United States Patent

Lake

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[45] **July 25, 1972**

[54] BAG STRUCTURES WITH INTEGRAL CLOSURE ARRANGEMENT

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[73] Assignee: **Mobil Oil Corporation**

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[21] Appl. No.: **40,649**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 884,534, Dec. 12, 1969.

[52] **U.S. Cl.**.....**229/62,** 264/154, 264/230

[51] **Int. Cl.**.....**B65d 33/16**

[58] **Field of Search**.....229/62, 53; 150/3

[56] **References Cited**

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Primary Examiner—Donald F. Norton

Attorney—Oswald G. Hayes and Andrew L. Gaboriault

[57] **ABSTRACT**

To provide a closure for bags of flexible material such as polyethylene, light fabric, or the like, a restricted opening is formed near the top of the bag, for example molding an opening into a wall of the bag, by a seam partitioning off a portion of the mouth of the bag, a pair of seams extending towards a side with the side being slit open between the seams, or a pair of seams between which a slit is cut; or a tear-off strip, or loop can be formed on the bag. The size of the opening is just large enough to enable a user to gather together the remainder of the mouth of the bag an push it through the opening, the released gathered material then flaring out by its own elasticity to provide a closure which will securely hold contents within the bag. If the bag is made of stressed material, such as streched polyethylene, applying heat in the range of the melting temperature to to bag causes localized melting; release of stress results in the formation of a hole having reinforced surroundings of re-melted, unstressed material.

3 Claims, 21 Drawing Figures

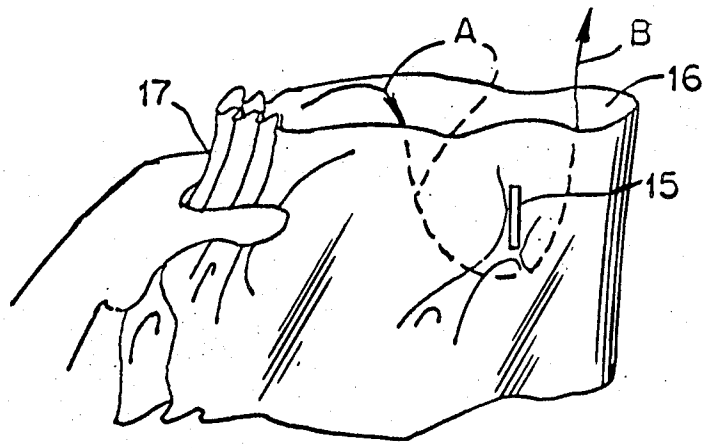


FIG.1a

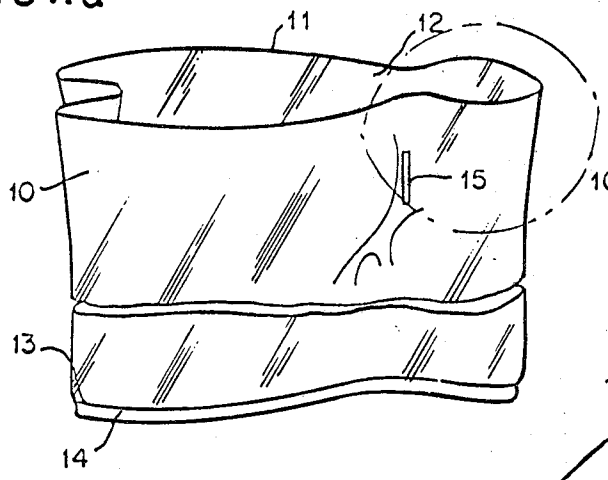
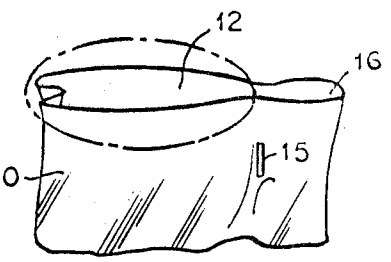


FIG.1b



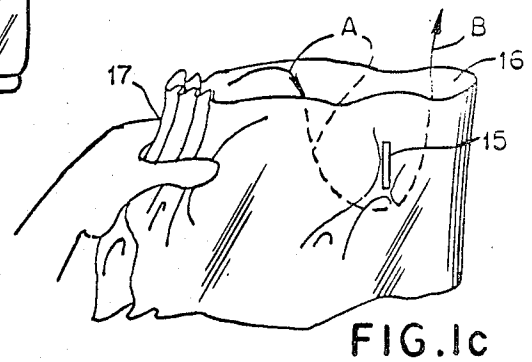


FIG.1c

FIG.1d

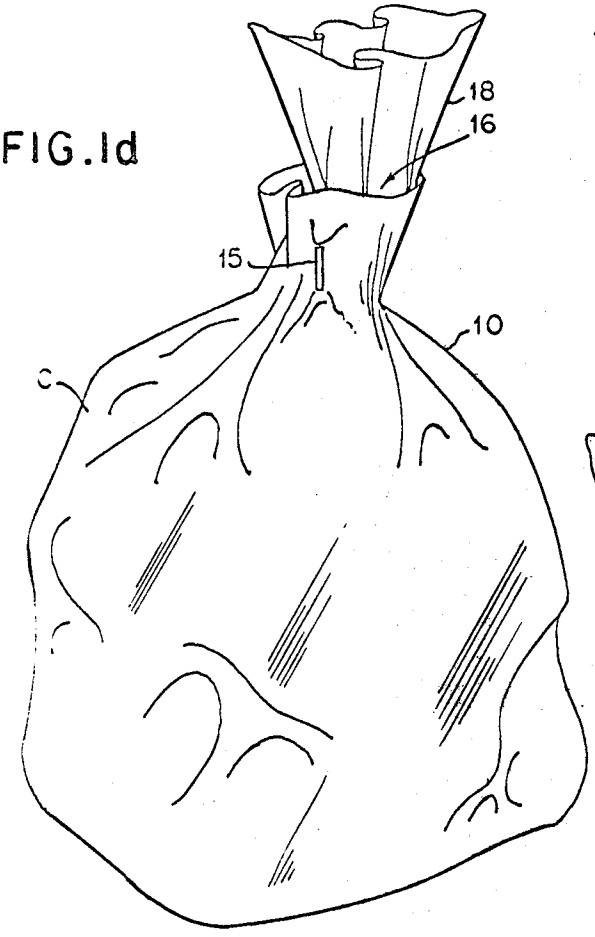


FIG.2

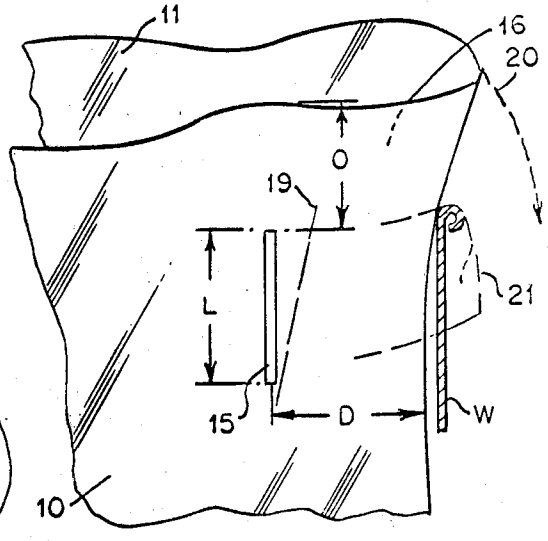


FIG. 3

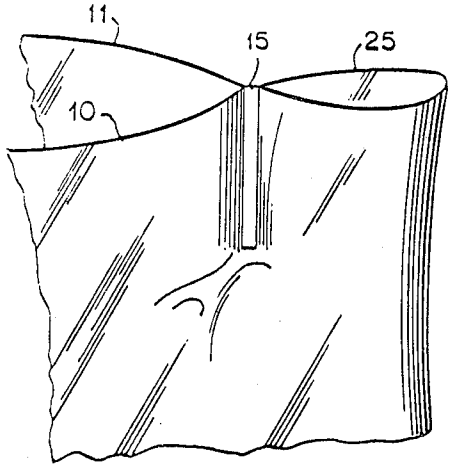
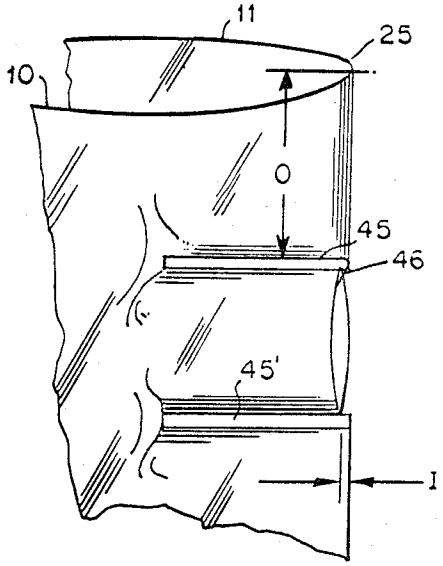


FIG. 4



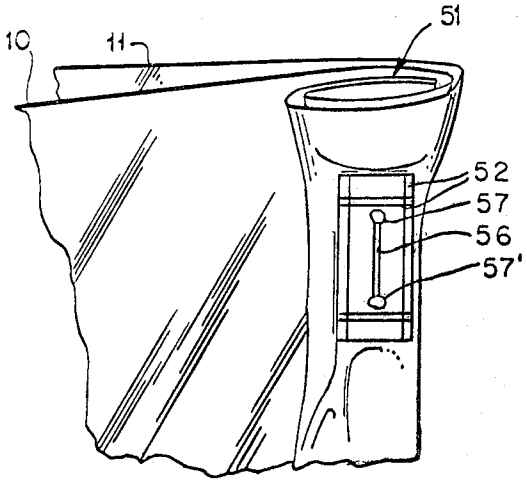


FIG. 5a

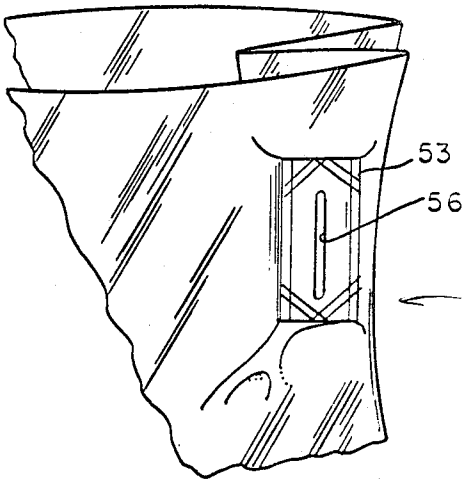


FIG. 5b

FIG. 6

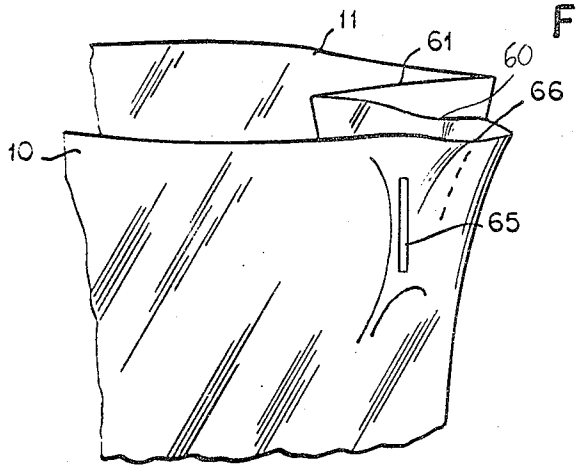
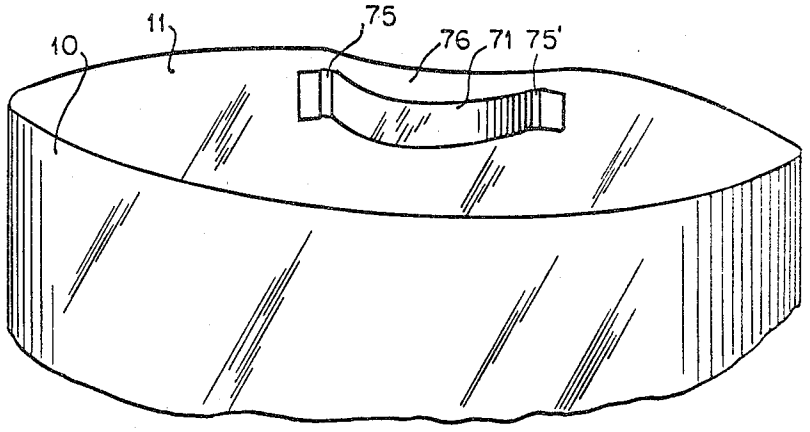


FIG. 7



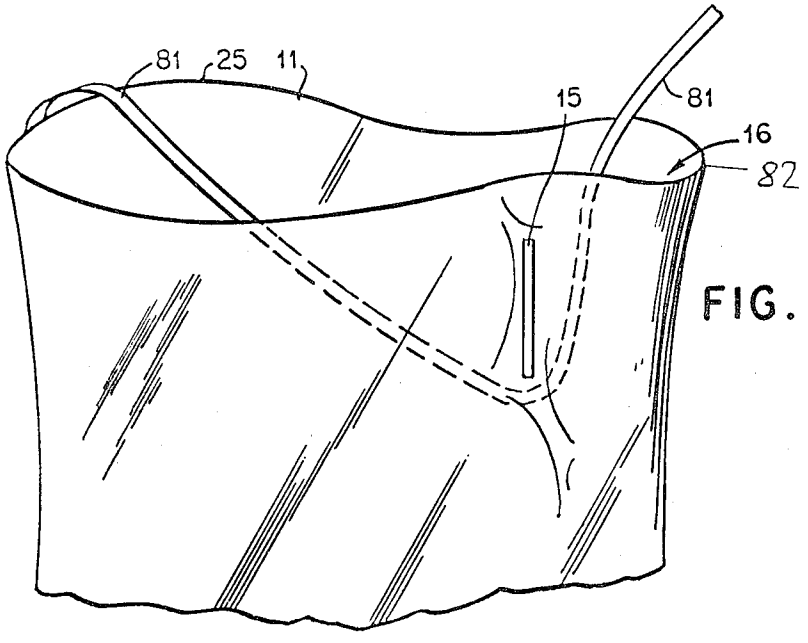


FIG. 8

FIG. 9a

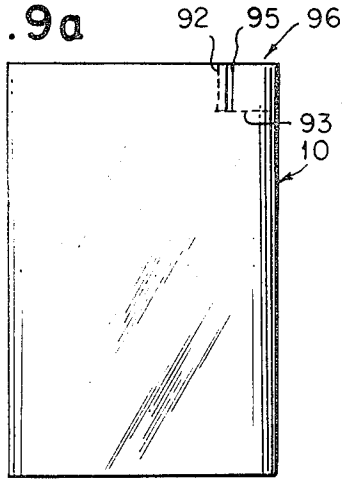


FIG. 9b

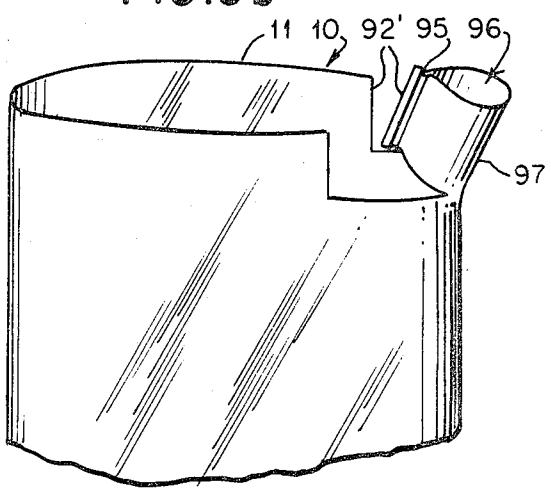
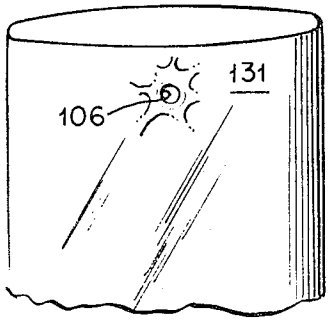


FIG. 10



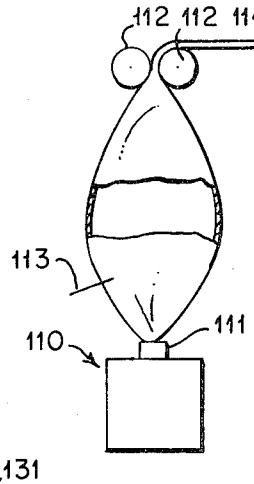


FIG. 11

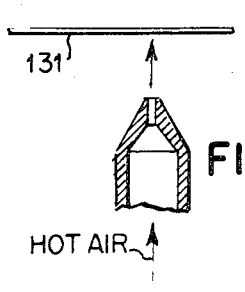
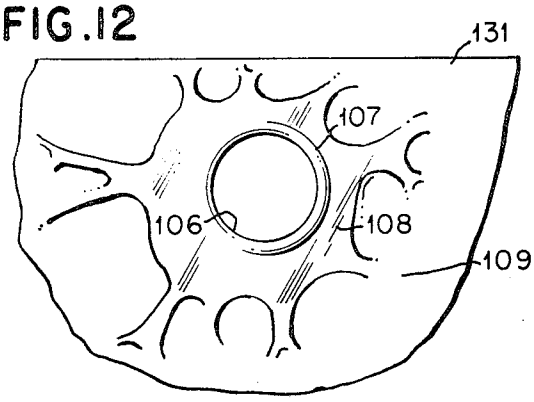


FIG. 13c

FIG. 12



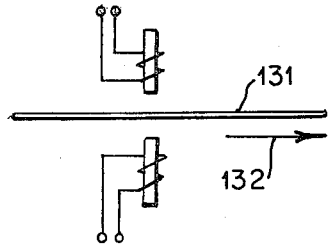


FIG. 13b

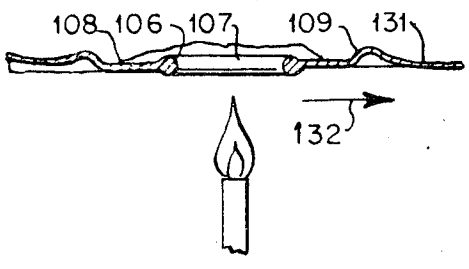
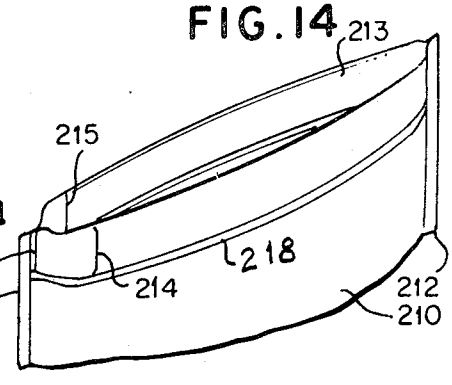


FIG. 13a

FIG. 14



BAG STRUCTURES WITH INTEGRAL CLOSURE ARRANGEMENT

CROSS REFERENCE

The present application is a continuation-in-part of my prior application Ser. No. 884,534, filed Dec. 12, 1969, entitled "Bag Structure With Integral Closure Arrangement".

FIELD OF THE INVENTION

The present invention relates to bag structures, and methods of their manufacture and more particularly to bag structures intended to be made of a flexible material, such as polyethylene, fabric, or the like, and which are constructed to provide an arrangement so that the bags can be closed, without requiring any external auxiliary closing elements, or ties not formed on, or part of the bags themselves.

BACKGROUND OF THE INVENTION

Polyethylene bags, as used for sandwiches, liners for wastepaper baskets, trash cans, garbage pails, leaf bags, and for other many uses requiring manual closing by the user without special apparatus, such as heat sealing devices, should preferably be so constructed that they can be closed without ties or other elements not part of the bag itself. To close polyethylene or similar bags, paper covered wires known as twisters are frequently used; while such separate elements as twisters, string, or other wire closures effectively close any flexible bag, they have two distinct disadvantages: they are a separable element, frequently not handy when a bag is ready to be closed and, additionally, they are expensive to supply and require an additional packaging step in the sale of bags.

Closures for bags should have a number of characteristics to make them fully acceptable for everyday use. They should be simple to operate, that is quickly applied, since the closing operation is one which is frequently done repetitively, and therefore should be fast, without requiring manual dexterity. The cost of the closure should be low—preferably so low that the cost of the entire bag is not noticeably increased thereby. In this particular aspect, the twister is undesirable, since it is not only a separate item requiring separate handling in packaging, but for small bags, may approach in cost the cost of the bag itself. The closure should further be adjustable to the size of the load, or contents to be placed into the bag, so that the load does not move around within the bag excessively, or leave the bag only half filled if less than full capacity is placed thereinto. A separate tieing element serves admirably in this respect. The closure should further be integral with the bag, so that it cannot be lost, misplaced, or has to be looked-for when it is desired to close the bag. This is one of the principal disadvantages of the separate twister wire. The closure must further be efficient, that is, it must be tight enough to prevent spillage of the contents and additionally prevent exchange of air from within the bag to the outside, penetration of rain, moisture or the like, or escape of odors and fluids from the bag. The closure must also be compatible with other closures generally available on the market, that is it must be so constructed that no special technique need be learned to close the bag. It should be adaptable to customary human manipulation, and preferably require only one hand for its use, leaving the other free to support the bag.

A desired feature in the closure is the capability to be used repetitively, that is to enable the bag, with the enclosure, to be re-used, and the bag re-closed with the same element. Further, the closure should have handling capability, that is it should be so arranged that a full bag can be picked up by the closed mouth, without fear of tearing or placing undue strain at specific points of the bag. This requires the additional characteristic of adequate closure strength that is, the closure should be strong enough to permit inversion of the bag without escape of any of the load therein, within the rated weight holding capacity of the bag. While it is not always necessary to provide a closure strong enough to permit a fully loaded bag to be turned upside down, it is a highly desirable feature, particularly for bags used in the trash disposal field.

It is, therefore, an object of the present invention to provide a closure arrangement which can be constructed to be integral with a bag to which it is applied, is simple and cheap in construction and adds little or no cost to the bag during its manufacture, or subsequent packaging, while exhibiting the desirable characteristics of an effective closure.

SUMMARY OF THE INVENTION

Briefly, the bag structure is arranged to have, near the mouth thereof, a restricted opening of such size that the entire material of the walls of the bag, in the region of the mouth, can be gathered and drawn tightly together and then inserted through the opening; after release of the gathered material, that portion thereof which extends beyond the restricted opening will flare out due to its own, natural elasticity, providing a tight effective closure for the bag.

In one embodiment of the present invention, the closure is defined by forming a seam near the top of the bag, preferably offset below the rim of the mouth by a distance sufficient to permit overlapping of the rim about the edge of a pail; the seal may extend vertically, closing off a minor portion of the width of the bag and defining the opening between the seam and the walls. This construction, when applied to polyethylene bags, adds practically no cost to the bag at all, since no additional material is necessary in its manufacture and the additional manufacturing step of providing the seam can be carried out during manufacture of the bags, automatically, with low-cost machinery attached to existing plastic bag machines. In another form of the invention, a plurality of layers of the bag are folded together, seamed (again, for example, by plastic heat welding) together to form a reinforced section, with a slit placed between the seams to form the restricted opening. The slit, again, is preferably located below the rim of the bag. This is a particularly desirable construction when resistance to exchange of air, or moisture between the inside of the bag and ambient surroundings is desired. In another form of the invention, a pair of seam lines are formed to extend essentially parallel with the mouth of the bag, towards a lateral edge of the bag, which is then slit between the seams, the region between the seams with the slit edge defining the restricted opening. This, also, is a construction which has a high degree of isolation of the contents of the bag with ambient air.

The opening may also be formed as a hole in the side of the bag. Polyethylene, as used in bags, is usually stressed during manufacture. Upon localized heating above melting temperature, a hole will form and the material surrounding the hole, stress relieved, melt back to form a reinforcing grommet.

In accordance with another embodiment of the invention, a strap is applied near the mouth of the bag to define, together with the underlying portion of the wall of the bag, a restricted opening through which the remainder of the material forming the mouth of the bag can be drawn. By making the strap of a material contrasting, or different from that of the bag itself, for example of contrasting color, with a different surface texture, or even slightly tacky, decorative effects can be obtained and, additionally the holding efficiency of the closure improved.

In another embodiment of the invention, the strap is preformed as a separable loop, at the edge of the bag, by heat-sealing off a corner of the bag and providing tear lines. For use, the loop is severed from the bag, simply by tearing along the tear lines and the gathered mouth drawing through the loop.

BRIEF DESCRIPTION OF THE DRAWINGS

Advantages of the invention will become apparent to those skilled in the art from the following description considered in conjunction with the drawings wherein:

FIG. 1*a* is a pictorial, schematic representation of the bag structure, with the opening arrangement;

FIGS. 1*b* and 1*c* show, progressively, the steps in closing the bag by using the structure in accordance with the present invention;

FIG. 1*d* illustrates, in schematic form, the bag when closed;

FIG. 2 is a view of the region within the dashed lines of FIG. 1a, to greatly enlarged scale, and showing various modification;

FIG. 3 is a fragmentary view of another modification of the invention;

FIG. 4 illustrates, in a fragmentary view, a different embodiment;

FIGS. 5*a* and 5*b* illustrate another embodiment of the invention, applied to an edge-folded bag (FIG. 5*a*) or a gussetted bag (FIG. 5*b*), respectively;

FIG. 6 illustrates the invention as shown in FIG. 2 and applied to a gussetted bag;

FIG. 7 shows another embodiment of the invention, in a fragmentary view;

FIG. 8 shows an arrangement of the closure with a draw tape;

FIGS. 9*a* and 9*b* are a side view, and perspective view, respectively, of a bag having an attached tear-off loop;

FIG. 10 is a perspective view of a bag having a reinforced hole opening;

FIG. 11 illustrates in fragmentary, highly schematic form a step in the production of thermoplastic film tubes to be made into bags;

FIG. 12 is an enlarged, fragmentary view of an opening in a bag, when molded;

FIGS. 13*a*, 13*b*, and 13*c* illustrate, in schematic form, various methods of forming the opening of FIG. 12; and

FIG. 14 is a perspective view of a cuffed bag with a holding loop.

The general form of the bag construction, best seen in FIG. 1*a*, is standard. A front wall **10** and rear wall **11**, for example formed as an integral, unitary tube define a mouth **12**. The bottom edge **14** of the bag can be sealed off by a seam **13**.

A seam **15**, parallel to the lateral edges of the bag, together with the lateral edges defines a restricted opening **16**. The area within the dotted circle is illustrated at an enlarged scale in the subsequent figures, where also different embodiments of the basic bag structure will be explained.

To close the bag, the area within the dash-dotted oval in FIG. 1*b* is gathered together, as illustrated in the initial gathering stages at **17** in FIG. 1*c*, for example by one hand, the other hand holding the bag in the region of the seam **15** and the restricted opening **16**. The gathered material is then inserted, following the arrow A by threading underneath the seam line **15** into the opening **16** and drawing the gathered material out of the opening **16**, as illustrated by the terminal end B of the arrow. A filled bag is illustrated in FIG. 1*d*. The gathered material of the mouth region of the walls **10**, **11** will flare out, as at **18**. It can readily be seen that the bag can be drawn through the opening to the extent necessary as determined by the contents C to be placed in the bag. Thus, for a smaller number, or lesser quantity of contents, the mouth section of the bag walls need only be drawn out higher. The bag itself is preferably made of polyethylene, which may be opaque in any color, transparent, or translucent. The polyethylene may be smooth, embossed, or have any desired surface texture. A slightly rough surface texture improves the adhesion of the polyethylene material to the wall section of the openings and further improves the holding strength of the closure structure.

FIG. 2 illustrates the closure structure just described in greater detail. For a bag which may be typical for a trash basket liner of flat dimensions of overall length of about one meter, with a width of 90 cm, a seam of length L of about 5 cm is suitable. The offset **0** from the top edge of the walls, that is the downward dimension from the mouth opening can be in the order of 12 cm. The distance from the edge of the bag, that is the diameter D of the opening, when laid out flat, is in the order of 5cm. None of these dimensions are critical and are given herein only as an example; the dimensions thereselves may be varied depending upon the material, its texture, the thickness thereof, and many other considerations, for example the intended use. When a bag in accordance with the present invention is installed in a trash barrel, and the like, to be used as a liner, it is desirable to offset the seam **15** downwardly from the edge of the mouth. Shown schematically is a wall W of a trash container. The plastic bag is inserted as a liner, and the top edge folded downwardly as schematically indicated by the dashed arrow **20**, so that the top edge of the material will assume the position shown in dashed lines **21**. Offsetting the seam **15** as illustrated in FIG. **2** permits folding-over of the liner; it does, however, somewhat decrease the capacity of the bag. For small bags, which are not to be used as liners, such as sandwich bags, or the like, the seam **15** can be placed, as seen in FIG. **3**, up against the top edge **25** of the walls. This increases the capacity of the bag without requiring an increased amount of bag material.

The seam **15** is preferably formed by heat sealing the opposed walls **10**, **11** together. Such heat sealing is well known in the art, and can be carried out at a seaming station, as an attachment, applied to any existing plastic bag manufacturing machine.

FIG. **4** illustrates a different form of the present invention, in which the restricted opening is formed in the side walls. Front wall **10**, and rear wall **11** of the bag are again seamed together by a pair of seams **45**, **45'**, extending essentially parallel to the top edge **25** of the walls. The seam **45** is again offset from the top by a distance O. Since the material between the seam **45** and the top edge will also be available to be folded inwardly through the opening **46** defined between the two seam lines **45**, **45'**, this type of construction provides a very effective seal against interchange of air, or moisture, or liquids from within the bag to surrounding ambient air, and thus effectively prevents entrance of rain, or other moisture to within the bag. The closure construction in accordance with FIG. **4** can, on an existing bag machine, again be made by forming the two seams **45**, **45'** by a heat sealing device. The bag is then cut off at the edge, set in by a very small amount I which is shown in the drawings greatly exaggerated. Cutting off a thin sliver of material is an effective and inexpensive way of forming the opening. The distance I, itself, can be determined by manufacturing tolerances and may be 0.1 mm, or even less.

An opening with reinforced strength is illustrated in FIG. 5*a*. A terminal portion of the bag is wrapped about itself a few times as seen at **51** to form a plurality of layers, in the case illustrated in FIG. 5*a* as six layers. Such folding operations can readily be carried out on existing bag manufacturing machinery. The folded-over edges are then heat-seamed together in a pattern illustrated as a double cross pattern **52**, although any other suitable pattern may be used. A slit **56** is then cut between the seam lines; the width of slit slit is shown exaggerated in the drawings. To increase the strength of the slit, it can be terminated either at one of the seam lines, or have terminal loops **57**, **57'** formed by heat sealing. The loops **57**, **57'** are preferably applied by heat sealing, and extend through the various layers of material, to the rear wall **11**. The number of folds **51** will affect the strength of the opening; this type of bag closure also has a high degree of moisture and fluid penetration resistance since the portion of the folded-over material which is seamed together at seam pattern **52** will provide a water-tight region, and the remainder of the top of the bag can be gathered together and packed into the slit **56**, to be drawn therethrough in the direction back of the drawing, FIG. 5*a*, to provide a complete closure and seal. A structure similar to that shown in FIG. 5*a* with a gussetted bag is illustrated in FIG. 5*b*. The gussets, folded in a gussetting machine, are seamed together and to the front and back walls of the bag at the pattern **53**, slit **56** again being formed between seam lines. Structures which provide more filling capacity, although somewhat weaker are obtained by seaming pattern **53** only between the front wall and one, or both of the gusset folds. If a seam line as illustrated in FIGS. **2** and **3** is to be used with a gussetted bag, then the seam preferably extends only from the front wall to a gusset fold, as illustrated in FIG. **6**. Front and back walls **10**, **11**, are interconnected by a gusset fold **60**, **61**. Seam **65** interconnects gusset fold **60** and front wall **10**, the opening **66** being defined by the region between seam **65**, front wall **10**, and first gusset fold **60**.

FIG. 7 illustrates a construction in which a strap 71 is heat-seamed at 75, 75' to extend across a portion of the rear wall 11 of the bag structure, of which only the top part is shown in a fragmentary view. The region between strap 71 and back wall 11 defines the opening 76 of restricted size, through which the top portion of the bag material can be drawn, when wall 10, 11, are gathered together tightly, to be drawn through opening 76 between strap 71 and wall 11. Strap 71 may be made of a material of color contrasting with the color of wall 11, so as to be easy to find; the material can be different from that of the walls; its surface texture, particularly on the inside face, that is the face adjacent rear wall 11 may be roughened to increase adhesion with the gathered end portions of the walls when drawn through. Further, the inside can be made slightly tacky to securely hold any material drawn therethrough.

Various modifications and changes of the formation of the restricted opening are possible, and will be dictated by the use for which the bags are intended, their size, the material used, and the like. For example, it is not necessary that the seam line 15 (FIG. 2, FIG. 3) or the slit 56 (FIG. 5) is parallel to the side edge of the bag. The seam 15 may well be arranged on a slant, for example parallel to the dashed line 19 (FIG. 2), so that the smallest opening formed has a dimension less than dimension D, to compress the gathered-together folds of the material and provide a tighter seal, without, however, restricting the widest portion of the opening 16 and thus interfering with the ease of insertion of the gathered material. Likewise, the seams 45, 45' (FIG. 4) may be arranged to converge towards opening 46, thereby also providing for ease of insertion with a tight fit of the bunched-together material in the restricted opening. To ease the insertion of the material through the restricted opening, a pull, or draw tape 81, as seen in FIG. 8, can be attached to one side of the bag. The draw tape 81 is pre-threaded through the opening 16, so that it is only necessary to bunch the top walls 25 of the bag together, and then pull on tape 81, to draw the end through the restricted opening. Tape 81 may be made of the material as the bag, can be attached to the end of the bag close to opening 16, for example at point 82, or let loose as illustrated in FIG. 8. This pull tab can be made of color-contrasting or different material, as desired. If made of the same material as the bag, it can be cut as the bags are made on an automatic bagging machine, in roll-form, laid across the bag and pushed inwardly, for example by an air blast or a mechanical finger, just prior to or concurrent with forming the seam 15.

The bag construction of the present invention thus provides, as an integral part of the bag itself, a restricted opening through which a portion of the bag material, adjacent the mouth of the bag, can be drawn. Due to the inherent resiliency of the bag material itself which will again flare out after having been tightly bunched to be drawn through the opening, the bag will effectively hold contents placed therein, even against upsetting and turning over. The construction shown in FIGS. 1, 2, and 6 is the simplest, least wasteful of bag material, and easiest to produce on existing machinery; the constructions shown in accordance with FIGS. 4, 5, and 7 have the advantages of greater resistance to moisture penetration, or exchange of gasses, and liquids between the inside and the outside of the bag, requiring, however, slightly greater dexterity in closing the bag and a slightly greater amount of material. The material above the seams in FIGS. 4 and 5 is not, however, wasted since when used as a liner, it would normally be folded over the structure which it is designed to protect.

FIGS. 9*a* and 9*b* illustrate a construction in which a tear-off loop is provided. If in the bag of FIG. 3, a tear line is formed as illustrated in FIG. 9*a* at 92, 93, a small closed loop, or ring 97 will result which can be torn off, wholly, or in part, to draw the bunched end of the bag therethrough. This, to some extent, facilitates handling. The constricted opening is formed by the remainder of the mouth of the bag shown at 96. The tear line 92' (FIG. 9*b*), when separated, enables the entire bag to be used, so that, for example, the mouth of the bag can be folded over a pail, or container, utilizing the entire circumferential dimension of the bag without constriction.

FIG. 14 illustrates an application of the present invention to a cuffed bag. The construction of the bag illustrated which may, of course, be varied, shows a front wall 210, joined with a rear wall by a pair of side seams 211, 212. The ends of the bag are folded over to form a cuff 213, seamed to the walls at seam 218. A pair of slits 214, 216 are formed in the cuff; the slits can be placed at random although one is placed, preferably, close to one of the seams, and slit 216 is shown close to seam 211. The constricted opening is then formed by the cuff between slits 214, 216. The bag shown has a further slit 215 to permit holding tongs, or other attachment to be passed into the cuff to suspend the bag. This construction is applicable also to gusseted bags, and the pair of slits 214, 216 which, together with the cuff, define the constricted opening can be formed anywhere along the cuff of the bag. Since the opening is formed in a folded-over zone of the mouth of the bag, there is no constriction of the mouth opening when the bag is open. If desired, a tear line can be formed just beneath seam 218 in the region of the slits 214, 216 so that the loop defined by the cuff between slits 214, 216 and the seam 218 can be severed from the bag for ease of handling.

Thermoplastic material, such as polyethylene for use in bags is usually manufactured by extruding a tube from an extrusion machine 110 (FIG. 11) having an extrusion nozzle 111 and then drawing the tube through a pair of pinch rollers 112. Compressed air is injected into the tube between nozzle 111 and pinch rollers 112, to form a bubble 113. The still warm, and deformable thermoplastic material will stretch. The amount of compressed air injected into the tube between the nozzle and pinch roller will determine the size of the bubble, and hence the eventual thickness of the film 114 drawn off between pinch rollers 112, and removed for further storage and processing in apparatus not shown. This type of apparatus, and method of making the film is entirely conventional. As the film is subjected to compressed air, the still soft thermoplastic material not only will stretch, but will also be stressed. Thus, when the cooled, stretched film 114, in tubular form, is removed from between pinch rollers 112, the film itself which will later form the walls of bags is in stretched condition.

Application of heat, as schematically illustrated in FIGS. 13 to the film will, if the heat applied to the film is in excess of its melting temperature, cause melt-back of the film at the point of heat application. As soon as the film melts, the stress inherent in the film due to the stretching by air bubble 113 (FIG. 11) will be released, and the melted material will rapidly draw back into itself into unstretched condition, thus substantially increasing the thickness of the film in the region surrounding the point of heat application. The appearance of opening 106 will be as seen in FIG. 12. If a flame is placed beneath a film 131 (FIG. 13*a*) or a blast of very hot air (FIG. 13*c*) or otherwise heat applied, for example by electrically heated rods (FIG. 13*b*), or by any other means, localized melting will result which will quickly spread to form hole 106. If web 131 travels, as schematically indicated by arrow 132, and is cooled, for example by a cold air blast, or by passage of time in ambient temperature, melting will stop so that melted-back hole 106 will be surrounded by a bead 107, with a reinforced area 108 of melted-back material surrounding hole 106 and bead 107. The melted-back area which is reinforced is not sharply defined; the material adjacent the melted-back area will form bulged or puckered striations 109 where the localized melting, and melt-back of the material has occured and where it merges into the still stretched, and stressed remainder of the material which has not been heated.

The bead 107 surrounding hole 106, as well as the melted-back area 108 forms an effective edge reinforced hole of sufficient strength to permit the mouth of the bag to be pulled through and form a constricted opening, without tearing off. Thus, without any additional equipment contacting the web of the bag, a constricted opening can readily be formed which is additionally reinforced, in form of a grommet. The location of this hole can be selected close to the mouth of the bag, or slightly therebelow, for example, for a bag of the aforemen-

tioned dimensions, about 7 to 8 cm therebelow. The diameter of the hole can be in the order of 2–4 cm, which is sufficient to pull through the remainder of the material of the mouth, when tightly bunched together. Since the hole is formed in only one wall of the bag, it does not interfere with a folding the bag over the edge of a pail or other container, nor does it constrict the clear opening of the bag.

Opening **106**, made by localized heating of one wall of the bag thus provides a reinforced grommet-like opening, set within reinforced zone **108** of the bag, without requiring addition of further material, such as reinforcing strips, patches, and the like to the bag, nor removal of part of the material from the bag by a punching operation. The puckered striations, schematically illustrated in FIG. **12** at **109** additionally contribute to stress distribution and transfer of stresses from the region surrounding opening **106** to the wall of the bag, as a whole.

If the opening is to be formed by seams, then the seams, for example seam **15**, FIG. **2**, need not be continuous lines as shown in the drawings. They may be merely plastic welded spots, or loops, suitably placed on the bag structure to define the restricted openings through which the remainder of the mouth portion of the bag can be drawn. Such seams are particularly adapted for use in bags of smaller sizes and requiring low closure strength, for example in sandwich bags; of course the melt-back method of forming the openings may also be used. This method is not restricted to forming holes of restricted size in bags, but may be used in many different applications, e.g., hanger openings for shower curtains, or any other application where reinforced grommetted holes are to be placed in plastic sheeting.

LIST OF REFERENCE NUMERALS

10	Front Wall	**57, 57'**	Loops
11	Rear Wall	**53**	Seam pattern
12	Mouth	**60, 61**	Gusset fold
13	Seam	**65**	Seam
14	Bottom edge	**66**	Opening
15	Seam	**71**	Strap
16	Restricted opening	**75, 75'**	Seam
A	Arrow	**76**	Opening
B	Arrow end	**81**	Pull tape
17	gathered material	**82**	Attachment point
18	flared material	**92, 93**	Tear-off lines
19	dashed line	**95**	Seam line
C	Contents	**96**	Loop region
W	Wall	**97**	Separated loop
20	Arrow	**106**	Molded Opening
21	dashed line - position of top edge	**107**	Bead
25	Top edge	**108**	Reinforced Zone
45, 45'	Seams	**109**	Striations
46	Opening	**110**	Extruded Tube
51	Wrap	**111, 112**	Pinch Rollers
52	Seam pattern	**113**	Air Bubble
56	Slit	**114**	Stretched Web
		131	Web
		132	Arrow
		133	Hot Air

I claim:

1. Bag structure comprising walls of flexible material having a filling opening to provide access to the inside of the bag between the walls thereof;

means defining a restricted opening formed in the vicinity of the mouth of the bag and forming a portion of the mouth of the bag, said restricted opening being delimited by a seam line interconnecting adjacent, overlying wall portions to form a loop of material, said opening being of such size that the entire material of the walls in the region of the mouth of the bag, when gathered tightly together, will have a cross sectional dimension slightly less than the dimensions of said opening to permit the tightly gathered material to be drawn through the opening and close the bag and to permit said tightly gathered material to flare and expand to a size larger than said opening;

and a tear line formed beyond said seam line and extending beneath said seam line and said loop to permit severing of said loop of material, as an integral element, upon gathering of the walls of the bag to be drawn through the opening defined by the loop.

2. A bag structure according to claim **1** wherein the bag wall material is a polyethylene film.

3. In a bag structure, means defining a restricted opening adjacent the mouth of said bag, said opening being defined in part, at least, by a wall of said bag structure;

said opening being defined by a seam interconnecting adjacent, overlying, continuous wall portions to form a loop formed by said adjacent, continuous wall portions and said seam;

a tear line formed adjacent and beyond said seam with respect to said loop to permit severing of said loop into a separate portion of the bag;

and said seam providing a reinforced zone formed in said wall adjacent said opening.

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