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E. L. SMITH ET AL
METHOD OF MAKING PACKAGES

2,279,842

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Fig. 1.

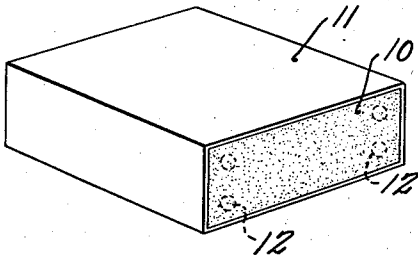


Fig. 2.

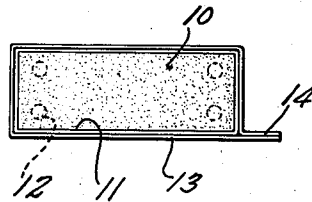


Fig. 3.

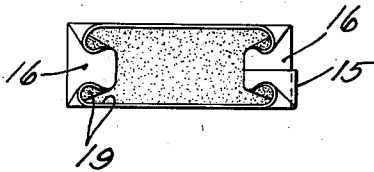


Fig. 4.

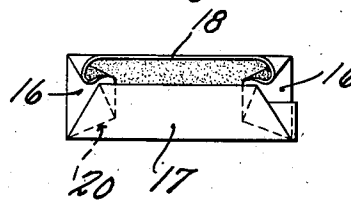
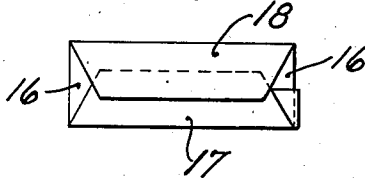


Fig. 5.



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METHOD OF MAKING PACKAGES

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3 Claims. (Cl. 93—6)

This invention relates to a novel package and to a novel method of producing the same. In particular the invention relates to a novel form of end seal for a package particularly adapted to be heat-sealed by machinery.

It has been customary to heat seal packages by forming overlapping folds in their ends and by sealing these together by heat and pressure sufficient to unite the fusible coating carried by adjacent plies of the wrapping material. In all of the prior sealing methods with which we are acquainted there has been present the possibility of penetration of air or organisms through the folds along certain minute paths which were not completely sealed by the ordinary sealing operation. In accordance with the present invention any such potentially weak sealing lines are effectively blocked off so that even if these lines do develop weaknesses they will not form a passage from the inside to the outside of the wrapper.

The manner in which these results are accomplished will now be described with reference to the accompanying drawing, in which:

Fig. 1 is a perspective view of a wrapper with an end seal affixed thereon;

Fig. 2 is an end view of the package with the wrapper folded about it circumferentially;

Fig. 3 is an end view of the wrapper showing the first end tucks having been made;

Fig. 4 is a similar view showing one end fold folded down over the end tucks; and

Fig. 5 is an end view of the completed package.

The principle underlying this invention is the use of an end seal having its exterior side coated with heat-sealing material and applied to the inside of the end folds of the package rather than to the outside as has been previously common. Preferably this end seal is made of material coated upon one side only with heat-sealing material which is, in the preferred form, of the type embodying a compound of wax and rubber although the invention may be applied with other forms of heat-sealing material. A blank 10 of this material is cut out to the approximate size of the end of the package 11 and is attached thereto in any suitable way. One of the advantages of the present process is that it permits a completely air-tight seal to be made with a wrapper which is completely separate from the article itself. If this complete separation is desired the end seal is attached to the article by localized areas 12 of adhesive sufficient in strength only to hold the end seal in place during the folding operations. If the adhesive is made of any one of the well known materials

requiring the presence of moisture for its adhesive characteristics it will be dried out or caused to be absorbed by the material of the package when heat is later applied and the end seal then left free from the package itself. With the end seal or seals stuck in place a wrapper 13 is folded circumferentially around the package. This wrapper is preferably of material similar to that used for the end seal but instead of being put on with its heat-sealing surface outside it has its heat-sealing surface directed toward the package. The overlapping margins of the wrapper 14 may be sealed together in any desired way but are preferably brought into face-to-face contact while extending laterally away from the package as shown in Fig. 2. While in this position they are heat-sealed together and are then folded up against the side of the package as shown at 15 in Fig. 3. This mode of folding not only brings the two heat-sealing sides of the wrapper into contact but also leaves the margins unattached to the side of the wrapper so that the double walled flap 14 can be used as an opening device for the package.

The tubular extensions at the ends of the wrapper are then tucked inwardly at the side as indicated at 16 in Fig. 3, bringing the heat-sealing side of the wrapper against the heat-sealing side of the end seal. It should be particularly noted in this connection that the tucks 16 should be made in generally trapezoidal form as shown, not being carried out into adjacency with the top and bottom edges of the package as this would defeat the purpose of the invention. The bottom and top folds 17 and 18 are then made as shown in Figs. 4 and 5 and the end of the package subjected to heat and pressure.

It should be noted that the trapezoidal central portion of the tucks 16 are heat-sealed to the end seal 10. The surfaces 19 which when folded down form the interface of the two-ply triangular portions 20 are heat-sealed together; but this triangular portion is not heat-sealed to the top of the tuck 16 as in this case the surfaces of the wrapper which are brought into contact do not bear heat-sealing material. This lack of sealing however does not introduce any defect into the package for the reason that the unsealed area referred to leads directly to the zone sealed by contact between the flaps 17 and 18 and the end seal 10. Without the presence of the end seal there would be an unsealed passage from the outside to the inside of the wrapper, but by the use of this end seal all possibility of leakage is avoided. Were the tucks 16 not made in trap-

ezoidal form, but carried out into adjacency with the top and bottom edges of the package, this blocking off of the unsealed overlapping portions 16, 17 and 18, 18 would not occur; the leakage passing in that case beyond the edges of the end seal 10. By making the tucks trapezoidal the unsealed overlapping portions lead at all points to places where the seal 10 and the flaps 17 or 18 are in sealed contact, and no leakage can occur. It may be pointed out that the principles of the invention can also be utilized if material capable of heat-sealing on both sides is used. This material, however, is somewhat harder to handle on account of its tendency to stick to parts of the wrapping mechanism and is also more expensive.

A further advantage possessed by the end seal in the position used is that by its use it is possible to supply to the end folds a relatively large amount of heat-sealing material without heavily coating the whole wrapper and thus adding to its expense. It is desirable to have an ample supply of heat-sealing material available at those points in the end folds where the edges of the plies or folds come, as at these points there is a difference in elevation which prevents even pressure being exercised by the sealing machine. By forming the end seal out of material carrying a coating somewhat heavier than normal a surplus amount of heat-sealing material can be provided which will flow into the junction at these points of differing elevation and thereby make a very tight seal.

What we claim is:

1. A method of forming a sealed end on an article wrapped circumferentially in a wrapper

having an adherent inner surface which comprises securing to the article end a seal of substantially the size of the article end and having an adherent outer surface, and folding and sealing the wrapper to the end seal by forming trapezoidal tucks and opposed folds one overlying the seal and the tucks and the other overlying the seal, the tucks, and the first fold.

2. A method of forming a sealed end on an article wrapped circumferentially in a wrapper having a fusible inner surface which comprises securing to the article end a seal of substantially the size of the article end and having a fusible outer surface, folding the wrapper against the end seal by forming trapezoidal tucks and opposed folds one overlying the seal and the tucks and the other overlying the seal, the tucks, and the first fold, and subjecting the wrapper end to heat and pressure to cause the seal to unite by fusion to said tucks and overlying folds.

3. A method of forming a sealed end on an article wrapped circumferentially in a wrapper having a fusible inner surface which comprises securing to the article end by fugitive adhesive a seal of substantially the size of the article end and having a fusible outer surface, folding the wrapper against the end seal by forming trapezoidal tucks and opposed folds one overlying the seal and the tucks and the other overlying the seal, the tucks, and the first fold, and subjecting the wrapper end to heat and pressure to free the end seal from adherence to the article and to cause the seal to unite by fusion to said tucks and overlying folds.

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