July 7, 1942. W. H. HATTON 2,289,118

ENVELOPE MANUFACTURE

Filed Jan. 11, 1939

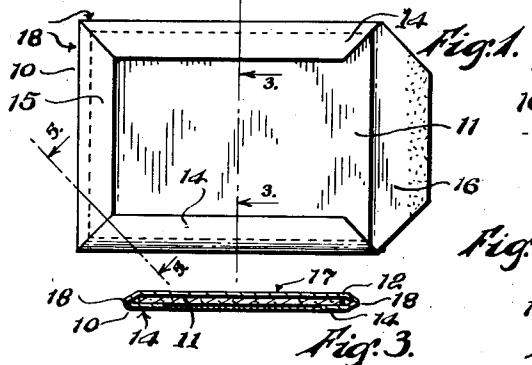


Fig. 1.

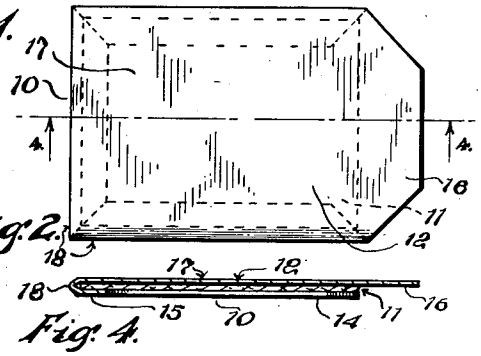


Fig. 2.

Fig. 3.

Fig. 4.

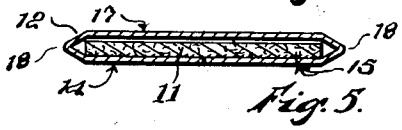


Fig. 5.

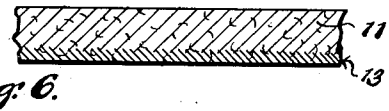


Fig. 6.

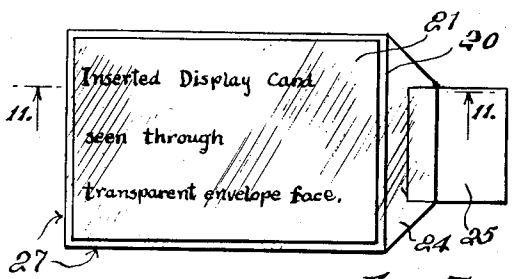


Fig. 7.

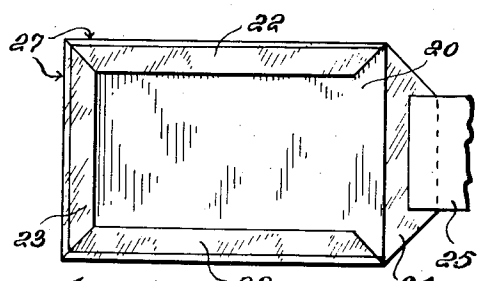


Fig. 8.

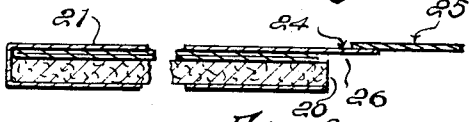


Fig. 9.

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2,289,118

ENVELOPE MANUFACTURE

William Henry Hatton, Gardner, Mass.

Application January 11, 1939, Serial No. 250,423

1 Claim. (Cl. 229—68)

This invention relates to envelope manufacture, and particularly to printed envelopes, and envelopes for printing, and has for an object to present a novel structure of envelope adapted for printing without requiring the difficult make-ready heretofore essential in printing envelopes. This applies to the printing of the usual sender's address in one corner of the front face especially, but also applies to the printing of matter on the face of the envelope generally, as for return envelopes, and especially advertising matter or other notations of large area.

It has been found difficult heretofore to print a half tone on the face of an envelope satisfactorily, even with careful make-ready, and my invention enables the production of good half tone work on an envelope face even without make-ready. It is similarly advantageous with other photographic reproduction printing methods.

As is well understood, the principal item of cost in envelope printing is the labor and time involved in make-ready, and in small jobs, particularly has been an unavoidably substantial proportion of the total cost of the job. Thus, on a small job of 500 envelopes it will amount to one-half or more of the cost if a cheap envelope is employed, while with more expensive envelopes it will be seldom less than one-third or more of the cost. This proportion of cost will of course be decreased where longer runs are involved, but remains a substantial expense, since it not only involves the labor of a competent printer but entails unproductive idleness of expensive equipment, and limits the production of the plant with consequent effect on return for capital invested unless carefully included in estimating and covered by the charge made to the customer. The last named aspect or detail of expense is not ordinarily set forth on cost sheets specifically, but may be covered under "overhead." It is, however, a difficult item to definitely estimate, although it is generally believed to be covered by a charge for time of make-ready equal to the standard charge for the number of impressions which could be run by the idle press in the time consumed, plus the charge for labor of the expert printer-pressman. It will be appreciated, therefore, that elimination of make-ready in envelope printing represents an important advance much desired by job printers especially, because of the difficulty of covering the cost safely by a preliminary estimate, and because losses often result on this item.

Uncertainty in reliability of estimate of make-ready cost results from the fact that envelopes lack uniformity and the make-ready suitable for one batch may not serve for another, so that a change of make-ready may be required midway of a job, virtually doubling the make-ready cost. These variations from uniformity may occur by different quality of adhesive securing the flaps, difference in extent of lap of flaps and difference in quality and thickness of paper.

It is an advantage of my invention that none of the last named factors materially affect the quality of printing on my envelopes.

The difficulty and expense of make-ready has made it a practice heretofore for buyers of large orders to secure their material from envelope manufacturers who print their work on the envelope blanks or paper before the envelopes are made up, whereby make-ready expense is eliminated in ordinary cases. This places at a disadvantage local printers and buyers distant from the large plants, and also places a handicap on persons who require immediate completion of orders. This condition is remedied by my invention, which makes it practicable and economical to have a job printer fill large orders by printing on made up envelopes without make-ready.

At the same time my invention attains a benefit in making available stiffened envelopes, such as are suitable for mailing photographs, and other delicate articles with protection against crushing or bending, although I am aware that envelopes with a stiff wall have been made, as in the patent to Rowland, No. 117,813, issued August 8, 1871.

It is a further aim of my invention to evolve a special quality in the envelope contributing to its usefulness in obviating requirement for make-ready and also irregularities in quality of printing in the same continuous run of a job on the press due to irregularities in quality of glue and overlap. Lumps in glue have ruined printing plates in many jobs, in addition to small lumps making the printing spotty, as well as raising the flaps so as to make unequal tones or lines in solids of the print defined by the flaps, in spite of good make-ready. This danger and the bad effects last mentioned are minimized by my invention so as to be practically non-existent.

It is a further object of the invention to present a transparent cover envelope, having the foregoing advantages, and also having the advantage of more ready handling and loading, and effecting greater economy for the user than prior transparent enclosures.

Additional objects, advantages and features of invention reside in the construction, arrangement

and combination of parts involved in the embodiment of my invention and in the steps by which it is produced, including the production of finished printing, as will be understood from the following description and accompanying drawing, presenting the invention as heretofore embodied in the best method and form known to me. In the drawing,

Figure 1 is a back view of an envelope made in accordance with my invention.

Figure 2 is a front view thereof.

Figure 3 is a cross section thereof.

Figure 4 is a longitudinal section thereof.

Figure 5 is a cross section on the line 5—5 of Figure 1;

Figure 6 is an enlarged cross section of the back wall stock.

Figure 7 is a view similar to Figure 2 showing a modification, in which the front wall is formed of transparent material such as cellulose acetate, Celluloid, or other similar material;

Figure 8 is a back view of the modification.

Figure 9 is a cross section of the modification.

There is illustrated an envelope 10, the rear side of which consists of a rectangular blank or wall 11 of fiber board corresponding generally to one-ply or two-ply bristol board in the instance of an envelope seven by nine inches in size or smaller, and it may be the same thickness or thicker for larger sizes as required. The material of this back wall is preferably specially selected or prepared to afford a slightly spongy or compressible sheet with the necessary tensile strength for the uses involved, and in case of a photo mailer or other protective envelope the wall stock may be additionally stiffened or made as rigid as practicable without sacrificing the cohesiveness, of its structure under mailing usage. The stock is also produced without a predominant direction of lay of fiber, making it equally rigid in all directions.

It has been found practicable to use a board made of wood pulp stock with smooth faces, and of special quality, at least, on the outer side. Much of the common bristol board or sign writer's card stock has the desired qualities, although it is not necessary for the stock to be so expensively finished at its inner side. The smooth outer face 13 of the wall is made of a color and surface quality as nearly as practicable matching that of the front stock of the finished envelope.

The front wall 12 of the envelope is formed of a usual envelope stock, and ordinarily for a good quality of envelope consists of machine-finished paper stock white or colored, although it may be a coated or other stock, if desired, for special reasons. Manila stock may be used, as well as other special or common papers. This front wall has a front face portion 17, in the present instance of rectangular form having two attaching flaps 14, at the sides, and one such flap 15 at the bottom, all of the same length, as measured from the fold at the boundary of the face 13 to the extreme inner edge of the respective flap as attached and secured. A closing flap 16, is formed at the top edge of the wall, and ordinarily of greater length than the others, measured from the fold or junction of the flap with the wall 13.

The flaps 14 and 15 are each gummed and folded close over the respective edges of the wall 11 and against the outer or rear face of the latter wall, so that the gum holds them and the front wall securely in place.

The mutually adjacent end edges of each two flaps 14—15 and 14—16 are trimmed so that they form a miter joint or stop short of each other so as not to overlap, when they are secured to the face of the wall 11. The end of the closing flap 16 may be gummed so that when wet it may be used to seal the package, and it may be of such length either with or without the applied gum that it may be inserted within the package over the end of the content as a retainer.

In the use of this envelope, on presses having the ordinary tympan, printing may be done on the face of this envelope without make-ready. This in accomplished by reason of the fact that the back wall 11 presents under the front wall of the envelope a continuous planiform surface with the necessary cushion value to support the paper of the front face of the envelope with good continuity against the face of the type or plates and is of sufficiently yieldable quality to permit any moderate inequalities under the wall 11 to be pressed thereinto, as well as receiving to a moderate extent the type face or interposed paper of the wall 12. In the case of lumps of glue or the like under the envelope flaps, the wall 11 will ordinarily receive but not transmit these inequalities to the type face. The net result is that a sufficient pressure support is afforded throughout the body of type, cut, or other printing plate or member, to secure an adequate impression or ground of ink without interruption to the solids of the impression, and not permitting such variation of pressure as to permit or cause defined greys. My invention will also compensate for loss in printing plates to a large extent.

The flaps of my envelope are made with mitered edges because the stock practically available for forming the back of my envelope is related to the thickness of over laps to be accommodated. It is found that the commonly available stock of moderate thickness will accommodate and compensate for the ordinary single thickness of the flaps without introducing greys in the print, but if the two mutually adjacent flaps overlap each other, the additional thickness thus established may in some cases not be well accommodated using present available commercial bristol stock which it is desirable to use in many cases. The stock for the front of the envelope usually comprises a substantial thickness in comparision to the thickness of the stock for the back wall 11, when made of single ply stock.

The attachment of the front face to the back wall customarily involves a small amount of slack in the usual papers used due to their slight resistance to bending, so that ample accommodation within the enclosure for a normal content of such packages is afforded without excessive stretching of the front wall or bending of the back wall, but if desired, the creases 18 defining the bases of the flaps 14 and 15 may be spaced and arranged so as to define respective sides of a rectangle spaced considerably outwardly of the corresponding and mutually adjacent edges of the back wall. The latter is carefully positioned in proper spaced relation to these creases when the flaps are secured.

In Figures 9 to 11 there is illustrated a form of the invention having special advantages in addition to those of the one preceding. This form of the invention consists of a back wall

20, which may be of the same material as that in the wall 11 before described. The front wall 21 consists of a single sheet of cellulose acetate, cellulose nitrate, Celluloid, pyroxylin, nitrocellulose, or other transparent sheeting, one form of which suitable for the purpose is now commercially available under the name "Cellophane." Such sheet material is now practically available commercially for the production of bags, wrappings and other containers.

The wall 21, has assembly flaps 22 at opposite sides, and a similar one 23 across one edge between these two sides. These three flaps are folded inwardly toward and over the back wall 20, and are attached to the latter with suitable adhesive. At the third side a somewhat longer closing flap 24 is formed shaped appropriately for the uses contemplated, and it may be long enough for insertion between the contents and the back wall. The flaps 22—23 are comparatively short from their line of fold to the inner edges, and the latter are rectilinear and parallel to the respective folds or edges of the envelope. For ready sealing and other uses, a paper supplementary tongue 25 is attached to the flap 24 by adhesive or otherwise permanently, and its under side may be coated with adhesive dried and of a suitable nature to be readily moistened and thereby made adhesive, for attachment to the back of the wall 20 or elsewhere.

This envelope may be utilized to support a poster or the like, which may be lithographed or otherwise printed or produced on thin paper, the encasement by the transparent wall and its support by the back wall serving to retain a thin sheet in proper form to stand upon an easel, or to be hung from a wall or elsewhere, by means of the gummed tongue 25. An economy in the cost of printing stock may thus be effected, at the same time that the protective value of the Celluloid or cellulose sheet is availed of.

In the formation of my envelope, in order that the wall 21 may be not excessively stretched by packing of the envelope with a normal content, I insert a form or mandrel piece 26 over the back wall 20 while the front wall 21 is being applied and its flaps 22—23 attached. Or, the folds 27 forming the bases of the respective flaps 22—23 are preferably located slightly outward of the respective edges of the back wall 20, so that the fullness necessary to accommodate a reasonable quantity of material without stretching the front wall 21 excessively is provided. In this procedure, the creases for the folds are either preformed or formed in the same operation by which the flaps are turned in upon the back wall and cemented. The base of the fourth or sealing tongue may be either creased or left unformed and flat.

On account of the cost of the transparent material described, it is customarily produced in very thin sheets. A common wrapping sheet has a thickness of less than 0.0005 of an inch. This material has sufficient tensile strength to withstand normal uses such as mailing envelopes, box wrappings, bags of food in retail sizes, and other uses, and has been used in many of these ways, excepting that for mailing envelopes, the flimsiness and difficulty of sealing has deterred use of the material, and in addition, the expense for the sheet material, its tendency to shrink and break when resisted by the content of the wrapping, and the fact that if not fitted accurately to the goods it makes an unattractive package much wrinkled and does not hold the contents in order. Other objections are found to commercial products of this nature. These objections are overcome by my invention.

I claim:

An envelope consisting of a thick smooth back wall piece trimmed to lie within and adjacent the maximum boundaries of the envelope, and a thin front wall having attaching flaps creased on lines spaced substantially outwardly of the mutually adjacent edges of the said back wall piece, said flaps being laid over and attached to the outer face of the said back wall piece, the mutually adjacent edges of said attaching flaps stopping short of overlapping relation.

WILLIAM HENRY HATTON.