

March 14, 1961

A. KUNDERT

2,974,351

BALL APPLICATOR ATTACHMENT FOR BOTTLES

Filed March 11, 1958

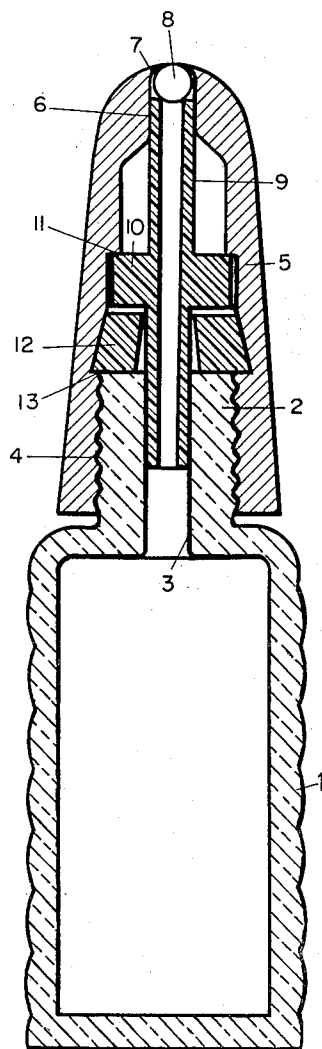


Fig. 1

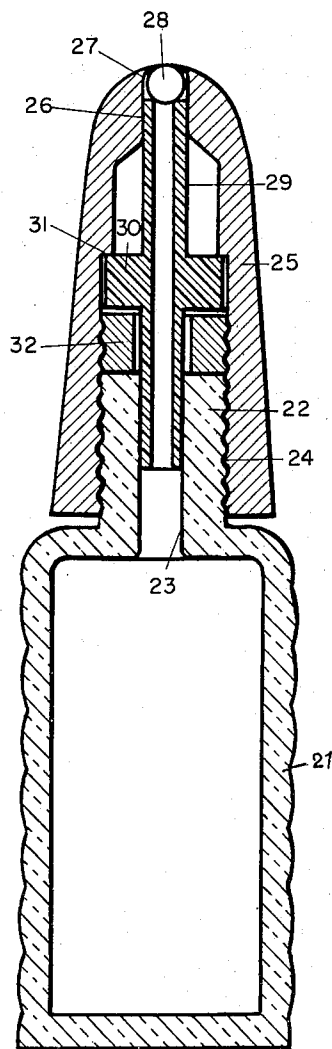


Fig. 2

INVENTOR:

Alex Kundert

by:

Michael S. Skitter
Rooray

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2,974,351

BALL APPLICATOR ATTACHMENT FOR BOTTLES

Alex Kundert, Ruschlikon, Switzerland, assignor to Florilham S.A., Monte Carlo, Monaco, a corporation of Monaco

Filed Mar. 11, 1958, Ser. No. 720,743

Claims priority, application Switzerland Nov. 16, 1957

4 Claims. (Cl. 15—572)

My present invention relates to a bottle-like closable container comprising means for spreading or applying the liquid in the container to a surface. Said container may contain perfume, tinctures, spirits of ammonia for treating insect stings, or other liquids which have to be applied in measured quantities to a surface, mostly to a defined skin portion. When the cap is screwed home on the bottle neck threads, the bottle is hermetically closed so that the liquid cannot evaporate.

Two forms of the invention are shown, by way of example, in the drawing in vertical section.

Fig. 1 is a sectional view of a closable container according to the present invention;

Fig. 2 is a sectional view of a closable container according to the present invention in which some features shown in Fig. 1 are modified.

The container 1 shown in Fig. 1 comprises a neck 2 with a cylindrical throat 3 and external threads 4. On to the latter is screwed an elongated hollow cap 5 having a rounded tip with an axial bore 6 of which the exterior opening is constricted and forms a seat 7 for a ground and polished ball 8 made of stainless steel, glass or the like. The diameter of ball 8 is approximately .15 millimeter smaller than that of bore 6, and ball 8 slightly protrudes from the opening of seat 7. In the cylindrical bore 3 of neck 2 is movably guided, in a snug fit, one end portion of a tube 9 made of plastic possessing a certain degree of elasticity, of which the other end portion is also guided in a snug fit in bore 6 of cap 5 and forms a seat for ball 8. Tube 9 in its intermediate portion comprises a collar 10 and a shoulder 11 provided in cap 5 forms an abutment for the upper rim of collar 10, i.e. the rim adjacent the tip of cap 5. Between collar 10 of tube 9 and the rim of neck 2 of container 1 is inserted in cap 5, a tapered ring 12 made of plastic of which the lower rim portion bears on a shoulder 13 provided in cap 5 and which locates the collar 10 and thus tube 9 in cap 5. In the drawing, the width of shoulder 13 is exaggerated for the sake of clarity, and in reality said shoulder is of only such width that ring 12 thanks to its elasticity may be pushed into cap 5 and then is held therein by shoulder 13.

After container 1 has been filled with liquid, cap 5 is screwed on to the threads 4 of neck 2, the lower end portion of tube 9 which is held in cap 5 being pushed like a stopper into opening 3 of neck 2 and being a tight fit therein. In the position of non-use, as shown in the drawing, cap 5 is screwed home on the threads 4 of neck 2 and ball 8 thereby is clamped in bore 6 between the exterior end of tube 9 and seat 7 and closes the mouth of tube 9 tightly. Container 1 thus is hermetically closed. In this position of non-use, there is a gap between collar 10 of tube 9 and ring 12, as may be seen in the drawing. When applying liquid from container 1 on to a surface, cap 5 is unscrewed by half or a complete revolution. As, in such operation tube 9 is held in bore 3 of neck 2, ball 8 is released from its clamped position between seat 7 and the exterior end of

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tube 9 and can turn whereby the mouth of tube 9 is also set free. When container 1 with cap 5 is turned upside down, liquid seeping out of tube 9 may form a liquid film on ball 8 by virtue of the fact that the diameter of the latter is slightly less than that of bore 6 in cap 5, which liquid may be applied to a surface. Since tube 9 is a relatively tight fit in bore 6 of cap 5, no liquid can flow into the hollow space of cap 5 when turning the container 1 upside down. When unscrewing cap 5 from the threads 4 of neck 2, ring 12 abuts against the collar of tube 9 so that the user feels it quite well when cap 5 has been sufficiently unscrewed. It does not matter, however, when cap 5 is unscrewed beyond this perceptible abutment, since the only consequence is that tube 9 in bore 3 of neck 2 is slightly moved outwardly but is again pushed into bore 3 when subsequently screwing home cap 5.

In the second form of the invention (Fig. 2) 21 designates the container and 22 the neck thereof. In this case also, neck 22 has a cylindrical opening 23 and external threads 24 on to which is screwed a cap 25. In the tip of cap 25 which has the same external appearance as in the first example, is provided a bore 26 of which the external mouth is constricted and forms a seat 27 for a ball 28 of a diameter slightly less than that of bore 26. In the latter is sealingly guided the exterior end of a tube 29 of which the interior end is sealingly guided in the opening 23 of neck 22. Here also, tube 29 is made of an elastic plastic and comprises in its intermediate portion a collar 30, and a shoulder 31 provided in cap 25 forms an abutment for the collar face 30 adjacent the tip of cap 25. A threaded tubular sleeve 32 is screwed into the threads of cap 25 adjacent the lower end of shoulder 30, which sleeve locates the shoulder 30 and thus tube 29 in cap 25. Sleeve 32 is turnable by means of a suitable box wrench and forms an adjustable abutment for the collar 30 of tube 29 so that the distance through which cap 25 has to be unscrewed from neck 22 of container 21 for the purpose of applying the liquid, may be regulated as desired. The mode of operation of the second form of invention is similar to that of the first form.

I claim:

1. A dispenser for a container having an externally threaded neck portion and comprising, in combination, a hollow cap member having internal threads at one end thereof adapted to engage the threads of the neck portion and having at its other free end a passage terminating in a constricted outlet portion; a tube member having at one end thereof a tubular end portion adapted to fluid-tight engage the inner surface of the neck portion, and having at the other end thereof another tubular end portion located in and slidable in said passage of said cap member and fluid-tight sealing said passage to prevent communication between said passage and the interior of said cap member; and a ball located in said passage intermediate the end of said other tubular end portion and said constricted outlet portion and being retained in said passage by said constricted outlet portion, said ball having a portion projecting from said constricted outlet portion, said constricted outlet portion pressing said ball against said other tubular end portion for closing the same so that no liquid can pass from the container into said passage, while upon loosening of said cap member said ball is movable away from said other tubular end portion to permit passage of the liquid through said constricted outlet portion and turning of said ball in said passage for dispensing of the liquid while being in rolling contact with a surface to be coated with a liquid.

2. A dispenser for a container having an externally threaded neck portion and comprising, in combination, a

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hollow cap member having internal threads at one end thereof adapted to engage the threads of the neck portion and having at its other free end a passage terminating in a constricted outlet portion; an annular elastically deformable stop ring located in the interior of said cap and held in the same so as to abut against the free edge of the neck portion; a tube member having at one end thereof a tubular end portion adapted to fluid-tight engage the inner surface of the neck portion, and having at the other end thereof another tubular end portion located in and slidable in said passage of said cap member and fluid-tight sealing said passage to prevent communication between said passage and the interior of said cap member; a stop member carried by said tube member intermediate said stop ring and the passage in said cap; and a ball located in said passage intermediate the end of said other tubular end portion and said constricted outlet portion and being retained in said passage by said constricted outlet portion, said ball having a portion projecting from said constricted outlet portion, said constricted outlet portion pressing said ball against said other tubular end portion for closing the same so that no liquid can pass from the container into said passage, while upon loosening of said cap member said ball is movable away from said other tubular end portion to permit passage of the liquid through said constricted outlet portion and turning of said ball in said passage for dispensing of the liquid while being in rolling contact with a surface to be coated with a liquid, said stop ring and said stop member cooperating to retain said tube member in said cap member.

3. A dispenser for a container having an externally threaded neck portion and comprising, in combination, a hollow cap member having internal threads at one end thereof adapted to engage the threads of the neck portion and having at its other free end a passage terminating in a constricted outlet portion; an annular elastically deformable stop ring located in the interior of said cap and held in the same so as to abut against the free edge of the neck portion; a shoulder in the interior of said cap member intermediate said stop ring and said passage; a tube member having at one end thereof a tubular end portion adapted to fluid-tight engage the inner surface of the neck portion, and having at the other end thereof another tubular end portion located in and slidable in said passage of said cap member and fluid-tight sealing said passage to prevent communication between said passage and the interior of said cap member; a stop member carried by said tube member intermediate said stop ring and said shoulder to limit the movement of said tube member into said passage; and a ball located in said passage intermediate the end of said other tubular end portion and said constricted outlet portion and being retained in said passage by said con-

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stricted outlet portion, said ball having a portion projecting from said constricted outlet portion, said constricted outlet portion pressing said ball against said other tubular end portion for closing the same so that no liquid can pass from the container into said passage, while upon loosening of said cap member said ball is movable away from said other tubular end portion to permit passage of the liquid through said constricted outlet portion and turning of said ball in said passage for dispensing of the liquid while being in rolling contact with a surface to be coated with a liquid, said stop ring and said stop member cooperating to retain said tube member in said cap member.

4. A dispenser for a container having an externally threaded neck portion and comprising, in combination, a hollow cap member having internal threads at one end thereof adapted to engage the threads of the neck portion and having at its other free end a passage terminating in a constricted outlet portion; an annular stop ring having a thread on its outer surface to engage the internal threads of said cap member and placed in the interior of said cap member intermediate its ends and held in the same so as to abut against the free edge of the neck portion; a tube member having at one end thereof a tubular end portion adapted to fluid-tight engage the inner surface of the neck portion, and having at the other end thereof another tubular end portion located in and slidable in said passage of said cap member and fluid-tight sealing said passage to prevent communication between said passage and the interior of said cap member; a stop member carried by said tube member intermediate said stop ring and the passage in said cap; and a ball located in said passage intermediate the end of said other tubular end portion and said constricted outlet portion and being retained in said passage by said constricted outlet portion, said ball having a portion projecting from said constricted outlet portion, said constricted outlet portion pressing said ball against said other tubular end portion for closing the same so that no liquid can pass from the container into said passage, while upon loosening of said cap member said ball is movable away from said other tubular end portion to permit passage of the liquid through said constricted outlet portion and turning of said ball in said passage for dispensing of the liquid while being in rolling contact with a surface to be coated with a liquid, said stop ring and said stop member cooperating to retain said tube member in said cap member.

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