H. LEVINE.

PATCH APPLYING MECHANISM.

APPLICATION FILED NOV. 19, 1917.

1,406,661. Patented Feb. 14, 1922.

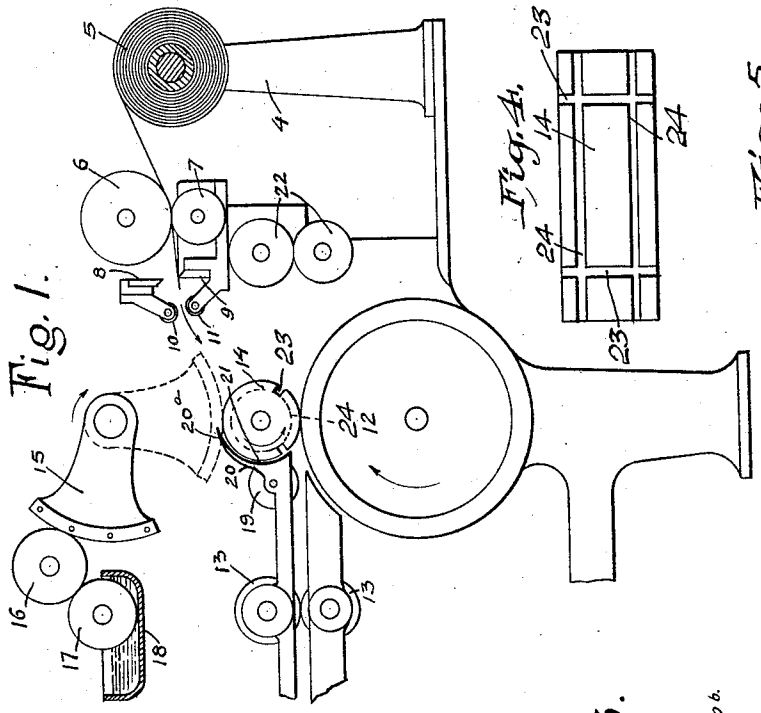


Fig. 1.

Fig. 4.



Fig. 5.

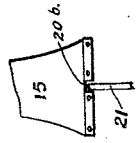


Fig. 3.

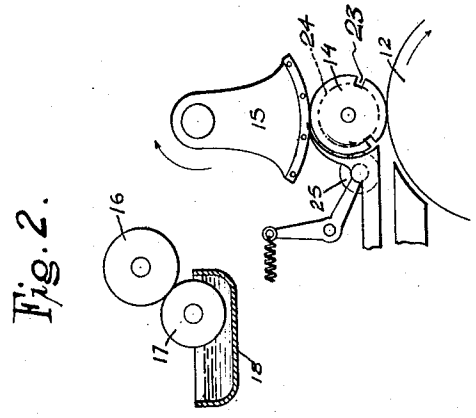


Fig. 2.

Inventor
HARRY LEVINE

Witnesses
[illegible]
[illegible]

By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

HARRY LEVINE, OF BROOKLYN, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO UNITED STATES ENVELOPE COMPANY, OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MAINE, AND ONE-HALF TO SAMUEL CUPPLES ENVELOPE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

PATCH-APPLYING MECHANISM.

1,406,661. Specification of Letters Patent. Patented Feb. 14, 1922.

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To all whom it may concern:

Be it known that I, HARRY LEVINE, a citizen of United States of America, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Patch-Applying Mechanism, of which the following is a specification.

My invention relates to envelope machines and more particularly to mechanism designed for use in connection with machines for making what are known in the art as "window envelopes" in which the window opening is closed by a transparent piece of paper.

An object of the invention is to provide operating mechanisms, one of which being in the nature of means for supporting a blank having a window opening therein and the other a gumming means for applying adhesive to the patch material, the former and the latter co-operating to successively cause; first, an effective gumming of the patch and, secondly, an immediate transfer of the gummed patch to the blank and a full and complete application of same thereto. In this manner, considerable waste of material is avoided in that the patches are always delivered to the blanks with their adhesive surfaces in a wet state whereby the patches are made to adhere to the blanks as the latter are fed through the machine. Where the gumming mechanism is remotely positioned relatively of the patch applying mechanism, the gum frequently has a tendency to dry out and when the patch catches up with the blank an imperfect application of the patch against the blank results or no fixed application at all takes place. My arrangement is also such that no separate timing of movements of the respective mechanisms need be resorted to in order that the patch can be properly applied over the opening of the blank. This doubly assures uniformity of operation of the machine at all times and a true alinement of the patch with the opening to be covered thereby. This intimacy of the respective mechanisms, aside from rendering the machine positive of action at all times greatly assists in reducing the size of the machine in that many mechanical elements heretofore provided in the art are wholly eliminated, with my improvement capable of performing all functions of said former elements, aside from the several advantages evolving from my improved arrangement.

Another object of the invention is to provide a gumming mechanism and a blank supporting means in which even in view of the described intimacy of parts the gum will not be applied to the blank in the event of failure of the patch gumming mechanism to work and effect successive deliveries of patches to the blank supporting means. This feature is also important in that should this gumming of the envelope be permitted through some faulty arrangement of parts, the blanks as they are delivered from the machine and stacked would adhere to one another.

Another object of the invention is to provide patch applying and gumming mechanism operating in conjunction with a blank support, and means for stripping the gummed patch from the gumming mechanism to insure passage thereof to the envelope blank as the latter passes onto said support.

I have shown in the drawings only those parts of an envelope machine which are necessary to a proper understanding of my invention by those skilled in the art.

Referring to the drawings:

Figure 1, is a diagrammatic section through a portion of an envelope machine illustrating the application of the invention thereto, the imprinting member being in contact with the gum transferring means in full line and with the envelope blank support in dotted lines.

Figure 2 is a view similar to Figure 1, showing a slightly modified form of the invention.

Figure 3 is a vertical section through the imprinting member and stripping device.

Figure 4 is a diagrammatic view showing a development of the surface of the patch applying platen.

Figure 5 is a diagrammatic view showing a development of the surface of the patch imprinting member.

It is to be understood that the improvements constituting my invention are to be supplemental to those instrumentalities which are commonly found in the make-up of envelope machines of the character described herein. For this reason only brief reference will be made to those features of

the well known machine which are desirable in connection with the improvements. For instance, it is found desirable to combine the mechanism with means for severing patches from a transparent strip in successive order with operations of a gumming mechanism to receive the cut patches and transfer the same to the blank supporting means. This severing mechanism comprises a support 4, for a reel of transparent paper 5, or the equivalent thereof, guide rolls 6 and 7, through which the paper passes as it is unwound from the reel and cutting knives 8 and 9, disposed in advance of the rolls 6 and 7, and adapted to be timed in any suitable well known manner whereby patches of pre-determined lengths can be cut from the strip as the machine operates continuously. This cutting mechanism is substantially of the kind described in my United States Patent No. 1,343,146, issued June 8, 1920 for an envelope machine, and is provided with impinging rolls 10 and 11, which serve to grip one end of the patch during the cutting operation, while the opposite end is at a point of introduction to a gumming mechanism which will be described presently.

The supporting means 12, for supporting a blank having a window opening therein is of cylindrical form and the same is associated with feed rolls 13—13, between which the blanks are adapted to be fed and transferred to said supporting means. These parts may be driven in any suitable well known manner and are also similar in construction to parts of the mechanism described in my above mentioned patent heretofore identified.

The gumming mechanism which is used conjointly with the hereinbefore described instrumentalities consists in the provision of a platen 14, arranged in rolling contact with the blank supporting means 12, and coacting therewith and with an imprinting member 15. The imprinting member is of segmental formation and is adapted to come into successive wiping engagement with a transferring roll 16, the latter contacting with an idle collecting roll 17, which is always partly emersed in an adhesive solution contained in a tray 18.

It will be observed from the foregoing that the gumming mechanism and the blank supporting and feeding means can each be driven at the same speed ratio which will positively assure an accurate application of the patch over the opening as the blanks are fed through the machine. In operation, it being understood that motion is set up in the rolls 6 and 7, the transparent paper is taken from the reel 5, and fed between the cutters 8 and 9, and then to a point above the platen 14, or in juxtaposition thereto where it will be acted upon by the imprinting member 15. Approximately simultaneously with the operation of cutting a patch from the transparent strip the imprinting member comes in contact with the platen 14, and gum which is taken up by the member 15, from the transferring roll 16, is taken onto the patch as will be observed from the relation of parts shown herein. An idle roll 19 is preferably arranged at a point adjacent to the platen 14, and the same is associated with patch guiding means 20, having an arcuate surface 21, which operates to guide the patch in the direction of the blank supporting cylinder. Immediately succeeding this operation the gummed patch is brought into rolling contact with a blank having a window opening therein as the same passes over the support 12. The arrangement is such that the patches will be uniformly applied over the openings in the blanks as the latter are successively fed over the support 12, hence the segmental formation of the imprinting member 15. From the blank support 12, and patch applying and gumming platen 14, the blanks with their applied patches are taken into a transferring mechanism 22, where they are stacked or otherwise treated in some well known manner.

In order that the blanks will not be subjected to the action of the gumming mechanism should the machine, for any reason, fail to deliver the patches, the surface of the platen 14 is provided with lateral grooves 23 and peripheral grooves 24. As best shown in Figs. 4 and 5, the grooves 23 and 24 are spaced apart and arranged to correspond to the gum applying projection 25 of the imprinting member 15. During the normal operation of the machine, the imprinting member 15 is adapted to apply gum to the patches as the latter are successively severed, but should the patch delivering devices fail to operate, the projection 25 will register with the grooves 24 and 25 of the platen so as to prevent the application of gum to the platen.

The patch guide 20, is provided with a stripping finger 20^a, which extends in the direction of rotation of the imprinting member 15. The gumming projection 25 of the imprinting member 15, is provided with longitudinal grooves 20^b at its center in which the finger 20^a, is adapted to extend as the former rotates to patch delivering position. In this manner the finger engages beneath the patch at the front end thereof and deflects the same between the platen 14, and the arcuate surface 21, and assures delivery of the gummed patches at all times.

In the modified form of the invention shown in Figure 2, I employ a spring pressed patch guiding roll 25, which bears against the platen so as to operatively guide the gummed patch between the platen and blank support.

From the foregoing it is apparent that I

have provided an improved mechanism for applying patches to envelope blanks, whereby the patches are adapted to be accurately applied to the blanks without the possibility of becoming diverted away from the line of feed. From a consideration of Figure 1 of the drawings, it will be seen that the patch material is likewise firmly held, first between the rolls 10 and 11 at the time of severance, then between the member 15 and the platen 14, and finally between the platen 14 and the roll 9. The operation of the various parts is so timed that each severed patch is projected between the member 15 and the platen 14 before being released by the rolls 10 and 11, so that the patch material is never free to curl away from the member 15, as might readily occur if the gum alone were depended upon to hold the patches on the member 15. Furthermore, the machine is so arranged that there is no possibility of the platen 14 becoming covered with gum should the patch feeding devices fail to operate properly.

What I claim is:—

1. In a machine of the class described, the combination with means for supporting a supply of patch material, a source of gum supply, a patch severing device and a rotating platen cooperating with a rotary blank supporting means, of a rotating member adapted to receive gum from said source and to apply it to a severed patch while conveying it from the severing device to said platen, the said patch being frictionally held between said gumming member and said platen.

2. In a machine of the class described, the combination with means for supporting a supply of patch material, a source of gum supply, a patch severing device and a rotating platen cooperating with a rotary blank supporting means, of a rotating member adapted to receive gum from said source and to apply it to a severed patch while conveying it from the severing device to said platen, upon which said patch is held by said rotating gumming member.

3. In a machine of the class described, the combination with means for supporting a supply of patch material, a source of gum supply, a patch severing device and a rotating platen cooperating with a rotary blank supporting means, of a rotating member adapted to receive gum from said source and to apply it to a severed patch while conveying it from the severing device to said platen, from which it is conveyed to said blank supporting means by the combined rotation of said member and said platen, the said patch being held in engagement with said platen by said gumming member.

4. In a machine of the class described, the combination with means for supporting a supply of patch material, a source of gum supply, a patch severing device, comprising cooperating rolls for holding the material during the severance of a patch and a rotating platen cooperating with rotary blank supporting means, of rotating member adapted to receive gum from said source and to apply it to said patch material while conveying it from said holding rolls to said platen.

5. In a machine of the class described, the combination with means for supporting a supply of patch material, a source of gum supply, a patch severing device, comprising cooperating rolls for holding the material during the severance of a patch and a rotating platen cooperating with rotary blank supporting means, of a rotating member adapted to receive gum from said source and to apply it to said patch material while conveying it from said holding rolls to said platen, the said patch being frictionally held between said member and said platen.

6. In a machine of the class described in combination with, a source of gum supply and a rotating platen cooperating with a rotary blank supporting member, of a rotating gumming and patch delivering member adapted by its rotation to maintain a patch in frictional engagement with said platen.

7. In a machine of the class described, the combination with a source of gum supply, a rotating member provided with gumming surfaces and a rotary blank supporting member, of a rotating platen disposed between said members and cooperating therewith, the respective paths of movement of said members being tangential to the periphery of said platen at diametrically opposite points.

8. In a machine of the class described, a rotating patch conveying member provided with a gumming projection and a rotating platen cooperating with rotary blank supporting means and said member, said platen being provided with grooves adapted to register with said projection.

9. In a machine of the class described, a rotating patching conveying member, a rotary blank supporting member and a rotary platen cooperating with both of said members to frictionally hold a patch therebetween, the said patch conveying member and the said platen being provided with corresponding projecting and recessed portions.

In testimony whereof I affix my signature.

HARRY LEVINE.