

United States Patent

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[15] 3,679,127

[45] July 25, 1972

[54] BAG DISPENSING ARRANGEMENT

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[22] Filed: April 16, 1971

[21] Appl. No.: 134,860

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Related U.S. Application Data

[63] Continuation of Ser. No. 791,726, Jan. 16, 1969, abandoned.

[52] U.S. Cl.229/62.5, 93/35 PC, 206/56 A, 229/69

[51] Int. Cl.B65d 31/12, B65d 31/14

[58] Field of Search206/56 A, 56 AA, 56 AB, 58; 229/69, 62.5, 53, 54 R, 56; 93/35 PC, 35 R; 150/9; 53/29, 35, 187

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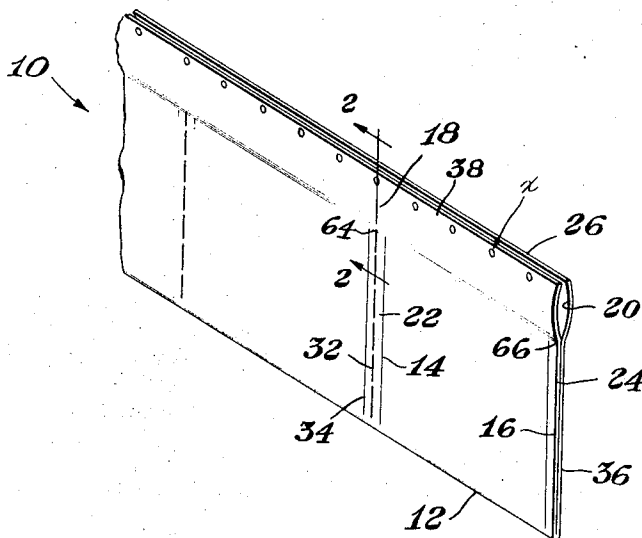
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[57]

ABSTRACT

An improved packaging system of the type wherein a bag including a loop across its top end is mounted, for filling, in a fashion comparable to a curtain and rod arrangement, and thereafter the loop parted to form a fill opening. The loop is formed by a plurality of spaced attachments extending edgewise across the top end of the bag. A loop so constructed can be efficiently parted by a gentle pulling action.

3 Claims, 3 Drawing Figures



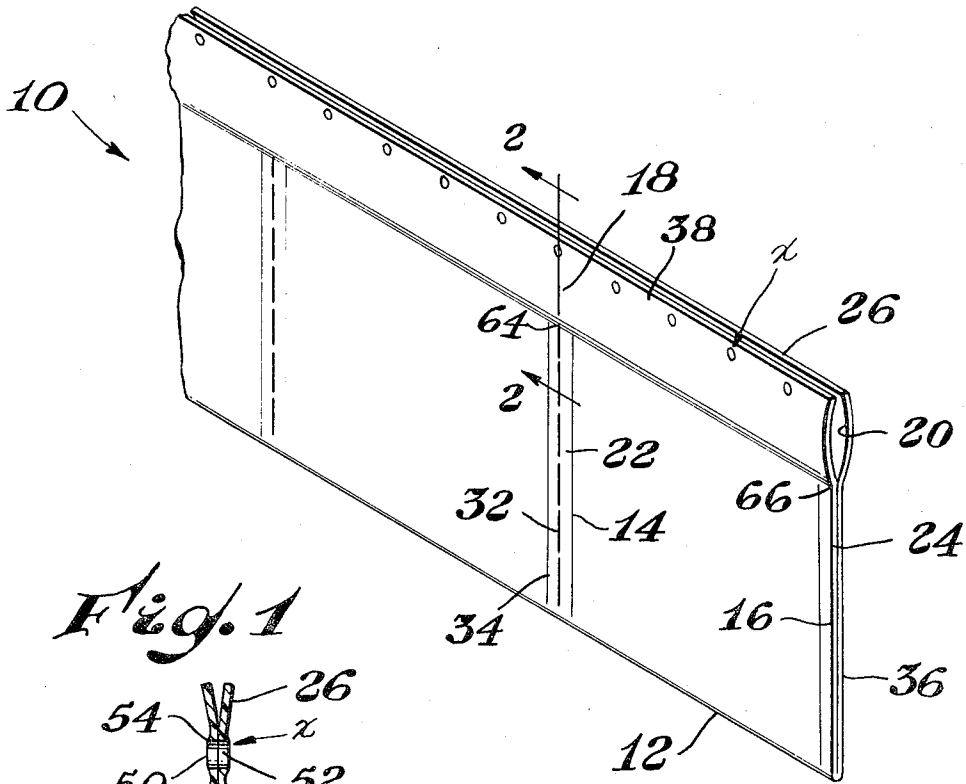


Fig. 1

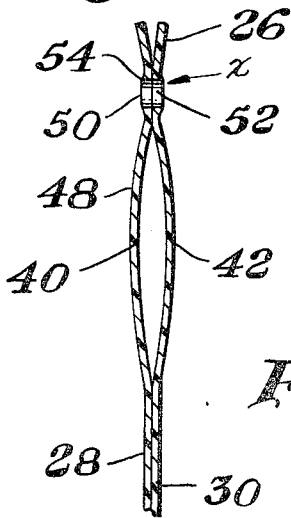


Fig. 2

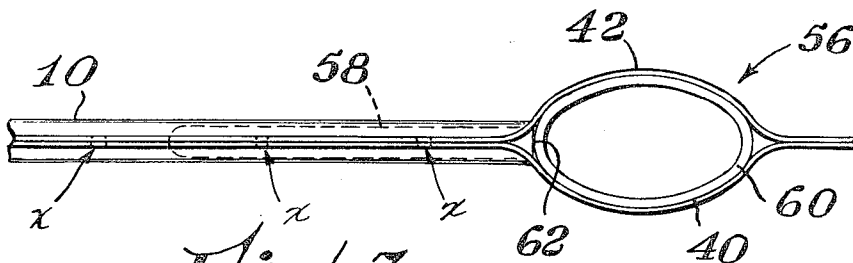


Fig. 3

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BAG DISPENSING ARRANGEMENT

This application is a continuation of U.S. Pat. application Ser. No. 791,726, filed Jan. 16, 1969 under the title A BAG DISPENSING ARRANGEMENT, now abandoned.

DESCRIPTION OF THE INVENTION

In a bag construction related to the present invention, the bags are formed from flattened tubular material which is intermittently sealed in the transverse direction to compartment the tube into a plurality or chain of connected bag elements. Each seal extends from one edge of the flattened tube to a point spaced from the opposite edge thereof. The region between the terminating ends of the seals and the adjacent edge of the flattened tube forms a continuous loop or channel through which the bags can be draped or mounted in a fashion closely principled to that of a curtain and rod type arrangement. In other words, the provision of the loop in such bag constructions permits the bags to be mounted in filling apparatus by means of an appropriately dimensioned mandrel which fits into the loop.

The mandrel accurately guides the bags to the filling station effectively minimizing the possibility of fouling of the apparatus by misdirected bags. At the filling station the loop is parted in the longitudinal direction whereby a fill opening is formed between the two parted edges of the loop. The edges are then plowed open, as for example, by the leading portion of a hopper or like filling mechanism, and a product is dropped into the confines of the bag.

To form bags of various sizes, it is customary to extrude tubes of varying diameters. Oftentimes, however, extrusion of tubular material is most economically undertaken with tubes of relatively large diameters (i.e., as much as 5 feet or more). Of course, bags formed from tubular material of this diameter, are impractical in size for packaging products in smaller lots as, for example, 1 to 5 lb. lots.

Furthermore, different products often have several established weight lots in which they are customarily sold. Additionally, some products are more bulky than other, that is, they take up more room in the package even though they may weigh less or the same as various other products. Thus bags appropriate in size for 5 lb. lots of powdered or ground sugar, for example, would not necessarily be appropriate for packaging 5 lb. lots of onions or the like.

From the foregoing, it can be appreciated that to serve a wide range of packaging applications, a considerable range of bag sizes is necessary if the bags are to be tailored to the needs of the particular product and weight lot involved.

Accordingly, it would be highly advantageous to provide bags having the provision of a loop at its top end as generally described hereinbefore, but so constructed that the bag size can be independent of the dimensions of the extruded material from which it is fabricated, be it tubular or flat.

It would be of even further benefit if in the above bag constructions, the loop is formed such that it can be parted without the need for cutting mechanisms or the like so that the complexity of the filling operation can be minimized.

Briefly, the present invention concerns a bag, the opposite sides of which are closed except at their uppermost extents, the top end of the bag including opposed edge portions located upwardly of the closed portions of the sides, a plurality of attachments joining together the opposed edge portions at spaced intervals across the top end of the bag, whereby, the attachments in combination with the edge portions and the open uppermost extents of the sides, respectively, form an open ended loop at the top end of the bag. Most beneficially each attachment comprises aligned apertures, one in each edge portion, and a bead-like weld locally joining together the edge portions immediately about the periphery of the aligned apertures.

Other objects and advantages of the present invention and its details of construction will be apparent from a consideration of the following specification and accompanying drawings wherein:

FIG. 1 is an isometric view of a plurality of bag elements connected together in generally side by side fashion and constructed according to the principles of the present invention;

FIG. 2 is a cross-sectional view taken along reference line 2-2 of FIG. 1;

FIG. 3 is a schematic top view of apparatus of the type employed to fill the connected bag elements of the present invention.

Referring now more particularly to the drawing, there is shown in FIG. 1 a chain of side by side connected bag elements 10. Generally each bag element 10 includes a closed bottom end 12 and two sides 14 and 16, each closed except at its uppermost extent 18 and 20, respectively.

Specifically, each bag 10 comprises a first or front wall 28, and a second or rear wall 30 located generally opposite the first wall 28. Seams 22 and 24 edgewise join together or close walls 28 and 30 along the opposite sides 14 and 16 of the bag. The open uppermost extents 18 and 20 of sides 14 and 16 are obtained by terminating seams 22 and 24 at a point in spaced relationship with respective top ends 26 of each bag element 10. Each seam 22 and 24 includes along the mid-region thereof a line of weakness, such as perforations 32.

At the top ends 26 of the bag 10, and upwardly of the closed portions 34 and 36 of sides 14 and 16, respectively, there is located a first edge portion or flap 40 associated with the front wall 28, and second edge portion or flap 42 disposed opposite the first edge portion 40 and associated with the rear wall 30.

As was mentioned hereinbefore, the invention relates to a loop construction at the top end 26 of each bag 10, whereby the bags can be mounted in a curtain and rod like fashion. To this end, flaps 40 and 42 are attached or joined together at intervals or regions X spaced along a generally linear path 38 extending from adjacent one side 14 of each bag 10 to a point generally adjacent the opposite side 16 thereof. Accordingly, the joined regions X in combination with the first and second edge portions 40 and 42, and the open uppermost extents 18 and 20 of the sides 14 and 16, respectively, form an open ended loop 48 at the top end 26 of each bag element 10.

The preferred attachment construction at each region X is best shown in FIG. 2. Each region X comprises an aperture 50 in the first edge portion 40, and aperture 52 in the second edge portion 42, with apertures 50 and 52 being in aligned or registered relationship with each other. Each region X further comprises a weld 54 between edge portions 40 and 42 immediately about the periphery of the aligned apertures 50 and 52.

The formation of these attachments at region X can be obtained by pressing the edge portions 40 and 42 into flat planar engagement with each other, and inserting the heated tip of an elongated or needle-like member through the edge portions such that the tip of the heated needle burns through the combined material thicknesses of the edge portions. Thus, as the heated tip approaches edge portions 40 and 42, the material softens and begins to melt away whereby the aligned apertures 50 and 52 form, and with the displaced or melted material forming a bulbular or lead-shaped ridge or weld 54 immediately about the apertures.

Referring now to FIG. 3, there is illustrated loading or filling apparatus 56 of the type generally envisioned for employment with the chain of bag element 10 disclosed herein. The apparatus 56 includes a mandrel 58 which initially receives the chain of bags 10 through loop 48. The bags 10 are then fed along mandrel 58 until they reach a fill mechanism or hopper 60. A drive means (not shown) is employed to forward the chain of bags 10 past the hopper 60. The drive means assisted by the leading edge or portion 62 of hopper 60 parts the loop 48 of each bag 10 along the path 38 formed by regions X. Thereafter, the parted edge portions 40 and 42 pass about the opposite side, respectively, of hopper 60 whereby in the process they are plowed open by leading edge 62 such that the bags 10 are spread open to a product receiving position. A product is then dropped through the hopper 60 into the confines of each bag. Thereafter, the filled bags are directed to a

suitable sealing mechanism (not shown) to form a closure seal (i.e., by heat and pressure or by adhesives as would be appropriate for the bag 10 material) across the top end 26 of each filled bag, thereby securing the product within the bag. Sealing can be accompanied by a trimming of the edge portions 40 and 42 from the bags, or alternately the edge portions 40 and 42 can be fabricated to serve as carrying handles. In the latter instance, it would frequently be desired to have each line of weakness 32 extend beyond the terminating ends 64 and 66 of seams 22 and 24 through edge portions 40 and 42 such that, following the sealing operation, adjacent filled bags can be easily separated from each other along the line of weakness 32 therebetween. In the former instance, wherein edge portions 40 and 42 are trimmed away, the lines of weakness 32 need extend only to the terminating ends 64 and 66 of seams 22 and 24 as shown in the drawings.

As can be appreciated, the aforesaid bag construction is operable generally independent of the particular tubular or web material which is employed in its fabrication. Such material is easily slit to a tubular or web size or width commensurate with the bag dimensions desired for a particular packaging application.

For the attachment construction at regions X of the type described, however, the material employed must exhibit thermoplastic qualities, that is, it must flow and seal or weld when subjected to appropriate amounts of heat. Polyethylene is an example of such thermoplastic material.

Within the framework of the present invention, however, the spaced attachments along path 38 can be formed by other means than that shown as for example, by means of spot "tacks" or welds wherein a burn through of the material is not caused, thereby eliminating apertures 50 and 52. The degree of strength at each such "spot" weld can be regulated by methods well known in that art such that a parting of the loop can be beneficially obtained by a gentle pulling action as described above. Such means, for example can employ contaminants or adhesives to lessen or increase weld strength as would be appropriate, and/or the heat and pressure applied to form the "spot" welds can be regulated to some extent to obtain the same effect, that is, a weld that will part in the desired manner, but yet one wherein the strength of the sum of the

welds is sufficient to support the bags on a mandrel or the like.

However, the employment of a burn through type attachment at regions X (the type attachment employing apertures 50 and 52) is particularly applicable and beneficial to the present invention, in that these attachments can be rapidly and efficiently formed employing a spiked wheel or the like, the tip or spikes of which are heated to an appropriate temperature for this purpose.

While certain representative embodiments and details have been shown for the purpose of illustrating the invention, it will be apparent to those skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope of the invention.

What is claimed is:

1. A series of linearly arranged bags comprising a continuous web of material folded longitudinally to provide opposed wall portions, a plurality of spaced apart seals each extending in a direction generally transverse to longitudinal fold of the web and joining together said wall portions to compartment the folded web into said series of bags, said seals terminating at a spaced distance from the top edges of said wall portions to define opposed flaps positioned at the top ends of said bags, respectively, a series of attachments joining together said flaps at a region positioned upwardly of said terminating seal ends, said series of attachments extending in a direction generally parallel said longitudinal fold and substantially closing said top ends, said terminating seal ends together with said series of attachments forming a continuous tunnel communicating from bag to bag in said series and further communicating with the interior of said bags, the integrity of said attachments being of a degree that permits said flaps to be plowed apart from each other by an object placed between said flaps, and without destroying the flaps.

2. The bags of claim 1 wherein each said attachment comprises an aperture in each flap, said apertures being aligned with each other, said flaps comprising thermoplastic material and being joined together by a weld located peripherally about said aligned apertures.

3. The bags of claim 2 wherein said attachments are formed by inserting a heated element through said flaps.

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