

April 8, 1941.

J. KARBE

2,237,489

SPRAYING DEVICE

Filed April 22, 1938

2 Sheets-Sheet 1

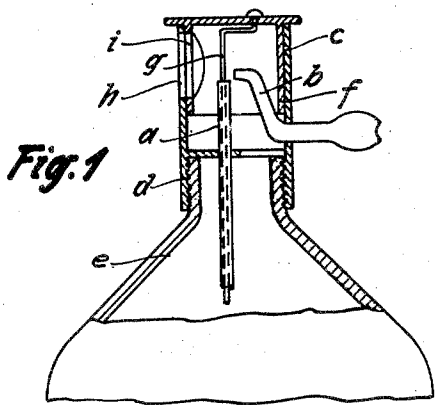
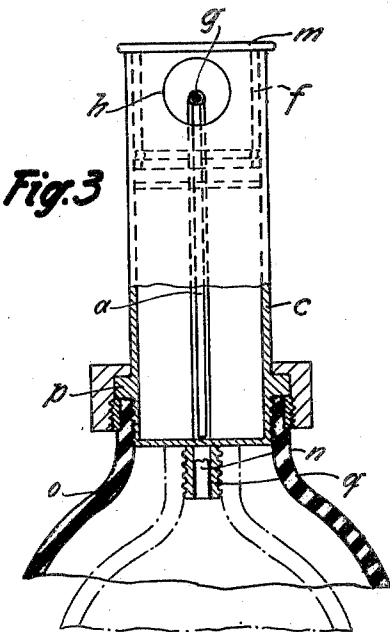
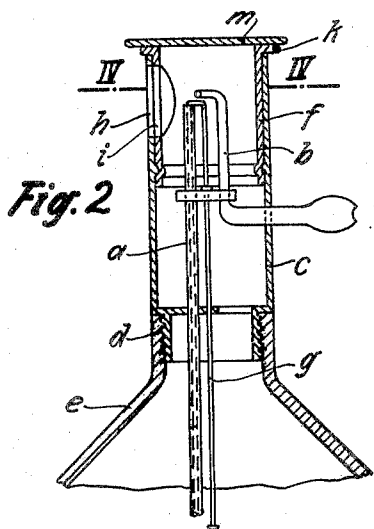
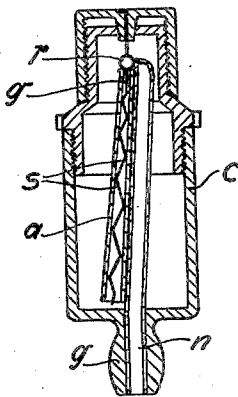
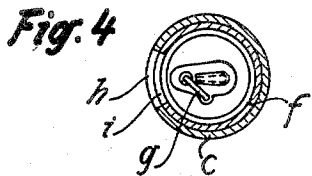


Fig. 5



Inventor:

Johannes Karbe

[Signature]
his Attorney

April 8, 1941.

J. KARBE

2,237,489

SPRAYING DEVICE

Filed April 22, 1938

2 Sheets-Sheet 2

Fig. 6

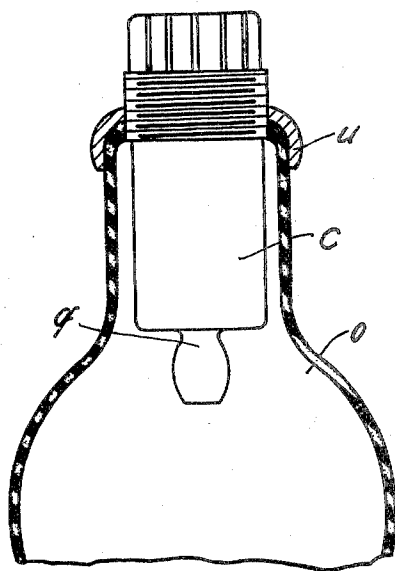


Fig. 7

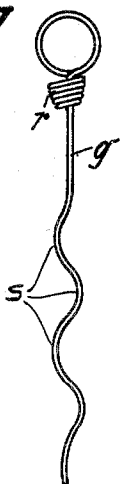
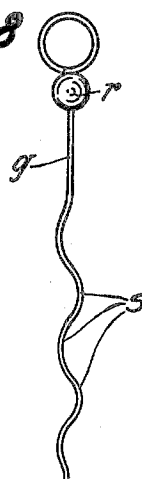


Fig. 9



Fig. 8



Inventor:

James Karbe

by
John M. ...
his Attorney

UNITED STATES PATENT OFFICE

2,237,489

SPRAYING DEVICE

Johannes Karbe, Berlin, Germany

Application April 22, 1938, Serial No. 203,657
In Germany April 1, 1937

1 Claim. (Cl. 299—88)

This invention relates to a spraying device for cosmetic liquids such as hair lotion.

The known sprayers for hair lotion and similar sticky substances are mostly constructed in such a manner that the sprayer-tubes are arranged in a sleeve adapted to be fitted on the air container, and which serves as liquid container, the atomized liquid being discharged through a closable aperture in the sleeve. It is necessary, in view of the sticky nature of many cosmetic liquids, to introduce a needle into the riser tube after use to prevent the riser tube from becoming clogged. For this reason the sleeve has been provided with a removable cap to enable the introduction of the needle, the upper sleeve opening serving at the same time for introducing the liquid. However, an objection to this arrangement is, that the cap and the needle often get lost so that the sleeve and riser tube cannot be closed with the result that the riser tube becomes clogged and the liquid in the sleeve has partly or completely evaporated before the device is again required for use.

The spraying device according to the invention differs from the devices of known constructions in that a movable straight or undulated needle is detachably or permanently secured on the sleeve or on the closing cap of the same, whereby the needle may be secured eccentrically movable on the cover of the closing cap.

The cap may be permanently connected with the sleeve and provided with a hinged cover, and the needle has two arms, one of which is longitudinally shiftable whereas the other is rigidly fixed on a suitable point of the sleeve.

By the construction of the spraying device according to the invention the advantage is derived that the needle for the riser tube of the sprayer can no longer get lost, as it is not necessary to remove it from the riser tube. Similarly, owing to the arrangement of a hinged cover on the closing cap, it is not necessary to remove the cap so that there is no danger of it getting lost. As the needle for the riser tube is always at hand and can be introduced without difficulty into the riser tube after the spraying device has been used, the troublesome clogging of the riser tube is avoided. The time-wasting, tedious cleaning of this riser tube every time before use is saved and a uniform atomization of the liquid attained. Furthermore, by the construction of the sleeve accommodating the sprayer tube, this sleeve can be used either as liquid container, or it can be fitted on any container and actuated by a rubber ball in known manner. By tapering the riser tube the danger of

clogging is minimized and at the same time the liquid is fed more reliably.

Several embodiments of the invention are illustrated by way of example in the accompanying drawings, in which

Fig. 1 shows the spraying device in vertical section,

Fig. 2 is a similar view of a modified form of construction,

Fig. 3 shows the spraying device constructed as liquid container,

Fig. 4 is a section on line IV—IV of Fig. 2.

Fig. 5 shows in vertical section another modified form of construction,

Fig. 6 shows yet another form of construction in elevation,

Figs. 7 to 9 show different needle shapes.

The spraying device comprises atomizing tubes *a* and *b* which are arranged in the sleeve *c* of metal, pressed material or the like. This sleeve has an internal or external screw thread *d* by means of which it can be secured on a liquid container *e*. In sleeve *c* a cap *f* is removably and rotatably inserted, and in the top plate of this cap a needle *g* of a length corresponding to that of the riser tube *a* is mounted so that it can be rotated.

According to Fig. 2 the cap *f* is not detachable yet rotatable in the sleeve *c*, so that an aperture *h* in the sleeve and an aperture *i* in the cap can be brought into register. A cover *m* is mounted on the cap *f* by means of a hinge *k*. The needle *g* preventing the clogging of the riser tube *a* has two arms, one of which is permanently yet longitudinally shiftable secured at a suitable point on the sleeve *c* and on the atomizing tubes. By pulling the needle *g* upwards the arm of the needle in the riser tube can be swung out of the same without detaching the needle *g* from the sleeve. In the same simple manner the riser tube of the sprayer can be closed.

The spraying device illustrated in Fig. 3 shows the sleeve *c* constructed as a container for the liquid to be sprayed. The riser tube *a* extends to the bottom of the sleeve *c* whereas the air tube *n* extends through the bottom thereof. For fixing the sleeve *c* on the mouth of a rubber flask *o*, the sleeve has an annular rib *p* which bears against the neck of the flask. To secure the spraying device on flasks with small mouth, a nipple *q* is provided on the lower end of the sleeve *c* and preferably forms at the same time the lower mouth of the air tube *n*. The needle *g* for cleaning the mouth of the riser tube *a* may be constructed with two arms, but it can also be fixed on the removable

cap as in the form of construction shown in Fig. 1. In the form of construction shown in Fig. 5 the spraying device comprises a liquid container *c* preferably of artificial resin, which is fixed in known manner with the pressure tube *z* in the rubber flask *o* serving as blower ball. The wire needle *g* provided with a closing piece *r* is held in the tapered riser tube *a* by zig-zag bends *s*. The zig-zag bends *s* bear against the inner wall of the riser tube *a* and hold the needle tightly in its actual position by frictional pressure. When it is desired to use the sprayer, the needle is raised in the riser tube until the closing piece *r* is out of the range of the blower tube, whereas the zig-zag portion of the needle remains in the riser tube. The closing piece *r* of the needle is coated with rubber, varnish or the like. The closing piece may, as shown in Fig. 8, consist of a ball of rubber, leather, cork, wood or artificial resin instead of being made of the needle material itself. According to Fig. 6 the liquid container *c*

can be placed in the rubber flask *o*. To obtain a tight closure a cap nut *u* is secured on the liquid container *c* by a screw connection and bears against the neck of the rubber flask *o*.

I claim:

A spraying device for liquid cosmetics, comprising in combination, a container, a riser tube in and projecting from the upper end of the container, a sleeve fitted on the upper end of the container and surrounding the projecting portion of the riser tube, a cap detachably connected to said sleeve, an air blast tube leading to the upper end of said riser tube and a needle comprising a wire bent at its upper end and eccentrically and rotatably mounted in said cap with the lower end extending downwardly in the upper end of the riser tube and adapted to be longitudinally displaced by said cap and out of range of said blast tube.

JOHANNES KARBE.