Dec. 13, 1927.

1,652,488

E. O. LUNDBLAD

SUCTION FASTENING DEVICE

Filed Sept. 5, 1924

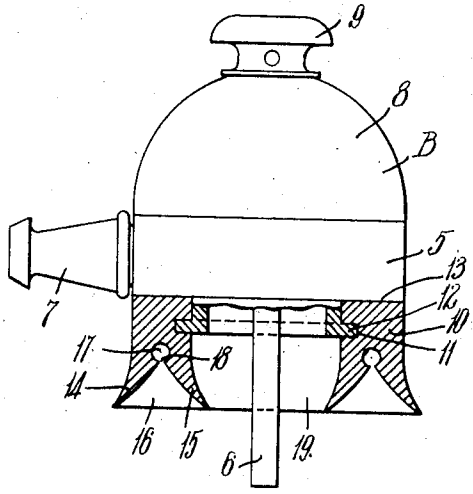


FIG. 1.

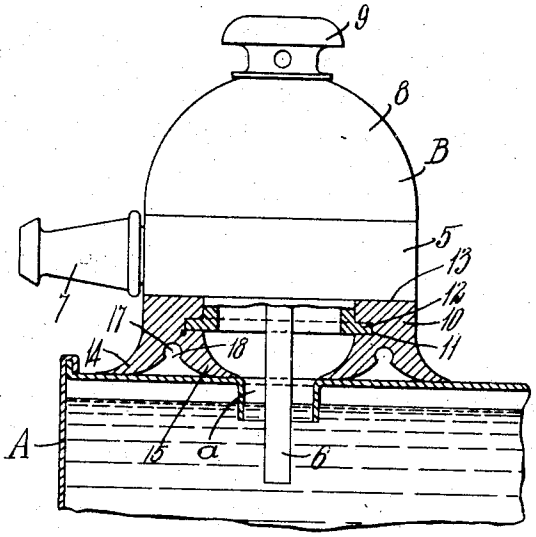


FIG. 2.

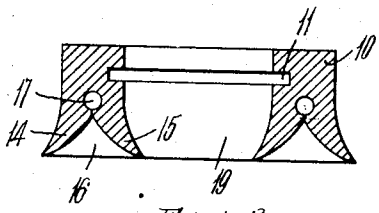


FIG. 3.

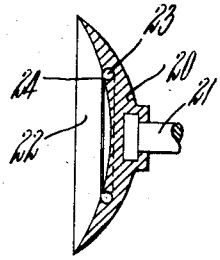


FIG. 4.

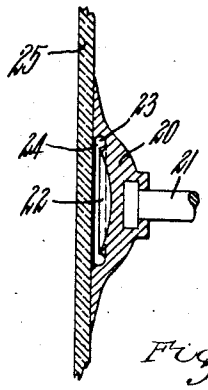


FIG. 5.

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UNITED STATES PATENT OFFICE.

EMIL O. LUNDBLAD, OF MEDFORD, MASSACHUSETTS.

SUCTION-FASTENING DEVICE.

Application filed September 5, 1924. Serial No. 736,035.

This invention relates to a suction fastening device, and has for its object to provide a fastening device of the character mentioned capable of being secured to certain articles of manufacture, and thereby providing a means for attaching said articles to the smooth flat surfaces of containers, walls, windows and the like.

It is still further an object of the invention to provide a fastening device with a moisture retaining groove, normally of such a form that water may be held therein, but which when the device is compressed against a surface to which it is to be attached, will spread, allowing the moisture therein to pass therefrom and flow over the adjacent portions of the suction device and surface to which the latter is to be attached, thereby increasing the holding power of the device.

The invention consists in a suction fastening device as set forth in the following specification and particularly as pointed out in the claims thereof.

Referring to the drawings:

Figure 1 represents a sectional elevation of a discharge closure for liquid containers, a suction fastening device embodying my invention being illustrated in connection therewith.

Fig. 2 is a view similar to Fig. 1 illustrating a discharge closure attached to a liquid container through the medium of a suction fastening device of my invention.

Fig. 3 represents a central longitudinal section through a slightly modified embodiment of my invention.

Fig. 4 represents a central longitudinal section through another form of suction fastening device embodying my invention.

Fig. 5 is a sectional view illustrating the device of Fig. 4 attached to the surface of a piece of glass.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, referring particularly to Figs. 1 and 2 A represents a portion of a container for liquids in which a small aperture *a* has been provided, and B represents a discharge closure for the container A. The discharge closure B forms no part of this invention, but has been made the subject-matter of a separate invention, for which I have filed an application on June 7, 1924. Ser. No. 718,520 to which reference may be had for a complete description.

Briefly described, however, the discharge closure embodies therein a main body portion 5 from which an extension 6 projects through the aperture *a* into the container A, a nozzle 7, a flexible bulb 8 and an inlet air valve 9.

Secured to the under side of the body member 5 is a flexible suction member 10 which is utilized for the purpose of securing the discharge closure B to the container A, and it is in the structure of this suction member that the novel features of this invention reside. The suction member 10 is preferably constructed of rubber and has an annular groove 11 formed therein and adapted to receive a flange 12 formed upon the body member 5, and said flange 12 secures the suction member 10 to said body member 5 with a top edge 13 of said suction member abutting closely against the under surface of said body member.

The suction member 10 terminates at its lower end in an outwardly flaring, tapering lip portion 14 and an inwardly flaring tapering lip portion 15 between which an annular suction recess 16 is located. The suction recess 16 preferably tapers inwardly and terminates in an annular moisture retaining groove 17, the latter communicating with the recess 16 through a narrow opening 18 which is normally contracted and preferably of considerably less width than the width of the groove 17. The groove 17, in effect, forms a pocket capable of retaining a certain amount of moisture, preferably water, even though the device is located in a vertical position until such time as it is desired to attach the closure to the container, at which time the spreading of the lips 14 and 15 as illustrated in Fig. 2 allows the moisture within the groove 17 to flow outwardly therefrom and over the surface of the recess 16 and the adjacent surface of the device to which the suction member is attached.

A passage 19 extends through the center of the suction member 10 and it is through this passage that the extension 6 of the discharge closure projects in entering the container A.

In Fig. 3 I have illustrated a slightly modified embodiment of my invention in which the opening 18 connecting the suction recess 16 with the annular groove 17 is normally closed so that when it is desired to use the device, in moistening the surface of the recess 16 the lips 14 and 15 are spread, allowing water to enter the groove 17, after

which said lips are released and the water within the groove 17 is held tightly therein until the device is forced against the surface of the article to which it is attached, at which time the water within said groove 17 will flow therefrom as previously mentioned in connection with the device of Figs. 1 and 2.

In Figs. 4 and 5 I have illustrated still another embodiment of my invention in which 20 represents a well known form of flexible suction cup, having a stud 21 moulded therein and projecting therefrom and utilized for the purpose of attaching articles of various forms thereto, and said suction cup is provided with a shallow recess 22, the surface of which is brought in contact with a pane of glass 25, as illustrated in Fig. 4. In this embodiment of my invention I provide an annular groove 23 which communicates with the recess 22 through an opening 24, the latter preferably being narrower in width than the width of the groove 23.

In this embodiment of my invention the action of the suction member 20 and groove 23 thereof is exactly the same as that of the preferred embodiment of my invention previously mentioned, as when said suction member is forced tightly against the surface of the glass 25, it causes the opening 24 to spread, and allows the water located therein to flow therefrom and over the surface of the recess 22 and adjacent portion of the glass 25, thereby increasing the holding power of the suction member.

I claim:

1. A fastening device of the character described comprising an annular suction member provided with co-operating lip portions forming an annular suction recess, and a normally contracted moisture-retaining groove therebetween.

2. A fastening device of the character described comprising a suction member provided with a pair of oppositely flared lip portions extending therearound at one end thereof and forming a suction recess, and a moisture-retaining groove therebetween, oppositely disposed projecting portions on adjacent walls of said lips forming a normally contracted opening between said recess and said groove.

In testimony whereof I have hereunto set my hand.

EMIL O. LUNDBLAD.