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SANITARY PROTECTIVE DEVICE

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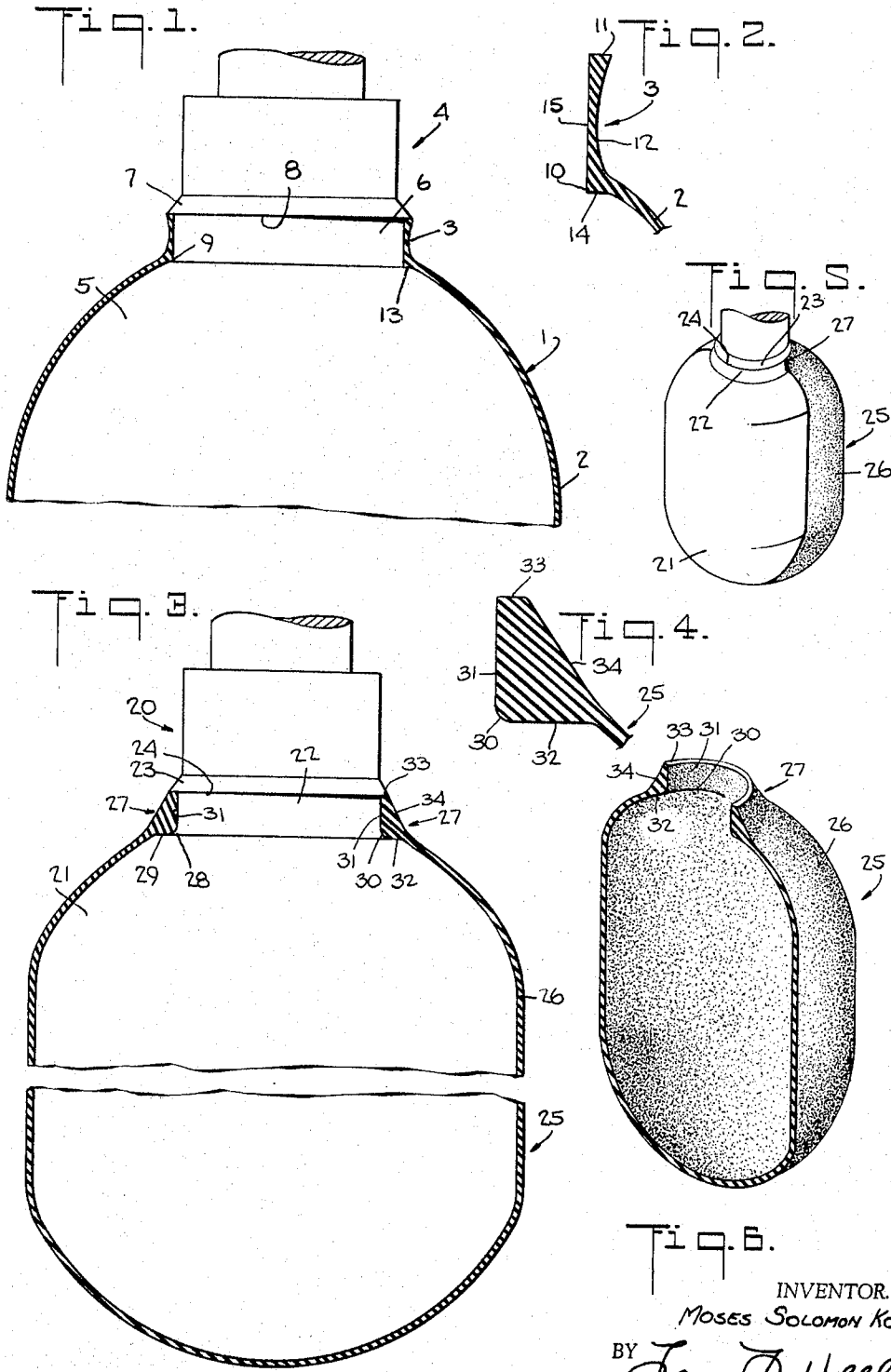


Fig. 6.

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1

2

3,266,491

SANITARY PROTECTIVE DEVICE

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The present invention relates to an improved thin-walled article. More particularly the present invention relates to an improved thin-walled article made from an elastic material, such as rubber.

Specifically, the present invention is an improvement over the rubber article and the mechanism shown in United States Patent No. 2,605,505, dated August 5, 1952.

Thin-walled articles, as shown in said Patent No. 2,605,505 are formed by a molding spindle which has an enlarged head portion which is dipped in a suitable liquid, such as rubber latex, so that a thin-walled article is formed around the head portion.

The upper part of the molding spindle has a neck portion of reduced diameter, which will form a small diameter thickened neck band on the article which acts to hold the article in place. It has been found that in use the neck band may fold over on itself and thus give the article a tendency of coming off.

Attempts have been made to overcome this difficulty by making a thin-walled article with a thicker neck band in order to more securely hold the article in place. For example, articles have been made with a separate neck band which then becomes an integral part of the article to form a thick neck band. However, such a process is obviously expensive and time consuming.

The present invention has for one of its objects the provision of an improved thin-walled article.

Another object of the present invention is the provision of an improved thin-walled article which has a thicker neck band.

Another object of the present invention is the provision of an improved thin-walled article which will prevent the article from being removed during normal use.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification, wherein:

FIG. 1 is a sectional view showing a mechanism of manufacturing thin-walled articles which has been used in the prior art;

FIG. 2 is a detail of the neck band of the article made by the prior mechanism shown in FIG. 1;

FIG. 3 is a sectional view showing the improved thin-walled article on a forming mechanism;

FIG. 4 is a detail of the neck band of the improved article;

FIG. 5 is a perspective view of the improved device; and

FIG. 6 is a perspective view of the article made thereby.

Referring more particularly to FIGS. 1 and 2, which show the prior mechanism of making thin-walled articles, the article 1 comprises a thin-walled bag 2 having a thick neck band 3. The article is formed by a spindle 4 having an enlarged head 5 and neck portion 6 of reduced diameter.

An enlarged reversely inclined surface 7 forming a sharp shoulder 8 is located above the neck portion 6. The top edge of the head 5 has a flattened area 13 which forms a sharp corner 9 with the neck portion 6. The width of the flattened area 13 is substantially equal to the width of the sharp shoulder 8 of the inclined surface 7.

The spindle 4 is dipped into a liquid (not shown), which may be latex or some other suitable material. The spindle is dipped into the liquid up to the shoulder 8 so that a thin coating of material is deposited on the outside of the head 5 and surface 6 to form the bag 2 and the neck band 3.

The cross-section of the neck band 3 is more clearly shown in FIG. 2. It will also be noted that the thickness of the top surface 11 of neck band 3 is substantially equal to the thickness of the bottom surface 14 of the neck band and that the surface 12 between the top and bottom surfaces 11 and 14 is concave. Furthermore, the corner 10 between inner surface 15 and lower surface 14 is relatively sharp. It is believed that with this construction the neck band 3 has a tendency of folding over on itself during use. This is undesirable as it may permit the article to come off.

FIGS. 3 to 6 show a preferred embodiment of the present invention.

It will be noted that the spindle 20 has an enlarged head 21 with a neck portion 22 of smaller diameter over which lies an inverted cone 23 having a lower sharp shoulder 24. The lower corner 28 between the head and the neck portion 22 is curved (rather than square as in the prior practice) and the top of the head 21 has a broad flattened zone 29. The flattened zone 29 is much wider than the shoulder 24 of the inverted cone 23 as will be readily seen from FIG. 3.

When the spindle 20 is dipped into a liquid, such as rubber latex, or some other similar substance, up to the shoulder 24 a thin coating of material is deposited on the head 21 to form the bag 26 and the neck band 27. A thicker layer of material is formed around the neck portion 22 so that the neck band 27 is of greater thickness than the bag portion 26.

The neck band 27 has a substantially straight inner surface 31 formed by neck portion 22 of spindle 20 and a substantially straight bottom surface 32 formed by the wide flattened zone 29. The inner and bottom surfaces 31 and 32 are connected together by a curved corner 30 which is formed by curved corner 28 of the spindle 20.

The bottom surface 32 of the neck band 27 is appreciably thicker than the top surface 33 so that the outer surface 34 connecting top surface 33 with bottom surface 32 has a generally tapered configuration. It will be understood, of course, that the outer surface 34 may also be slightly convex or slightly concave or it may be a straight or irregular surface. In any event, the bottom surface 32 of the neck band 27 is substantially thicker than the top surface 33 so that the neck band 27 has a cross section generally similar to a truncated right triangle.

Since the bottom surface 32 is thicker than the top surface 33, the neck band 27 cannot roll over on itself. Any tendency of the top surface 33 of the neck band 27 to be curled over, will be overcome by the thicker bottom surface 32 so that it will "snap back" into place.

Furthermore, since the neck band 27 has a generally tapered configuration, no sharp corners are present which would initiate removal of the article during normal use.

In addition the inner curved corner 30 of the neck band 27 will form a tighter grip when the article is in use and will act as a gasket to prevent air from entering the article during use. This will maintain the bag portion 26 free from air to inhibit any removal tendencies during use.

3

Moreover, the substantially flat bottom surface 32 will act as a stop when the article is in use to prevent the article from being removed.

It will be understood that the article of the present invention may be made from any material, such as rubber, or the like, regardless of whether or not such material is elastic.

Furthermore, while the invention has been described in connection with an article having a short bag portion, it will be understood that the invention may also be used with an article having an elongated bag portion.

In addition, it will be understood that the terms "upper" and "lower" or "top" and "bottom" as used herein refer to the position of the parts as shown in the drawing and are not intended to absolutely locate the parts.

It will be seen from the above that the present invention provides an improved thin-walled article with a thicker neck band which does not require the necessity of utilizing a separate neck band.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. A thin-walled sanitary protective device comprising a thin wall bag portion and a thick neck portion having a diameter smaller than the diameter of said bag

4

portion, the cross section of said neck portion comprising substantially flat contiguous inner, outer, bottom and top surfaces, said inner surface being cylindrical and substantially at right angles to said top and bottom surfaces to form corners therewith, said bottom surface being wider than said top surface, said top surface forming the end edge of the device, and said outer surface being inclined with respect to said inner surface and connecting the outer edges of said top and bottom surfaces.

2. The device as claimed in claim 1 in which the corner formed by said inner and bottom surfaces is round.

3. The device as claimed in claim 1 in which said bottom surface has a width greater than twice the width of said top surface.

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