 50 by the weight of auxiliary roller 54.

A pair of friction wheels 62 and 64 in rolling interengagement, are carried by shafts 56 and 48 respectively at one end of the latter. Wheel 64 underlies and bears against an elongated track 66 that is in turn carried by frame member 14 through the medium of a pair of depending, adjustable screws 68. A pair of laterally extending links 70 on each end respectively of frame member 14, serve to secure the screws 68 to frame member 14. Track 66 is co-extensive in length with the distance traveled by rollers 45 and 54 and disposed in parallelism with the guides 36. That end of the track 66 adjacent drum 30, is upwardly offset as at 72. A third wheel 74 is mounted on the drum 30 for rotation therewith exteriorly of gum-pot 28 and below offset end 72 of track 66.

The shaft 48 is normally releasably held in place by a pair of spring-loaded plungers, one of which is illustrated in Fig. 3 and designated by the numeral 76. The proximal end of shaft 48 extends into a tubular housing 78 within which the spring for plunger 76 is mounted and the latter bears against the end of shaft 48. By virtue of mounting wheel 64 on the opposite end of shaft 48, such holding mechanism has been modified adjacent wheel 64 as clearly illustrated in Figs. 4 to 6 inclusive.

A slot 80 is provided in the bearing 42 capable of permitting passage of shaft 48 and a collar 82, secured to the shaft 48, bears against the innermost face of bearing 42 and holds shaft 48 against movement in one direction. A second collar 84 on shaft 48 on the opposite side of bearing 42 is also provided with a slot 86 capable of passing shaft 48.

A pair of split sleeves 88 and 90 partially circumscribing shaft 48, are relatively telescoped and disposed within the collar 84. Sleeves 88 and 90 are adapted to receive the bight of a U-shaped block 92 and the distance between the legs of the block 92, is substantially the same as the width of the collar 84. The outermost edge 94 of the bight of block 92 is transversely arcuate as illustrated in Fig. 6 in conformity with the contour of shaft 48.

A set screw 96 holds sleeves 88 and 90 against relative rotation with their slots in alignment and a set screw 98 in collar 84 normally bears against the outermost sleeve 88 and holds collar 84 against rotation relative to sleeves 88 and 90.

It is noted that one leg of the block 92 extends into the slot 80 of bearing 42. Consequently, shaft 48 is normally freely rotatable within the bearing 42 and within sleeve 90 that is closed by edge 94 of block 92. Collar 84, sleeves 88 and 90, and block 92 are held against rotation by virtue of one leg of the block 92 extending into slot 80. Removal of the auxiliary roller 54 is accomplished by loosening setscrew 98 and rotating the collar 84 to align its slot 86 with block 92. The latter may thereupon be removed from sleeves 88 and 90 and from collar 84 and slot 80 and shaft 48 will thereupon be movable through slot 80 of bearing 42.

The operation of the envelope machine with the attachment hereof mounted in place, is essentially the same as above described. However,

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as roller 46 reciprocates toward and from the drum 30, wheel 64 being in contact with the lowermost face of track 66, will cause rotation of shaft 46. A positive drive is therefore, provided, forcing the cylinders 50 to rotate on the lowermost edges of applicators 16, 18 and 20 and apply glue thereto. Such rotative motion of wheel 64 is imparted to the wheel 62 and accordingly, shaft 56 rotates simultaneously with rotation of shaft 48. As the rollers 46 and 54 approach the drums 30, wheel 64 will move out of contact with the track 66 by virtue of the offset portion 72. When cylinders 50 come into contact with the drum 30, wheel 64 also moves into contact with wheel 74 and rotative movement is imparted from drum 30 to the shaft 48, through wheel 64. Cylinders 58 still being in contact with cylinders 50, will rotate therewith and evenly distribute the glue on the surfaces of cylinders 50 while the latter are picking up glue from the drum 30. Such evening of the glue on the cylinders 50, continues as the rollers 46 and 54 reciprocate, thereby assuring an even application of the adhesive substance upon the applicators 16, 18 and 20. A considerable amount of the gum will remain between the cylinders 50 and 58 when the rollers 46 and 54 are at that end of their path of travel subjacent drum 30. Accordingly, on the return trip the glue will be distributed over the cylinders 50 for an even coating thereof upon the applicators 16, 18 and 20.

Through use of the structure herein set forth, each and every blank 24 is fully gummed and all of the blanks have a sufficient amount of the adhesive substance thereon to assure proper joining of the folded flaps of the finished envelope. It is seen that the attachment is universally adaptable for various types of envelope machines and even though the latter may vary substantially, the principle herein involved may be utilized with only slight changes in details of construction. It is accordingly intended that such changes as fairly come within the spirit of this invention, be considered a part hereof within the scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In an envelope machine having a continuously rotating gum pot drum and a gumming roller reciprocable toward and away from said drum, said roller having a number of gumming cylinders engageable with the drum for rotation

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therewith when the gumming roller is adjacent the drum, an auxiliary roller including a shaft, and a cylinder on the shaft for each gumming cylinder respectively; a friction wheel on the drum, the gumming roller and the shaft respectively, the friction wheel of the gumming roller being disposed for frictional engagement with the friction wheel of the drum when the gumming roller is adjacent the drum; a pair of links rotatably receiving said shaft and swingably secured to the gumming roller with the auxiliary roller gravity-biased toward the gumming roller, the cylinders of the auxiliary roller in rolling contact with the gumming rollers, and the friction wheel of the auxiliary roller in frictional contact with the friction wheel of the gumming roller; an elongated, stationary, plate-like track overlying the friction wheel of the gumming roller and having its longitudinal axis in parallelism with the path of travel of the last-mentioned wheel, said track having a length terminating at one end thereof in spaced relationship to the drum and disposed for frictional engagement with the friction wheel of the gumming roller when the last-mentioned wheel is out of engagement with the friction wheel of the drum, whereby the cylinders are all continuously rotated by the friction wheel of the gumming roller during reciprocation of the gumming wheel and while the same is adjacent the drum.

2. In an envelope machine as set forth in claim 1 wherein said track is provided with an upwardly offset portion at said one end of the said length thereof disposed in spaced relationship to the friction rollers when the gumming roller is adjacent the drum.

3. In an envelope machine as set forth in claim 1 wherein said cylinders and friction wheel of the auxiliary roller are disposed below the uppermost surfaces of the gumming cylinders and the friction wheel of the gumming roller.

4. In an envelope machine as set forth in claim 3 wherein said gumming cylinders are between the drum and the cylinders of the auxiliary roller.

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