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E. N. YDEN

2,334,690

BOTTLE SCRUBBER

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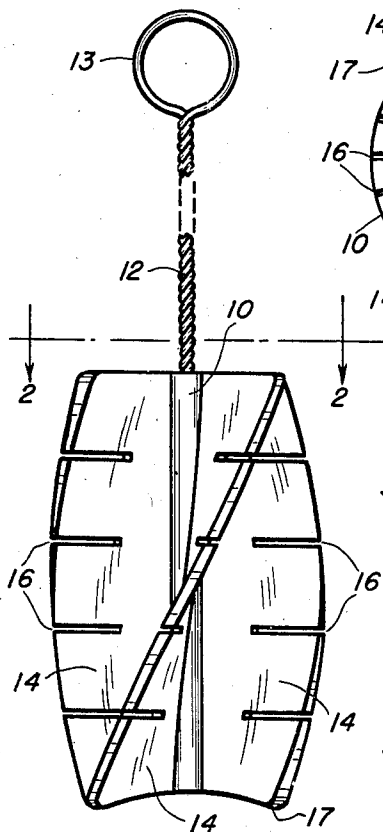


FIG. 1

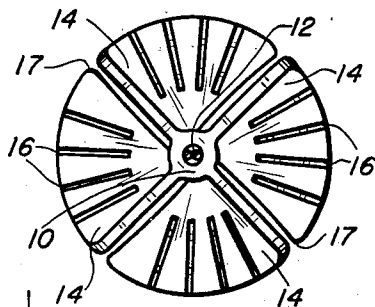


FIG. 2

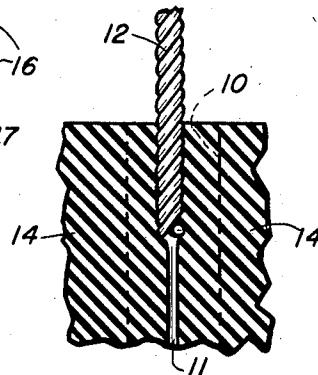


FIG. 3

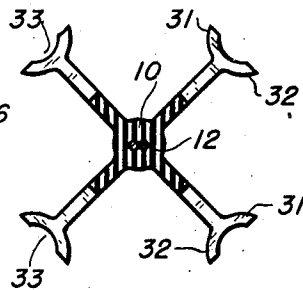


FIG. 4

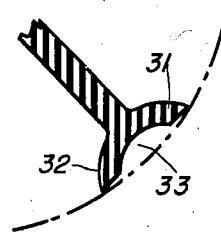


FIG. 5

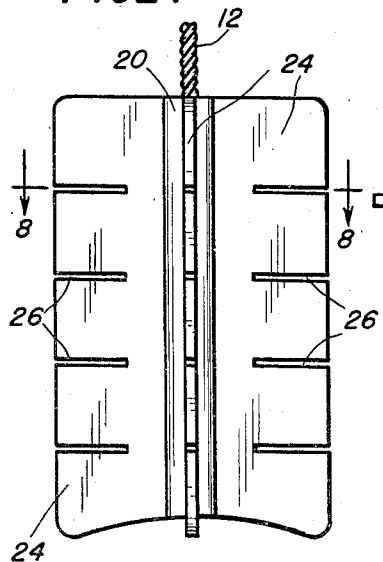


FIG. 7

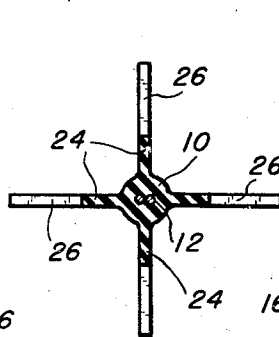


FIG. 8

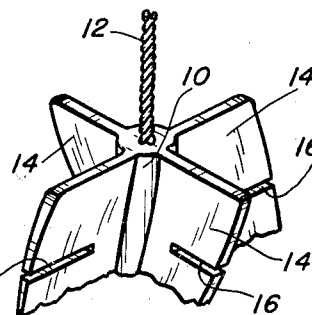


FIG. 9

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2,334,690

BOTTLE SCRUBBER

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Application November 28, 1941, Serial No. 420,827

1 Claim. (Cl. 15-211)

My invention relates to a bottle scrubber that is formed of resilient material and is particularly adapted for the manual cleansing of bottles to remove internal foreign deposits.

An important object of my invention is the provision of a bottle scrubber that may be simply formed according to modern manufacturing practices from resilient materials that are long-lived, easily maintained sterile, and may be produced in great quantities at low costs.

Another object of the invention is to provide a bottle scrubber having radiating blades from top to bottom formed of resilient material so that the device may be distorted for insertion into the restricted neck of a bottle to be cleaned.

One other object here is the provision of a bottle scrubber having novel and simply joined handle means for a body portion whereby a strong and rigid joinder may be effected.

A further object of the invention is the provision in a bottle scrubber of spirally helical blades of flexible or resilient material that is effective either when the device is rotated or reciprocated within a container to be cleaned to cover a maximum of the interior surface.

Still another object of my invention is to provide a novel blade structure for use in bottle scrubbers whereby through the use of edge flanges on the blades an improved scraping action may be obtained.

Other objects and advantages of the invention will be more apparent during the course of the following description which, taken in view of the accompanying drawing forms the disclosure of this invention. I have shown a preferred form of the invention with various related modifications which may also be employed.

In the drawing:

Fig. 1 is a side elevational view of a preferred form of my bottle scrubber with a portion of the handle shank omitted for convenience of illustration,

Fig. 2 is a plan view of the scrubber as though taken looking down from the plane suggested by lines 2-2 of Fig. 1,

Fig. 3 is fragmentary sectional detail showing the manner of joining the scrubber and the handle shank,

Figs. 4 and 5 illustrate in cross-section edge-flanges for the radial blades of the scrubber as a mode of modifying the basic form of the invention,

Fig. 6 is fragmentary perspective view of the upper portion of the scrubber adjacent its point of joinder with the handle shank,

Fig. 7 illustrates a scrubber according to my invention in which the blades are arranged parallel to the axis of the scrubber, and

Fig. 8 is a cross-section taken on line 8-8 of Fig. 7.

A stem 10 has central bore 11 for the reception of the shank 12 of the handle 13. The stem is preferably formed of semi-resilient material, such as rubber, and of such size as is required for reasonable life under fairly hard usage. The shank, herein shown, is produced of twisted wires arranged together in the form of a spiral helix to provide thread-like protrusions on its outer face. In effect the shank is a screw and is of substantially larger diameter than the normal unexpanded size of the stem bore 11. By twisting the shank as it is inserted into the bore in the stem the material of the stem is stretched and grips the shank rigidly to effect a simple joinder of these elements.

In Figs. 1 and 2 the stem can be seen to have a plurality of radial blades formed integral therewith and consequently of a resilient nature also. These blades are arranged spirally about the axis of the stem and at their outer edges may be slitted at 16 in order that they may more readily conform to the contours of any surface over which they may be passed. The lower corners of the blades at 17 are shown extended lower than the end of the stem, so that, in the case of bottles having convex inner surfaces on their bottoms, the shape will insure that corners and the like are also cleaned.

In the showing of Figs. 7 and 8, the radial blades 24 protrude from the stem longitudinally in a manner parallel to the axis of the stem 20. These blades are also slitted at 26 as in the case of the other spiral form of device shown and described.

One additional feature that may be incorporated in the scrubber is the use of edge flanges 31 and 32 that are formed on or attached to the outer edges of the blades according to Figures 4 and 5. These flanges lie in opposition to each other so that, no matter how the device is rotated, a scoop-like scraping action is obtained on the surface being cleaned to improve the action of the scrubber. The slits in the edges of the blades will also pass through the flanges. On the outer face of the blade edge and the flanges, away from the axis of the stem, a depression 33 is provided so that the actual scraping blade will be slightly under-cut, as may best be seen in Fig. 5. The flanges may also

be used in the blades shown in the form of invention appearing in Fig. 7.

In operation, my scrubber is inserted into the container to be cleaned, such as a milk bottle, by forcing it through the usual restricted neck. This insertion is simple when the resiliency of the device is borne in mind because distortion is required so that, when the device is inserted, it will be in its normal expanded form large enough to cover a material portion of the inner surface of the container.

In the spiral form the handle may be twisted to rotate the scrubber or the scrubber may be reciprocated in and out of the container to scrape the inner faces. In the form of Fig. 7 rotary action is probably the best as reciprocation will produce only limited cleaning by scraping due to the limited amount of cleaning face that is presented to the bottle surface.

In using the slits in the elges of the blades, 20

flexing of portions of the blades independent of the remainder may be effected so that uneven surfaces will be readily accommodated.

It is to be understood that the showing and the description of my invention is purely illustrative and that changes and alterations may be made in materials, size, shape and general arrangement of the parts without departing from the scope and spirit of the subjoined claim.

Having thus described my invention, I claim:

A bottle scrubber comprising a central stem of resilient material and having radial resilient blades, means for manually manipulating said scrubber from a remote point, and scraper means on each blade edge having the shape of an arcuate portion of a cylinder wall and attached to said blade edge so that its radius of curvature is radially outward of the blade to which it is attached.

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