SERIES-CONNECTED ENVELOPES AND METHOD OF MANUFACTURING

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1. Claim. (Cl. 229—69)

The invention relates to improvements in series-connected envelopes and is more particularly concerned with the steps of the novel method utilized in fabricating a strip of newly constructed series-connected envelopes from roll stock.

One feature of present types of automatic business machines, such as typewriters, addressographs, tabulating machines, and like apparatus, requires the use of sheet material in continuous strip form so as to avoid the need for insertion into the machine of individual sheets. One strip of series-connected envelopes is required to facilitate automatic feeding of the envelope strip through a machine.

The present invention involves the production of series-connected envelopes from strip stock and it is one of the objects of the invention to accomplish this result.

Series-connected envelopes of the character having a tucking flap and made in accordance with prior practices are of such construction that the sealing flap has a length corresponding to the outside width of the envelope. Consequently, the sealing flap cannot be tucked into the envelope, should it be desired to do so.

The present method renders it possible to provide series-connected envelopes with tuck-in flaps. This is accomplished by die-cutting an area of the envelope strip assembly. The die-cut area is, however, left in the strip assembly until after the strip assembly has passed through the printing machine because removal of these areas prior to feeding of the strip through the printing machine or the like would present edges which will catch on the machine mechanism and impair its operation. It is, therefore, another object of the invention to produce series-connected envelopes with tuck-in flaps.

One known method of producing a conventional type of series-connected envelopes requires the application of an adhesive on the flap portion while the strip material is being fed through the envelope forming machine. The instant series-connected envelopes are produced by a method which involves the application of the flap adhesive to one of the strips of material prior to its being rolled preparatory to being fed into the envelope forming apparatus.
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of material 11 and 14 are superposed one upon the other with one longitudinal edge of one of the strips in substantial marginal register with the edge of the other strip. The superposed strips are fed continuously through envelope forming apparatus and, inasmuch as such apparatus constitutes no part of the present invention, it is not illustrated with the exception of the heating shoes constituting a part thereof and which will be described presently. As the strips of material advance into the envelope forming apparatus any printing which may be desired to impress upon either die of both of the strips 11 or 14 is imprinted at, for example, the position illustrated at 15 in Fig. 1.

As both strips continue to advance in unison through the envelope forming machine, they are intermittently engaged on opposite faces thereof with heat sealing shoes 16. Although opposed heat sealing shoes are illustrated, it is quite obvious that, in some apparatus, only one heat sealing shoe may be provided to operate in conjunction with an anvil arranged on the opposite side of the assembled strips passing through the machine. As shown, the pressing shoe or shoes 16 preferably is substantially L-shaped with its wide base 16' coincident with and parallel to the registering longitudinal margin of the strips 11 and 14. The other portion 16" of the shoe extends through the superposed strips and terminates in substantial alignment with the free edge 17 of the narrower of the two strips 11 and 14. The function and operation of the heat sealing shoe is well understood consequently, it is not believed that detailed discussion of its function need be entered into. In this connection, it is thought sufficient to note that when the heat sealing shoes 16, or when a heat sealing shoe and an anvil, are moved toward each other so as to press the intervening area of the superposed strips 11 and 14 tightly together, the thermoplastic sheet is caused to adhere, in the area of the pressing shoe, to the uncoated sheet 11. Successive operations of the heating shoe and progression of the two strips through the envelope forming apparatus results in the formation of a series of clearly definable pockets each separated by a joined transverse area 18 of substantial width and a joined area 19 at the registering margins of said sheets. In other words, there is provided a series of envelopes securely sealed on their respective edges.

As the joined sheets 11 and 14 continue to advance through the envelope forming apparatus, a transverse row of perforations or weakened lines 21 is provided medially of each wide transverse joined area 18. This row of perforations extends across the entire width of the assembled strips. At the time of running the row of perforations 21, or subsequent thereto, the margin of the wide sheet 11, which remains exposed because of the width of the underlying sheet 14, is suitably die-cut in the manner illustrated at 22. This die-cutting is performed along a substantially U-shaped configuration and its apex is in substantial register with the free edge 17 of the narrower strip 14. The side portions or legs 23 of the die-cut are spaced one on each side of the related row of transverse perforations a sufficient distance to align with or be spaced inwardly from the edges of the joined transverse area 18 coincident with the line of perforations 21. Preferably the die-cutting is not continuous throughout its length but instead a small bridge or bridges is retained in the region of its apex to tie the die-cut portion to the body of the sheet 14. This die-cutting is perhaps best illustrated in Fig. 2, where it will be observed that the outline thereof is such that the area of the exposed marginal portion of the strip 11, or the legs 23 of adjacent die-cuts, constitute a flap 24 having a length less than the width of the interior of the pocket or envelope 25.

The portion defined by the substantially U-shaped die-cut is not removed from the strip of series-connected envelopes at any time while the strip assembly is moving through the forming or through the printing apparatus. Again referring to Fig. 1, it will be observed that the next step in the manufacture of the series-connected envelopes is to provide a row of longitudinally spaced punchings 26 on the marginally joined edges and also to provide a series of longitudinally spaced punched openings 27 adjacent the free edge of the exposed marginal area of the strip 11. The punchings 26 and 27 constitute feed means to cooperate with pinned feed rollers on the printing or addressing machine in which the series-connected envelopes are to be used.

Following the performance of the punchings 26 and 27, a row of perforations 28 is performed adjacent to each edge of the strip assembly just inwardly of the punchings 26 and 27. These longitudinal rows of perforations constitute means to define marginal feed bands containing the punchings 26 and 27 which bands are readily removable when it is desired to separate the envelopes from the strip.

Owing to known irregularities in the width of a long strip of sheet material, it is necessary to trim the edges of the assembled series-connected envelope strip so that the finished product will be of uniform width and will feed into the printing or writing apparatus without impairing its utility. Universally of the strip, the edges, indicated at 29 and 31, of the strip of series-connected envelopes are sheared or otherwise removed from the assembled strip. As a consequence, the assembled strip has a uniform width throughout its entire length. Following the perforating or trimming operation, the wider strip 11 may be scored, as at 32, in substantial register with the free edge 17 of the strip 14 and the assembled strip of series-connected envelopes may then be folded along the transverse lines of perforations into the fan-fold illustrated generally at 33.

The fan-folded strip of series-connected envelopes is now in condition to be fed into any writing or printing apparatus and it can be fed through such apparatus at a uniform rate of speed owing to the presence of the longitudinal spaced punchings or holes 26 and 27 provided therein. It is important to note that retention of the die-cut areas within the assembled strip while said strip is being fed through a writing or printing apparatus insures trouble free feeding and prevents impairment of the operation of the writing or printing apparatus. This is because, were the die-cut areas removed prior to feeding the strip through the writing or printing apparatus, the then free side edges of the flaps 24 of each envelope would constitute a serious hazard to the feeding operation. It is only after the biasing line has been imparted or otherwise provided with the required data on either or both faces thereof and have passed out of the apparatus that the feed bands containing the punchings 26 and 27 are separated from the strip of series-connected envelopes (Fig. 2) and die-cut areas are removed and the envelopes bursted one from the other along the weakened transverse lines of rows of perforations 21.

Still referring to Fig. 2, it will be observed that the flap 24 of the separated envelope has a length substantially less than the inside dimension of the envelope. As a consequence, said flap may be tucked into the envelope or it may be adhesively secured over the outside face of the side opposite to the side bearing the flap 24.

It is believed that my invention, the method of construction and assembly, and many of the advantages of such method should be readily understood from the foregoing without further description, and it should also be manifest that while a preferred embodiment of a strip of series-connected envelopes has been shown and described for illustrative purposes, the structural details are, nevertheless, capable of variation within the purview of my invention as defined in the appended claim.

What I claim and desire to secure by Letters Patent of the United States is:
A continuous strip assembly of series-connected envelopes for use in a writing machine comprising, a pair of superposed strips of material longitudinally united one with the other along one margin of the assembly and further united one to the other on transverse longitudinally spaced narrow bands to form a succession of envelope pockets, one of said strips being narrower than the other to leave the margin of the wider strip exposed, said strip assembly having a longitudinal transverse line of weakening disposed medially of each narrow band, and detachable longitudinal marginal feed tracks on each edge of the assembly, the feed track adjacent the exposed margin having inward projecting portions detachable from the strip assembly with the adjacent feed track to define tuck-in flaps between adjacent pairs of said projecting portions, each projecting portion being bounded in said exposed margin by a generally U-shaped line of weakening disposed generally in transverse alinement with each of said longitudinally spaced narrow bands.

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