

July 8, 1958

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2,842,179

CLOSURES FOR FLEXIBLE WALLED CONTAINERS

Filed May 7, 1956

3 Sheets-Sheet 1

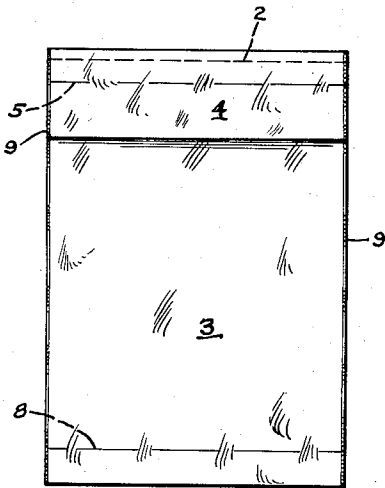


FIG. 1

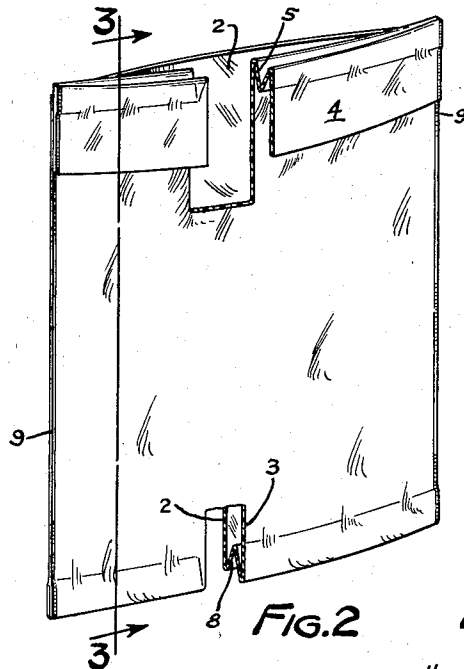


FIG. 2

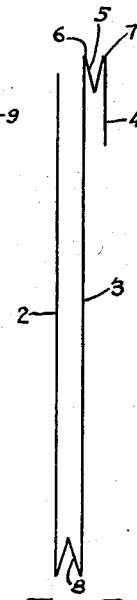


FIG. 3

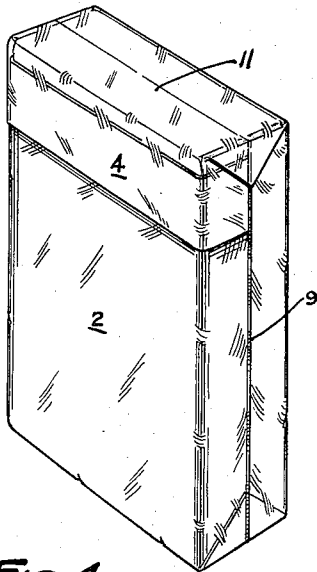


FIG. 4

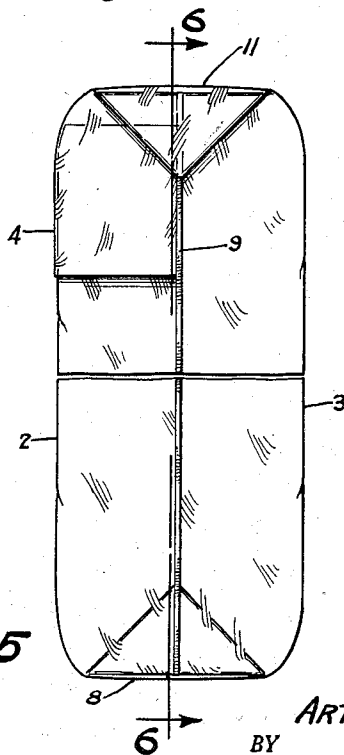


FIG. 5

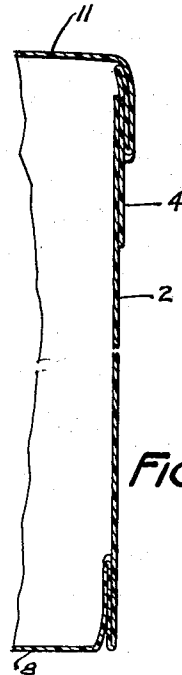


FIG. 6

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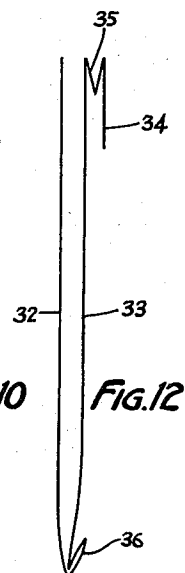
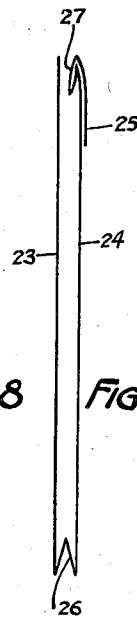
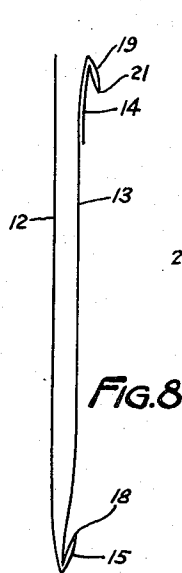
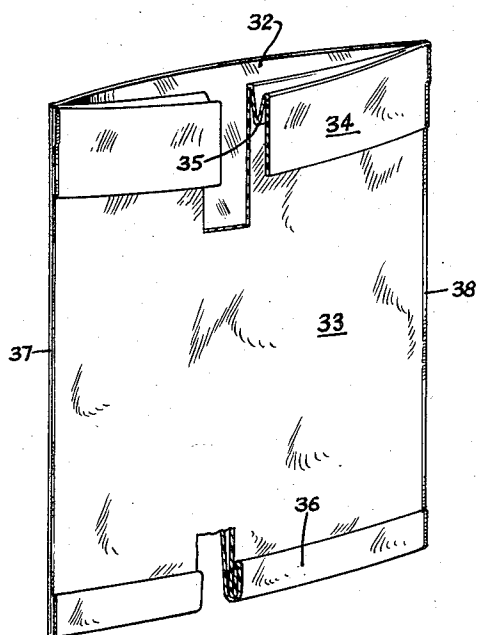
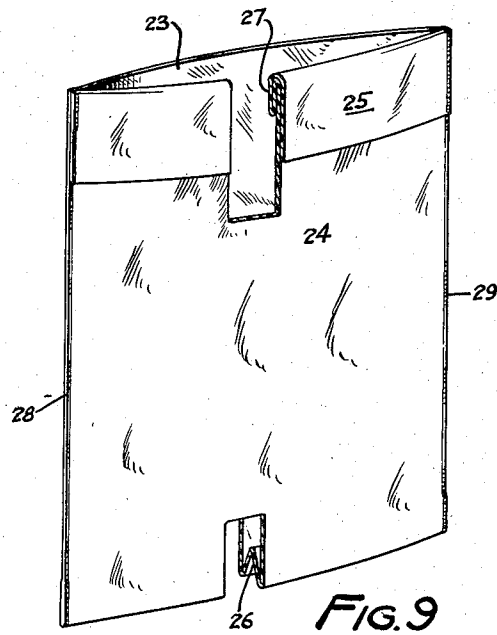
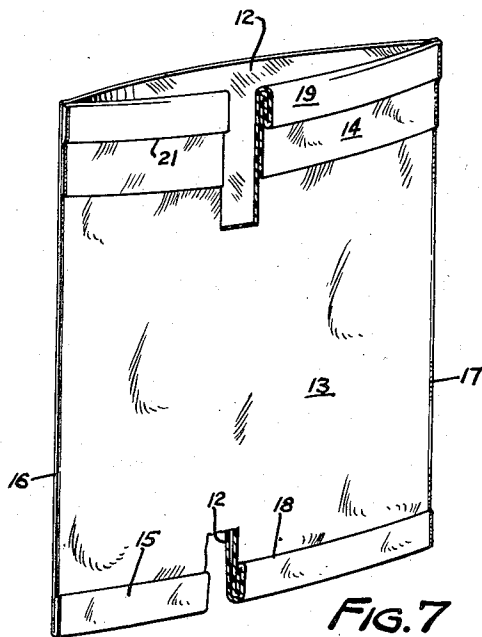
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CLOSURES FOR FLEXIBLE WALLED CONTAINERS

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3 Sheets-Sheet 2



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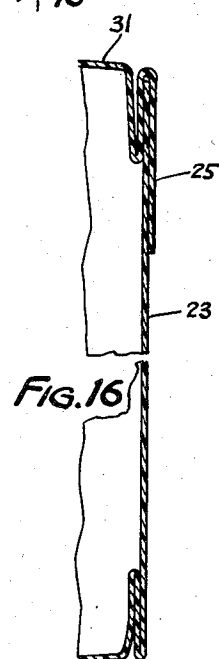
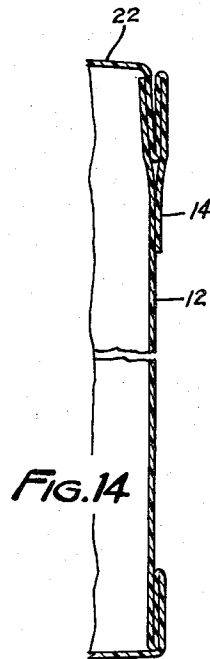
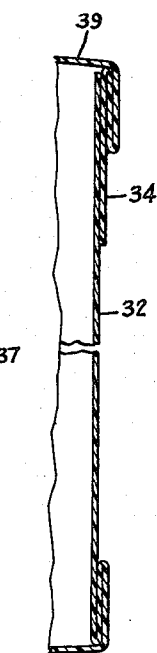
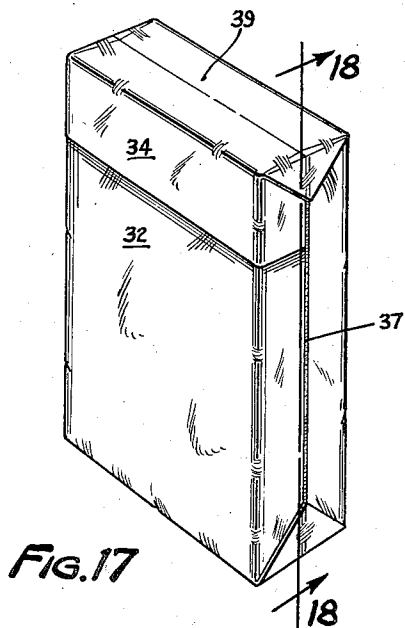
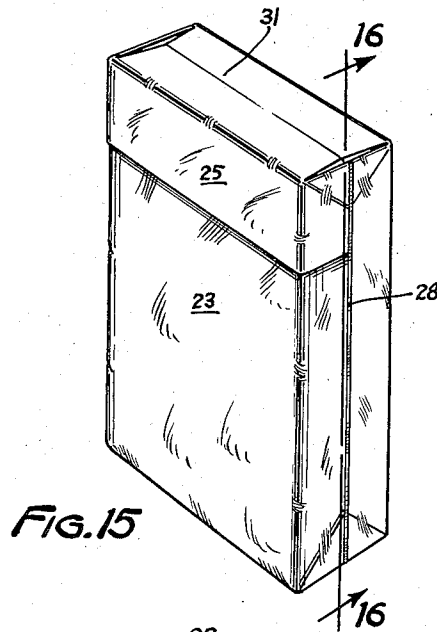
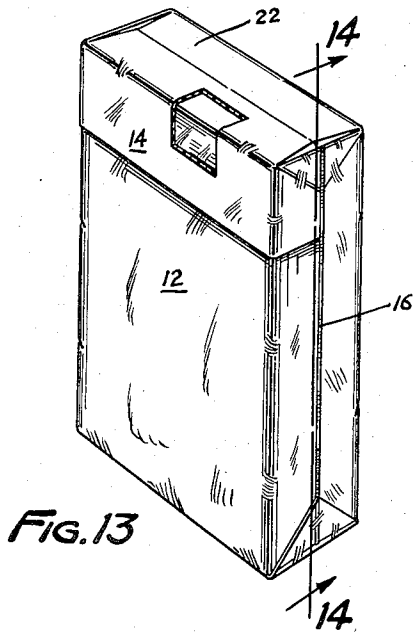
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CLOSURES FOR FLEXIBLE WALLED CONTAINERS

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3 Sheets-Sheet 3



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CLOSURES FOR FLEXIBLE WALLED CONTAINERS 5

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Application May 7, 1956, Serial No. 583,020

5 Claims. (Cl. 150—7)

This invention relates to new and useful improvements in flexible walled containers or bags of the general type disclosed in Patent No. 2,709,467, granted May 31, 1955.

The present invention is directed to improvements in flexible walled bags of the so-called flat type, wherein the front and back walls are initially disposed in flatwise engaging relation before the bag is filled, in a manner similar to the bag disclosed in the above mentioned patent. The bag or container disclosed in the present invention also has a permanently attached closure flap, but its construction distinguishes from the closure flap shown in the above mentioned patent, in that means is embodied in the closure flap for expanding said flap transversely of the bag top, when said flap is subsequently folded over the open top of the bag body to close the bag top, the transverse expansion of the closure flap permitting it to be drawn smoothly down over and into flatwise engagement with the front wall of the bag body to completely close the bag mouth, even when the bag is filled with a bulky material, thereby to provide a very neat and attractively shaped bag top in which the closure flap is not likely to gap open, or partially open, at the ends of the bag tops, as frequently occurs when packaging bulky materials, such as articles of clothing, in bags of the type disclosed in Patent No. 2,709,467.

While the form of bag closure shown in the above mentioned patent has found wide use in the trade for packaging many different kinds of commodities, particularly commodities which are not very bulky, the unique closure flap herein disclosed was developed primarily for packaging commodities which may be rather bulky, such as various articles of clothing, although it may also be utilized for packaging commodities of a less bulky nature, where applicable.

An object of the present invention therefore is to provide a flexible walled flat-type container or bag having means embodied in its top and bottom ends for permitting free transverse expansion of the bag ends, when the bag is filled with a bulky material and its open top is subsequently closed, whereby the top and bottom ends of the completely filled and closed bag body will be rectangular in configuration, which greatly enhances the general appearance and attractiveness of the closed bag and, in addition, provides a container or bag which may be attractively arranged on display shelves, and which may also be compactly stored in storage bins and on storage racks or shelves.

A further and more specific object of the invention is to provide a flexible walled bag body having a closure flap which normally is folded downwardly into flatwise engagement with the rear wall of the bag top, and said closure flap having a gusset formed therein and extending the full width of the flap across the bag top, said gusset being so arranged that when the flap is subsequently folded over the open top of the bag body, said gusset is expanded over the contents of the bag body

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and cooperates with said flap to provide a complete non-gapping closure for the bag top, said flap being readily openable to gain access to the contents of the bag body when desired.

A further object of the invention is to provide a flexible walled bag body comprising front and back walls which are initially disposed in flatwise relation, and the back wall having a closure flap attached thereto the full width of the bag top and normally being folded back into open flatwise engagement with the upper exterior surface of the back wall, and the wall portion connecting the flap to the upper edge portion of the back wall being in the form of a gusset which is normally concealed between said back wall and the closure flap, said gusset being adapted to expand and overlay the open top of the filled bag to provide a closure therefor, when the closure flap is subsequently pulled or flipped over the open top of the bag and into closing flatwise engagement with the front wall of the bag body.

A further object of the invention is to provide a bag body having its lower portion formed with a gusset extending the full width of the bag across the bag bottom, and a closure flap being provided at the upper end of the bag body which normally is folded rearwardly into flatwise engagement with the upper exterior surface of the rear wall of the bag body, and a gusset being integrally formed with the upper end of said rear wall, said gusset inseparably connecting the flap to said rear wall and forming the top wall of the bag body, when the closure flap is subsequently folded over the bag top and into flatwise closing engagement with the front wall of the bag body.

A further object of the invention is to provide a flat type bag body normally having its front and back walls disposed in flatwise engaging relation, the back wall having a closure flap secured thereto which normally is folded rearwardly into open position in flatwise engagement with the upper exterior surface of said back wall, and a cuff-like fold being formed in the material from which the bag is made, said cuff-like fold connecting the flap to the upper edge of the back wall and normally being folded into flatwise engagement with the rear wall, said fold expanding laterally to form the top wall of the bag body, when the flap is subsequently folded over the bag top to close the mouth of the bag.

A further object is to provide a flat bag comprising front and back walls normally disposed in flatwise relation, and said back wall initially being longer than the front wall to provide a top wall forming portion and a flap forming portion, said top wall and flap forming portions extending the full width of the bag top and having their vertical end edges permanently secured to the ends of the bag top, and the top wall forming portion normally being folded into flatwise relation to the upper end portion of said back wall and being so related to the closure flap that when said flap is folded or flipped over the open top of the filled bag, said top wall forming portion is automatically unfolded and assumes a position over the open top of the bag body, thereby to provide a smooth, flat, rectangular top wall, and said flap forming portion overlying and smoothly fitting against the upper outer surface of the front wall of the bag body without unsightly gapping, thereby providing a very neat and attractive bag top, and the bottom of the bag body also being provided with means whereby the bag bottom may automatically expand to provide a flat bottom for the bag body, when the bag is subsequently filled.

Other objects of the invention reside in the unique manner of forming the gussets and cuff-like folds at the top and bottom ends of the bag body, whereby when the bag body is filled and its open top is subsequently

closed, the top and bottom ends of the bag body will be rectangular in configuration, and will be free from unsightly projections or "dog ears," thereby resulting in the formation of a very neat and attractive package; and in the provision of a bag body of the class described which is extremely simple and inexpensive to manufacture.

These and other objects of the invention and the means for their attainment will be more apparent from the following description taken in connection with the accompanying drawings.

In the accompanying drawings there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the exact features shown, as various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a rear view of an empty bag showing the invention embodied therein, the closure flap being shown in its normal open position;

Figure 2 is a rear view, in perspective, showing the top and bottom ends of the bag body partially broken away to more clearly illustrate the arrangements of the gussets therein;

Figure 3 is a view on the line 3—3 of Figure 2, diagrammatically illustrating the method of folding the web to form the gussets at the top and bottom ends of the bag body;

Figure 4 is a perspective view of a filled bag showing the squared top and bottom ends resulting from the present invention;

Figure 5 is a side or edge view of Figure 4;

Figure 6 is a sectional elevation on the line 6—6 of Figure 5, showing only a portion of the bag body;

Figure 7 is a view similar to Figure 2, showing a cuff-like fold at the upper end of the bag body folded outwardly and downwardly into flatwise engagement with the closure flap, and the bottom end of the bag body being formed with a similar cuff-like fold, said folds serving to automatically square the bag ends, when the bag body is subsequently filled and closed;

Figure 8 is a view diagrammatically illustrating the folding of the web to form the bag structure illustrated in Figure 7;

Figure 9 is a view similar to Figure 2, but showing the top end of the bag body provided with a cuff-like fold which is normally folded inwardly into flatwise engagement with the inner surface of the rear wall;

Figure 10 is a view diagrammatically illustrating the manner of folding the web to produce the bag illustrated in Figure 9;

Figure 11 is a perspective view of a bag in which the gusset at the top end of the bag is disposed between the rear wall and the closure flap as in Figure 2, and wherein the bottom end of the bag body is transversely folded as in Figure 7;

Figure 12 is a view diagrammatically illustrating the method of folding the web to form the bag shown in Figure 11;

Figure 13 is a view in perspective of a filled closed bag of the type illustrated in Figures 7 and 8;

Figure 14 is an enlarged detail sectional view on the line 14—14 of Figure 13;

Figure 15 is a view in perspective of a filled closed bag of the type illustrated in Figures 9 and 10;

Figure 16 is a detail sectional view on the line 16—16 of Figure 15;

Figure 17 is a view in perspective showing a filled closed bag of the type illustrated in Figures 11 and 12; and

Figure 18 is a detail sectional view on the line 18—18 of Figure 17.

In the selected embodiment of the invention herein disclosed there is illustrated in Figures 1 and 2, a bag body comprising front and back walls 2 and 3, and a

closure flap 4, shown connected to the upper edge of the rear wall 3 by a gusset, generally designated by the numeral 5. Gusset 5, as will be noted by reference to Figures 2 and 3, has one of its top edges secured to the upper edge of the rear wall 3, as indicated at 6, and the other top edge of the gusset 5 is secured to the upper edge of the closure flap 4, as indicated at 7.

A similar gusset 8 is shown disposed between the front and rear walls 2 and 3 at the bottom of the bag and serves to provide a flat bottom for the bag, when the latter is subsequently filled with a product. The front and back walls 2 and 3, gussets 5 and 8, and the closure flap 4 may be integrally formed from a single elongated web or blank, as will be understood by reference to Figure 3.

In the formation of the bag body, the front and rear walls 2 and 3 and the closure flap 4 are folded into flatwise relation and their contiguous edges are then suitably united or heat welded together, as indicated at 9 in Figure 2. These bag bodies may be made from a transparent material such as polyethylene, the edges of which may readily be bonded together to provide a very secure seam by the application of heat and pressure thereto. The method of heat sealing such materials is now well known in the art. Obviously the bag bodies may be constructed of any suitable material applicable for the purpose. Polyethylene is preferred because of its many attractive qualities, such as transparency, strength, ease of handling, and inexpensiveness.

When the front and rear walls of the bag body and the closure flap have thus been secured together along the side edges of the bag body, the gussets 5 and 8 are concealed therebetween, as clearly illustrated in Figures 2 and 3. When the bag body is subsequently filled with a product, the weight of the product in the bag expands the gusset 8 to provide a rectangular bottom which, when the bag body is subsequently filled with a product, may expand sufficiently to cause the bag bottom to flatten out to the extent that the filled bag may readily be placed in an upright position upon a supporting shelf or table, as will be understood by reference to Figure 4. Simultaneously the side edge portions of the bag body will assume a rectangular formation, as also shown in Figure 4.

When the bag body has received its full charge, the flap 4 is flipped over the open top of the bag body and is pulled downwardly into flatwise engagement with the front wall 2 of the bag top, whereupon the gusset 5 is expanded and forms the top wall 11 of the closed bag top. Thus the gussets 5 and 8 cooperate to shape the ends of the bag body, as illustrated in Figure 4, whereby the filled bag presents a very neat and attractive appearance and, in addition, may readily be placed upon its ends for storage or display purposes as will be understood. The closure shown in Figure 4 may readily be opened and closed in a manner similar to that disclosed in Patent No. 2,709,467.

In Figure 7 there is shown a bag body comprising front and rear walls 12 and 13, respectively, and a closure flap 14 which may be formed from a single elongated blank or web of sheet material folded upon itself, as indicated in Figure 8. The means provided for forming the bottom shown in Figure 7, differs from the means utilized for forming the bottom shown in Figure 2, in that the lower marginal edge portion of the folded blank is provided with a cuff-like fold 15, the ends of which are secured to the side edge seams 16 and 17 of the bag body. Its top edge 18 is unsecured, as will be understood by reference to Figure 8.

A similar cuff 19 is provided at the upper edge of the rear wall 13 and connects the upper edge of the closure flap 14 to the rear wall 13 as in Figure 2. The cuff 19, however, is folded downwardly against the outer upper surface portion of the closure flap 14, and has its ends secured to the ends of the bag top between the side seams 16 and 17 which also secure the ends of the flap to the

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ends of the bag top. The bottom edge 21 of the cuff 19 is unattached in a manner similar to the top edge of the bottom cuff 15.

When a bag of the form illustrated in Figure 7 has been filled, the contents of the bag body will expand the lower cuff 15, whereby it is flattened out into right angular relation to the upright front and rear walls of the bag body, thereby to provide a flat bottom for the bag body, as indicated in Figure 13. The closure flap 14 may then be folded over the open top of the bag body and pulled downwardly into flatwise engagement with the front wall 12 of the bag body, as shown in Figure 13, whereupon the cuff 19 is expanded to form a flat top wall 22 for the closed bag. Such expansion of the cuff 19 over the bag mouth permits the flap portion 14 to lie flatly and smoothly against the upper portion of the front wall 12, as clearly illustrated in Figure 13. The bag top may readily be opened at any time by simply inserting the fingers under the flap 14 and flipping it over the bag top into engagement with the rear wall of the bag top, as shown in Figure 7, whereby the entire mouth of the bag is open and unobstructed to facilitate removal of the contents therefrom.

Figures 9 and 10 illustrate a bag of slightly modified construction comprising front and rear walls 23 and 24, respectively, and a closure flap 25. The bottom of the bag has an intucked gusset 26 which is similar in construction to the gusset 8 shown in Figure 2. The construction of the closure flap 25 is unlike that of Figure 7, in that it has a cuff 27 which is normally folded inwardly against the interior surface of the upper portion of the rear wall 24. The front and rear walls 23 and 24 are heat sealed together at the edges 28 and 29 of the bag body in a manner similar to the bag structures shown in the previous figures. The operation of filling the bag body and closing the open end of the filled bag shown in Figure 9 is similar to that described with reference to the previous figures.

When the bag body is filled the gusset 26 is expanded into right angular relation to the front and rear walls of the bag body, as will be understood by reference to Figure 15, and, in like manner, when the closure flap 25 is flipped over the open top of the bag body and is pulled downwardly into flatwise engagement with the front wall 23 of the bag body, the cuff 27 provides a flat top wall 31.

In Figures 11 and 12, there is illustrated a bag body comprising front and rear walls 32 and 33, respectively. A closure flap 34 is provided at the upper end of the back wall 33, and is secured thereto by a gusset 35 in a manner similar to flap 4, shown in Figure 3. Thus, gusset 35 is interposed between the upper portion of the rear wall 33 and the closure flap 34, and has its upper edges secured to the top edges of wall 33 and the closure flap 34. The bag shown in Figure 11 is provided at its bottom with a cuff 36 similar to the cuff 15 shown in Figure 7, and the ends of the closure flap 34 are fixedly secured to the bag body when the front and rear walls are secured together by the side seams 37 and 38, as will be understood. The top and bottom of the bag body shown in Figure 11 operates in identically the same manner as the bag closures shown in the previous figures, the cuff 36 forming a flat bottom for the bag body, and the gusset 35 a flat top 39 for the bag body, as shown in Figure 17.

The novel bag body closure herein disclosed has been found extremely practical for packaging numerous commodities which may be more or less bulky, and also articles which are to be arranged on shelves or racks for display purposes. The top and bottom of the containers when filled will be rectangular and flat in configuration, as illustrated in the drawings, whereby the packages may readily be placed on end, if desired. Squaring of the bag body ends, as herein disclosed, also facilitates the operation of storing the packages in that they may be stacked solidly together without wasted space. The bag closure

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and gusset formation at the top and bottoms of the bags are such that when the bags are initially made, the front and rear walls thereof are disposed in flatwise relation whereby the empty bags may readily be stacked together in flatwise relation for storage, as is now customary in the trade.

In the drawings and accompanying specification, the various closure flaps are shown and described as normally being in open position. This is desirable in that when the flaps are thus normally or initially open, and the bags are stacked in bundles with their top ends open, the open flaps may be utilized as handles to facilitate the operation of manually picking each bag from the bundle and slipping it onto the filling spout of the bag filling machine. However, there may be instances when it would be more desirable to normally have the closure flap in its closed position. It is therefore to be understood that the present invention is directed broadly to the embodiment of the unique gusset folds herein disclosed, in the top and bottom ends of the bags, and particularly in combination with the closure flaps thereof, regardless of whether the bags are manufactured with the closure flaps initially in open or closed position.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, and the appended claims should be construed as broadly as permissible in view of the prior art.

I claim as my invention:

1. A flat bag comprising first and second walls having their upper portions normally disposed in flatwise relation with the vertical edge portions of one of said walls overlying the corresponding edge portions of the other of said walls, one of said walls initially being longer than the other of said walls to provide a top wall forming portion and a flap forming portion, said top wall forming portion extending the full width of the bag top and normally being folded upon itself to provide an elongated fold extending the length of the bag top and disposed in parallel relation thereto, the vertical end edges of said top wall and flap forming portions overlying the upper side edge portions of one of said walls, and seams securing together the contiguous side edges of said first and second walls and simultaneously permanently securing the vertical end edges of said top wall and flap forming portions to the ends of the bag top, thereby to complete the formation of the bag body.

2. A bag structure according to claim 1, wherein the top wall forming portion is folded upon itself to provide a gusset which normally is concealed between the upper portion of one of said walls and the closure flap.

3. A flat bag comprising first and second walls normally disposed in flatwise relation with the vertical edge portions of one of said walls overlying the corresponding edge portions of the other of said walls, one of said walls having an extension secured to its upper horizontal edge the extent thereof and comprising a top wall forming portion and a closure flap forming portion, said top wall forming portion normally being folded upon itself to provide an intucked gusset whose walls are normally disposed in flatwise relation to the upper portions of said first and second walls, seams securing together the contiguous side edges of said first and second walls and simultaneously permanently securing the vertical end edges of the walls of said gusset and said flap forming portion to the ends of the bag top, thereby to complete the formation of the bag body, said gusset expanding to provide a substantially flat top wall for the filled bag body, when the closure flap is subsequently folded over the open top of the bag to close the bag top.

4. A closure for a flexible walled bag body comprising front and back walls normally disposed in flatwise relation, a top wall forming portion secured to the upper horizontal edge of said back wall the extent thereof, a flap forming portion secured to a horizontal edge of said top

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wall forming portion the extent thereof and normally disposed flatly against the upper outer surface portion of said back wall, said top wall forming portion being folded upon itself and normally being disposed in flatwise relation to said back wall, seams securing together the contiguous side edges of said front and back walls and simultaneously permanently securing the vertical end edges of said top wall and flap forming portions to the opposite ends of the bag top, whereby said top wall and flap forming portions are secured to the bag top along their vertical end edges and upper horizontal edges only, the bottom edge of said flap being free and unattached to facilitate grasping the bag preparatory to filling, and also to facilitate grasping the flap in the operation of flipping the closure flap over the open top of the bag body and into flatwise closing engagement with the upper exterior surface portion of the front wall, said top wall forming portion simultaneously being expanded over the open bag top to provide a flat rectangular top wall therefor, and to permit the closure flap, when in closed position, to fit smoothly against the front wall of the bag top.

5. A flexible bag body comprising front and back walls normally disposed in flatwise relation, a closure for the open top of the bag body comprising a top wall forming portion having one edge secured to the upper horizontal edge of said back wall the extent thereof and normally

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being folded upon itself, a flap forming portion having its upper edge secured to the opposite edge of said top wall forming portion and normally being folded into flatwise engagement with the upper exterior surface of the back wall, said top wall forming portion normally being folded into flatwise engagement with the upper exterior surface of said closure flap, seams securing together the contiguous side edges of said front and back walls, said seams also permanently securing the opposite vertical end edges of said top wall and flap forming portions to the ends of the bag top to complete the formation of the bag top, said top wall forming portion automatically expanding to a position overlying the open top of the bag body, when the closure flap is flipped over the bag top into flatwise engagement with the upper exterior surface of the front wall, and said top wall and flap forming portions cooperating to provide a smooth, flat, rectangular closure for the open bag top, when the bag body has been filled with a product.

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