A. G. PRIOR.

GUMMING MACHINE.

APPLICATION FILED MAR. 24, 1917.

1,260,446. Patented Mar. 26, 1918.

Fig. 1.

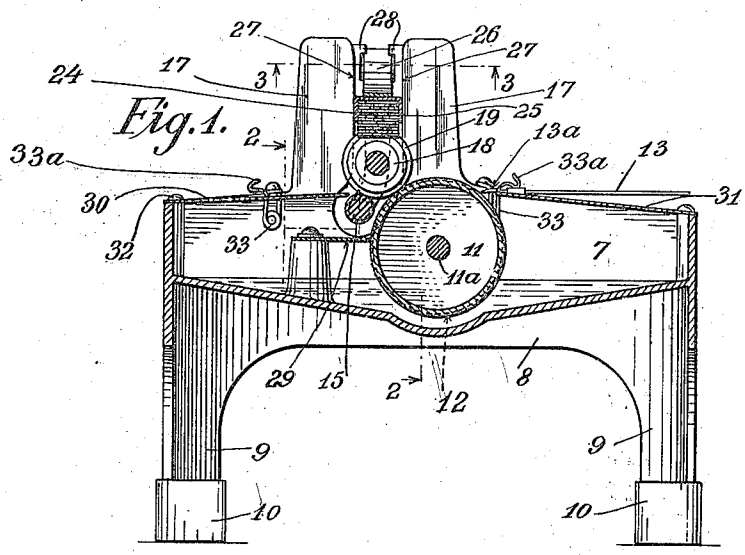



Fig. 3.

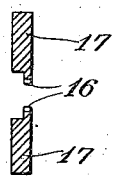



Fig. 2.

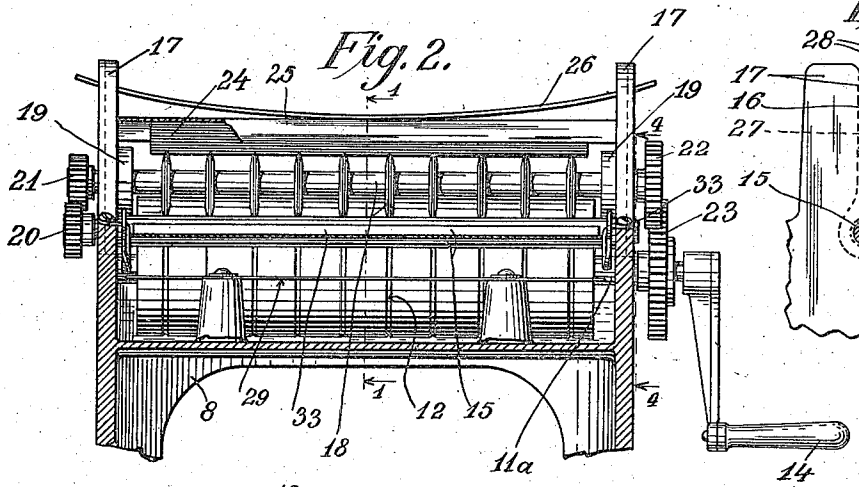
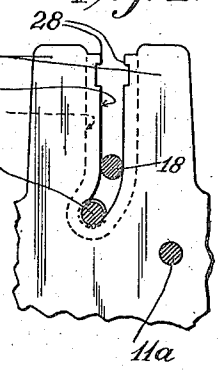



Fig. 4.



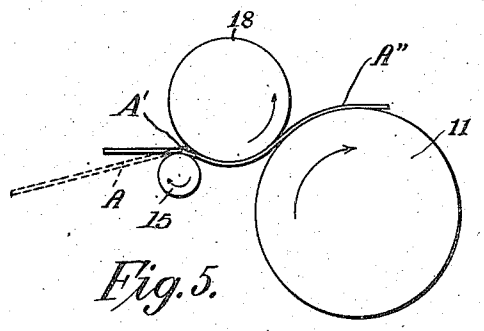




Fig. 5.

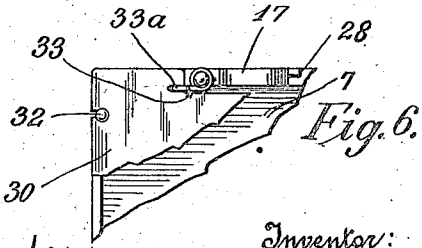



Fig. 6.

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# UNITED STATES PATENT OFFICE.

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## GUMMING-MACHINE.

1,260,446. Specification of Letters Patent. Patented Mar. 26, 1918.

Application filed March 24, 1917. Serial No. 157,063.

*To all whom it may concern:*

Be it known that I, ALBERT GEORGE PRIOR, a subject of the King of England, residing at Newark, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Gumming-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to machines for applying liquid paste or a suitable moistening liquid to one side of a label or the like as the label is passed through the machine. Such a machine, as is well known in the art, comprises broadly a liquid receptacle, means for feeding a sheet through the machine, and means for removing liquid from the receptacle and applying the liquid to one side of the sheet as the sheet passes through the machine. These sheet feeding and liquid applying means have usually comprised a plurality of rotary elements journaled with substantially parallel axes and arranged to be rotated simultaneously.

In machines of this character as heretofore constructed, whether the sheet feeding means were combined with or used separate from the liquid applying means, it has been common to employ two rollers which are pressed into contact engagement by a spring so that the two rollers engage opposite sides of the sheet more or less tightly between them to feed the sheet through the machine. Such machines are not capable of treating sheets of greatly differing thickness and flexibility; in practice it has been found that when such a machine is adapted for properly feeding comparatively thin and flexible sheets, it cannot properly handle comparatively heavy and inflexible sheets, and vice versa. Such machines also are subject to the serious disadvantage of being unable to treat sheets having delicate embossings or formed of thin or fragile material.

The present invention has for its object to provide a simple and very efficient machine of the type above indicated in which the defects noted are entirely overcome. I have discovered that if three substantially parallel rotary elements are provided and arranged with their axes suitably spaced, the periphery of each rotary element may always be maintained spaced from the peripheries of the two other rotary elements, and yet the machine will serve to properly treat a sheet of any thickness within wide limits and also a very thin, fragile or embossed sheet.

An important advantage incidentally obtained by the invention, is that liquid from the liquid receptacle may never be transferred to the upper one of the two feeding rotary elements, either directly from the liquid applying rotary element or otherwise, and thus liquid lifted by the liquid applying rotary element will always be confined to the proper side of the label, sheet, strip or the like passed through the machine.

In carrying out the invention, the first two rotary elements in the direction of feed constitute the feeding means, the third element acting merely to apply the liquid; and means are provided for yieldingly holding the two feeding rotary elements a predetermined distance apart so that while these two elements are always positively spaced to a certain extent, one of such elements is movable to momentarily increase its degree of separation from the other element to permit and facilitate the passage through the machine of a sheet of extra thickness and stiffness.

The invention also involves various other improved operative and structural features which will be referred to hereinafter, and the invention will be fully understood from the following description, when taken in connection with the accompanying drawing.

In this drawing, Figure 1 is a transverse section on line 1—1 of Fig. 2; Fig. 2 is a longitudinal section on line 2—2 of Fig. 1; Fig. 3 is a horizontal section on line 3—3 of Fig. 1; Fig. 4 is an enlarged detail view; Fig. 5 is a diagrammatic view illustrating a feeding operation; and Fig. 6 is a fragmentary view showing the manner in which each end portion of the two cover plates is locked in place.

The receptacle for containing the liquid paste, or for containing water when the machine is used for moistening labels or the like already gummed, is shown at 7. This receptacle may be of any suitable size and shape, but is preferably rectangular in plan

as indicated in the drawing and as is common in the art. The receptacle is formed as part of a casting 8, which constitutes the general frame of the machine. The receptacle is supported by a plurality of legs 9, upon the lower ends of which are mounted rubber feet 10.

The paste applying roller 11 is provided with a plurality of spaced annular grooves 12 within each of which is one of the fingers 13[a] of a suitable stripper and delivery frame 13, for receiving and temporarily supporting the treated label as it comes to rest after leaving the roller 11. The roller 11 is secured to a shaft 11[a] journaled in the opposite end walls of the paste receptacle 7. The roller 11 may be rotated by hand or power, a hand crank 14 being illustrated.

A lower feed roller 15 is journaled at each end in the bottom of one of the curved slots 16 formed in standards 17 rising above the side walls of the receptacle. A second feed roller 18, which may consist of a plurality of spaced disks on a shaft, is journaled in the slots 16 above the roller 15. The peripheries of such disks constitute the working surfaces of the upper feed roller 18.

The upper and lower feed rollers 15 and 18 are maintained at the proper distance apart by means of a pair of collars 19 on the upper roller 18. These collars rest on the lower feed roller 15 and are of greater diameter than the spaced disks on roller 18.

The lower portions of the slots 16 are so shaped, that when the parts are assembled the two feed rollers 15 and 18 are arranged at one side of the central vertical plane of the liquid applying roller 11 and close to the upper side thereof, and the highest points on the peripheries of rollers 15 and 11 are above the lowest point on the periphery of roller 18.

The lower feed roller 15 carries a gear 20 at one end and the upper feed roller 18 carries a gear 21 at one end meshing with said gear 20. On the other end of roller 18 is a gear 22, and the liquid applying roller 11 carries a gear 23 at its handle end meshing with the gear 22. When the handle 14 is turned in the proper direction, the rollers are simultaneously rotated as indicated in Fig. 5.

Convenient means are provided for yieldingly holding the upper feed roller 18 in the proper relation to the feed roller 15, so as to permit the two feed rollers to momentarily increase their degree of separation when a sheet of extra thickness or stiffness is passed through the machine. This means comprises a block 24 of felt or the like, seated in a channel member 25 which is positioned under a bow spring 26.

The channel member 25 has its ends received in enlargements 27 of the slots 16, the ends of the bow spring 26 being received so as to be held under suitable projections indicated at 28 in Fig. 1.

A single scraper plate 29 is provided to remove surplus paste from roller 11.

Ahead of the feeding rollers 15 and 18, the receptacle 7 is closed by a quickly removable sheet-metal cover-plate 30, serving as a feed table, and beyond the paste roller 11 the receptacle is closed by a similar cover-plate 31 on which the stripper and delivery frame 13 is mounted. The end walls of the receptacle 7 are provided with a plurality of studs or projections 32, and the side walls of the receptacle have mounted thereon a plurality of spring elements 33. Each of the cover-plates is notched in two places, at both ends, as indicated clearly in Fig. 6, so that when one pair of the notches is engaged with the studs 32, the other notches may be snapped under the terminal hook portions 33[a] of the adjacent spring elements 33. The novel form of spring element 33 illustrated is of particular value, in view of the fact that it may be anchored to a part of the receptacle 7 above the liquid level therein and provided with an intermediate spring loop which is housed in the receptacle but out of contact with the liquid.

The operation of the machine illustrated will be readily understood from the above description. When a label A is arranged with its forward end A′ as indicated in Fig. 5, the two feed rollers 15 and 18 sweep against the opposite sides of the label at about the angles indicated and frictionally advance the forward edge of the label into contact with the liquid applying roller 11 so that the label next assumes the full line position A″ for passage over the liquid applying roller. The machine is capable of gumming or moistening without injury very thin, fragile and embossed labels and at the same time it is self-adjusting to take care of sheets of considerable thickness and stiffness. In the case of a label of very thin and delicate material, the ideal feeding is insured if the rear portion of the label be allowed to sag slightly just as the forward edge of the label is pushed against the periphery of the upper feed roller 18, as indicated in a rather exaggerated manner in Fig. 5.

I claim:

1. In a device of the kind described, in combination, a receptacle, a cover thereupon having an opening, a paste applying roller journaled in said receptacle and having its upper periphery projecting through said opening, a pair of oppositely-arranged standards mounted above and upon said receptacle, said standards being provided with vertical journal slots, the lower ends of said standards and the upper portions of said

receptacle being cut away so as to curve said slots laterally of one side of said roller, a roller journaled in the curved portions of said slots below the upper periphery of the first roller, a feed roller journaled in said slots above its curved ends and having enlarged collars rotatably resting upon the last-named roller so that this third roller may be disposed below the upper periphery of the first roller and means carried by said standards for applying tension upon said last-named roller.

2. In a device of the kind described, in combination, a receptacle, means for supporting said receptacle, a pair of upright standards formed upon the upper edges of said receptacle, said standards being provided with vertical slots, the marginal portion of each slot being formed with a countersunk recess upon the inner side of its standard, a roller having its ends journaled in said slots, a channel-shaped member having its ends guided in said countersunk recesses, a felt block secured longitudinally in said channel-shaped member and bearing against said roller, and means for applying tension against said channel-shaped member.

3. In a device of the kind described, in combination, a receptacle, a pair of vertical standards formed thereupon and provided with vertical recesses upon their inner sides, the recessed portions of said standards being formed with slots medially thereof, a roller having pintles projecting into said slots, a member having its opposite ends guided in said recesses, a yieldable body carried by said member and engaging said roller, the upper marginal portions of each slot being formed with confronting recesses forming shoulder projections, and a bowed leaf spring having its arched portion seated upon said first-named member and its opposite ends engaging the upper of said shoulder portions so as to apply tension against said yieldable body.

In testimony whereof I affix my signature.

ALBERT GEORGE PRIOR.

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