No. 750,637. PATENTED JAN. 26, 1904.

H. GOETZ.

FLASK FOR VOLATILE OR OTHER LIQUIDS.

APPLICATION FILED DEC. 26, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

FIG. 1.

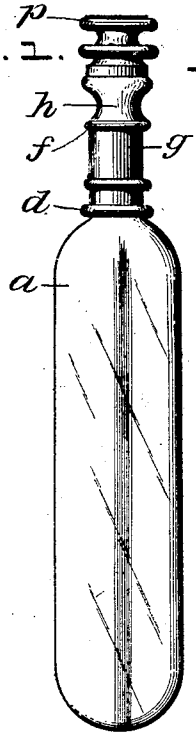


FIG. 2.

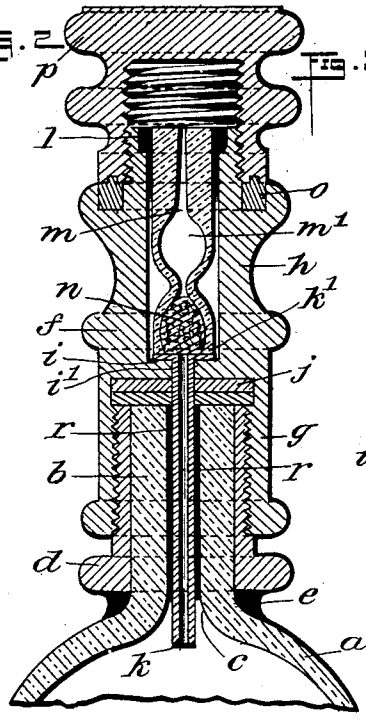
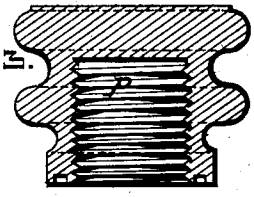


FIG. 3.



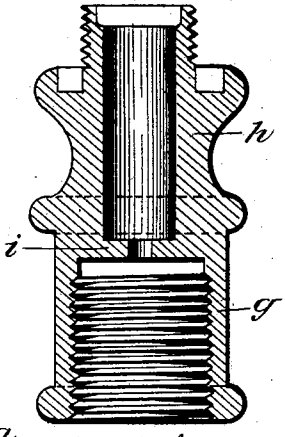


FIG. 4.

FIG. 5.

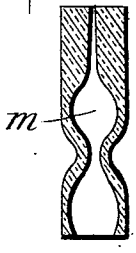


FIG. 7.

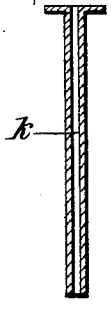


FIG. 8.

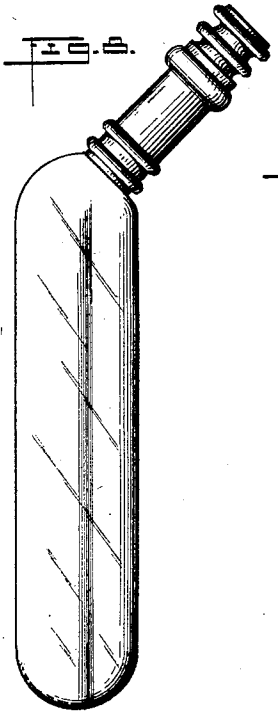
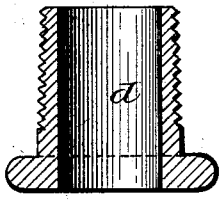


FIG. 6.



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FIG. 12.

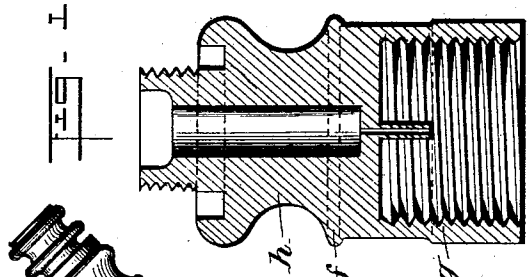


FIG. 11.

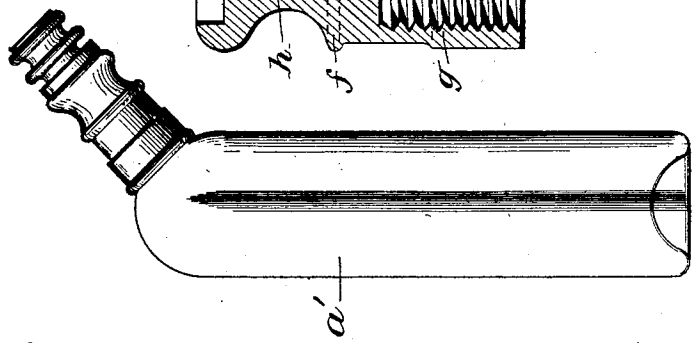


FIG. 10.

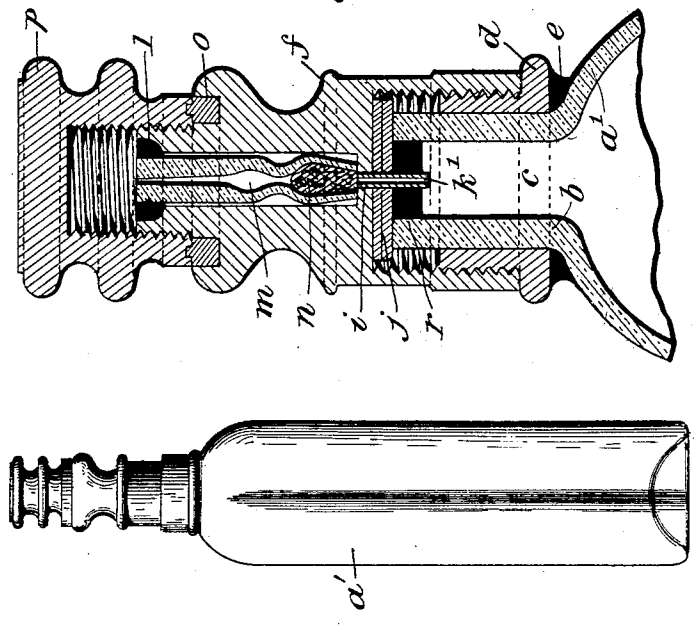


FIG. 9.

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NO MODEL. 3 SHEETS—SHEET 3.

FIG. 13.

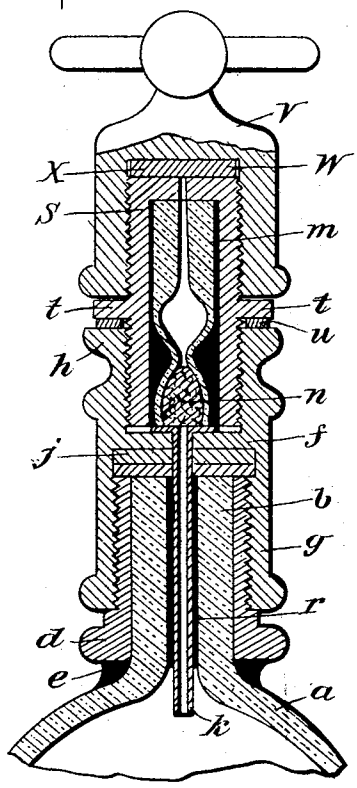
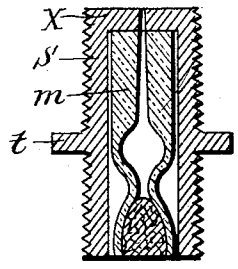


FIG. 14.



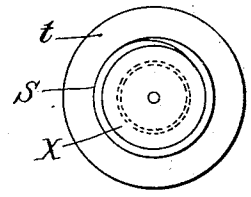


FIG. 15.

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No. 750,637. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

HENRI GOETZ, OF FRANKFORT-ON-THE-MAIN, GERMANY.

FLASK FOR VOLATILE OR OTHER LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 750,637, dated January 26, 1904.

Application filed December 26, 1902. Serial No. 136,644. (No model.)

To all whom it may concern:

Be it known that I, HENRI GOETZ, a subject of the Emperor of Germany, residing at Frankfort-on-the-Main, Germany, have invented new and useful Improvements in Flasks for Volatile or other Liquids, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in glass flasks for volatile and other liquids, and is more particularly adapted for storing ethyl chlorid and other volatile products for medical and industrial use.

As is well known, great inconvenience often results from the obstruction of the capillary exit in flasks of this sort designed for the issue of the ethyl chlorid, said obstructions being generally caused either by the rubber which closes the capillary orifice at its upper part directly pressing upon its upper part or by dust contained in the flask or liquid, which dust clogs the capillary canal at its lower part. In the present instance I aim to obviate this objection by making the capillary orifice independent of the flask.

While in flasks of this kind as hitherto constructed the rod of glass with a capillary orifice therein is secured to the flask, of which it forms the neck, I make the rod in the flask independent of the latter and at the same time overcome the difficulty which has been incident to joining the piece carrying the capillary orifice to the flask containing the liquid.

My invention consists in the construction, combination, and arrangement of parts, as is described in this specification, delineated in the accompanying drawings, and set forth in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 shows an embodiment of my invention, the glass flask in this instance having a straight neck. Fig. 2 is a vertical sectional view of the neck and connected parts of the bottle shown in Fig. 1. Fig. 3 is a vertical sectional view of a cap such as I employ. Fig. 4 is a similar view of the metal sleeve employed in conjunction with my invention. Fig. 5 is a vertical sectional view of the glass rod designed to form a capillary canal. Fig. 6 is a similar view of the metallic collar designed to be secured to the glass neck of the bottle. Fig. 7 is a vertical sectional view of the tube through which the liquid passes in its exit from the bottle. Fig. 8 is a view in side elevation of a slightly-modified form of flask, in this instance the neck of the bottle being inclined. Fig. 9 is a view of a modified construction of flask. Fig. 10 is a vertical sectional view through a part of the neck of a flask, such as shown in Fig. 9. Fig. 11 is another modified form of flask. Fig. 12 is a vertical sectional view of a part forming the neck of the receptacle, such as shown in Fig. 11. Fig. 13 is a vertical sectional view of a modified form of neck-piece for the flask; and Figs. 14 and 15 show, respectively, a vertical sectional view and a plan view of parts of the neck, as shown in Fig. 13.

Referring now to the accompanying drawings in detail, *a* designates the body portion of the flask, which is formed with an extension or neck *b*, which neck may be formed through the medium of a glass extension fixed to the body of the flask or may be blown or made integral with the body itself. A ring or collar, of copper or other suitable metal, (shown at *d*,) is secured to the neck through the medium of a suitable cement *e*, the upper edge of which collar lies adjacent to the edge of the neck. The exterior surface of the collar *d* is formed with a plurality of threads, and upon this collar is adapted to be screwed the sleeve *f*. This sleeve, it will be noted, is divided into two parts through the medium of an internal partition *i*, the lower part being indicated at *g*, while the upper one is shown at *h*, and the partition *i* is pierced or formed with an orifice or aperture *i'*. The lower section *g* of the sleeve *f* has its interior wall formed with a plurality of threads through the medium of which the sleeve may be screwed upon the collar *d*, as heretofore described. In order to insure that the joint between the collar and the sleeve will be perfectly air-tight, I interpose one or more rubber washers, (shown at *j*,) said washers being formed centrally with apertures designed to register with the aperture *i'* of the partition.

Extending through the sleeve and into the neck of the bottle is a small copper tube *k*, having formed at its upper extremity a flange *k'*, which flange is adapted to lie upon the upper face of the partition *i*. In the upper hollow section or chamber formed in the sleeve *f* is cemented at *l* a glass rod *m*, having a capillary canal *m'*, the lower part of which terminates in a funnel or bulb, which bulb is adapted to be filled with cotton-wool or the like, as indicated at *n*, the cotton-wool performing the functions of a filter. As will be seen by reference to the drawings, the extreme upper end of the sleeve is slightly reduced in cross-diameter and is threaded to receive a cap *p*, said cap being formed of copper or other suitable material, the lower edges of the same resting upon the rubber ring *o*, lying in a groove formed in the sleeve *f*.

The above description has appertained particularly to the construction illustrated clearly in Figs. 1 and 2, while a modified construction is represented in Figs. 13, 14, and 15. In this instance the glass rod *m* is cemented in an independent sleeve *s*, provided with an edge or flange *t*, said sleeve being adapted to be screwed into the large sleeve *f*, the flange *t* resting upon a washer *u*, made, preferably, of lead. The small sleeve *s* is closed at its upper end by the horizontal wall X, with the exception that the latter is pierced or formed with an opening designed to register with the capillary orifice of the tube *m*. The closure is formed through the medium of a cap *v*, provided with a washer *w*, of rubber or lead, which when the cap is down is pressed upon the part X without contacting with the capillary orifice of the flask. By this arrangement of parts I am able to employ a lead washer, which is preferable in many instances to a rubber one, as the latter is liable to become more or less altered, damaged, or pressed out of shape. A capillary discharge is obtained from the flask in the following manner: The liquid passing out through the tube *k* is filtered through the cotton *n* and follows the capillary passage of the glass tube *m*, from which it escapes into the atmosphere in the form of a capillary jet. The tube *k* is movable and is so arranged that it permits the liquid to pass from the interior of the flask to the capillary glass tube *m*, lodged in the cavity of the sleeve *f*, and said tube is also constructed to allow the filling up of as much as is possible of the neck of the flask, so as to reduce to a minimum the surface liable to become obturated or choked. The tube *k* being of a diameter nearly equal to the opening of the neck, does not block up the capillary opening, this being effected by the rubber washer *j*. But it has been found that the liquid dissolves the rubber by degrees, and so, to obviate this inconvenience, the neck of the tube is filled with cement *r*, (shown in Fig. 2,) which rapidly hardens, seals the tube *k* to the internal walls of the neck *c*, and prevents all deterioration of the rubber. The mobility of the mounting of the rubber of the tube *k* is necessary to prevent the breaking of the neck of the flask where the orifice is not central with the flask. The joint *o*, adjacent to the upper or outlet orifice of the jet, is formed by a rubber washer lodged in a groove and compressed by the cap, so that it is difficult for such orifice to become choked.

In Figs. 9 to 12, representing a modified form of construction, the flask *a'* is of manufactured glass, while the capillary tube *k* is replaced by a capillary tube *k'*, forming a part of the sleeve *f*. The opening of the neck *c* of the flask may be made very small by filling the neck with a suitable cement *r*, which rapidly hardens, forming a block between the tube *k'* and the internal walls *b*. The rubber washer *j*, designed to make the joint perfect, is lodged in a groove formed in the partition *i* and is preserved from contact with the liquid by cement, which latter prevents it from being damaged or distorted, as with the use of cement it is impossible for the volatile vapor to affect the rubber.

It will of course be understood that there may be modifications in the construction of the flask in that there may be some of different forms and sizes, either with a straight neck or with a curved neck or a plurality of necks, one straight and one curved. The delivery capillary is ordinarily made by means of a small glass tube with a capillary passage therethrough, but this may be replaced, if desired, by a piece of copper formed with a capillary opening and provided with a filtering body of cotton to act as a dust-preventive.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

1. A flask comprising a body portion, a capillary discharge-tube therefor, a hollow connection joining said flask and tube, and a second capillary tube communicating with and arranged beneath the first-mentioned tube, and extending into the flask.

2. A flask for storing volatile liquid, comprising a body portion, a capillary discharge-tube therefor, a metallic sleeve threaded upon the neck of the flask, said sleeve having a perforated partition therein through which the discharge-tube passes.

3. A flask for storing volatile liquid, comprising a body portion, a collar cemented to the neck thereof, a capillary tube for said flask, a sleeve designed to be threaded upon the collar, said sleeve having a perforated partition through which the capillary tube passes, a rubber gasket or washer interposed between the partition of the sleeve and the neck of the flask, and a cap fitting on said sleeve.

4. The combination of a flask, a metallic capillary tube extending down into the neck

thereof, and a glass capillary tube mounted above and communicating with the metallic tube.

5. A flask comprising a body portion, having a neck formed thereon, a sleeve secured upon said neck, a perforated partition formed in said sleeve, dividing the latter into two parts, a washer interposed between the partition and the neck of the flask, and a capillary tube adapted to pass through the partition of the sleeve and into the neck of the bottle, one end of said tube having a flange formed thereon, said flange resting upon the partition of the sleeve.

6. A flask comprising a body portion, a sleeve secured to the neck thereof, a tube supported from said sleeve and extending into the neck of the bottle, a capillary discharge-tube arranged in the sleeve above the first-mentioned tube, a body of absorbent material held within the discharge-tube, and a cap fitting on said sleeve.

7. A flask comprising a body portion, a sleeve secured to the neck of said flask, capillary tubes arranged within said sleeves, one of said tubes extending into the neck of the flask, a cap for said sleeve, and washers surrounding said tubes and so arranged that an air-tight receptacle is obtained.

In witness whereof I have hereunto set my hand in presence of two witnesses.

HENRI GOETZ.

Witnesses:
JEAN GRUND,
CARL GRUND.