June 8, 1926. 1,587,638

M. FEYBUSCH ET AL

GUMMING MACHINE

Filed Sept. 19, 1922 2 Sheets-Sheet 1

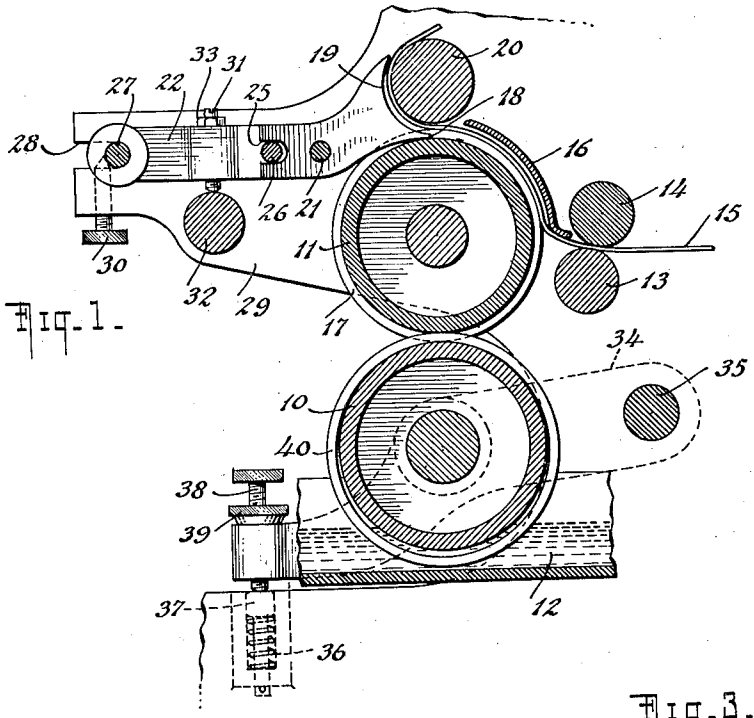


Fig. 1.

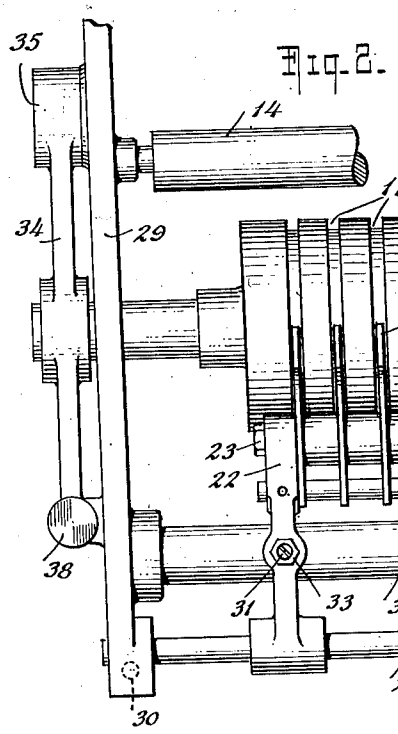


Fig. 2.

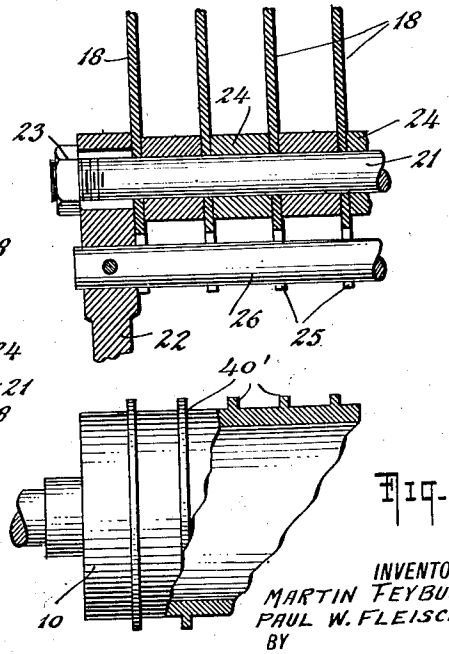


Fig. 3.

Fig. 4.

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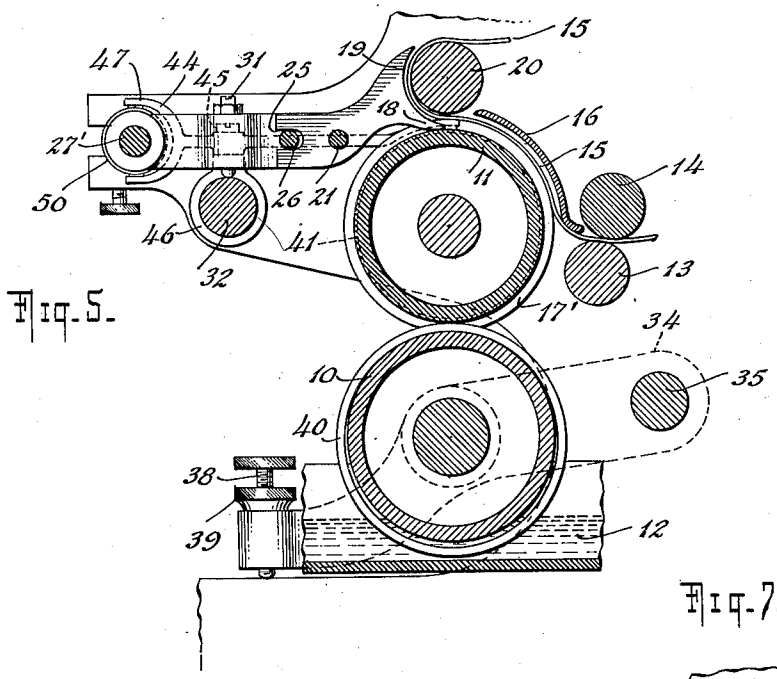


Fig. 5.

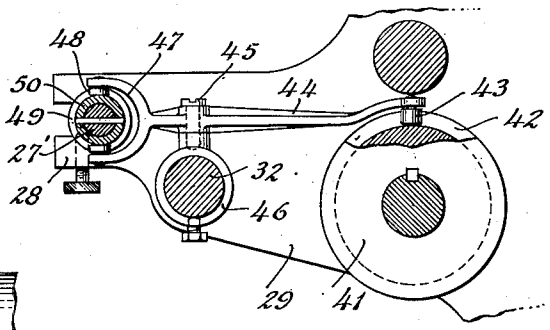
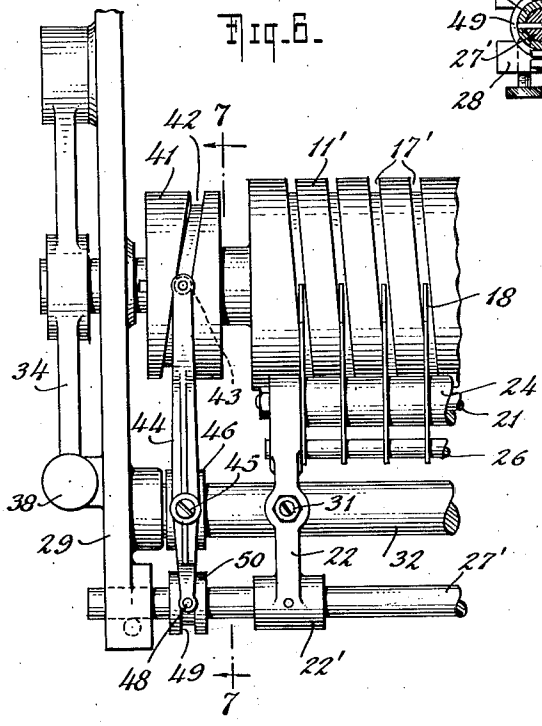


Fig. 7.

Fig. 6.



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UNITED STATES PATENT OFFICE.

MARTIN FEYBUSCH, OF NEW YORK, N. Y., AND PAUL W. FLEISCHER, OF WEEHAWKEN, NEW JERSEY, ASSIGNORS TO NEW JERSEY MACHINE CORPORATION, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

GUMMING MACHINE.

Application filed September 19, 1922. Serial No. 589,078.

The present invention relates to machines for applying a coating of adhesive to sheets of paper, labels and the like.

Heretofore it has been found extremely difficult to apply such coatings in a uniform manner and to prevent the machine from becoming soiled and even rendered temporarily inoperative by an excess of adhesive, particularly as the machines have to be stopped from time to time in the normal course of operation, and at such times the adhesive is liable to harden, necessitating a laborious cleaning of the incrusted parts before the machine is again ready for work. The object of our present invention is to avoid the defects mentioned, and to secure an even distribution of the adhesive on the labels or other material, as well as to provide means for readily keeping the machine in working condition. In the particular examples of our invention illustrated by the accompanying drawings, the gumming device is shown in connection with a pick-off or stripping appliance which operates to remove the coated labels or the like from a roll which serves to convey the adhesive to the said labels. The invention also relates to certain features of this stripping appliance, and to various arrangements the construction, objects and advantages of which will appear fully from the description following hereinafter, and the novelty will be pointed out in the appended claims.

Referring now to the accompanying drawings, in which we have shown several satisfactory embodiments of our invention,

Fig. 1 is a vertical longitudinal section through one form of our device; Fig. 2 is a partial plan view thereof; Fig. 3 is a detail view of the pick-off mechanism; Fig. 4 is a fragmentary view illustrating another form of our invention; Figs. 5 and 6 are views corresponding to Figs. 1 and 2 but showing still another form of our invention; and Fig. 7 is a section on line 7—7 of Fig. 6.

Certain parts have been indicated only diagrammatically, since they form no part of the present invention but are illustrated in detail and claimed in a separate application filed by us on September 19, 1922, Serial No. 589,079.

The device illustrated in Figs. 1 to 3 comprises two superimposed rolls 10, 11, the lower one of which, 10, dips into a glue pan 12 from which it receives, on its cylindrical surface, a coating of glue or other suitable adhesive which it communicates, by surface contact, to the upper, glue-applying roll 11. To this roll 11 is fed, by hand or in any other suitable manner, as for instance by feed-rollers 13, 14, indicated diagrammatically, a label or other sheet 15 which is to be provided on one side with a coating of adhesive. A guide 16 may serve to properly guide the label or sheet 15 into contact with the roll 11.

The glue-applying roll 11 is provided in its cylindrical surface with a number of preferably evenly spaced circumferential grooves 17 into which extend, preferably at the uppermost point of the roll, the pointed ends of take-off or stripper fingers 18 which serve to separate the label or sheet 15 from the roll 11. The fingers 18 may be provided with curved guiding portions 19 serving to guide the label or sheet 15, after it has been separated from the roll 11, over a roller 20, which latter may be for instance part of the device for applying the gummed label to a round can, as described in our application above referred to, or it may be part of a conveyor mechanism for taking the gummed sheet or label away, as disclosed for instance in U. S. Letters Patent 1,355,219.

The fingers 18 are carried by a rod 21 supported in brackets 22 and held thereon by means of nuts 23, the fingers being suitably spaced by spacing sleeves 24. At their rear ends, the fingers 18 are provided with notches 25 through which extends a rod 26 the ends of which are also secured to the brackets 22. The rod 21 extends through the brackets 22 with a certain amount of looseness which permits a slight adjustment of the fingers, either lengthwise or up-and-down, the notches 25 allowing such adjustment. The brackets 22 are secured to a rod 27 held in open slots 28 of the machine frame 29 by the conical ends of set screws 30, this arrangement permitting an easy withdrawal of the rod 27, brackets 22 and stripping members 18. Through the brackets 22 are screwed, at a suitable distance from the rod 27, screws 31 bearing with their lower ends against a stationary rod 32; turning of the screws 31 will swing the structure comprising the brackets 22 and fingers 18 about

the rod 27 as a pivot, thus providing a ready up-and-down adjustment of the fingers 18 with respect to the gumming roll 11. Locknuts 33 prevent accidental turning of the screws 31. It will be noted that the lengthwise adjustment of the brackets 22 is tangential to the roller 11 and permits the space between the guiding surfaces 19 and the roller 20 to be varied, while the up-and-down adjustment of said brackets is radial with respect to the roller 11 and permits the fingers 18 to be adjusted relatively to the grooves 17. Furthermore by loosening the nut 23 any one of the fingers 18 may be adjusted, independently of the others, while a variation of the setting of the screws 31 will result in a simultaneous and similar adjustment of all of the fingers 18 with respect to the grooves 17.

While the glue-applying roll 11 is supported directly in bearings of the frame 29, the glue-receiving and distributing roll 10 is supported in bearing arms 34 fulcrumed on said frame at 35. The arms 34 are pressed upwardly by springs 36 engaging plungers 37 bearing against the lower ends of set screws 38 screwed into the arms 34. The pressure between the two rolls 10, 11 may be varied, to regulate the thickness of the film of adhesive transmitted from the roll 10 to the roll 11, by turning the screws 38, locknuts 39 preventing accidental turning.

To prevent the glue distributed on the roll 11 by the roll 10 from filling the grooves 17 and accumulating on and around the pick-off members 18, we have provided rings 40, one for each groove 17, which rings are mounted loosely on the lower gumming roll 10 and enter the grooves 17 at the point of contact or nearest approach of the two rolls The glue will thus not be communicated to the upper roll 11 at the grooves, the latter remaining practically free from glue. The fingers or take-off members 18 are preferably out of contact with the side walls of the grooves 17; this will prevent glue from the cylindrical surface of the roll 10 from being communicated to, and hardening on, the fingers 18.

Generally, the rolls 10, 11 are driven either by mutual surface contact or otherwise in such a manner as to give them the same peripheral speed. We do not wish, however, to limit ourselves to this particular relation.

The advantage of mounting the rings 40 loosely on the roll 10 is that they adjust themselves in the grooves 17, lengthwise of the roll 10; they need, however, not be loose, but might be rigid on said roll, or they might even be integral therewith, as illustrated in Fig. 4.

In the forms of our invention described so far there will be narrow strips of the sheet or label which will not receive any adhesive, viz, the portions of the sheet or label passing, during the gumming operating, over the grooves 17. While this will generally not be a disadvantage, it might in some cases, for instance with very thin paper, be preferable to have the whole surface of the sheet provided with a layer of adhesive. This may be accomplished for instance, in the manner illustrated by Figs. 5 to 7.

Figs. 5 to 7 differ from Figs. 1 to 3 by showing the roll 11′ provided with inclined or oblique grooves 17′ instead of the straight grooves 17. In the particular example shown, each groove 17′ lies in a transverse plane which is oblique or inclined with respect to the plane of rotation of the roll 11′, so that each groove will form an ellipse. However, we do not desire to limit ourselves to these details.

To allow the take-off members 18 to move laterally as required by the oblique shape of the grooves 17′, these members might be made flexible. We prefer, however, to make this movement a positive one. This is accomplished in the following manner: On the shaft of the roll 11′ is mounted rigidly a sleeve 41 having a cam groove 42 in which travels a roller 43 secured to one end of a rocking lever 44 fulcrumed at 45 in a sleeve 46 mounted rigidly on the rod 32. At its other end the lever 44 has a fork 47 provided with oppositely-located projections or rollers 48 engaging a groove 49 in a sleeve 50 rigidly secured to the rod 27′, which latter is movable axially in the bearings 28 of the frame 29, by a rocking movement of the lever 44. Also rigid on the rod 27′ are the sleeve-like ends 22′ of the brackets 22 carrying the take-off members 18 in the same manner as described in connection with Figs. 1 to 3. The relative arrangement of the oblique grooves 17′ and of the cam groove 42 is such that when the roll 11′ rotates the lever 44 will be rocked, causing the picking-off ends of the members 18 to follow the path of the grooves 17′. The rings 40 in this case must be loose on the roll 10, so as to be able to follow freely the movement of the grooves 17′.

To insure a complete gumming of the sheet or label, as referred to above, such sheet or label must be fed to the gumming roll 11′ with a speed differing from that of such roll so that, as the sheet or label moves along in contact with the roll, there will be a certain amount of slippage between them, resulting in a wiping action which, owing to the oblique arrangement of the grooves 17′, will cover with adhesive the portions of the sheet which at first are left free of such adhesive. The sheet, label or other article will thus be completely gummed on one side, without any ungummed strips appearing thereon. In practice, the wiping action will

generally be obtained by causing the gumming roll 11′ to rotate with a greater surface speed than the feed rollers 13, 14, which may be accomplished in any convenient manner. The angle of inclination of the grooves can be relatively small, provided the wiping action is sufficient to cover the whole width of the grooves.

Figs. 1 and 5 show the rings 40 hung eccentrically on the roll 10, so that there will be surface contact between said rings and the roll only at the upper portion of the roll; this facilitates the movement or adjustment of the rings longitudinally of the roll, and is of particular advantage in the construction illustrated by Figs. 5, 6 and 7.

The projections or rings 40 will not only clear the grooves 17 or 17′ of the upper roll 11 or 11′ respectively of glue, but will also prevent accumulation of such glue on the clearing means; such accumulation is a drawback of stationary scrapers employed hitherto in connection with grooved rollers. Upon the stopping of the machine, the glue gathered on stationary scrapers will harden, and interfere with the proper operation of the machine when it is started again; the movable rings or projections 40 employed by us will however constantly carry the glue away from the point at which they engage the roll 11 or 11′, thus preventing accumulation. Another advantage of these movable rings or projections is that they carry the surplus glue back to the glue pan or fountain 12.

We claim:

1. In a gumming device, a glue-supplying roll having circumferential rings mounted thereon loosely, and a movable transfer member adapted to receive glue from said roll and provided with grooves into which said rings project.

2. In a gumming device, a glue-supplying roll having circumferential rings mounted thereon loosely and eccentrically, and a movable transfer member adapted to receive glue from said roll and provided with grooves into which said rings project.

3. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having circumferential grooves, stripping members entering said grooves to separate the gummed article from said roll, said members being provided with curved surfaces for guiding the article away from said roll; and movable means entering said grooves to clear them of adhesive.

4. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having circumferential grooves, and stripping members entering said grooves for separating the gummed article from said roll, said members being provided with curved surfaces for guiding said article in its passage from said roll and being adjustable toward and from the center of said roll.

5. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having circumferential grooves, and stripping members entering said grooves for separating the gummed article from said roll, said members being provided with curved surfaces for guiding said article in its passage from said roll and being adjustable tangentially of said roll.

6. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having circumferential grooves, and stripping members entering said grooves for separating the gummed article from said roll, said members being provided with curved surfaces for guiding said article in its passage from said roll and being adjustable radially and tangentially of said roll.

7. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having circumferential grooves, stripping members entering said grooves to separate said article from said roll, and rings also entering said grooves for removing any adhesive material which may adhere to said grooves.

8. A gumming device comprising a roll for applying adhesive to an article fed thereto, said roll having circumferential grooves, stripping members entering said grooves to separate said article from said roll, a second roll for distributing a film of adhesive on said first-named roll, said second-named roll having projections which also enter said grooves to remove therefrom any adhesive material which may adhere thereto.

9. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having obliquely inclined circumferential grooves, and stripping members cooperating with said grooves for separating the gummed article from said roll, said members being movably mounted to permit them to follow the inclination of said grooves.

10. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having obliquely inclined circumferential grooves, stripping members cooperating with said grooves for separating the gummed article from said roll, and means for causing said stripping members to move lengthwise of said roll corresponding to the shape of the grooves.

11. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having obliquely inclined circumferential grooves, stripping members cooperating with said grooves, for separating the gummed article from said roll, and mechanism for imparting to said members

a bodily movement lengthwise of said roll corresponding to the shape of the grooves.

12. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll having obliquely inclined circumferential grooves, stripping members cooperating with said grooves for separating the gummed article from said roll, a second roll for distributing a film of adhesive on said first-named roll, and rings mounted loosely on said second-named roll and cooperating with said grooves to remove therefrom any adhesive material which may adhere thereto.

13. A gumming device comprising a circumferentially grooved roll for applying an adhesive to the article to be gummed, stripping members entering the grooves of said roll to separate said article from the roll, and clearing rings entering said grooves and rotatable about an axis external to said roll.

14. A gumming device comprising a circumferentially grooved roll for applying an adhesive to the article to be gummed, stripping members entering the grooves of said roll to separate said article from the roll, another roll for supplying an adhesive to the first-named roll, and clearing means mounted on said supply roll for rotation relatively thereto and entering said grooves at a distance from the stripper members.

15. A gumming device comprising a circumferentially grooved roll for applying an adhesive to the article to be gummed, stripping members entering the grooves of said roll to separate said article from the roll, another roll for supplying an adhesive to the first-named roll, a glue pan into which said second roll dips, and clearing rings mounted on said supply roll and likewise dipping into said pan, said rings rotating relatively to the first-named roll and entering the grooves thereof at a distance from the stripper members.

16. A gumming device comprising a circumferentially grooved roll for applying an adhesive to the article to be gummed, stripping members entering the grooves of said roll to separate said article from the roll, another roll for supplying an adhesive to the first-named roll, a glue pan into which said second roll dips, and clearing rings mounted on said supply roll loosely and eccentrically and likewise dipping into said pan, said rings rotating relatively to the first-named roll and entering the grooves thereof at a distance from the stripper members.

17. A gumming device comprising a roll for applying an adhesive to an article fed thereto, said roll being provided with a plurality of circumferential grooves, a plurality of stripping members entering said grooves for separating the gummed article from said roll, means for permitting adjustment of any one of said members independently of the others relatively to said roll, and means to adjust said members simultaneously in unison relatively to said roll.

In testimony whereof we have signed this specification.

MARTIN FEYBUSCH.
PAUL W. FLEISCHER.