

[54] **MOUTHPIECE FOR A PLASTICS MATERIAL BAG, PACKET, RECEPTACLE SACHET OR THE LIKE**

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[56]

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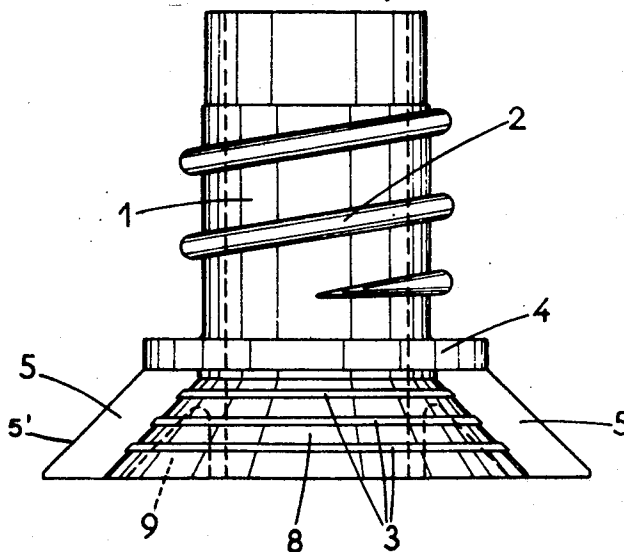
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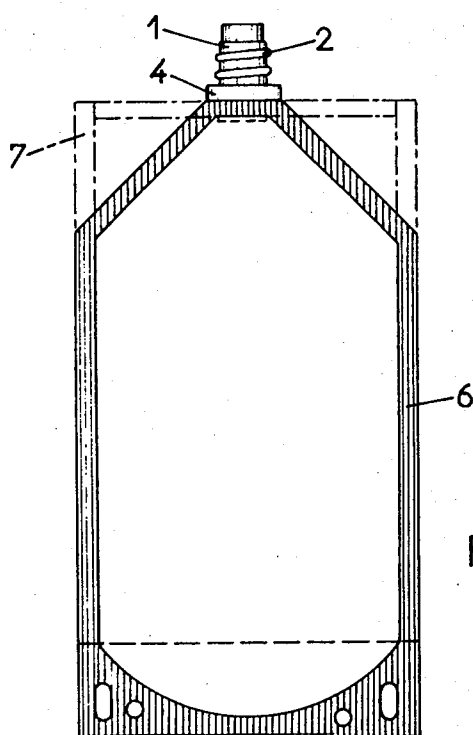
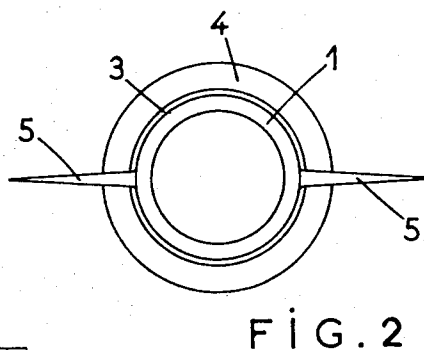
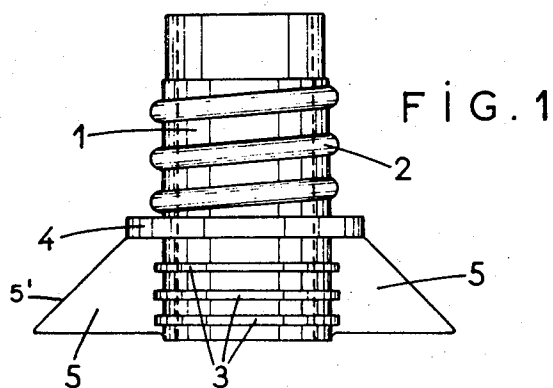
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ABSTRACT

A mouthpiece for dispensing the contents of a container, made from heat-sealable plastic sheet material, has a tubular body divided by a peripheral collar into an upper and a lower portion. The lower portion, which may be cylindrical or frustoconically diverging, carries a pair of diametrically opposite wings whose outer lateral edges diverge downwardly from the periphery of the cells so as to define a trapezoidal outline.

8 Claims, 5 Drawing Figures

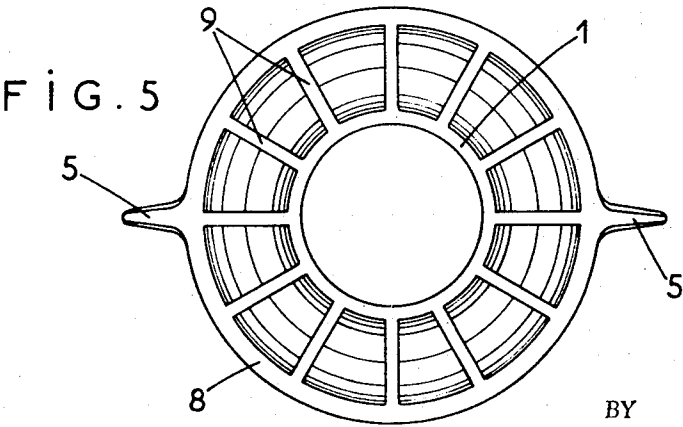
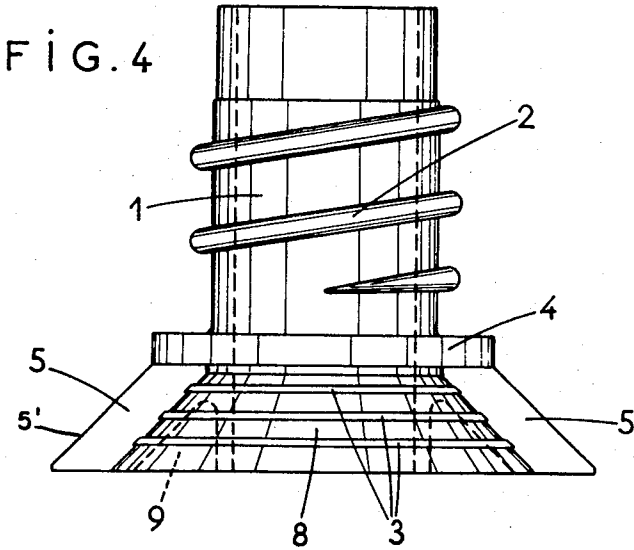




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MOUTHPIECE FOR A PLASTICS MATERIAL BAG, PACKET, RECEPTACLE SACHET OR THE LIKE

This invention relates to a mouthpiece for a bag, sacket, receptacle or similar container (hereinafter referred to as "bags" for the sake of simplicity) and in particular for bags made from plastic material.

In order to facilitate their use, such bags are frequently provided with a mouthpiece having a double purpose, i.e., to close the bag and to enable the product contained therein to be dispensed.

In the case of bags produced from a relatively rigid plastic material, no insurmountable problem exists in fixing the mouthpiece in position. However, in the case of bags made from a sheet or sheets of supple plastic material, such as, scent bags of the type described for example in U.S. Pat. No. 3380646, the difficulty of adapting and fixing a mouthpiece to this type of bag is considerable. The difficulty arises from the fact that the bag is closed at its lower end, which makes it necessary to locate and secure the mouthpiece without being able to insert it into the bag from the bottom, thus to anchor it from above inside the bag. An additional problem also stems from the difficulty of efficiently heat sealing the two container walls of the plastic material completely around the neck of the mouthpiece without creating zones of weakness in the seam.

Thus, the jaws of a heat-sealing apparatus may perfectly bond the plastic material to the mouthpiece on practically the whole of its periphery except in two diametrically opposed zones where the walls of the bag come into contact with each other and with the mouthpiece.

I have found that a suitable mouthpiece can be devised to overcome the above-outlined disadvantages, and thus the primary object of the invention is to provide a mouthpiece for containers of the character set forth.

According to the present invention a mouthpiece for a bag of plastic material has a lower portion formed with two diametrically opposite radial wings, located in a plane passing through the longitudinal axis of the mouthpiece, these wings serving as supports for the marginal regions of two container walls to be secured to the mouthpiece by a heat-sealing operation in the region of the periphery of the mouthpiece. By constituting a supply of additional plastic material which fuses during the heat-sealing operation, these wings enable a continuous seam to be formed around the mouthpiece.

Advantageously, the tubular body of the mouthpiece has its lower portion provided with spaced peripheral ribs to intensify the local pressure during the sealing step for achieving an effective connection between the bag and the mouthpiece, these ribs constituting a further supply of plastic material adapted to reinforce the bond.

The wings have downwardly diverging outer lateral edges whereby the outline of the lower portion of the mouthpiece is substantially trapezoidal.

The mouthpiece may be provided with a closure cap, hood or the like.

The mouthpiece may have any cross-sectional shape but preferably it is circular. Depending upon whether the bag is to contain liquid or powder to be poured or otherwise dispensed from the bag mouthpiece, its outlet will be in the form of a simple aperture or a perforated lid.

In case the mouthpiece is to be provided with a screw cap, the exterior thereof carries a screw thread.

During the heat-sealing operation a removable mandrel should be introduced into the mouthpiece from its upper end so that the jaws of a sealing apparatus can exert sufficient pressure on the abutting bag walls and mouthpiece to ensure efficient fusion without causing mouthpiece distortion.

The lower portion of the tubular mouthpiece body may be flared out frustoconically or may be a cylindrical extension of the upper portion, the two portions being separated by a peripheral ring or collar which lies immediately above the wings and insures the correct positioning of the bag on the mouthpiece. This collar may also facilitate the suspension of the mouthpiece on a nozzle of a filling machine.

The invention will now be described further, by way of example only, with reference to the accompanying drawings in which:

FIGS. 1 and 2, respectively show in side elevation and in bottom plan view, a mouthpiece according to my invention;

FIG. 3 is a side elevation showing the mouthpiece of FIGS. 1 and 2 positioned in a bag of plastic material; and

FIGS. 4 and 5 are an elevation and bottom plan view respectively, of a second embodiment of my improved mouthpiece.

A first form of mouthpiece according to my invention shown in FIGS. 1 and 2, consists of a cylindrical body 1 whose upper portion has an external thread 2. The lower portion of the body is provided with spaced peripheral ribs 3. The threaded region and the ribbed region of the body are separated by a peripheral ring 4.

Below this ring 4, i.e., on the side remote from the thread 2, the body 1 is provided with two thin diametrically opposed wings 5. These wings extend radially outwardly from the body 1 and thus lie in a plane passing through its longitudinal axis.

The two wings 5 enable an effective bonding of the mouthpiece to a bag 6 of flexible plastic material shown in FIG. 3, which is only illustrative of one form of receptacle to which the mouthpiece can be secured.

This bag, which eventually develops a neck region of conical shape as shown in full lines in FIG. 3, initially has a rectangular outline 7 as shown in phantom lines in that Figure. It is formed from two sheets of supple plastic material which are initially heat-sealed around the whole periphery with the exception of its upper edge.

To secure the mouthpiece to this bag by a heat-sealing operation, the lower portion 3 of the body 1 is introduced into the upper portion of the bag until the ring 4 abuts the top of the upper open edge of the bag. A removable mandrel has previously been introduced into the mouthpiece from above, i.e., from the threaded end of its tubular body 1. The sealing operation by means of which the mouthpiece is secured in position also serves to fuse the material of the bag along diagonal lines in the region of the open top to produce the conical neck of FIG. 3.

The wings 5, being located between the two edges of the bag, serve the following purposes:

a. They provide mechanical support or reinforcement of the bag edges in the regions adjacent the mouthpiece.

b. They provide, by being softened or melted during the sealing operation, additional plastic material to assist in producing an effective bond and to reinforce the seam precisely in the zone which is usually the weakest, i.e., at the junction between the two edges of the bag and the mouthpiece.

In the case shown in FIG. 3, the jaws of the heat-sealing apparatus should be shaped so that, in a single operation, the bag is closed at its upper portion along a trapezoidal outline and so that the mouthpiece is fixed simultaneously in the upper portion of the bag.

The mouthpiece shown on FIGS. 4 and 5 differs from that shown in FIGS. 1 to 3 by the provision, below the ring 4 and in the region of the wings 5, of a frustoconical skirt or flange 8 integral with the cylindrical body of the mouthpiece, with insertion of a series of radial spacer webs 9 between the skirt and the body 1. As in the preceding case, the lower portion of body 1 is provided with spaced peripheral ribs 3 which may be formed only on the circumference of the flange 8 or may extend onto the wings 5.

In both embodiments, the wings have downwardly diverging outer edges 5' starting at diametrically opposite points of ring 4. In FIGS. 4 and 5, these wings are parallel to the nearest generatrices of the frustacone 8.

The process of mounting and fixing the mouthpiece on the bag takes place under the same conditions as for the device shown in FIGS. 1 to 3; the modification shown in FIGS. 4 and 5 has, however, the advantage, due to the provision of the frustoconical flange 8, of allowing a much more effective connection to be made between the upper edge of the bag and the mouthpiece.

In fact, in the case of bags whose upper, or neck, portion is conical, it is very difficult to attach the top of the bag solidly to a purely cylindrical mouthpiece. In the device herein disclosed, on the other hand, the trapezoidal outline defined by the diverging flanks 5' of the wings 5 (which, as shown, terminate substantially flush with the underside of the mouthpiece body) conforms to that of the frustoconical container neck to establish a firmer connection therebetween.

I claim:

1. A mouthpiece for a container of flexible plastic material, comprising a tubular body provided with a peripheral collar dividing said body into an upper portion and a lower portion, said lower portion diverging frustoconically from said collar down, and a pair of radial wings on said lower portion in an axial plane of said body, said wings having outer lateral edges diverging downwardly from two diametrically opposite points of said collar, said lower portion and said wings being insertable between layers of plastic material at the top of a frustoconical neck of a container to be fusion-bonded thereto.

2. A mouthpiece as defined in claim 1 wherein said wings terminate substantially flush with the underside of said body.

3. A mouthpiece as defined in claim 1 wherein said lower portion is provided with axially spaced peripheral ribs.

4. A mouthpiece as defined in claim 1 wherein said upper portion is provided with threads for receiving a closure member.

5. A mouthpiece for a container of flexible plastic material, comprising a tubular body of cylindrical shape, a downwardly diverging frustoconical skirt integrally surrounding a downward extension of said body, and a pair of coplanar radial wings on diametrically opposite sides of said skirt having downwardly diverging outer lateral edges, said skirt and said wings being insertable between layers of plastic material at the top of a frustoconical neck of a container to be fusion-bonded thereto.

6. A mouthpiece as defined in claim 5, further comprising an array of webs radiating outwardly from said extension to said skirt.

7. A mouthpiece as defined in claim 5 wherein said lateral edges are parallel to the nearest generatrices of said skirt.

8. A mouthpiece as defined in claim 5 wherein said body is provided with an intermediate peripheral collar overlying said skirt and said wings, said lateral edges extending downwardly from diametrically opposite points of said collar.

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