

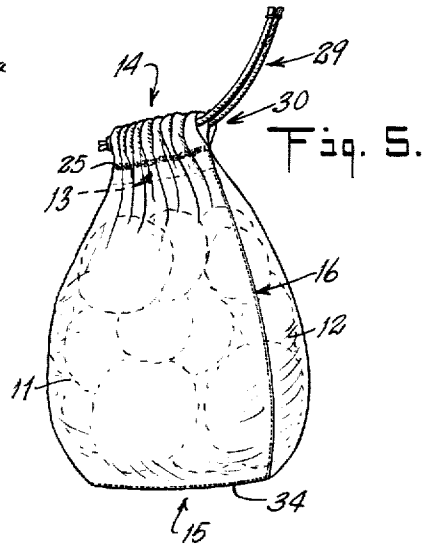
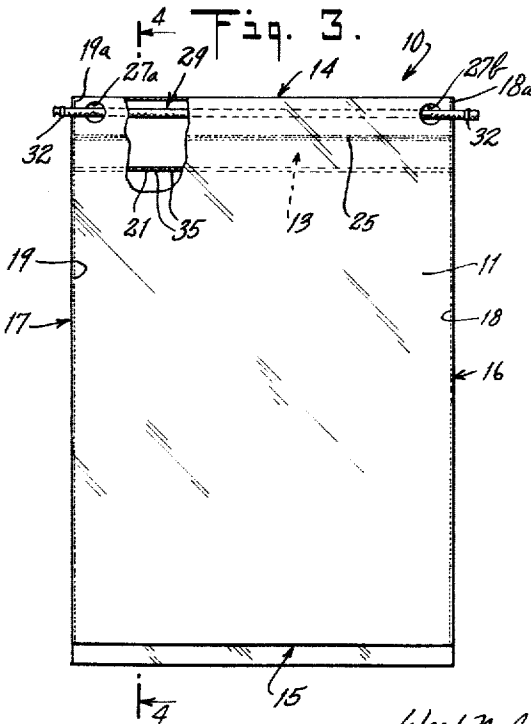
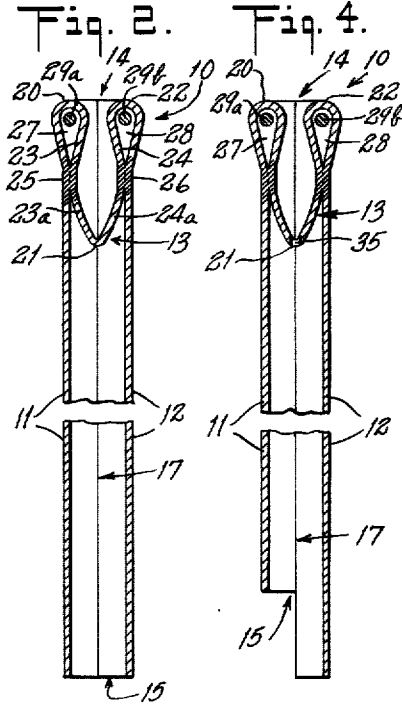
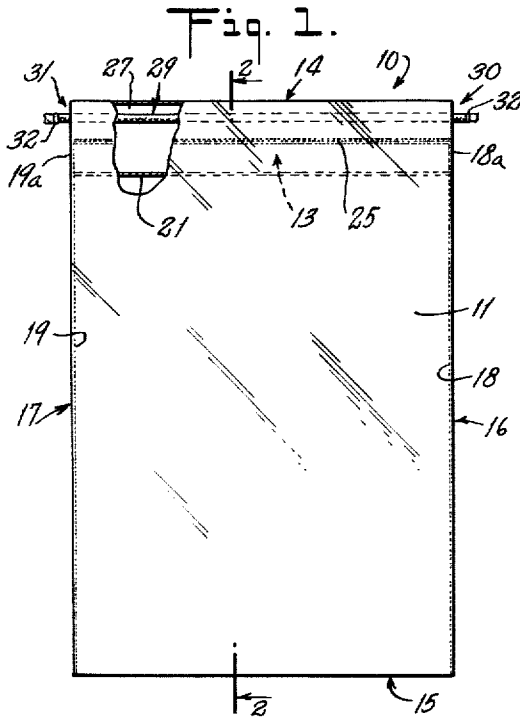
June 11, 1963

E. KUGLER

3,093,295

DRAWSTRING BAG

Filed May 18, 1962



INVENTOR
EMANUEL KUGLER
BY

Ward, Neal, Haselton, Orme & McElhannon
ATTORNEYS

1

3,093,295
DRAWSTRING BAG
Emanuel Kugler, 296 Hungry Harbor Road,
Valley Stream, N.Y.
Filed May 18, 1962, Ser. No. 195,735
3 Claims. (Cl. 229-63)

This invention relates to the construction of bags made of flexible plastic, such as polyethylene, of the type which has a drawstring within a tubular hem at its mouth end.

In their initially manufactured condition, such drawstring bags have heretofore incorporated an open top end, about which the tubular hem and drawstring have been disposed, and a bottom end which is either sealed closed, or closed by a line of fold, the latter in instances where the bag is made of a single strip of material which is folded in half to provide the front and back face panels of the bag. Moreover, although sometimes such bags are made of seamless tubular material, where alternatively the bags are made in a process involving the folding of a continuously fed sheet of polyethylene in a well-known manner, the side edges of the bags are formed by lines of heat seal. In the manufacturing process, these side edge heat seals are disposed at spaced intervals along, and transversely of the continuously fed folded sheet. Thus, for the purpose of this specification, a typical conventional drawstring bag may be considered as having an open top or mouth end, a closed bottom end, and heat sealed side edges.

These conventional drawstring bags are filled by introducing the merchandise to be contained through the top end of the bag, whereupon the drawstring is pulled in well-known manner to close the top end and so enclose the merchandise.

Unless a separate sealing strip is placed across the thus closed mouth end, the bag may be easily opened at any time, and therefore the merchandise is subject to pilfering while on the counter in retail stores. Moreover, it is fairly impossible to fully close the mouth end by simply pulling on, and tying the drawstring, and it is therefore well-known that such conventional bags are prone to the introduction of dirt, liquid or moisture or the like and, moreover, are not considered to be a useful form of packaging where the merchandise is to be initially hermetically sealed within the bag, even though the inclusion of a drawstring for subsequent use would be desirable.

It is intended by the present invention to provide a drawstring type bag which incorporates an effective seal at its top or mouth end, yet which may be manufactured with facility and economy substantially equal to the facility and economy with which the previously described conventional drawstring bag is manufactured.

Further, it is intended by the present invention to provide a drawstring type bag which may be loaded, or filled as conveniently as are conventional drawstring bags, yet which is capable of being hermetically sealed.

It will be seen that by the present invention there is provided a drawstring bag having construction which is not at all complex, yet which will provide a completely sealed container for the merchandise so as to eliminate the possibility for pilfering of the same, or the introduction of dirt, liquid, moisture, etc. while the merchandise is in its initially packaged condition.

Moreover, it is a further object of the invention to provide a drawstring bag for use in more effectively sealing the contained merchandise therewithin, as aforesaid, yet one which may be easily opened by the ultimate consumer of the merchandise without destroying the subsequent utility of the drawstring as is provided.

Briefly describing a drawstring bag in accordance with a preferred embodiment of the invention, the bag is made of a single sheet of polyethylene which is folded in a man-

2

ner providing what is commonly referred to as a gusseted construction at its top or mouth end, the remaining portions of the sheet, as they extend from either side of the gusset fold, providing the conventional, oppositely disposed front and back face panels of the bag. The respectively opposite side edges of the bag are formed by lines of heat seal extending substantially the full height of the bag. The side edge heat seals provide attachment of at least a portion of the gusset fold between the front and back face panels. The bag has an open bottom end where the respective lower end edges of the front and back face panels lie substantially adjacent to each other.

In the preferred embodiment of the invention, the referred to lines of heat seal which form the opposed side edges of the bag are each terminated short of, or spaced from the two lines of fold of the gusset which form the extreme top edge of the bag. Additional respective lines of heat seal are disposed across the width of the bag, between these upper terminal ends of the side edge heat seals. These additional heat seal lines seal together the respective interior panels provided by the gusset to their respectively adjacent bag face panels so as to provide a tubular hem along the top ends of the front and back face panels for containing the drawstring. However, in a modified form of the invention, the referred to lines of heat seal which form the opposed side edges extend fully to the extreme top edge of the bag, the aforementioned lines of heat seal which form the respective tubular hems being each disposed in parallel spaced relation with respect to the extreme top edge, and extending the full width of the bag between its side edges. Apertures are provided at each end of each tubular hem for threading the drawstring through the respective tubular hems.

The interior, relatively short panels which form the top end gusset extend below the respective lines of heat seal which provide the drawstring hems, so that the line of fold which extends along the middle of the gusset is spaced away from such lines of heat seal. Thus, the gusseted top end of the bag is adapted to be conveniently slitted along this middle fold of the gusset when the merchandise-filled bag is to be opened by the consumer. Alternatively, this middle fold of the gusset may have a line of perforations extending therealong so that the use of a knife or the like is not required when slitting the gusset.

Moreover, such extensions of the interiorly disposed gusset panels below the lines of seal which form the tubular hems render the initially flat bag construction (as is provided by the direct sealing together of the front and back face panels to form the side edges of the bag) capable of being opened to an effectively greater width when filling the bag with merchandise, the then expanded gusset serving as a floor when the bag is inverted for filling through the open bottom end of the initially manufactured bag.

When the bag has been filled, the bottom end is then closed and sealed, such as by heat sealing, in manner providing a strong bottom closure for supporting the merchandise weight when the bag is again inverted and perhaps carried or suspended by the drawstring. It should be noted that a heat sealed closure at the bottom end, together with the aforementioned extensions of the respective side edge heat seals into the gusset zone at the top end of the bag, provides a fully enclosed container for the merchandise, thereby completely protecting the latter against any exposure to dirt or the like. It will also be understood that where, additionally, the middle fold of the gusset is not perforated, the bag may be hermetically sealed against the introduction of air or moisture or liquid as might otherwise contaminate the contained merchandise.

These and other objects, features and advantages of the invention will become more fully apparent from the

3

following detailed description thereof, when taken with reference to the accompanying drawings which illustrate, by way of example, certain embodiments of the invention.

In the drawings:

FIGURE 1 is a front elevation of a bag made in accordance with the invention, certain portions being cut away to more clearly illustrate its features;

FIGURE 2 is an enlarged sectional view of the bag shown in FIGURE 1, the section being taken at line 2—2 thereof;

FIGURE 3 is a front elevation of a bag made in accordance with the invention and incorporating certain modifications thereof as may be desirable;

FIGURE 4 is an enlarged sectional view of the bag shown in FIGURE 3, the section being taken at line 3—3 thereof; and

FIGURE 5 is a view in perspective showing the bag of FIGURE 1 as it would appear when filled with merchandise and supported by its drawstring.

Referring first to FIGURES 1 and 2, a drawstring bag made in accordance with the invention is generally indicated by reference numeral 10. The bag is made of thin and highly flexible, transparent, thermoplastic material, such as polyethylene, and has a front face panel 11 which merges with an oppositely disposed and generally coextensive back face panel 12 by means of the gusset construction, generally indicated by reference numeral 13, at the top end of the bag. The top end of the bag is generally indicated by reference numeral 14. As also generally indicated by the respective reference numerals, the bag 10 may be considered as having a bottom end 15 and side edges 16 and 17.

In the illustrated embodiment, at each of the opposite side edges 16 and 17, the front and back face panels are attached together, as by longitudinally extending lines of heat seal 18, 19, respectively.

It should be particularly understood that in its initially manufactured condition, the bottom end 15 of the bag will be open, and that it is contemplated that the bag will be filled by passing the merchandise through the bottom end, rather than through the top end as is the conventional mode of filling a drawstring-type bag. At the bottom end of the bag, the end edges of the front and back face panels may lie adjacent each other, as illustrated, or one of the face panels may be made slightly longer than the other to provide an extended lip (FIGURES 3 and 4) at the bottom end of the bag for facilitating the forming of the bottom end closure, as will be understood by those familiar with the art.

Referring now to the construction at the top end 14 of the bag 10, the gusset 13 is formed by lines of fold 20, 21 and 22 of the single sheet of material which forms the front and back face panels 11 and 12, thus providing the relatively short interior panels 23 and 24. The interior panel 23 is bounded by the lines of fold 20 and 21 and lies adjacent the front face panel 11, as shown, and the interior panel 24 is bounded by the lines of fold 21 and 22 and lies adjacent the back face panel 12, as shown. Thus, the gusset 13 may be considered as being substantially V-shaped towards the interior of the bag 10 at its top end 14, the alternate lines of fold 20 and 23 lying adjacent to each other and providing the extreme top end edge of the bag, these lines extending fully across the width of the bag between its side edges 16 and 17.

The middle line of fold 21 extends across the bag width in spaced parallel relation with respect to the lines of fold 20 and 22, and lies between the front and back face panels 11 and 12, as shown, but is not attached thereto along its length.

The respective opposite ends of each of the interior panels 23 and 24 are attached to the respective side edges 16 and 17 of the bag. In the illustrated embodiment, these opposite ends of the interior panels are firmly at-

4

tached between the face panels 11 and 12 by extensions of the upper ends of the respective side edge heat seals 18 and 19. It will later be more fully understood that this attachment of the gusset at each of its opposite ends very effectively seals off the interior of the bag 10 at its top end, considering the relationship thereto of the additional lines of heat seal 25 and 26 which form the respective tubular hems 27 and 28 for receiving the drawstring 29, as will now be described.

The lines of heat seal 25 and 26 extend across the bag width, the line of heat seal 25 being disposed at a middle-height location with respect to the interior panel 23 and attaching the latter to the front face panel 11, and the line of heat seal 26 being disposed similarly with respect to the interior panel 24 and attaching the latter to the back face panel 12, all as will be more fully understood by reference to FIGURE 2. As shown more clearly by FIGURE 1, the lines of heat seal 25 and 26 are in parallel spaced relation with respect to the respective lines of fold 20 and 22 and with respect to the line of fold 21 so as to provide a tubular hem along the top end edge of each face panel 11, 12. In the illustrated embodiment, the lines of heat seal 25, 26 extend between the terminal ends 18a, 19a of the side edge seals 18 and 19. It should be understood however, that the distance between the lines of fold 20 and 22 and the respective lines of heat seal 25 and 26, as measured in the direction of the bag height, need only be such as will form the complementary tubular hems 27 and 28 with equal diameters as will be convenient for slidable passage therethrough of the drawstring 29, and that the respective lower portions 23a, 24a of the interior panels 23, 24 may have any convenient height, as by spacing the line of fold 21 at a greater or less distance away from the lines of heat seal 25, 26.

Since the respective terminal ends 18a, 19a of the side edge seals 18 and 19 are spaced away from the lines of fold 20 and 22, to substantially the same extent as are the conjoining lines of heat seal 25, 26, it will be understood that each of the tubular hems 27 and 28 is open at both of its ends. The adjacent open ends of both the tubular hems 27 and 28 are respectively indicated by reference numerals 30 and 31.

In the embodiment shown, complementary drawstring portions 29a and 29b are disposed within each of the respective tubular hems 27, 28 (see FIGURE 2), the drawstring portions having equal length which is greater than the width of the bag so that they project outwardly of the side edges 16 and 17 to be attached together at these locations by the staples 32 (FIGURE 1). Thus, the complementary drawstring portions 29a, 29b, as attached by staples 32, effectively provide a drawstring loop, which is generally indicated in FIGURE 1 by reference numeral 29, extending through both of the tubular hems 28, 29.

Referring now to FIGURES 3 and 4, it is seen that, alternatively, the terminal ends 18a, 19a of the side edge heat seals 18 and 19 may be extended to the extreme top end edge of the bag, which is formed by the lines of fold 20 and 22, as aforesaid. However, in conjunction with this modification it is necessary to provide drawstring apertures 27a, 27b through the front face panel 11 within the zone of the tubular hem 27 at each of the respective ends of the latter, as shown, as well as similar apertures (obstructed in the FIGURE 1 showing) through back face panel 12 at each of the respective ends of tubular hem 28, through which the drawstring portions 29a, 29b are threaded into and emerge from the respective tubular hems 27 and 28. Excepting as has been described, and excepting as it includes an additional modification of the invention which will be later described, the embodiment as shown in FIGURES 3 and 4 is in all respects identical with that shown by FIGURES 1 and 2, and, accordingly, the like elements are similarly numbered.

In a bag filling operation, the bag is first inverted and

5

is then opened at its bottom end by drawing apart the adjacent ends of the front and back face panels 11 and 12. Articles of merchandise, such as potatoes, or other produce, may be simply dropped into the bag without danger of rupture of the gusset 13 against which they will fall. When filled, the lower ends of the face panels 11 and 12 are drawn together, and heat sealed together by a line of heat seal 34 as shown in FIGURE 5. Thus, the merchandise is totally enclosed and completely sealed within the bag 10, since neither air, nor liquid, nor moisture can penetrate the seals at the ends of the gusset 13, as previously explained. The bag is then inverted to its right-side-up position and may be freely supported or carried by its drawstring 29, whereupon the weight of the contained merchandise will cause a puckering of the tubular hems 27 and 28, as shown in FIGURE 5, and as is well understood.

When the bag is to be opened, it is only necessary to slit the gusset 13 along the length of the interiorly disposed, middle line of fold 21, and it will be noted that the lower portions 23a, 24a of the interior panels 23, 24 effectively form a cradle to guide the tool (not shown), such as a knife, with which the line of fold 21 is being slit.

Referring again to FIGURES 3 and 4, it is seen that perforations 35 may be disposed along the line of fold 21 to facilitate such opening of the sealed bag without the aid of a tool.

Moreover, it will be noted that the rupturing of the line of fold 21 when opening the sealed bag does not disturb the construction of either of the heat seals 25, 26 or of the tubular hems 27 or 28, and leaves the drawstring 29 in serviceable condition for subsequent use in closing the now opened mouth of the bag, in manner as is conventional.

Thus has been described a drawstring bag, in several of its embodiments, which achieves all of the aforesaid objects of the invention.

What is claimed is:

1. A drawstring bag of flexible material having in its initially manufactured condition: a closed top end, an open bottom end, and opposed side edges, and including oppositely disposed front and back face panels merging together in three lines of fold at said top end, said lines of fold being spaced from and alternating in direction of fold with respect to each other to provide an interiorly disposed gusseted construction which is entirely below said top end and which includes two oppositely disposed

6

interior panels respectively adjacent said front and back face panels, each of said interior panels, at their respective ends and adjacent the middle fold of said three lines of fold, being attached to the respective of said side edges of the bag, and each said interior panel being further attached, substantially along its length between said side edges and in parallel spaced relation with respect to the respective of said first and third lines of fold, to the said respectively adjacent of said front and back face panels to provide a tubular hem of each of said front and back face panels adjacent said top end, and drawstring means disposed within said tubular hems.

2. A drawstring bag according to claim 1 wherein said middle line of fold includes a weakened line of tear for manual rupturing thereof substantially along its length.

3. A drawstring bag of a single sheet of heat sealable, flexible material having in its initially manufactured condition: a closed top end, an open bottom end, and opposed side edges, and including oppositely disposed front and back face panels merging together in three lines of fold at said top end, said lines of fold being spaced from and alternating in direction with respect to each other to provide an interiorly disposed gusseted construction which is entirely below said top end and which includes two oppositely disposed interior panels respectively adjacent said front and back face panels, each said interior panel being attached, by a line of heat seal extending substantially along its length between said side edges and in parallel spaced relation with respect to the respective of said first and third lines of fold, to the said respectively adjacent of said front and back face panels to provide a tubular hem of each of said front and back face panels adjacent said top end, and drawstring means disposed within said tubular hems, said front and back face panels being heat sealed together at and thereby defining said side edges along their respective lengths extending from substantially said bottom end at least to the respective ends of said lines of heat seal attaching said interior panels, said interior panels being attached at their respective ends to said side edges of the bag.

References Cited in the file of this patent

UNITED STATES PATENTS

351,378	Hill	Oct. 26, 1886
2,971,874	Canno	Feb. 14, 1961

FOREIGN PATENTS

825,257	Great Britain	Dec. 9, 1959
---------	---------------	--------------