Dec. 17, 1929. F. J. PARKS 1,739,647

GUMMING DEVICE FOR ENVELOPE MAKING MACHINES

Filed Jan. 10, 1928

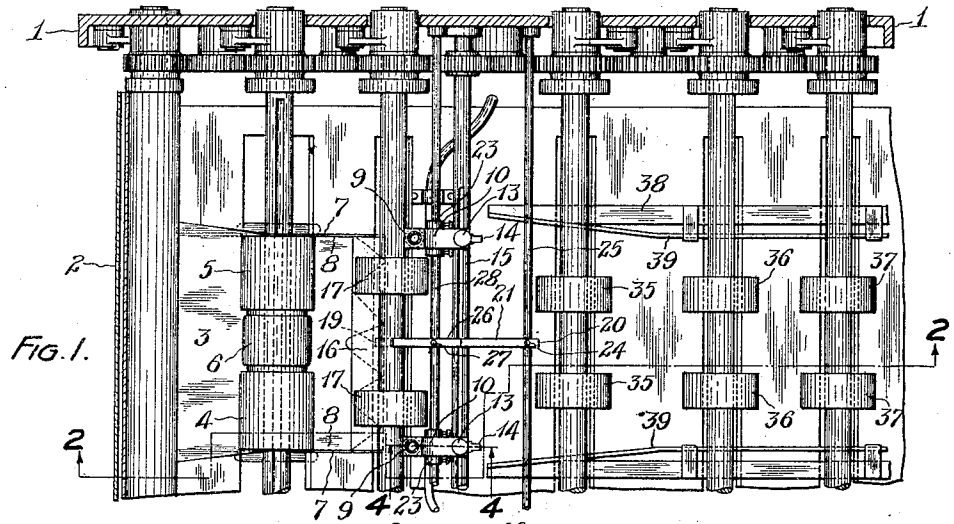


FIG. 1.

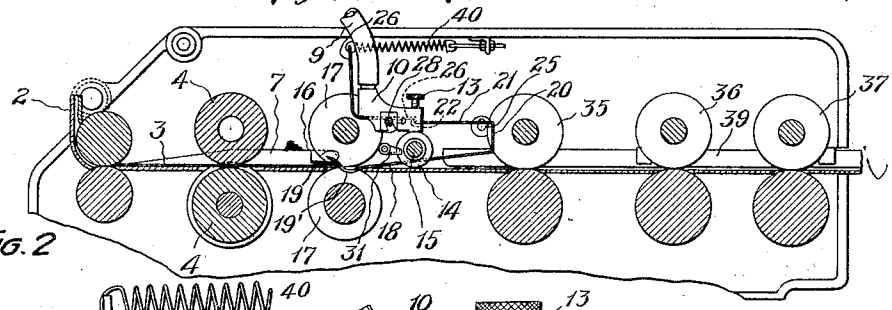


FIG. 2

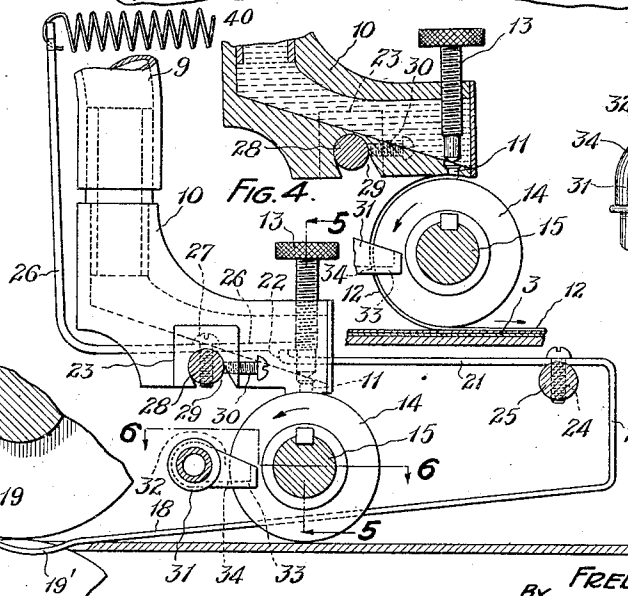


FIG. 4.

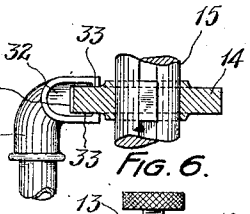


FIG. 6.

FIG. 3.

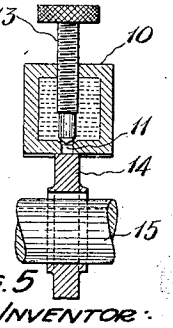


FIG. 5

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UNITED STATES PATENT OFFICE

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GUMMING DEVICE FOR ENVELOPE-MAKING MACHINES

Application filed January 10, 1928. Serial No. 245,684.

My invention particularly relates to devices of this character in which the feeding of the gum is controlled by the travel of the paper slip or envelope blank to which the gum is to be applied. The improvements provide accurate means for feeding the gum, means for easily adjusting said feeding means, means for preventing the gum caking or fouling, and means for efficiently cleaning the gum-applying member.

The annexed drawing and the following description set forth in detail certain means embodying my invention, such means disclosing, however, but one of the forms in which the principle of the invention may be illustrated.

In said annexed drawing:

Figure 1 is a fragmentary broken plan of an envelope machine in which my improved gumming device has been incorporated;

Figure 2 is a vertical longitudinal section, taken in the planes indicated by the line 2—2, Figure 1;

Figure 3 is a view, upon an enlarged scale, of the gumming device proper as it appears in Figure 2;

Figure 4 is a fragmentary vertical longitudinal section, upon an enlarged scale, taken in the plane indicated by the line 4—4, Figure 1;

Figure 5 is a vertical transverse section, taken in the plane indicated by the line 5—5, Figure 3; and

Figure 6 is a fragmentary horizontal section, taken in the planes indicated by the lines 6—6, Figure 3.

Referring to the annexed drawing in which the same parts are indicated by the same respective ordinals in the several views, an envelope machine frame 1 supports plates forming a guide 2 down and through which an envelope 3 travels, being fed into said guide by any suitable feeding means from folding devices (not shown) which have transversely bent the original envelope blank to form front and back envelope plies and to form an envelope pocket and a closure flap adapted to be interlocked therewith, designated by the ordinal 16, Figure 3. The aforegoing description relates only to one form of envelope machine for thus transversely folding the envelope blank, a type of machine which is patented to me in U. S. Patents Nos. 1,316,737 and 1,580,441. Such a machine is mentioned simply for purposes of illustration inasmuch as the present invention relates only to certain gumming devices adapted to deposit gum 12 upon certain portions 8 of the envelope whereby side enclosure portions 7 may be sealed down upon the envelope portions 8 to insure the closing of the lateral edges of the envelope, the latter having been scored adjacent its lateral edges to define the side enclosure members 7 by means of scoring rolls 4 and 5 adjustably spaced by an intermediate roll 6 of any desired size to insure the desired spacing of the scoring rolls 4 and 5. This scoring of the envelope 3 is effected as it travels over suitable plates from the guide 2 to the particular gumming devices which will now be described.

The gum is derived through flexible conduits 9 from a suitable reservoir (not shown), well known to those skilled in the art, these conduits 9 emptying into containers 10 formed at their lower rear bottom edges with discharge apertures 11 controlled by metering screws 13, to permit as free a discharge of gum 12 as is desired upon gumming rollers 14 secured to a shaft 15 rotatably mounted in the frame 1. Gum cannot escape from the orifice 11 as long as the container 10 rests upon the wheel 14 and thus covers up the discharge outlet 11. The discharge of gum is permitted by tilting the rear edge of the container 10 away from the roller 14. This action is started by the forward doubled pocket edge 16 of the envelope blank 3 in the following manner. At about the time the extreme edge of the folded portion 16 of the envelope 3 is engaged by a pair of feed rollers 17, it intersects an upwardly curved portion 19 of a finger 18 which extends rearwardly of the machine and is formed with an upwardly-extending portion 20 and then a return forwardly-extending portion 21 formed at its extreme end with a finger tip 22 disposed adjacently below an angular bar 26 secured by a screw 27 to a shaft 28 rotatably mounted in the frame 1. This

shaft 28 is contained within slots 29 formed in the lower faces of a pair of the containers 10, the latter being secured to said shaft 28 by means of screws 30 intersecting side members 23 of the containers 10. The upper forwardly-extending portion 21 of the plate 18 is secured by a screw 24 to a shaft 25 rotatably mounted in the frame 1. Cooperative driving mechanism, well known to those skilled in this art, is provided for driving the feed rolls, shaft 15, scoring rolls, etc., in proper timed relation.

It is evident from the aforegoing description and the accompanying drawing that when the envelope 3 lifts the finger 18 through contact with the upwardly-curved portion 19 of the latter, the shaft 25 rocks in a clockwise direction, Figures 2 and 3, and acts as a pivot and the tip 22 of the finger portion 21 rocks the angle bar member 26 which in turn rocks the shaft 28 and the gum containers 10 fixedly mounted thereon, in a counter-clockwise direction, and thus lifts the rear ends of the latter upwardly away from the rollers 14 and permits gum to be discharged upon the said rollers which rotate in the direction indicated by the arrow in Figure 3. This discharge of the gum is permitted at about the time the forward edge of the envelope 3 reaches the point indicated by the ordinal 19′, Figure 3, and the distance from this point to the line contact of the bottom of the rollers 14 with the envelope 3 is substantially equal to one-half of the circumference of the rollers 14, so that gum is spread upon the portions 8 of the envelope 3 by the rollers 14 at about the time the front edge of the envelope reaches the rollers 14. The discharge of gum is permitted until the rear edge of the envelope moves away from the area 19′ and permits the angle 26 and the finger 18 to reassume their normal positions under the action of a spring 40, the rollers 14, which continuously rotate, carrying gum to the remainder of the envelope sections 8 because of the substantially equal distances around one-half of the rollers 14 and between the point 19′ and the bottom edge of the rollers 14, hereinbefore explained.

After the envelope portions 8 are thus gummed, the envelope is completed by devices not pertinent to this invention consisting generally of feed rolls 35, 36 and 37, devices 38 and 39 for progressively turning the envelope side enclosure portion 7 down upon the gummed body parts 8, etc.

In order that gum may not accumulate upon the side faces of the rollers 14 and dry thereon or otherwise foul the machine and impair its efficiency, I provide scraper means comprising a conduit elbow 31 adapted from one end to lead to a drain (not shown) and formed at the other end into an open-top mouth portion 32 formed with an opening in its end and bottom face permitting the roller 14 to rotate closely adjacent to a pair of inwardly-extending spaced flanges or opening walls 33, the peripheral and feeding edge of the roller 14 being spaced somewhat from the inner end wall of the bottom opening, as indicated by the ordinal 34, Figure 6. Thereby the gum that escapes onto the side faces of the roller 14 is scraped off by the flanges 33 and is discharged through the conduit 31, while at the same time gum necessary for application to the envelope 3 is carried through the space 34 by the periphery of the roller 14.

What I claim is:

1. In gumming devices for envelope making machines, the combination of blank-feeding means; driven gumming rollers; pivotally-mounted gum containers formed with orifices adapted to discharge upon the peripheries of said rollers, said containers normally resting upon said rollers to close said orifices; and means controlled by the movements of the blank for tilting said containers away from the rollers to permit discharge of gum from said orifices.

2. In gumming devices for envelope making machines, the combination of blank-feeding means; driven gumming rollers; pivotally-mounted gum containers formed with orifices adapted to discharge upon the peripheries of said rollers, said containers being adapted in one position to rest upon said rollers to close said orifices; means controlled by the movements of the blank for tilting said containers in one direction; and means automatically moving said containers in the opposite direction when said tilting means are freed from said blank movements.

3. In gumming devices for envelope making machines, the combination of blank-feeding means; driven gumming rollers; pivotally-mounted gum containers formed with orifices adapted to discharge upon the peripheries of said rollers, said containers normally resting upon said rollers to close said orifices, the mounting for said containers comprising a pivotally-supported shaft to which said containers are secured; a pivoted finger disposed in the path of blank movement so as to be actuated thereby; and means controlled by the actuation of said finger to turn said shaft and tilt said containers away from said rollers.

4. In gumming devices for envelope making machines, the combination of blank-feeding means; driven gumming rollers; pivotally-mounted gum containers formed with orifices adapted to discharge upon the peripheries of said rollers, said containers normally resting upon said rollers to close said orifices, the mounting for said containers comprising a pivotally-supported shaft to which said containers are secured; a finger member secured intermediate its ends to said shaft; a spring

normally holding one end of said member in one position; a finger having one end disposed in the path of blank movement; a pivoted shaft to which said finger is secured intermediate its ends, the other end of said finger being adapted to move the free end of said finger member against the action of said spring to tilt said containers away from said rollers.

5. Gum scraper means for envelope-gumming rollers comprising a conduit member formed with an open-top roller edge enclosing portion adapted to be spaced from the roller periphery and closely scraping the adjacent roller face portions.

6. Gum scraper means for envelope-gumming rollers comprising a conduit member formed at one end with an open-top portion having an end and bottom opening permitting the rotation of a roller therethrough, the walls of said end opening closely scraping the roller faces, the inner end wall of said bottom opening being spaced somewhat from the roller periphery.

Signed by me this 9th day of January, 1928.

FREDERICK JAMES PARKS.