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R. S. KNAPP

2,982,987

SPREADERS FOR LIQUIDS AND SEMI-LIQUIDS

Filed Aug. 30, 1957

Fig. 1. Fig. 2.

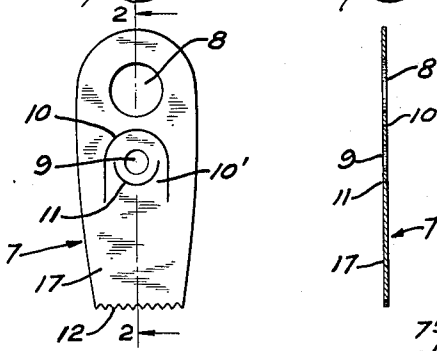


Fig. 5.

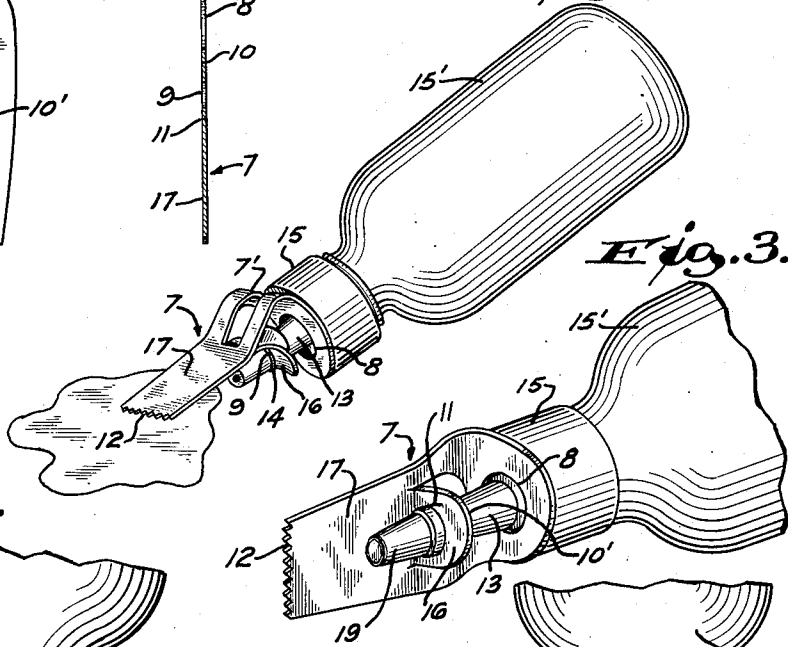


Fig. 6.

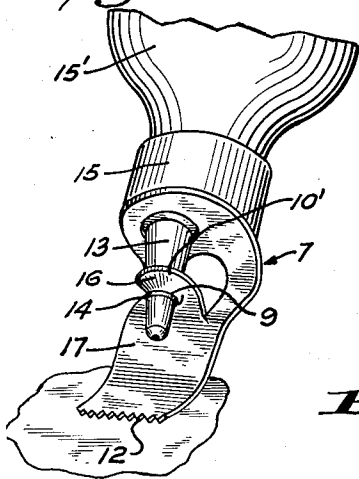


Fig. 4.

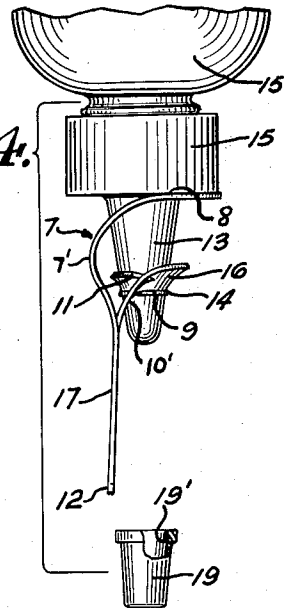


Fig. 8.

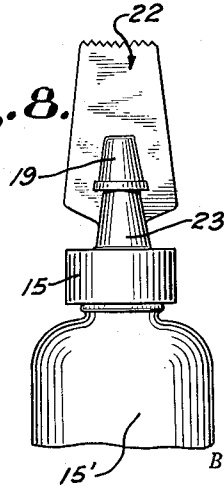
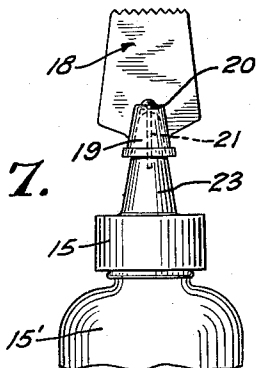


Fig. 7.



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SPREADERS FOR LIQUIDS AND SEMI-LIQUIDS

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7 Claims. (Cl. 15-545)

This invention relates to improvements in spreaders for liquids and semi-liquids, such as glue.

A general object of the present invention is to provide a flexible blade-like tool carried adjacent the nozzle of a bottle or tube containing glue or the like in a position to be capable of convenient use as a spreader for material discharged from the nozzle onto a surface.

A further object is to provide a spreader which is so constructed that glue, or other liquids or semi-liquids, can be evenly and uniformly applied to a surface with a minimum of mess and inconvenience. With the present invention it is unnecessary for the glue to come into contact with the fingers or clothes of the person using the same, thereby eliminating one of the most undesirable features of working with glue or similar sticky substances.

A particular object of one form of the invention is to provide a spreading tool which can be die cut from a flat piece of flexible material such as polyethylene, or other plastic or thin flexible metal, and then bent and slid onto the tapered nozzle of a plastic glue dispenser to be used in spreading the glue, whereby the thickness of the layer of dispersed glue can be readily and effectively governed by the amount of manual pressure applied to the spreader.

A further object of the present invention is to provide a flexible tool for spreading glue or the like, which tool is die cut to provide longitudinally spaced nozzle-receiving holes whereby, when it is bent to a predetermined condition, the tool may be slid onto the tapered nozzle, or "Yorker" snout, of a conventional plastic dispenser to engage the nozzle about its base and immediately beneath an annular ridge formed higher up on the nozzle, the bent portion pressurably retaining the spreader in operative position on the nozzle.

A further object of the invention is to provide a spreader as above described wherein there are cuts of different radii around the outermost hole to give increased anchorage and flexibility when the tool is bent and the hole snapped over the annular ridge. This is due to the fact that the cuts permit the material around the margin of the outer hole to extend at substantially a right angle to the axis of the nozzle so that all portions of said margin can snap beneath said annular ridge on the nozzle.

Further objects of the invention are to provide a spreader for liquids or semi-liquids which is durable yet simple and inexpensive to produce, its novel one-piece construction contributing greatly to the relatively low manufacturing cost.

A further object is to provide as an alternative form of invention, which is but one of many possible modifications and variations, a flat spreading tool which is permanently formed on the nozzle cap of a glue dispensing bottle.

Another modified version of the invention consists of a spreader permanently fused or molded directly on the nozzle below the cap.

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With the above and other objects in view, the invention consists of the improved spreader for liquids and semi-liquids, and all equivalents and modifications as may come within the scope thereof, and all of its parts and combinations as set forth in the claims.

In the accompanying drawing, in which the same reference characters designate the same parts in all of the views:

Fig. 1 is a top plan view of one form of spreader in flat condition;

Fig. 2 is a side edge view of the spreader of Fig. 1 taken on line 2-2;

Fig. 3 is a perspective view showing the spreader attached to the tapered nozzle of a dispenser with the cap still in position on the nozzle;

Fig. 4 is a side edge view of the spreader attached to the nozzle of a dispenser with the cap removed and shown below;

Fig. 5 is a perspective view of the spreader attached to the tapered nozzle of a dispensing bottle and in position to spread a quantity of glue, the cap being removed from the bottle;

Fig. 6 is a perspective view of the spreader attached to a nozzle showing a reverse spreading position from that utilized in Fig. 5;

Fig. 7 is a fragmentary front elevational view of a dispenser equipped with a modified form of the invention where the spreader is formed on the nozzle cap; and

Fig. 8 is a similar view of another modified form of the invention showing the spreader permanently formed on the nozzle of a dispenser, the cap being in place.

Referring more particularly to Figs. 1 and 2 of the drawing, the spreading tool comprises a flat blade-like piece 7 die cut from a thin sheet of polyethylene, polyvinyl, polypropylene or other flexible plastic, rubber, or thin metal material. Polyethylene of 40 mm. thickness is very satisfactory. By using a shiny-surfaced plastic hardened glue can easily be cleaned off after use. An inner base-engaging hole 8 and an outer hole 9 of smaller diameter are cut in the tool, the area around the latter hole also having two opposed U-shaped cuts 10 and 11 one within the other. The outer or working edge of the spreader has sawtooth cuts, as at 12, to aid in the spreading operation.

As shown in Figs. 3, 4, 5 and 6, the spreader is bent and the tapered nozzle 13 of a dispensing bottle or tube inserted into and through the holes 8 and 9. This nozzle is provided with an annular ridge 14 for coaction with an internal lower end ridge 19' of a cap 19. The nozzle may be a "Yorker" snout having a bottle cap base 15 which is adapted to be threaded onto a bottle 15' of plastic or other material. The nozzle is engaged about its base by the portion of the spreader surrounding hole 8, which portion is bent to extend transversely of the outer spreading portion 17 of the spreader. The area of the nozzle immediately beneath the annular ridge 14 is engaged by the material at the margin of the hole 9. The bent portion 7' of the flexible spreader acts as a spring to pressurably maintain the tool firmly against the nozzle base or bottle cap 15, and against the annular ridge 14, whereby the extended blade-like portion 17 of the tool is maintained in operative position with relation to the nozzle.

An important feature of the present invention is the two opposed U-shaped cuts 10 and 11, as shown in Fig. 1. As will best be seen in Fig. 4, the cut 10 forms a tab 10' which is bendable transversely of the blade 17 to allow that portion of the spreader surrounding hole 9 to form a collar 16 about the nozzle which is snapped immediately beneath the annular ridge 14. By having the additional opposed U-shaped cut 11 the collar 16 is permitted to assume a position at right angles to the axis

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of the nozzle so that all of the margin of the hole 9 can be below the ridge 14. If it were not for the extra cut 11 the collar would assume an oblique position on the nozzle and would not hold as well. In addition to giving considerable anchorage, this novel collar feature greatly increases the flexibility and maneuverability of the blade-like extended portion of the tool 17. The collar 16 is movable slightly under pressure in a downward direction on the nozzle toward the base. This may be brought about by the give of the material, or by having the hole 9 large enough to allow a small amount of downward movement.

In practice, after removing the cap 19, glue or other liquid or semi-liquid material is poured or squirted onto a surface from a bottle or tube 15' to which the device which comprises the present invention has been attached. The flexible spreader is then brought into contact with the glue, as shown in Figs. 5 and 6, and the glue spread evenly and uniformly over the entire surface. The desired thickness of the diffused glue can be effectually regulated by the amount of manual pressure applied to the spreader. If a relatively thick layer is desired the sawtooth edge 12 only or the face of the blade-like spreader nearer the nozzle may be utilized and slight pressure applied, as shown in Fig. 5. For a thinner layer, the opposite face of the spreader, which can be flexed further than the face nearer the nozzle, is used and considerable manual pressure applied to flatten the face against the surface, as shown in Fig. 6. When the dispenser is not in use the cap 19 may be pushed onto the end of the nozzle until its internal ridge 19' snaps over the ridge 14 on the nozzle. The spreader will in no way interfere as the inner end of the cap will merely push the collar 16 inwardly a short distance so that when the cap is on, the collar 16 engages the inner end of the cap, and when the cap is off the collar 16 engages the ridge 14.

Fig. 7 of the drawing illustrates a variation of the principal form of the invention. In this modified version the spreader 18 is permanently molded or fused on the nozzle cap 19 of a glue dispensing bottle. The nozzle cap contains a small dispensing hole 20 and there is a removable pin 21 for sealing the hole when the bottle is not in use. The spreading process is identical to that utilized in the principal form of the invention and the advantages and benefits are similar thereto, with the additional advantage that the permanent attachment of the spreading tool to the bottle cap lessens the chances of its loss or destruction.

Fig. 8 shows another modification of the principal form of the invention in which the spreader 22 is permanently formed on the nozzle 23 of a dispensing bottle or tube. In this form, unlike the form illustrated in Fig. 7 in which the spreader is attached to the nozzle cap, the additional hole and sealing pin are unnecessary as the cap 19 may be used in the customary manner.

Various changes and further modifications may be made without departing from the spirit of the invention, and all of such changes are contemplated as may come within the scope of the claims.

What I claim is:

1. A spreader comprising a normally flat strip of flexible material having side edges and having a first hole therein and having a U-shaped internal cut spaced from said hole and spaced inwardly from the side edges of the strip to define a tab bendable on a transverse hinge line which is of less length than the width of the strip, said tab having a hole therein and said strip having a spreading portion projecting a substantial distance beyond said tab, the material around said first hole and said tab being bendable transversely of the strip to bring said first hole and the hole of the tab into longitudinally spaced substantial alignment for the reception of the nozzle of a dispensing container to mount the spreader thereon.

2. A spreader comprising a normally flat elongated

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strip of flexible material having a first hole therein and having a U-shaped cut longitudinally spaced from said hole to define a tab, said tab having a hole therein and having a second smaller U-shaped cut extending partly around the circumference of said tab hole, said smaller U-shaped cut being positioned within and opposite the first U-shaped cut, and said strip having a spreading portion projecting a substantial distance beyond said tab, the material around said first hole and said tab being bendable transversely of the strip to bring said first hole and the tab hole into longitudinally spaced substantial alignment for the reception of the nozzle of a dispensing container to mount the spreader thereon.

3. In a dispenser having a tapered dispensing nozzle, a spreader comprising a normally flat longitudinal strip of flexible material having a first hole therein and having a U-shaped cut longitudinally spaced from said hole to define a tab, said tab having a hole therein and having a second smaller U-shaped cut extending partly around the circumference of said tab hole, said smaller U-shaped cut being positioned within and opposite the first U-shaped cut, the material around said first hole and said tab being bent transversely of the strip to bring said first hole and the tab hole into longitudinally spaced substantial alignment and the nozzle of the dispensing container extending through said aligned holes with the first hole about the nozzle base, and said tab and smaller U-shaped cut forming a collar around, and extending at substantially a right angle to, a portion of the nozzle intermediate its length, and said strip having a spreading portion projecting a substantial distance beyond said tab.

4. In a dispenser having a dispensing nozzle, a spreader comprising: a normally flat strip of flexible material, said strip having side edges and having a hole therein, a spreading portion projecting beyond said hole, and said strip having an internal cut partially surrounding said hole and spaced inwardly from the side edges of the strip and providing a tab, said tab being bendable on a transverse hinge line which is of less length than the width of the strip to extend transversely of said spreading portion for the reception of the nozzle of a dispensing container to mount the spreader thereon.

5. In a dispenser having a dispensing nozzle with an annular ridge formed thereon, a spreader comprising: a normally flat strip of flexible plastic material, said strip having a hole therein, having a spreading portion projecting beyond said hole, said strip having a U-shaped cut partially surrounding said hole and providing a tab thereabout, said tab being bendable to extend transversely of said spreading portion for the reception of the nozzle of a dispensing container to mount the spreader thereon, and said tab having a smaller U-shaped cut therein extending partially around the said hole and being opposite said first U-shaped cut, whereby said tab and smaller U-shaped cut form a nozzle gripping collar which extends around and at substantially a right angle to the nozzle and which may be snapped beneath said annular ridge to maintain the spreader on said nozzle.

6. In a dispenser having a dispensing nozzle with an annular ridge formed thereon, a spreader comprising: a normally flat strip of flexible material, said strip having side edges and having a first hole near one end and having a longitudinally spaced second hole therein, said strip having a spreading portion projecting beyond said second hole, and said strip having an internal cut partially surrounding said second hole and spaced inwardly from the side edges of the strip to form a bendable tab containing said hole bendable on a transverse hinge line of less length than the width of the strip, whereby the end of the strip having the first hole and said tab are bendable to extend transversely of said spreading portion to bring said holes into spaced aligned relationship for the reception of the nozzle of a dispensing container to mount the spreader thereon, and whereby said tab may be

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snapped beneath said annular ridge to maintain the spreader on said nozzle.

7. In a dispenser having a dispensing nozzle with an annular ridge formed thereon, a spreader comprising: a normally flat strip of flexible plastic material, said strip having a first hole near one end and having a longitudinally spaced second hole therein, said strip having a spreading portion projecting beyond said second hole, and said strip having a U-shaped cut partially surrounding said second hole and providing a bendable tab thereabout, whereby the end of said strip having the first hole and said tab are bendable to extend transversely of said spreading portion to bring said holes into alinement for the reception of the nozzle of the dispenser to mount the spreader thereon, said tab having a smaller U-shaped cut

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therein extending partially around the second hole and being opposite said first U-shaped cut to form a nozzle gripping collar which extends around the nozzle and which may be snapped beneath said annular ridge to maintain the spreader on said nozzle.

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