

No. 635,631.

R. ZIMMERMANN.

Patented Oct. 24, 1899.

CLOSING DEVICE FOR RECEPTACLES HAVING CAPILLARY OPENINGS FOR TRANSPORT,
STORAGE, AND USE OF VOLATILE LIQUIDS.

(Application filed Aug. 2, 1899.)

(No Model.)

FIG. 1.

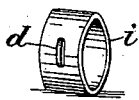


FIG. 2.

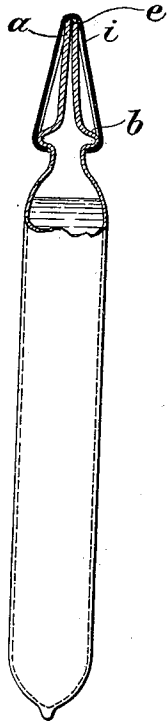


FIG. 3.

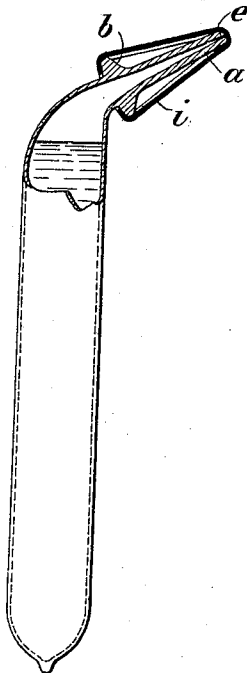
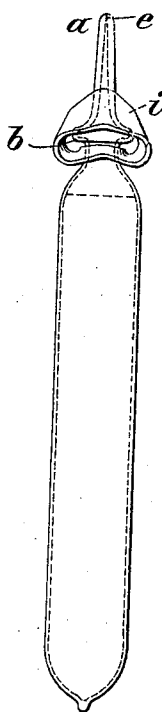


FIG. 4.



Witnesses:

J. H. Aliman

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UNITED STATES PATENT OFFICE.

ROBERT ZIMMERMANN, OF BRUGG, SWITZERLAND, ASSIGNOR TO ZIMMERMANN, LÜTHY & CO., CHEMISCHE FABRIK BRUGG, OF SAME PLACE.

CLOSING DEVICE FOR RECEPTACLES HAVING CAPILLARY OPENINGS FOR TRANSPORT, STORAGE, AND USE OF VOLATILE LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 635,631, dated October 24, 1899.

Application filed August 2, 1899. Serial No. 725,864. (No model.)

To all whom it may concern:

Be it known that I, ROBERT ZIMMERMANN, doctor of philosophy and chemist, a citizen of the Swiss Republic, and a resident of Brugg, canton of Argovie, Switzerland, have invented new and useful Improvements in Closing Devices for Receptacles Having Capillary Openings for the Transport, Storage, and Use of Volatile Liquids, of which the following is a clear and complete specification.

For several years past various devices have been invented having for their object to effect the hermetic closure of glass or metal receptacles for volatile liquids having one or more capillary openings. Thus screw and bayonet-like closures and covers with spring action have been used, also a closure consisting of a long caoutchouc band that was laid around the entire receptacle and in pressing upon the capillary opening was supposed to effect the closure thereof. This last-named system has, however, not been found practical, because it was necessary to provide at the end of the receptacle opposite the capillary opening a device for holding the band, which, however, did not afford the necessary security for holding it in position. In addition the application of such a long band was inconvenient for use, because, not being permanently connected to the receptacle, it required a certain amount of practice to properly place it over the opening again after use. This band device has, however, a decided advantage in that all use of metal and risk of formation of verdigris, such as frequently occurs with brass closing devices, is avoided.

My invention relates to a closing device which allows in a very simple and reliable manner to effect a hermetic closure of a capillary opening without the use of metal by the employment of a small short caoutchouc band which always remains connected to the receptacle and which can be easily manipulated by every one.

I will describe the said device with reference to the accompanying drawings, in which—

Figure 1 shows a form of the caoutchouc band detached. Figs. 2 and 3 show vertical sections of two forms of the receptacle with capillary opening having the said band in position for closing the capillary opening,

while Fig. 4 shows the form of receptacle shown at Fig. 2 with the caoutchouc band removed from the capillary opening.

The glass capillary nozzle *a* of the receptacle (whether it be formed in one with the receptacle, as would be the case if this were of glass, as shown, or whether the capillary nozzle be combined in any suitable manner with a metal receptacle) has at more or less short distance from the opening a knob-like swelling *b*, which may either be hollow, as at Fig. 2, or be made solid, as in Fig. 3, so that there is no enlargement of the passage of the nozzle. This swelling has for its object to hold the ring-shaped caoutchouc band *i* like the button and buttonhole of an article of dress, the band being for this purpose provided with an opening (not formed by a simple incision, as the band would then be liable to tear) which is passed over the swelling, so as to be retained behind it. The closure of the capillary opening is now effected in an exceedingly simple and quick manner by seizing the loop of the band and in stretching it placing it over the opening. When the receptacle is to be used, the opening is uncovered by simply drawing the loop of the band *i* to one side, so as to remove it from the opening. The band thus remains attached to the receptacle both when this is in or out of use, being retained behind the swelling; but should it become defective it can readily be removed and replaced by another one.

What I claim is—

A closing device for a receptacle with capillary opening for containing volatile liquids consisting of the combination of a ring-shaped caoutchouc band having a buttonhole-opening, and a nozzle having a swelling or button at a short distance from its capillary opening the band being fitted with its buttonhole over the said swelling, and having its other part stretched over the capillary opening, substantially as described.

In witness whereof I have hereunto signed my name, this 12th day of July, 1899, in the presence of two subscribing witnesses.

ROBERT ZIMMERMANN.

Witnesses:

HOMBERGER WILLY,
HENRY H. MORGAN.