

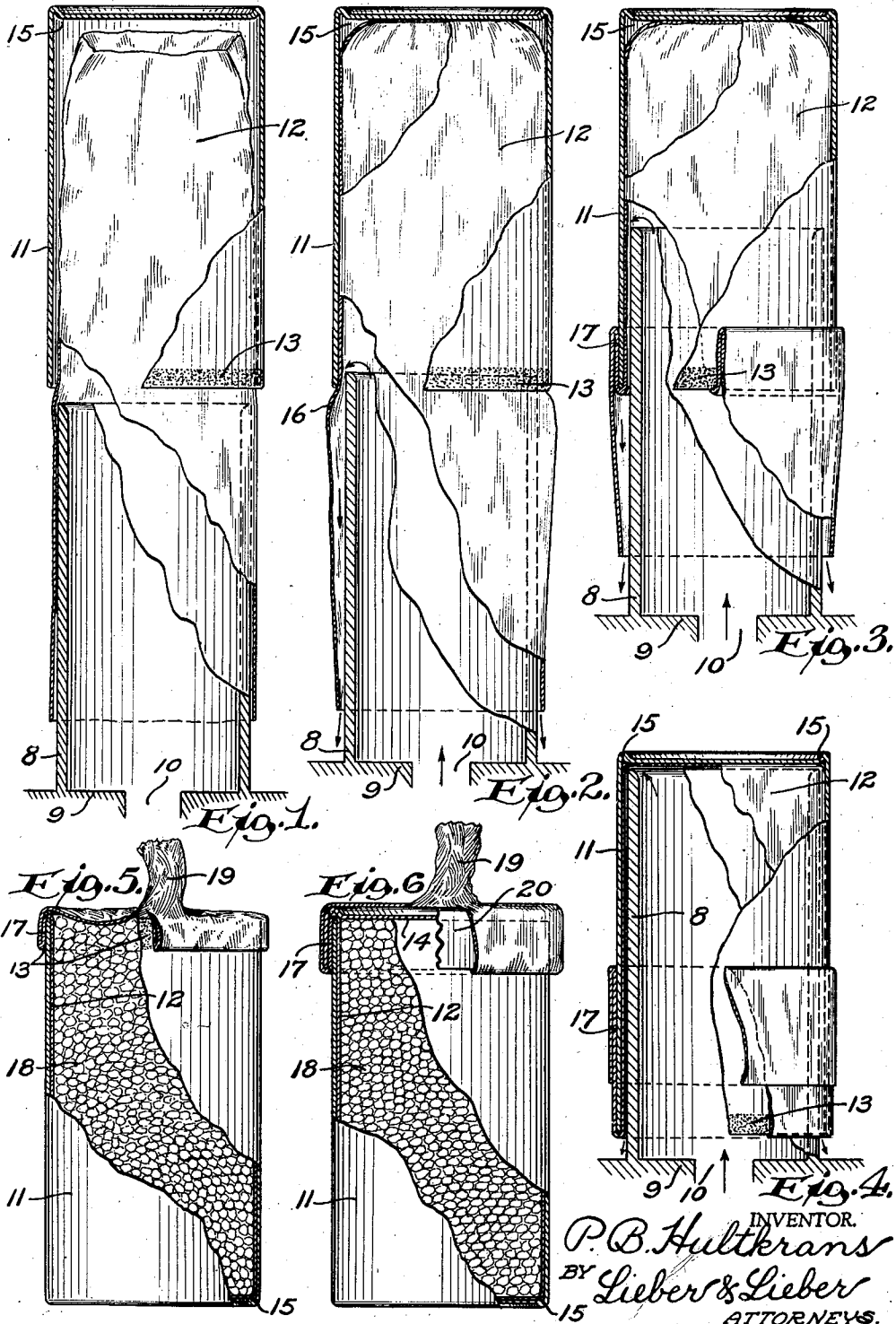
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ART OF PACKAGING

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ART OF PACKAGING

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The present invention relates to improvements in the art of packaging diverse commodities in batches, and relates more specifically to improvements in the construction of composite wrappers and to an improved method of producing such wrappers and packages utilizing the same.

An object of the invention is to provide a new and useful composite wrapper for batches of commodity, and an improved method of producing the composite wrappers.

It has heretofore been proposed to provide composite wrappers each consisting of an outer relatively rigid box or carton lined with thinner and more flexible sheet material, for various purposes, and such composite assemblages have gone into rather extended commercial use. While it has also been attempted in the past, to utilize highly flexible bags as liners for the stiffer boxes, considerable difficulty has been encountered in causing all portions of the bag liners to hug the carton interiors, and also in retaining the liners in place and properly positioned within the outer shells.

The present invention therefore contemplates the provision of an improved process whereby relatively stiff cup-shaped cartons can be quickly and effectively lined with snug-fitting liner bags, and in such manner that the liners will be positively retained in proper position within the cartons.

Another specific object of my present invention is to provide a greatly improved compound wrapper assemblage of the type embodying an outer rigid shell lined with more flexible sheeting.

A further specific object of this invention is to provide a simplified and more efficient method of packing batches of diverse materials within a flexible bag snugly confined within a stiffer outer casing.

Still another object of the invention is to provide an improved mode of attaching a bag liner within a prismatic carton or the like, so that the bag and carton may be readily loaded and ultimately most effectively sealed.

These and other objects and advantages of my invention will be apparent from the following detailed description of the improved method, article and apparatus.

A clear conception of the several steps involved in the improved method, and of the construction of the improved wrapper, may be had by referring to the drawing accompanying and forming a part of this specification wherein like

reference characters designate the same or similar parts in the various views.

Fig. 1 is a somewhat diagrammatic part sectional view depicting the initial step of the improved method of producing composite wrappers;

Fig. 2 is a similar view illustrating the second step of the improved method;

Fig. 3 is another similar view showing the initial part of the third step of the method;

Fig. 4 is still another similar view depicting the third step carried to its conclusion;

Fig. 5 is a part sectional side elevation of a commodity laden improved composite wrapper sealed without the aid of a cover; and

Fig. 6 is a similar elevation of a filled composite wrapper sealed with the aid of a cover.

While the invention has been shown and described herein as being applied to a composite package wrapper having a rigid cylindrical cardboard carton lined with a highly flexible transparent bag, it is not my desire or intent to thereby unnecessarily restrict the scope or utility of the improvement.

With specific reference to the drawing, the several successive steps of the improved process are depicted in Figs. 1 to 4 inclusive, and while the method of producing the improved composite package wrappers may be carried on without the aid of special equipment, exploitation thereof is facilitated by utilizing an upright tubular or hollow cylindrical form 8 fixedly secured to a lower stationary support 9 and having a lowermost compressed air inlet opening 10 communicable with any suitable source, and also being provided with an open upper end. The outer relatively rigid boxes or cylindrical cartons 11 are of well known construction, being formed of cardboard or the like; and the liner bags 12 may be formed of flexible but rather strong and somewhat elastic sheet material such as cellulose film or rubber compound sheeting and are preferably about twice as long as the depth of the cartons 11. The cup-shaped cylindrical cartons 11 are preferably provided with external adhesive areas 13 adjacent to the openings thereof, and may also be provided with snug fitting closure caps 14 formed of cardboard or the like, see Fig. 6. The flexible liner bags 12 are in fact much thinner in comparison with the cartons 11, than shown on the drawing, this distortion having been introduced for the sake of clearness.

In carrying on my improved packaging method, the flexible liner bag 12 is first positioned as illustrated in Fig. 1, in inverted position with its

mouth portion slipped downwardly over the upright hollow cylindrical form 8, and its bottom portion loosely inserted within the inverted cup-shaped prismatic carton 11. After the several elements have been thus initially positioned, air under pressure may be admitted to the interior of the form 8 through the lower inlet opening 10, as indicated in Fig. 2, and this compressed air will fill the bag 12 and will cause the portion thereof within the carton 11 to hug the carton interior except for the bottom corners 15. The excess compressed air will escape downwardly from within the inverted carton 11 through the mouth opening thereof, and will flow through the depending mouth portion of the bag 12 along the exterior of the casing or form 8, eventually escaping from the bag mouth to the atmosphere, as indicated by the arrows. As this escaping compressed air leaves the carton opening, it expands or swells the medial part 16 of the flexible bag 12 directly adjoining the carton opening as clearly shown in Fig. 2.

When the annular expanded bulge or part 16 has been produced and while air under pressure continues to escape through the mouth of the bag 12, the outer carton 11 should be gradually lowered over the upper end of the form 8 as depicted in Fig. 3. The downwardly advancing lower open end of the rigid carton 11 will then coact with the enlarged medial part 16 of the bag 12, and will fold this medial bag portion upwardly or rearwardly around the exterior of the carton 11 as illustrated in Fig. 3. The length of the fold 17 will increase as the lowering of the carton 11 proceeds, and the mouth portion of the bag will constantly decrease in length until it finally surrounds the intervening annular fold 17 and the bag mouth is positioned adjacent to the carton opening, whereupon the bag mouth portion may be slipped upwardly to the position shown in Fig. 4. When the fold 17 is thus formed, it initially engages the adhesive area 13 on the exterior of the carton 11 and becomes permanently attached thereto, and when the bag lined carton 11 is finally lowered to the position indicated in Fig. 4, the peripheral portion of the bag bottom will be driven into the corners 15 at the bottom of the carton 11 by the upper end of the form 8 to thereby stretch the liner bag 12 into snug engagement with all portions of the carton interior.

After the composite wrapper has been thus completed, it may be withdrawn from the fixed form 8 and set in upright position as in Figs. 5 and 6. Each of the bag lined cartons 11 may then be loaded with commodity 18, whereupon the upper opening may be closed and sealed in any desired manner. In cases where air tight closure is not necessary, the mouth portion of the bag 12 may be stripped off of the major portion of the fold 17 and formed into a central upper twist 19 as shown in Fig. 5, and a closure cap 14 may thereafter be applied to the upper end of the carton 11 over the twist 19. In cases where hermetic sealing is desired, the cap 14 may be applied so that the cap flange 20 snugly directly engages the fold 17, and the mouth portion of the bag 12 may thereafter be stripped over the exterior of the flange 20 and formed into a central external twist 19 or otherwise sealed. Other modes of finally closing the package may be resorted to, and when the composite containers are sealed as in Fig. 6, the use of an adhesive area 13 is not necessary, and while such adhesive attachment of the bag 12 to the carton 11 is not essential in any case, it is desirable in order to

properly retain the wrapper parts in desired position.

From the foregoing detailed description it will be apparent that my present invention provides an improved composite wrapper assemblage and an improved method of effectively producing the assemblages and the completed packages in rapid succession. The flexible inner liner bags 12 are snugly applied to all internal surfaces of the prismatic cup-shaped relatively rigid outer cartons 11, and the elements are maintained in properly assembled position primarily by means of the reverse folds 17 snugly coacting with the carton exterior. This reverse folding of the outwardly projecting mouth portions of the bags 12, also withdraws these mouth portions from the carton opening, thereby facilitating loading of the bag lined cartons, while permitting convenient closure and sealing of the commodity laden containers. The improved assembly method may be carried on without the aid of special equipment by merely inserting the bag 12 within a carton 11, blowing into the bag mouth to form a medial bulge 16, and advancing the open carton end toward the bag mouth. Sanitary and rapid production of the successive composite wrappers is however enhanced by utilizing simple apparatus such as shown and described, in exploiting the method, and this type of equipment has proven highly satisfactory in actual use. In order to secure best results, the external diameter of the form 8 should be only slightly less than the internal diameter of the liner bag 12 and carton 11, so that the medial part 16 of the bag will be bulged to a considerable extent as soon as the bag is inflated and the excess air escapes. The cartons 11 and bags 12 may obviously be of any desired size and shape, but the bags 12 should preferably be sufficiently strong, elastic and flexible to permit formation of the bulges 16 and folds 17 without tearing the stock.

It should be understood that it is not desired to limit this invention to the exact steps of the method or to the precise construction of the wrappers and packages, herein shown and described, for various modifications within the scope of the claims may occur to persons skilled in the art.

I claim:

1. The method of packing, which comprises, loosely inserting the closed bottom of a flexible bag within a relatively rigid carton of considerably less length and of slightly less transverse cross-section than the bag so as to cause the open end portion of the bag to project a considerable distance outwardly beyond the carton opening, applying air pressure to the interior of the bag to cause the inserted portion thereof to snugly engage the carton interior while also causing the outwardly projecting portion thereof to expand outwardly across the rim of the carton opening, then moving the carton toward the open end of the liner bag to cause the medial bag portion to fold rearwardly and forwardly so as to produce concentric annular portions around the open end of the carton, permanently attaching an annular ring of the rearwardly folded portion of the bag to the adjacent carton wall and stripping the forwardly directed portion considerably beyond the rim of the carton opening, inserting commodity within the bag and carton, and thereafter folding the protruding mouth portion of the lining bag inwardly across the carton rim and sealing the same within the rim of the carton opening.

2. The method of packing, which comprises, loosely inserting the closed bottom of a flexible bag within a relatively rigid carton of approximately one-half the length and of slightly less transverse cross-section than the bag so as to cause the open end portion of the bag to project a considerable distance outwardly beyond the carton opening, applying air pressure to the interior of the bag to cause the inserted portion thereof to snugly engage the carton interior while also causing the outwardly projecting portion thereof to expand outwardly across the rim of the carton opening, then moving the carton toward the open end of the liner bag to cause the medial bag portion to fold rearwardly and forwardly 15

so as to produce concentric annular portions around the open end of the carton, permanently attaching an annular ring of the rearwardly folded portion of the bag to the adjacent carton wall and stripping the forwardly directed portion considerably beyond the rim of the carton opening, inserting commodity within the bag and carton, thereafter folding the protruding mouth portion of the lining bag inwardly across the carton rim and sealing the same within the rim of the carton opening, and finally applying a snug fitting cover to the concentric external folds of the bag which surround the initially open end of the carton.

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