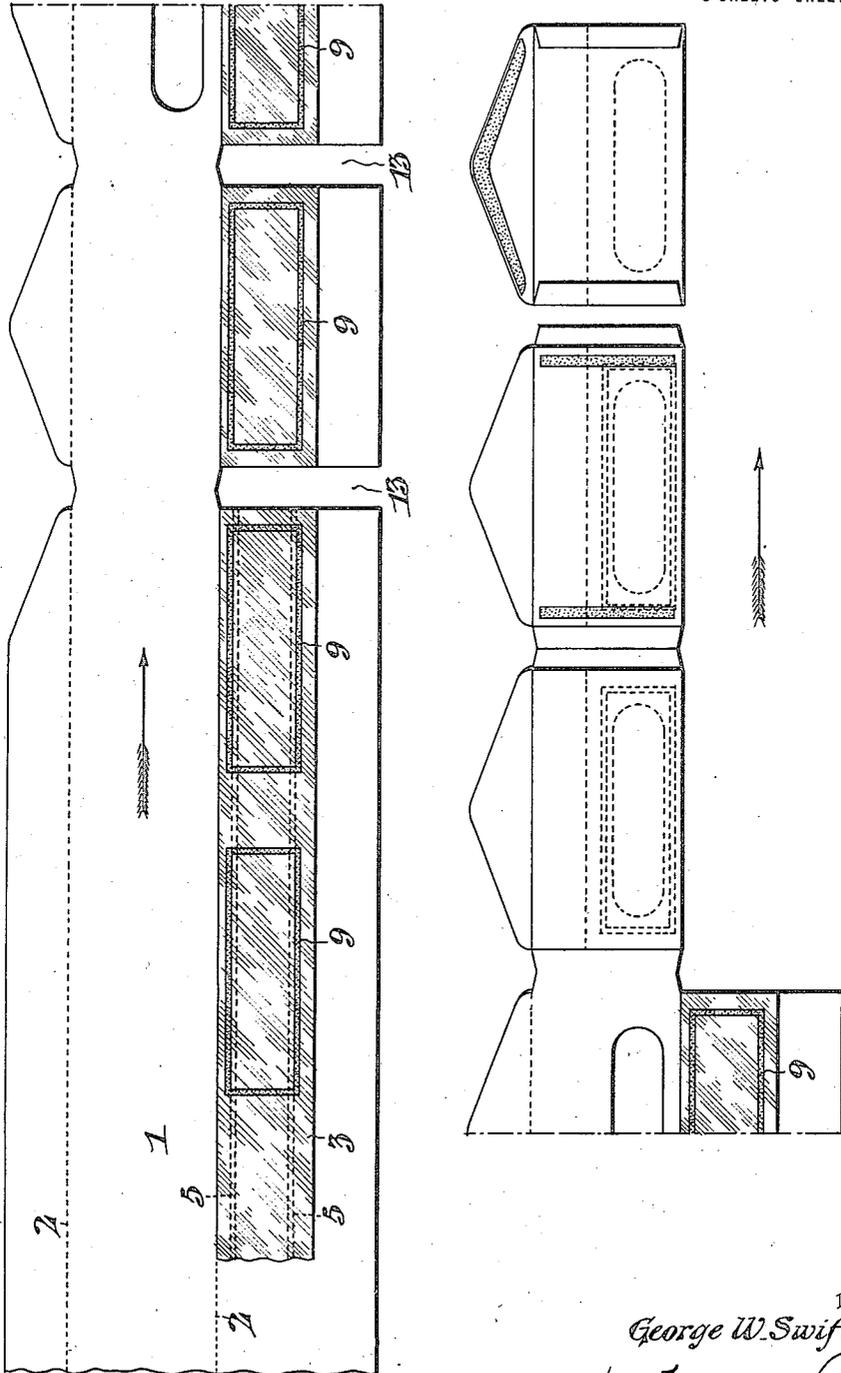


G. W. SWIFT, JR.
 METHOD OF MANUFACTURING WINDOW ENVELOPS.
 APPLICATION FILED OCT. 19, 1917.

1,276,990.

Patented Aug. 27, 1918.
 3 SHEETS—SHEET 1.

FIG. 1.



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FIG. III.

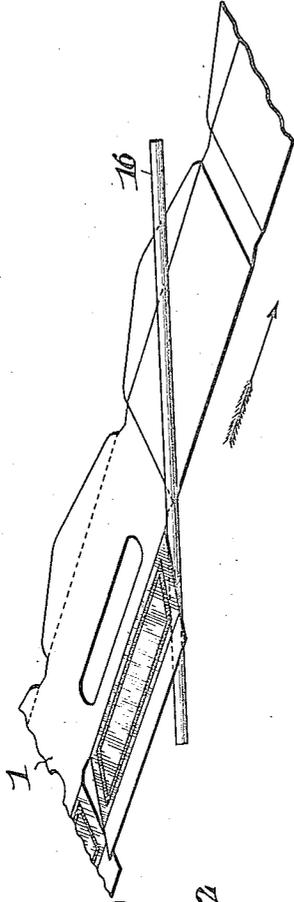
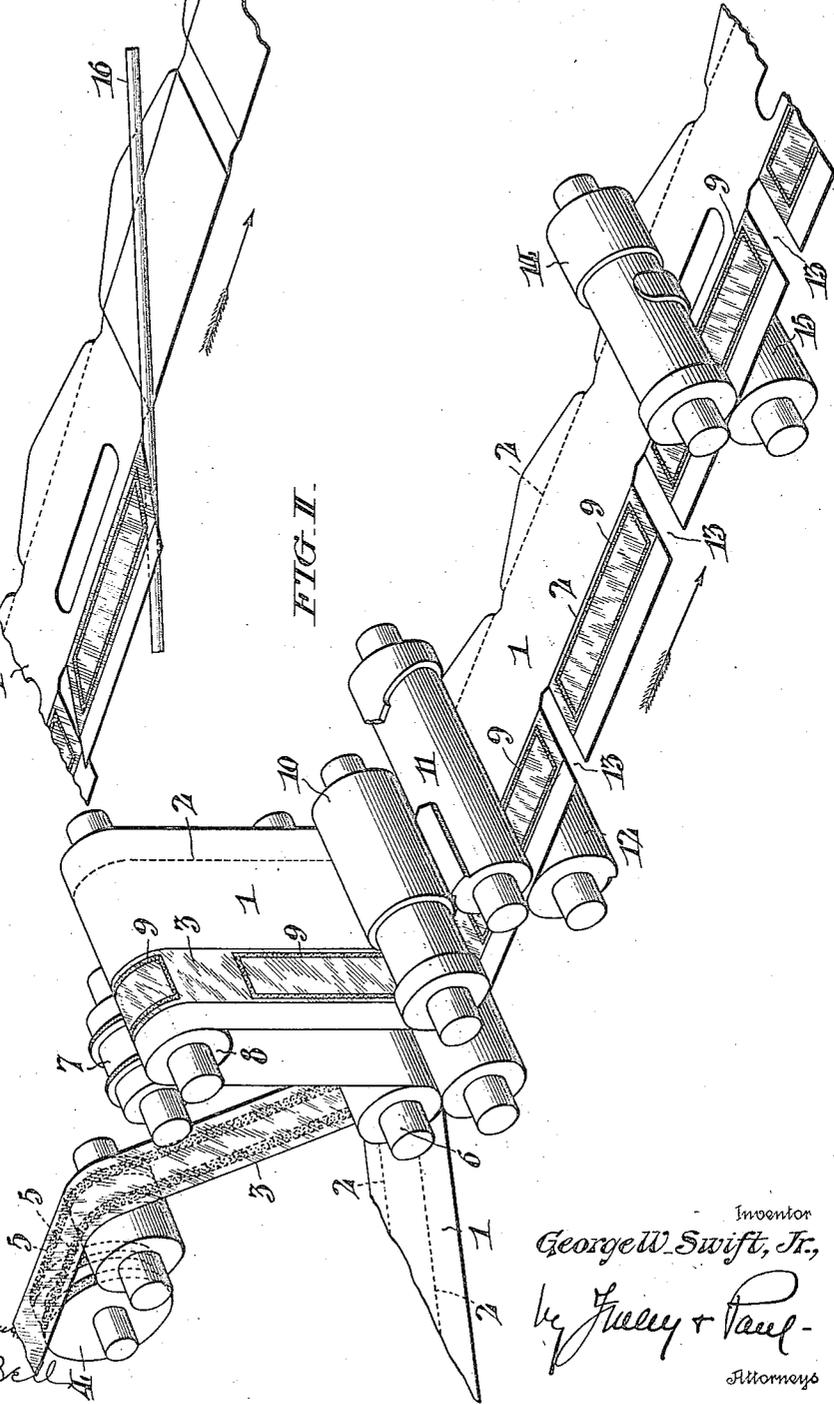


FIG. II.



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METHOD OF MANUFACTURING WINDOW-ENVELOPS.

1,276,990.

Specification of Letters Patent. Patented Aug. 27, 1918.

Application filed October 19, 1917. Serial No. 197,384.

To all whom it may concern:

Be it known that I, GEORGE W. SWIFT, Jr., a citizen of the United States, and a resident of Bordentown, in the county of Burlington and State of New Jersey, have invented certain new and useful Improvements in Methods of Manufacturing Window-Envelops, whereof the following is a specification, reference being had to the accompanying drawings.

Ordinarily in the manufacture of window envelopes, window patches are brought in regular succession into proper juxtaposition with either a running envelop web or blanks which have been cut therefrom, and necessarily the envelop material has been perforated for the formation of the window prior to the application of the patch.

In order to avoid the successive application of individual window patches, it has also been proposed to run the window material into juxtaposition with the envelop material while both are continuous webs, the window material falling in position to cover a continuous line of windows which have been previously cut in the envelop web. According to this plan, the envelop blanks are cut endwise from the web and the continuity of the window material results in a corresponding length of that material being cut off with each blank and folded under its end flaps. There are objections to this method of operation. The interlocking of the window web in the folding of the end flap puts the completed envelop under a strain which frequently causes it to wrinkle. Also, the completed envelop is unduly thickened where the window material is interfolded with the flaps.

To avoid these difficulties according to my present method, I combine a continuous envelop web with a continuous window web in such a way that the latter is brought in contact with the former, along a line not coincident with the line of window apertures (which, according to my preferred method have not yet been cut in the envelop web), but preferably along a line coincident with the backs which are about to be formed by cutting of the envelop web. The window web is caused to adhere in this position to the envelop web by a temporary adhesive. The envelop blanks are then cut from the two adhering webs, and in the folding thereof of the window material which has heretofore been in temporary adhesion to the back

of each envelop, is brought into proper juxtaposition with the front where a window has been cut therein, and is caused to adhere thereto by permanent adhesive in its ultimate and proper position. I thus obtain window envelopes continuously cut and formed from a web of envelop material, and a web of window material running at equal speeds and at the same time avoid any interfolding of the window material between the flaps of the envelop.

In the accompanying drawings, I have illustrated my invention for the most part in a series of perspective diagrams.

Figure I, is a diagrammatic plan view showing continuous webs of envelop and window material in process of envelop formation according to my present method.

Fig. II, is a diagrammatic perspective view showing in addition to the progressing web, the various gumming and cutting rollers by which the successive steps are practised.

Fig. III, is a similar view illustrating in succession to Fig. II, the method of turning over the back of the envelop.

Fig. IV, is a similar view illustrating in succession to Fig. III, the application of the gum for the end flaps and the cutting and turning over of the same.

It will be understood that Figs. II, III, and IV, are to be viewed as though they were successive parts of one drawing, since they continuously represent successive stages of my process.

Figs. V, and VI, are cross sectional views illustrating the means employed for folding the side flaps.

Referring now to Figs. I, and II, a continuous envelop web 1, has been previously creased along the lines 2, 2, for formation of the top and bottom creases of the envelop, the web, however, notwithstanding these creases remaining flat and unfolded.

This continuous running envelop web 1, is met by a narrow web 3, of window material running at the same rate of speed. To this window material there has been applied by the roller 4, one or more lines of temporary adhesives 5, 5, so that as these two webs simultaneously pass under the roller 6, they are caused to temporarily adhere together. It will be noticed that the window web is not applied along a line coincident with that part of the envelop web which is to be its ultimate position, but, on the contrary, is

applied just below the lower crease which has been imparted to the envelop material, and therefore along a line coincident with that part of the envelop material which is to be formed into a succession of backs.

As the two webs advance simultaneously they pass between the rollers 7, and 8, by the former of which there is imprinted upon the window web the permanent gum which is to effect the ultimate adhesion of each length of window material in its proper position. This imprint preferably takes the form of successive rectangles 9, 9. After passing under guide roller 10, the two webs pass between rollers 11, and 12, whereby the sealing flap and the back of each envelop blank are formed by a shearing operation. The formation of the sealing flaps along the upper side of the web is as ordinarily practised in the art. The backs are formed by the cutting of successive notches 13, into the lower side of the webs. These notches run to the lowermost crease 2, completely subdividing the window web into suitable lengths, at the same time cutting away so much of the window material as is represented by the width of the notch, which is twice the width of the end flaps, whereby it is insured that the length of each separate piece of window material will not exceed that of the completed envelop.

The web next passes between rollers 14, and 15, by which successive window apertures are cut in the envelop web, one corresponding to each of the envelop blanks, which are about to be cut therefrom. The web next passes beneath a diagonally placed folding rod 16, (see Fig. III), by which each successive back is folded over into place and caused to be pressed against what is to form the front of the envelop as both parts pass under the rod. By this operation each length of window material is brought into proper juxtaposition with the window aperture which it is to cover and the permanent gum causes its immediate permanent adhesion in its proper and ultimate place.

The web next passes beneath rollers 17, and 18, (see Fig. IV), by the former of which strips of gum are imprinted along the edges of the backs. The web then passes between rollers 19, and 20, provided with blades by which severance of the individual envelop blanks takes place, the line of severance being a projection of the median line of each notch 13, thus producing the end flaps. The blanks thus formed next pass between rollers 21, and 22, which are partially shown in section in Fig. V. The roller 22, carries the projecting folder 23, which folds down the following end flap of the advancing envelop blank. The blanks next pass between the rollers 24, and 25, which are partially shown in section in Fig. VI, the roller 25, carrying a projecting

folder 26, by which the advancing end flap of the blank is folded down. The completed envelop is then passed between the rollers 27, and 28, by the former of which the gum is imprinted upon the sealing flap, this being the final operation of the envelop manufacture.

According to my invention the window material is not permanently gummed to the envelop material when they initially come into juxtaposition by reason of the fact that this juxtaposition does not bring the material to its ultimate position. Accordingly it is caused to temporarily adhere preferably by temporary adhesive. Thereafter there is supplied a permanent adhesive to unite the window material and the envelop web in their proper and ultimate positions which result from the folding of the envelop. When the envelop is opened for use, it will be found that the temporary adhesive, having ceased to perform any useful function, has given way leaving the entire envelop in proper condition for use.

Having thus described my invention, I claim:

1. The process of making window envelops which consists in feeding together webs of envelop material and window material, the latter being applied to the former along a line not coincident with that of the window apertures; and cutting and folding the material in such a way that the window material is thereby caused to assume its ultimate and proper relation to the window aperture of each envelop.

2. The process of making window envelops, which consists in feeding at similar speeds webs of envelop material and window material, causing them to adhere temporarily in such alinement that when the blanks are cut and folded, a suitable length of window material is placed in its proper and ultimate juxtaposition with the aperture of each envelop, and adheres permanently thereto.

3. The process of window envelop formation, which consists in simultaneously passing an envelop web and a narrower window web running at equal speeds between cutting dies, whereby the envelop web is notched along one edge thereof, while the window material is cut into suitable lengths by the same cutting operation which produces the notches; and folding the parts of the envelop web which lie between successive notches together with suitable lengths of window material into contact with that part of the envelop web which is apertured but not notched.

4. The process of window envelop formation, which consists in simultaneously passing an envelop web and a narrower window web running at equal speeds between cutting dies, whereby the envelop web is partially

severed by the cutting of successive notches
along one side thereof, while the window
material is completely separated and formed
into suitable lengths by the same cutting
5 operation which produces these notches;
folding the backs which are produced be-
tween successive notches together with suit-
able lengths of window material into contact
with that part of the web having apertures
10 therein which forms the envelop front; and
completing the envelop formation by sever-
ing the blanks along lines coincident with
the median line of each of the notches.

5. The process of window envelop forma-
15 tion, which consists in forming successive
apertures in a running envelop web; apply-
ing a window web running at similar speed

alongside the line of said apertures; cutting
the flaps in relation to each aperture re-
quired for envelop formation, and simul- 20
taneously subdividing and cutting away
enough of the window material to prevent
the length of each piece of such material
from exceeding the length of a completed
envelop; and folding the flaps in such way 25
that a piece of window material is brought
up against the aperture of each envelop.

In testimony whereof I have hereunto
signed my name at Philadelphia, Pennsyl-
vania, this fifteenth day of October, 1917. 30

GEORGE W. SWIFT, JR.

Witnesses:

JAMES H. BELL,
E. L. FULLERTON.