

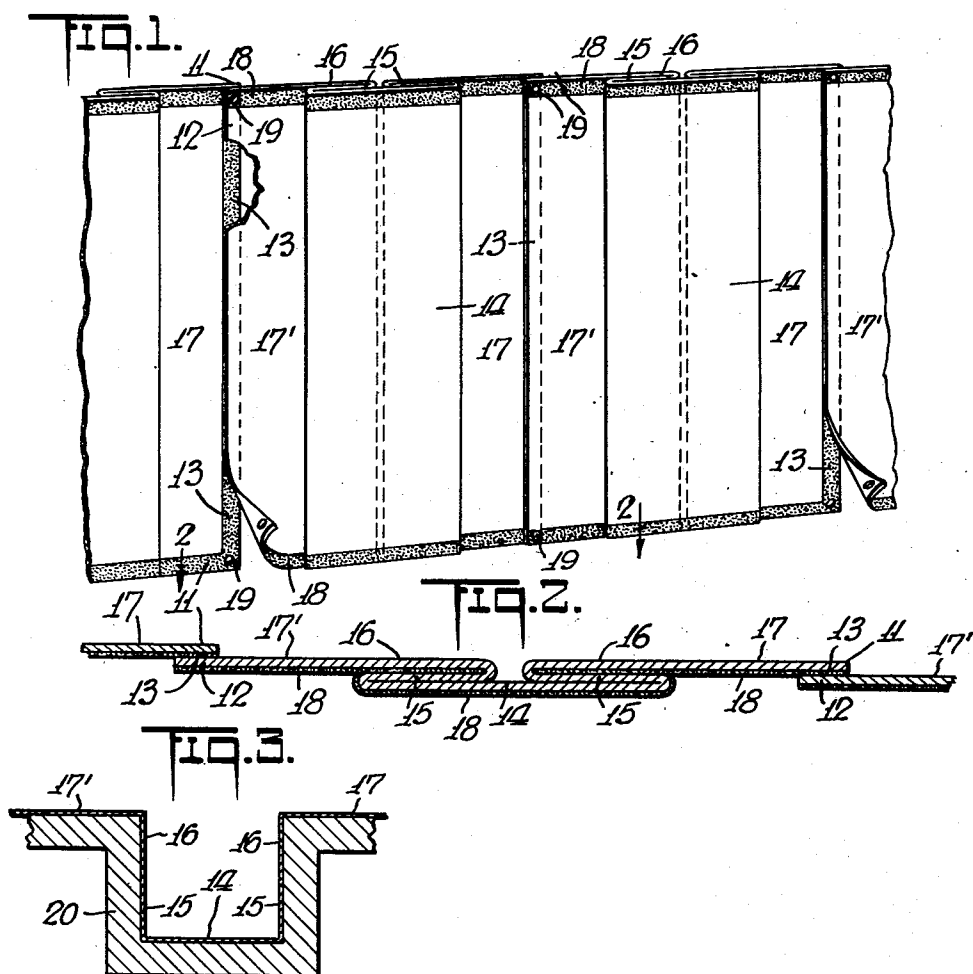
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WRAPPERS

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WRAPPERS

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1 Claim. (Cl. 229—87)

This invention relates to wrappers for use in packaging solid or plastic material either in single blocks or as a plurality of smaller blocks or units, and has for its main objects, to facilitate the advancing or delivery of a plurality of wrappers in succession to the proper position in the machine or apparatus where they receive the material to be packaged; to facilitate folding of the wrappers along predetermined lines to form a channel to receive the material and thereby facilitate forming a package; and to facilitate the holding of a portion of the wrapper in folded position on the package. Many other advantages will be apparent from or be pointed out in connection with description of a typical embodiment of the invention. Although the present invention may be utilized in connection with solid or plastic blocks or groups or units to make up a block and of a wide variety of materials, it is particularly useful in connection with packaging blocks or units of butter, margarine, caramels, frozen or other solid or plastic desserts and confections, and other plastic comestibles or other goods which are sold in packages, each package comprising one or more units of a predetermined size and shape.

As an important feature of my invention, a plurality of wrappers are connected together in series so that they may be readily fed to a packaging machine or other apparatus where they receive the goods to be packaged, are separated from each other, are folded to enclose the goods and complete the package.

As a further important feature of the invention, the means which connects the wrappers together in series is such that it may serve later to prevent or resist unfolding of the wrappers from the packages during shipment, storage and sale.

As a further feature and to facilitate the proper positioning of the wrappers and the bending of them to form channels or chambers to receive the material to be packaged, each wrapper is provided with fold lines positioned and spaced in accordance with at least some of the predetermined dimensions of the final package.

As a further feature, the means which holds the wrappers partly folded is later utilized for preventing or resisting unfolding of the wrappers after the package has been formed, if so desired.

As a further feature, the wrappers have plaits which may be opened up to form channels to receive the goods to be packaged.

The means which holds the wrapper together in a series or as a chain and which, in some embodiments of the invention, holds them partly folded while being fed to the receiving station for the material to be packaged, comprises or includes an adhesive of a pressure-sensitive type which has high shear and low resistance to peeling. Thus, such an adhesive serves to connect the wrappers in series or connect parts together and resists separating by strains in the plane of the adhesive, permits ready separation by peeling when the wrapper reaches the filling position and it later serves to hold together superimposed portions of the wrapper in the final package. The adhesive may serve to hold the wrapper in partially folded position and in a chain or series but permits the wrapper to be easily opened up to receive the material to be packaged and it also serves later to hold the wrapper in its folded position in the package.

It will be understood that the thickness of the sheets, the strips and the layers of adhesive is shown very greatly exaggerated, and that in practice the sheets and strips

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will be of paper thickness and the layers of adhesive extremely thin.

In the drawings,

Fig. 1 is a perspective view of a chain of wrappers in which the successive wrappers are detachably connected by adhesive and each has a box plait;

Fig. 2 is a section on the line 2—2 of Fig. 1, and

Fig. 3 is a section showing the plait of one of the sheets shown in Figs. 1 and 2 opened up to receive the material to be packaged and to line a pocket or channel determining at least some of the dimensions of the package.

As shown in Figs. 1 and 2, a plurality of wrappers are connected together by overlapping edge portions 11 and 12, one of which has a thin layer 13 of a pressure sensitive or thermo-plastic adhesive which permits the ready separation of the sheets by peeling or heating and then peeling, but which prevents separation by pulling on the sheets in their own planes.

Each sheet has a box plait substantially midway between its opposite edges and proportioned in accordance with the transverse dimensions of the package to be produced. The bottom wall or panel 14 of each box plait is of a width substantially equal to one side of the desired package and the side walls 15 and 16 are preferably of equal widths and have a combined width equal to the height of the package. Thus, upon opening the plait to receive articles, the spacing of the opposite edges of the wrapper is not altered. The portions 17 and 17' of the sheet which extend in opposite directions from the plait are of such width that when the plait is opened into a channel in a form 20, or in any other part of a machine or apparatus at a filling station, these portions 17 and 17' may be folded over and overlapped to form the top wall of the package. These top portions 17 and 17' may be of the same width or one may be substantially wider than the other and the adhesive 13 may be printed along the edge of the top portion 17, to permit easy separation from the portion 17' of the next sheet. It also permits the sealing of the portion 17' down on the portion 17 of the same wrapper when the material to be packaged is in the channel formed as shown in Fig. 3. The portion 17 is folded over first and the portion 17' is thereafter folded over to complete the top wall.

The sheet on the same surface which has the plait and the adhesive 13 also has strips 18 of adhesive along its marginal edge portions and extending at right angles to the direction of the plaits. This adhesive may be of the same type as the adhesive 13 which connects the wrappers together as a chain but would ordinarily be a little thinner or of a character which will hold the edges of the wall portions, which extend beyond the ends of the contents of the package, in place after they are folded in succession on to the end of the packaged material.

In the use of the wrapper above described, the chain of wrappers may be fed endwise and intermittently, if there be a single filling device, or continuously and uniformly if there be a rotary device having a peripheral row of pockets or molds into which plastic material is fed to form blocks of predetermined size and shape and of dimensions corresponding to the width and depth of the channel produced by opening up the box plait, as shown in my application Ser. No. 71,195, filed Jan. 15, 1949, now Patent No. 2,653,430, dated September 29, 1953.

In Fig. 3 I have shown a part of such an apparatus with a mold 20 in which the package is at least partially formed. With a wrapper positioned with its box plait of the width of the pocket in the mold and directly over it, the block to be packaged is pressed down on the parts 16, 16 of the wrapper and forced down into the pocket. The adhesive connecting the parts 15 and 16 and the parts 15 and 14 will permit these parts to be progressively peeled apart. The bottom wall 14 of the plait will remain parallel and close to the bottom surface of the block and as it moves down, the wall portion will peel away from both the bottom wall 14 and from the portions 16 until the wall portions reach the positions shown in Fig. 3. The peeling apart is easily accomplished due to the thinness and extreme flexibility of said walls. Thus

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there will be no air pockets between the block and the walls 16, 16 when the block is deposited on them and no air will enter between the block bottom or block sides and the wrapper during the downward movement of the block and wrapper into the pocket. When the block has moved down to final position, the box plait will be in the form shown in Fig. 3 and there will be no air pockets between the block and the wrapper. During this down movement of the block and the opening of the plait the wall portions 17 and 17' will not have moved in respect to the mold 20 as they may be held in any suitable manner. The wall portion 17 may be held solely by its connection to the next successive wrapper. If the mold 20 be one of a connected series moved along to filling position, the wrappers need not be separated from each other at the adhesive strips 13 until after they have advanced beyond the filling station, in which case the wrappers at opposite sides of the one being filled or the wrapper indexing means engaging the hole 19 will hold both of the wall portions 17 and 17' from moving in respect to the mold during the forcing of the block into the mold 20, and the separation of the wrappers from the chain will be effected after or just prior to the removal of each wrapper and its contained block of material. Prior to the removal from the mold, the wall portion 17' is folded over the block and the wall portion 17 then folded over so that the stripe of adhesive 13 which held the wrappers together in the chain will be caused to adhere to the upper surface of wall portion 17'. The partially wrapped blocks may then be ejected from the mold and the ends may then be closed and sealed as will be later pointed out.

It will be noted that adhesive 18 on the opposite edge portions of the wrapper is on the surface away from the goods to be packaged so that as the end portions of the walls are folded in at the ends of the package they do not cause the adhesive to contact the material being packaged, but they are held together by the adhesive 18.

One type of adhesive 13 and 18 that lends itself to this application is a "delayed action" thermo-plastic which requires heat to render it tacky and readily peelable and

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which thereafter retains sufficient tackiness for a short period to re-adhere with no additional heat and only slight pressure. The machine or apparatus may be provided with heating means which will warm up the adhesive 13 and 18 to facilitate the opening of the plait and separation of the wrapper so that when these portions of the wrapper are freed at the adhesive they will remain tacky for a short time to facilitate later sealing.

To facilitate the feeding of the chain of wrappers and the registering of them in the proper position in the filling machine or apparatus, the edges of the chain of wrappers may have apertures 19 with which sheet-feeding mechanism may engage to advance the chain of wrappers along, and to register each wrapper in the proper position in respect to the mechanism which delivers the goods to be packaged and in respect to the form into which the plait is expanded, as shown in Fig. 3.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

As an article of manufacture, a plurality of wrappers, reactiveable adhesive areas on said wrappers to detachably connect said wrappers together in series to facilitate feeding thereof to a station to receive material to be packaged and to seal said wrappers after they have been detached, each of said wrappers having a transverse box pleat adapted to be opened up to form a channel parallel to the connecting means, and releasable adhesive material at the edges of each wrapper and holding said box pleats in closed position but permitting the opening up of the pleat and the forming of a channel.

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