

Feb. 14, 1933.

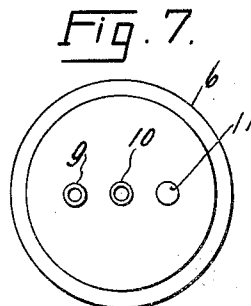
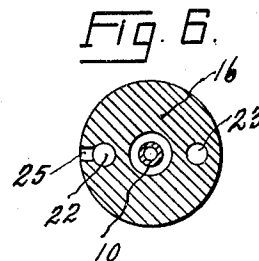
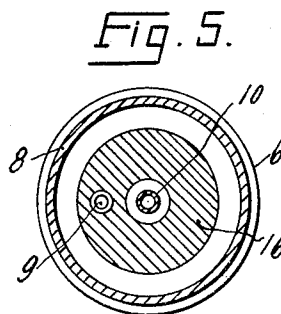
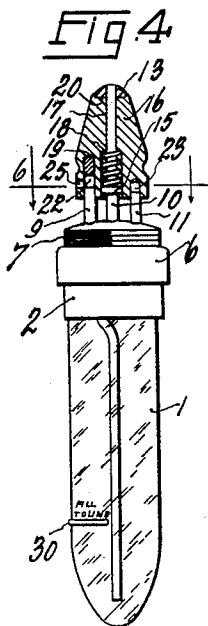
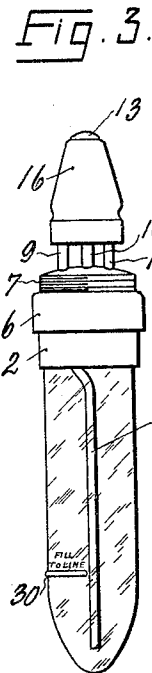
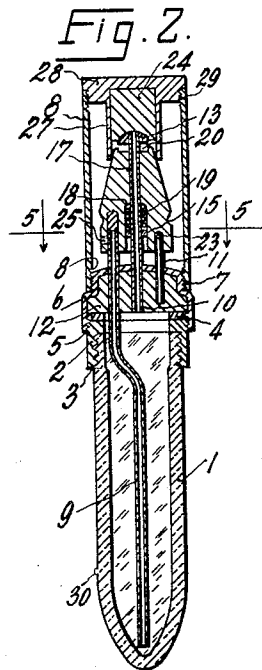
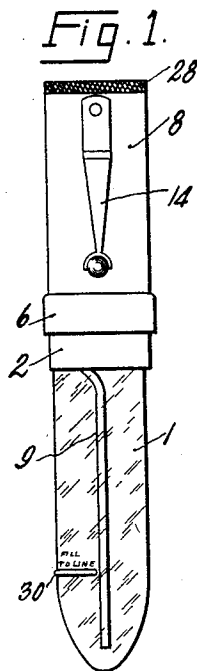
T. B. STEPHENSON

1,897,343

ASPIRATOR

Filed Dec. 19, 1930

2 Sheets-Sheet 1



INVENTOR.  
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ATTORNEYS.

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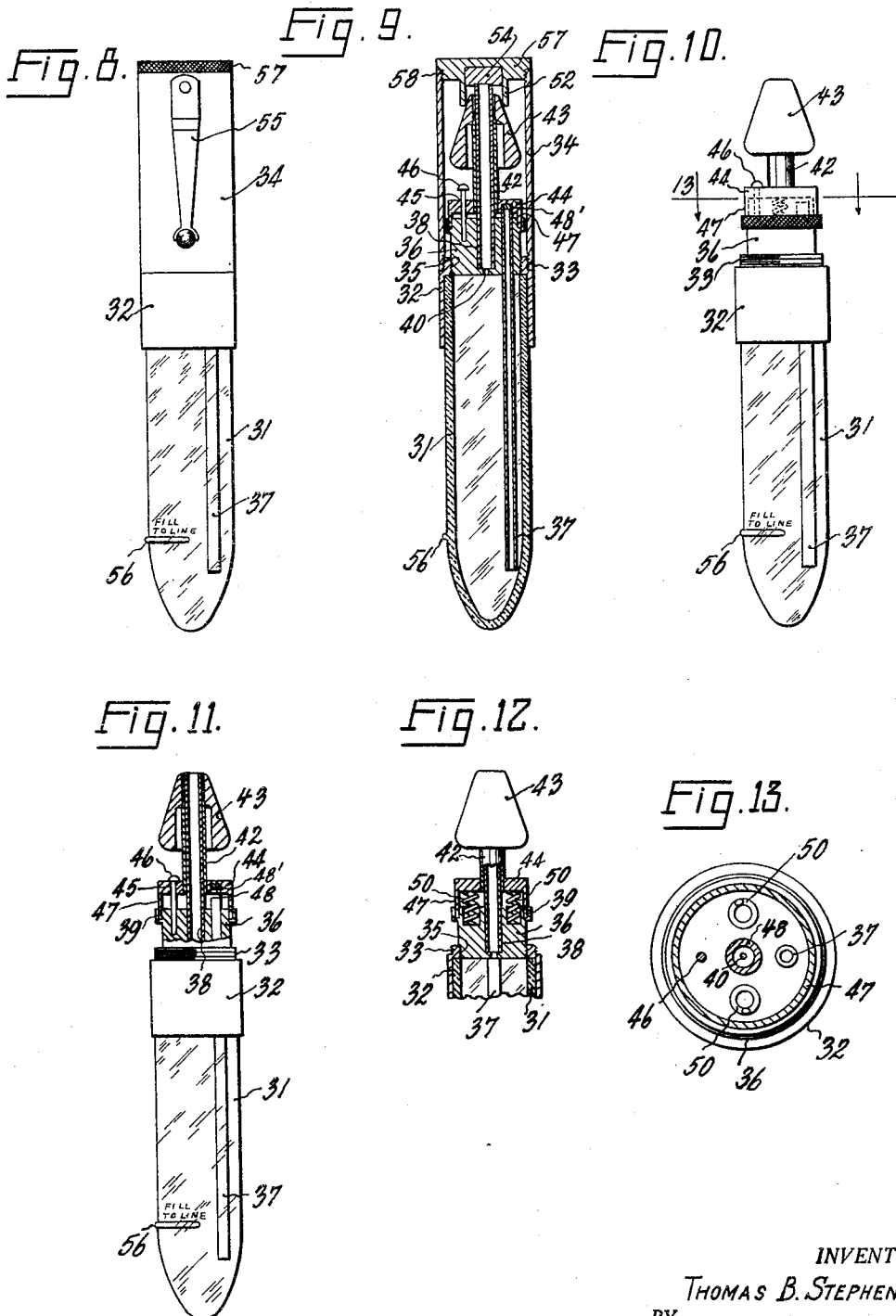
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ASPIRATOR

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

THOMAS B. STEPHENSON, OF SPRINGFIELD, MASSACHUSETTS

## ASPIRATOR

Application filed December 19, 1930. Serial No. 503,530.

My invention relates to aspirators or inhalers of the type by means of which a quantity of liquid is vaporized for breathing through the nose or mouth.

5 It is an object of my invention to provide a small compact device of the character adapted to be carried in the pocket and constructed to prevent accidental escape of the liquid when not in use. Other and further  
10 objects will be apparent from the following specification and claims.

In the accompanying drawings which illustrate one embodiment of my invention:

15 Fig. 1 is a side elevation showing the device with the cap in position;

Fig. 2 is a longitudinal section with the cap in position;

Fig. 3 is a side elevation with the cap removed;

20 Fig. 4 is a view similar to Fig. 3 but showing the head in section;

Fig. 5 is an enlarged section on line 5—5 of Fig. 2;

25 Fig. 6 is an enlarged section on line 6—6 of Fig. 4;

Fig. 7 is an enlarged plan view with the head removed;

Fig. 8 is a side elevation showing an alternative construction with the cap in position;

30 Fig. 9 is a longitudinal section showing the alternative construction with the cap in position;

Fig. 10 is a side elevation of the alternative construction with the cap removed;

35 Fig. 11 is a view similar to Fig. 10 but showing the head in section;

Fig. 12 is a sectional view of the head taken at right angles to the section of Fig. 11; and

40 Fig. 13 is a section substantially on line 13—13 of Fig. 10.

Referring to the drawings, 1 designates the liquid container, preferably made of glass. A ferrule 2 is threaded to the open end of the container at 3, the ferrule being exteriorly threaded at 5 to receive the closure member 6. Member 6 is in the form of a shell exteriorly threaded at 7 to engage complementary threads formed on the interior of the cylindrical cap 8. Member 6 carries pipes  
50 9 and 10 and a pin 11 which are held firm-

ly in the shell by a filling of solder or lead 12. A packing washer 4 is positioned between the ferrule 2 and filling 12. The inner end of pipe 9 opens adjacent the bottom of the container, while the inner opening of pipe 10 is substantially flush with the filling 12.

The outer end of pipe 9 extends a short ways beyond member 6 while pipe 10 has a further extension and is provided on its outer end with an apertured button 13 and, intermediate the button and member 6, with a collar 15. An inhaler head 16 having a bore 17 is slidably mounted on pipe 10 between the button 13 and collar 15, the lower portion of the bore being enlarged to accommodate the collar 15 and form a shoulder 18, between which and the collar is positioned a spring 19. Spring 19 tends to hold the head 16 against button 13 and the head is formed with a recess 20 to partially receive the button, as shown in Fig. 4, so as to give the head, when the parts are in this position, a smooth contour adapted for application to the nostril or mouth. The underside of head 16 is provided with opening 22 and 23 in which pipe 9 and pin 11 respectively engage. The purpose of pin 11 is to prevent rotation of head 16 about pipe 10. A transverse duct 25 connects opening 22 with the outside of the head, and, as shown in Fig. 4, the duct is so positioned that when head 16 is raised against button 13 a passage is formed through duct 25 and pipe 9 to the bottom of the container. A sealing plug of suitable material such as rubber or lead is positioned in the inner end of opening 22 to seal the end of pipe 9 when head 16 is forced downwardly against the action of spring 19. As shown in Fig. 2, the cap 8 is provided on the inside of its closed end with a cylindrical projection 27 having a diameter and length such that when the cap is screwed down on member 6 the edges of the projection engage head 16 below button 13 to force the head downwardly against spring 19, closing pipe 9 as previously described. Pipe 10 is closed at the same time by engagement of the button 13 with a plug of lead, rubber or other suitable material 24 positioned in cylinder 27.

For convenience of manufacture and as-

sembly, the end of cap 8 may be made as a separable member 28 threaded to the barrel of the cap as at 29. If desired, a clip 14 may be secured to the cap 8 to retain the device upright in the pocket.

In use, the container 1 is filled with a suitable liquid so as to bring the liquid level above the lower end of tube 9 yet leave a substantial space between the liquid and the closure. The proper liquid level may be indicated to the user by a ridge 30 formed on the container. With the cap 8 removed and the parts consequently positioned as shown in Figs. 3 and 4, inhalation through the head 16 will draw air through duct 2, pipe 9 and through the liquid, the thus treated air then passing through pipe 10 to head 16. When not in use, with cap 8 in position, the inlet and outlet pipes are tightly closed.

In Figs. 8 to 13, inclusive, I have shown an alternative structure. Referring to these figures, 31 designates the liquid container preferably made of glass. A ferrule 32 is secured to the open end of the container, the ferrule being provided with exterior threads at 33 for engagement with complementary threads formed in a cap 34, and interiorly threaded at 35 to receive a threaded closure member 36. Secured in member 36 are pipes 37 and 38. The inner end of pipe 37 opens adjacent the bottom of the container and its upper end extends a short distance above the outer face of the closure member. The inner end of pipe 38 opens to the interior of the container through a duct 40, while its upper end extends a substantial distance beyond the outer face of the closure member 36. A sleeve 42 is slidably mounted on the outer end of pipe 38 and is provided on its outer end with an inhaling head 43. The opposite end of sleeve 42 is provided with a skirted flange 44 having an aperture at 45 through which a headed pin 46, carried by closure member 36, passes. Pin 46 prevents rotation of the sleeve 42 on pipe 38 and its head, by engagement with the upper face of flange 44, limits the outward movement of the sleeve on pipe 38. A recess 48 is formed on the underside of the flange directly in line with the outer end of pipe 37. When flange 44 is moved adjacent the closure 36, the end of pipe 37 enters recess 48 and the end of the pipe is tightly sealed by a packing 48', made of hard rubber or the like, positioned in the recess. Flange 44 is normally held in its outward position against the head of pin 46 by springs 50 (see Fig. 12) seated in recesses formed in closure 36 and engaging the under side of flange 44. The skirt 47 of the flange telescopes into a groove 39 formed in closure 36, thus enclosing and protecting the springs.

As shown in Fig. 9, the cap 34 is provided on the inside of its closed end with a cylindrical projection 52, having a diameter and

length such that when the cap is screwed down on ferrule 32 the edges of the projection engage the shoulders of head 43 to force the head downwardly against springs 50, closing pipe 37 as previously described. Pipe 38 is closed at the same time by engagement of the end of the pipe with a plug of lead, rubber or other suitable material 54.

As in the form previously described, the end of cap 34 may be made as a separable part 57 threaded to the barrel of the cap at 58 and if desired a clip 55 may be secured to the cap 34 to retain the device in the pocket. Means 56 to indicate the proper depth of liquid may be molded or otherwise formed on the container.

What I claim is:

1. An aspirator bottle which comprises a liquid container, a closure for the container, inlet and outlet pipes supported by the closure, an inhaling head mounted on the outlet pipe for movement toward and from the closure, means movable with the head to close the inlet pipe when the head is moved toward the closure, spring means to normally hold the head in raised position, a cap, means carried by the cap to close the outlet pipe and means carried by the cap to maintain the head and the parts movable therewith in position to close the inlet pipe.

2. An aspirator bottle which comprises a liquid container, a closure for the container, inlet and outlet pipes supported by the closure, an inhaling head slidably mounted on the outlet pipe, spring means to normally maintain the head in operative position adjacent the outer end of the outlet pipe, a recess formed in the head to receive the end of the inlet pipe, a duct formed in the head and communicating with the recess adapted when the head is in operative position to vent the inlet pipe to the atmosphere and to close the inlet pipe upon movement of the head toward the closure, a cap releasably engaging the closure, means carried by the cap to maintain the head in position to close the inlet pipe, and means carried by the cap to close the outlet pipe.

3. An aspirator bottle which comprises a liquid container, a closure for the container, inlet and outlet pipes supported by the closure, a sleeve slidably mounted on the outlet pipe, an inhaling head positioned on the outer end of the sleeve, a flange formed on the inner end of the sleeve, spring means positioned between the flange and the closure to normally maintain the sleeve and head in raised position, means on the underside of the flange to engage and close the end of the inlet pipe when the sleeve is in lowered position, a cap releasably engaging the closure, means carried by the cap to engage the head and maintain the flange in position to seal the inlet pipe and means associated with said head engaging means to close the outlet pipe.

4. An aspirator bottle which comprises a liquid container having inlet and outlet pipes, an inhaling head slidably mounted on the outlet pipe, means operative in one position of the head on the outlet pipe to close the inlet pipe, a cap releasably engaging the closure, means carried by the cap to move the head to said inlet closing position when the cap is positioned on the closure, means associated with said head moving means to close the outlet pipe, and spring means to return said head to its inlet opening position upon removal of the cap.

In testimony whereof I have affixed my signature.

THOMAS B. STEPHENSON.