Nov. 1, 1932. G. SAGUE 1,886,231

COATING DEVICE

Filed Oct. 24, 1927 3 Sheets-Sheet 1

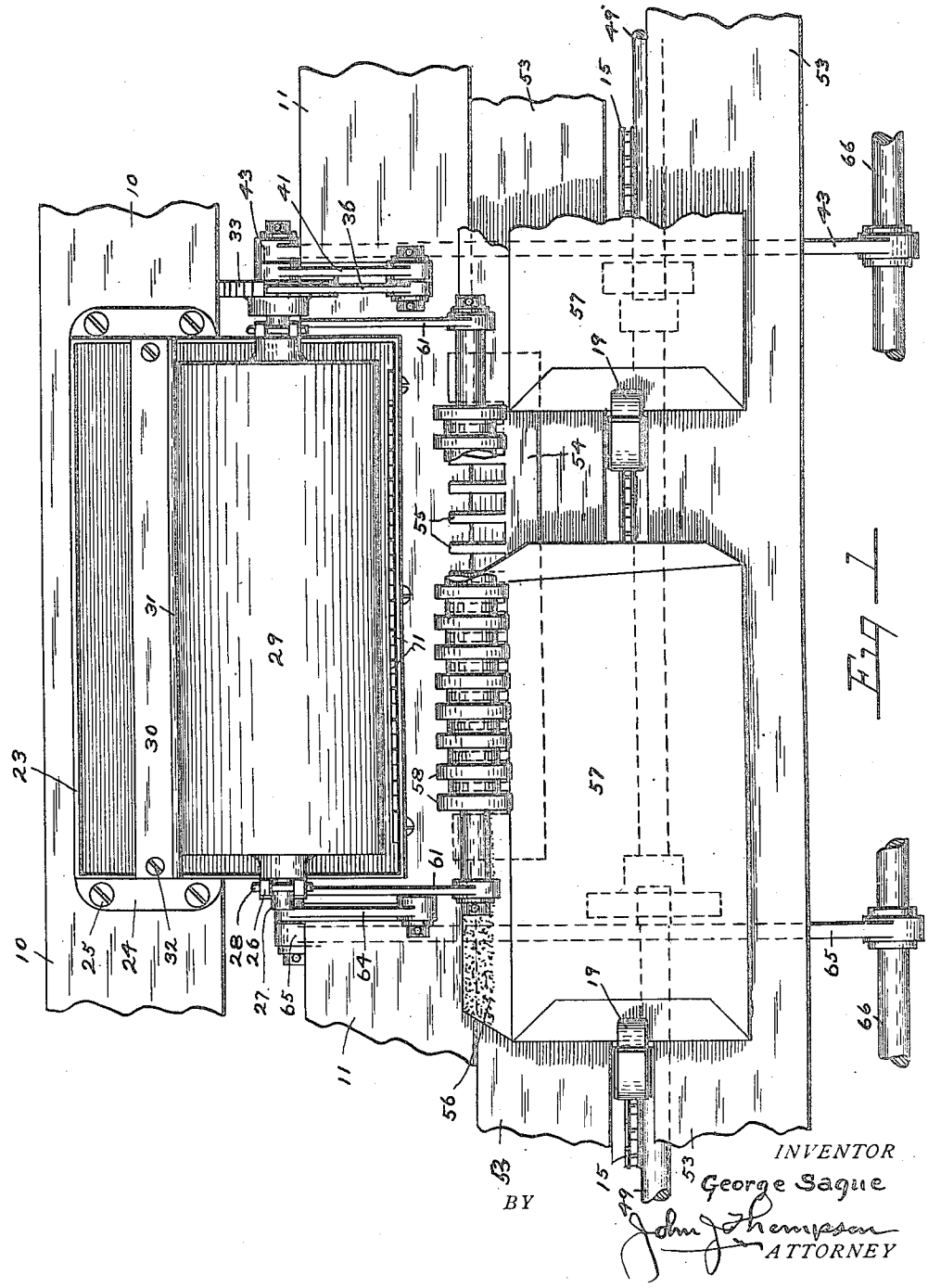


Fig. 1

INVENTOR
George Sague
BY
John J. Thompson
ATTORNEY

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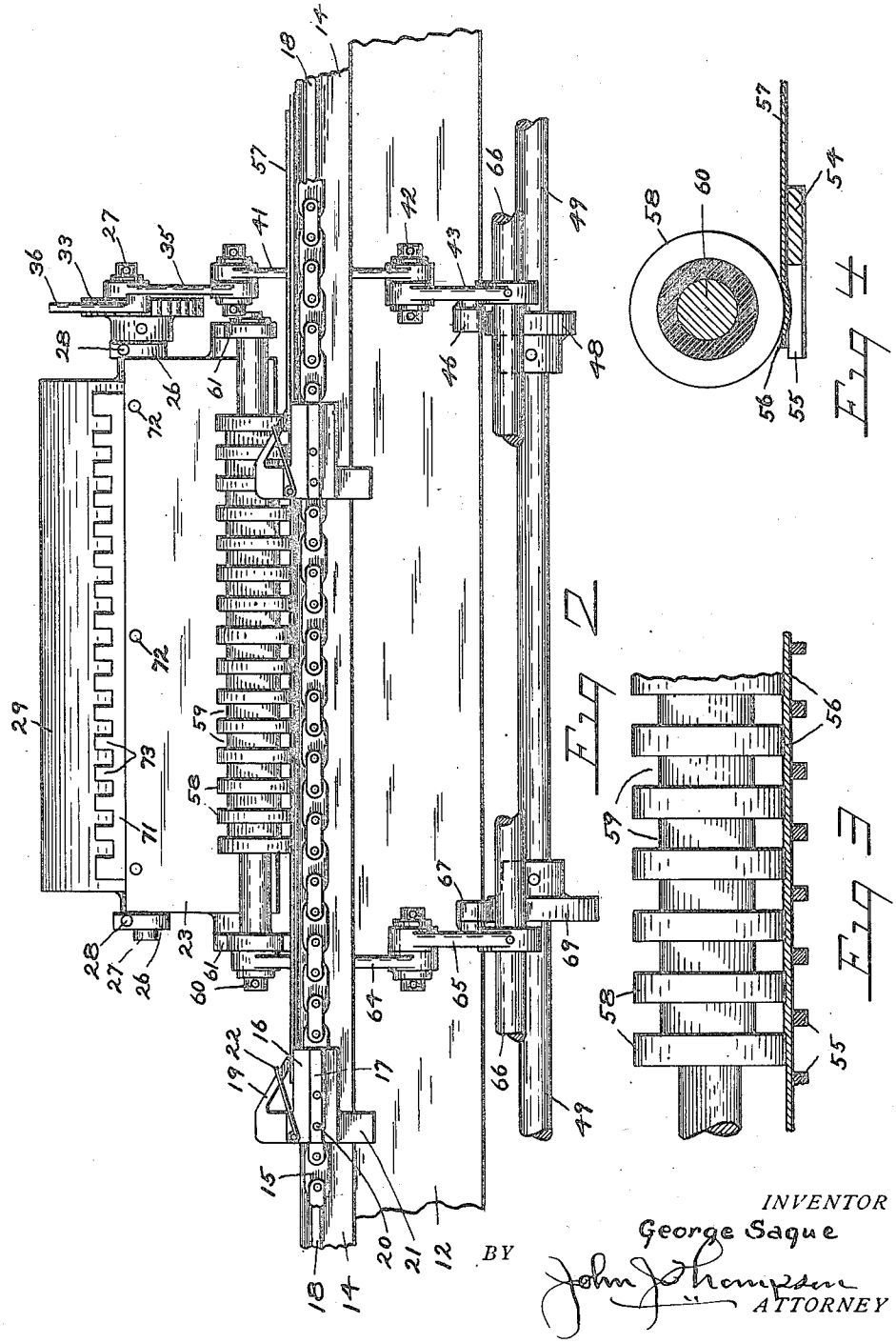


Fig 4

Fig 3

INVENTOR
George Sague
BY
John J. Thompson
ATTORNEY

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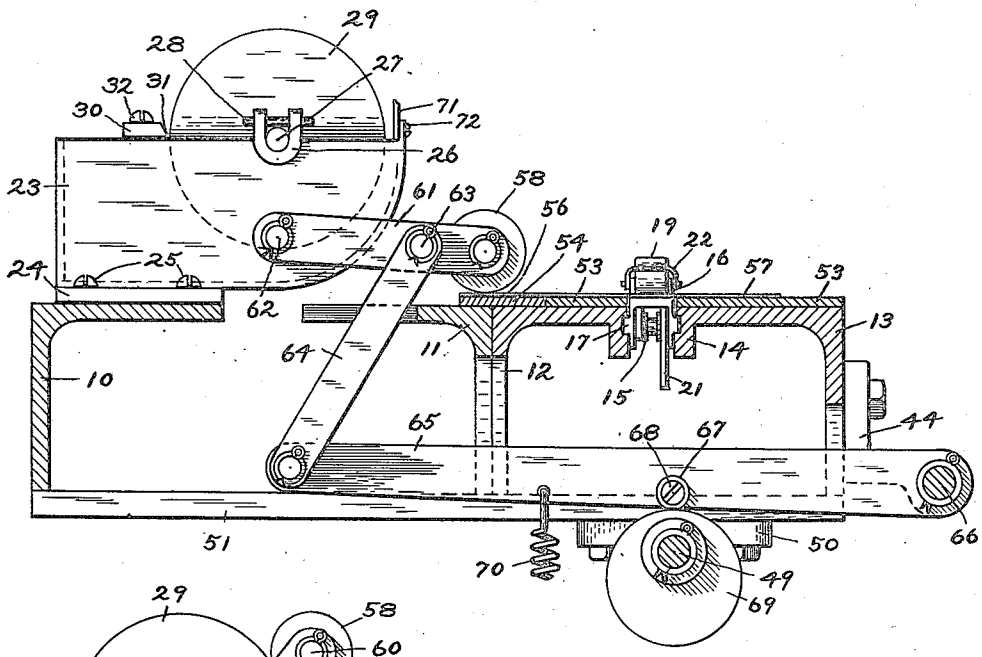


Fig 5

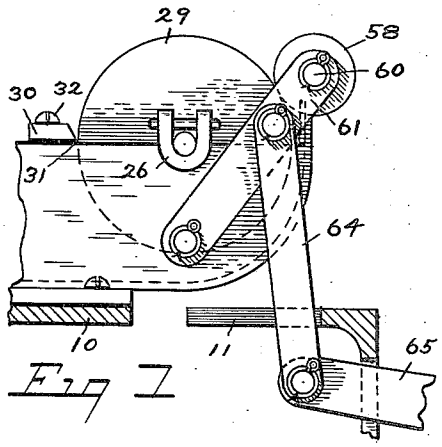


Fig 7

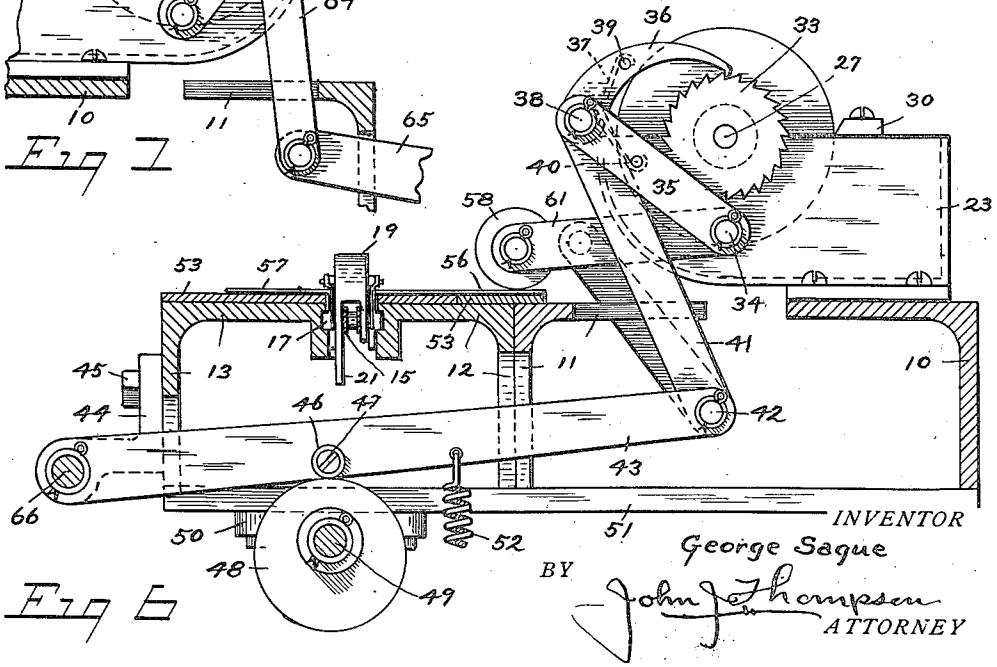


Fig 6

INVENTOR
George Sague
BY
John J. Thompson
ATTORNEY

Patented Nov. 1, 1932 1,886,231

UNITED STATES PATENT OFFICE

GEORGE SAGUE, OF OAKES, NEW YORK, ASSIGNOR TO GEORGE SAGUE MFG. CORP., A CORPORATION OF NEW YORK

COATING DEVICE

Application filed October 24, 1927. Serial No. 228,381.

This invention relates to a coating device for use in combination with other machines, for the purpose of applying gum or other liquid to the flap of an envelope or other article, or the device may be employed to moisten with water the gummed flap of a usual stock envelope.

As shown in the drawings, the device is illustrated as in combination with an inserting and gathering or mailing machine.

In the distribution of large quantities of circulars or other second class matter, an envelope is often employed which has one open end, with or without a tucked-in flap, and in inserting the contents therein, it has been found to advantage to insert the matter from the side of the envelope in the usual manner, and after said contents have been so inserted, to seal one of the side flaps which has been left open for that purpose.

Also in handling the envelopes and to reduce cost it has been found advantageous to leave the flap which is to be sealed, without adhesive, and to apply said adhesive after the envelope is filled.

While there are machines for filling or placing inserts or the matter to be mailed into the envelopes and moistening the gum on the flap and sealing the same, there is no machine that contains means for applying gum or adhesive to the blank flaps of a filled enevlope during its travel through the machine, and this is the subject of the present invention.

This same device may also be employed in gumming wrappers, such as are used for newspapers, magazines, etc.; and the device can also be used to apply the gum in the manufacture of envelopes, wrappers, and in the gumming of fabric as used in making books; also for applying covers to magazines, and in fact where ever it is desired to apply gum or other liquid in the manner shown.

In applying gum or adhesive to the flaps of envelopes the usual method employed has been to either pass the flap over a water wheel, or adhesive wheel carrying the liquid, or to rotate the wheel over the flap, and to have a part of the wheel submerged in a tank containing the liquid, which in some cases is cold and in others is heated, but by this method the amount of adhesive applied can not be regulated and in many cases the flap and envelope become smeared with gum and the envelopes will stick together, the machine becomes sticky, and in the case of hot gum, the machine will become clogged up after standing idle, and will require cleaning.

One of the objects of the invention, is to provide a gumming device that may be used with the usual type of inserting and mailing machine in which the envelopes travel through the machine during the cycle of opening, filling, closing, etc.

Another object being to provide means whereby a small but sufficient film of gum is applied to the flap without flooding, or smearing other parts of the envelope, or machine.

A further object being to provide means whereby the quantity of gum or adhesive carried by the transfer or applying roller is regulated and a fresh surface always presented to the flap of the envelope or other article.

One of the most important objects of the invention is to provide a device of this kind, so constructed that when a "miss" occurs, that is when an envelope or other article to be gummed misses and there is no surface to receive the gum, there will not be any contact between the gumming roller and the support or other part of the machine, so that the machine can not become gummed up, as is the case in all other gumming devices, where the article to be gummed misses and is not in place the gum is deposited on the machine and the next article will stick to it.

While as before stated the device may be with few changes adapted to any machine for gumming or moistening the flaps of envelopes or wrappers, I have herewith shown and described the device as applied to the form of inserting and mailing machine which forms the subject of an application for U. S. patent, filed by me on July 29, 1927, Serial No. 209,273.

With these and other objects in view, my invention consists in certain construction and combination of parts as will hereinafter be fully described and claimed and illustrated

in the accompanying drawings in which like figures of reference refer to corresponding parts in all of the views, but it is understood that I do not confine myself to the exact design as shown as slight changes may be made without departing from the spirit of the invention.

In the drawings:—

Figure 1 is a top plan view of such a machine as shown in the above referred to application and shows the gumming or coating device as applied thereto.

Figure 2 is a front elevation of the same.

Figure 3 is an enlarged detail view of a part of the transfer or liquid applying roller, and a section of the article supporting rack.

Figure 4 is a transverse section of the same.

Figure 5 is a cross sectional view of the machine showing the method of operating the transfer roller.

Figure 6 is a cross sectional view of the machine, taken from the opposite end to show the method of operating the stock roller.

Figure 7 is a partial view of Figure 5 showing the transfer roller in its contact position with the stock drum.

Referring to the drawings, I will in a general way describe sufficient of the construction and operation of the inserting and mailing machine forming the subject matter of the above referred to application, to illustrate the purpose and action of the gumming device, so that the same may be fully understood.

The inserting and mailing machine comprises two units, a gathering unit for collecting together the inserts or contents of the envelopes, and comprising in part a main frame composed of the two parallel members 10 and 11, provided with suitable supply stations and collecting means, not herewith shown as they in no way affect the present invention; and an inserting unit, comprising in part two parallel members 12 and 13 with suitable mechanism for inserting the collected matter into the envelopes, which is not shown herewith as it also does not affect the present invention in any way with the exception of the means employed for conveying the envelope through the machine, and which comprises in part, the track 14, (see Figures 5 and 6) which is secured to or is integral with the members 12 and 13, and the endless conveyor chain 15, provided at intervals with special gripper links 16, formed with the tongues 17, and which travel in the groove 18 of the track 14; said chain being operated in the usual way by sprockets (not shown) which are mounted at each end of the machine.

The grippers 16 are provided with a jaw member 19, pivoted in the body as at 20, with a depending arm 21, and a spring 22 for normally holding the jaw in a closed position; said jaw being opened at predetermined intervals to receive the end of the envelope, or to release the same, by the action of the arm 21 coming into contact with any suitable trip (not shown); it being sufficient for the description of the present invention, to state that the envelopes are conveyed through the machine and past the gumming device.

The gumming or coating device comprises, a stock tank 23, secured by the flanges 24 and the screws 25 to the members 10 and here intended to contain a cold adhesive, but which may be provided with any suitable heating device for use with hot glue.

The ends of said stock tank 23 are provided with the U-shaped bearings 26 within which is detachably mounted a shaft 27, by the locking pins 28; and upon said shaft 27 is secured the stock drum 29, which may be of aluminum or other suitable material, and which is partly submerged in the liquid, and is rotated continuously, or with an intermittent movement in the direction indicated, the excess liquid being removed therefrom by a scraper bar 30 having a beveled edge 31 in scraping contact with said drum 29, and secured to the tank by the screws 32, or mounted in some other suitable manner.

An intermittent and partial rotary movement is imparted to said drum 29 in the following manner, (see Figure 6).

To one end of the shaft 27 is secured a ratchet wheel 33, and pivoted on a stud 34 projecting from the end of the tank 23 is one end of an arm 35, the other end of which has pivoted thereto a pawl 36 for engagement with said ratchet 33, and retained in contact therewith by the action of the spring 37, which is mounted on the bearing pin 38 and has its ends engaged by the pins 39 and 40.

Pivoted on the same bearing pin 38 is one end of a link 41, the lower end of which is pivoted by the pin 42 to the outer end of an arm 43, the inner end of which is pivoted on the shaft 66 in the bearing 44, secured to the frame member 13 by the bolt 45.

Said arm 43 is provided with a roller 46 on a stud 47, and said roller 46 is in contact with and operated by a cam 48 which is secured on a drive shaft 49, which is mounted in the bearings 50 secured to the frame member 51 or other suitable part of the machine; the roller 46 being retained in contact with the cam by the action of a spring 52 secured to said arm 43 and to some suitable part of the machine, and it will be noted that the drum 29 is rotated by the action of said spring 52, and that the return or idle movement of the pawl 36 is effected by the cam 48, the purpose of this being, that in case the drum has stood idle in the adhesive and become stuck to the scraper bar 30, that no harm will be done by starting up the machine, the cam revolving without the roller following it, until the drum has been released.

It may here be noted that if desired the studs 47 and 68 on which are mounted the

rollers 46 and 67 may be secured to the arms in an adjustable manner so that the downward movement of the arms may be varied to give adjustment to the travel of the transfer roller 58.

On the upper side of the frame members 12 and 13 are secured plates 53, which form a part of the inserting machine unit, and on the same plane therewith is mounted an envelope flap supporting rack 54 which is formed with a series of spaced teeth 55, (see Figures 1 and 3) which are directly under the flap 56 of the envelope as it is conveyed through the machine.

For transferring the adhesive from the stock drum 29 to the flap 56 of the envelope 57 there is employed a transfer roller 58 which is broken up into a series of narrow faced contact surfaces by the grooves 59; said roller being preferably of rubber or other suitable material and being of approximately the length of the envelope flap, and mounted on a shaft 60, which shaft is freely rotatably mounted in the outer ends of a pair of arms 61, which have their other ends pivoted to the studs 34 and 62 projecting from the ends of the tank.

One of said arms 61 (see Figure 5) is provided with a stud 63, and pivoted thereon is one end of a link 64, the lower end of which is pivoted to the outer end of an arm 65; the rear end of said arm 65 being pivoted to the shaft 66 mounted in the bearings 44.

At suitable location on the arm 65 is mounted a roller 67 on the stud 68; and said roller 67 is in contact with and actuated by a cam 69 mounted on the shaft 49; and the roller 67 is held in contact with said cam 69 by the action of a spring 70, one end of which is secured to said arm 65 and the other end to some suitable part of the machine; and this spring acts in the same manner to exert the forward movement of the roller 58 to prevent accident if the roller is stuck to the stock drum.

It will thus be seen that by the action of the cam 69 on the roller 67, the arm 65 is raised, which will by the link 64 raise the arms 61 and bring the transfer roller 58 into contact with the stock drum 29 as shown in Figure 7, and in this position said roller 58 will be coated with adhesive or other liquid held by the tank, by the partial rotation of the drum 29, the large diameter of said drum and the small diameter of the roller, requiring only a partial revolution of said drum to fully cover the surfaces of the roller.

To prevent the formation of any film of liquid across the grooves of the transfer roller, there is attached to the front of the tank 23 a stripper plate 71 by the screws 72, and said stripper plate 71 is formed with a series of teeth 73 which enter the grooves 59 of the transfer roller 58 and as the transfer roller has been given a rotary movement by the stock drum 29, it will make a complete revolution while passing said teeth 73 and the excess liquid will be scraped back into the tank 23.

Now by suitable timing of the main machine, as the transfer roller 58 is lowered its surfaces will come into contact with the flap 56 of the envelope 57 which has been brought into position in registry with said roller 58, and the action of the spring 70 will press said roller 58 onto the flap and the flap slightly between the fingers 55 of the plate 54, thus not only insuring a perfect contact between the transfer roller 58 and the flap 56, but presenting a greater surface of the roller 58 to the flap 56.

By the proper timing of the mechanism, the contact of said transfer roller 58 with the flap 56 is brief, and it will be seen that the envelope 57 only has to travel a distance equal to the length of one groove 59 and one liquid applying surface 58 of the roller, to fully cover the length of the flap 56 with the liquid, and the transfer roller 58 does not have to be in contact with the flap 56 during the total time in which it takes the envelope to pass the coating device, thus allowing plenty of time for the transfer roller 58 to be raised and again coated with liquid before the next envelope reaches the coating device.

As here shown the width of the band of liquid applied is of the proper width for the flap of the envelope, but this width may be varied for other purposes, first by having a transfer roller of larger diameter, thus bringing a greater surface into contact with the flap, and second by forming the supporting comb or grid with a concave surface to conform to the radius of the roller, and in this manner a wide contact surface can be obtained.

It will also be noted that when said transfer roller is in its liquid applying position, the coating surfaces register with and slightly enter into the grooves 59, and do not in any manner come into contact with any part of the machine, thus insuring that no liquid can be deposited on the machine if there is no article on the support to receive it, thus preventing the machine from becoming stuck up with gum, or other liquid.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

A liquid coating device for envelopes and the like, comprising in combination with means for conveying a succession of envelopes through the device with their flaps open, a liquid stock tank located adjacent the path of travel of the envelopes and a supply drum mounted in said tank and adapted to be rotated in a direction at right angles to the direction of travel of the envelopes, of a comb-shaped plate mounted below the envelope flap and adapted to support the same

while being coated, a transfer roller formed with a series of spaced grooves, means operated in timed relation to the movement of the envelope for bringing said transfer roller, first into contact with the supply drum and then into contact with the flap of the envelope for applying the coating thereto, and a stripper plate mounted on said tank in the path of travel of the transfer roller for the purpose of removing the excess coating liquid from the grooves thereof.

In testimony whereof I hereunto affix my signature.

GEORGE SAGUE.