

Feb. 14, 1933.

T. B. STEPHENSON

1,897,404

ASPIRATOR

Filed Sept. 17, 1931

Fig. 1.

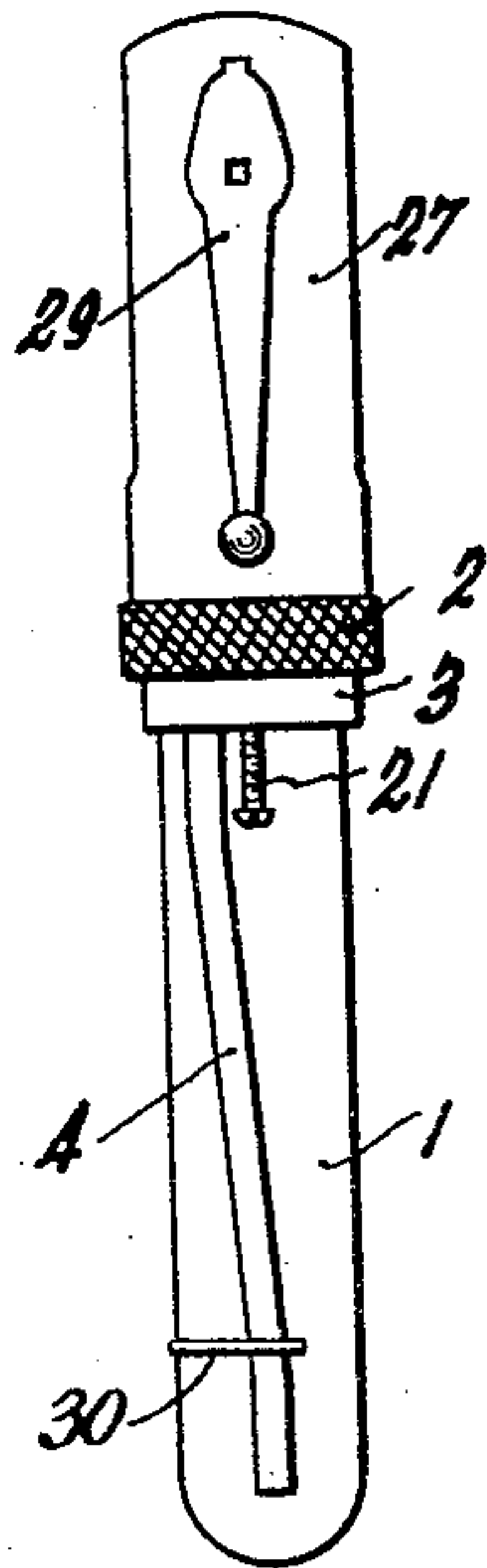


Fig. 2.

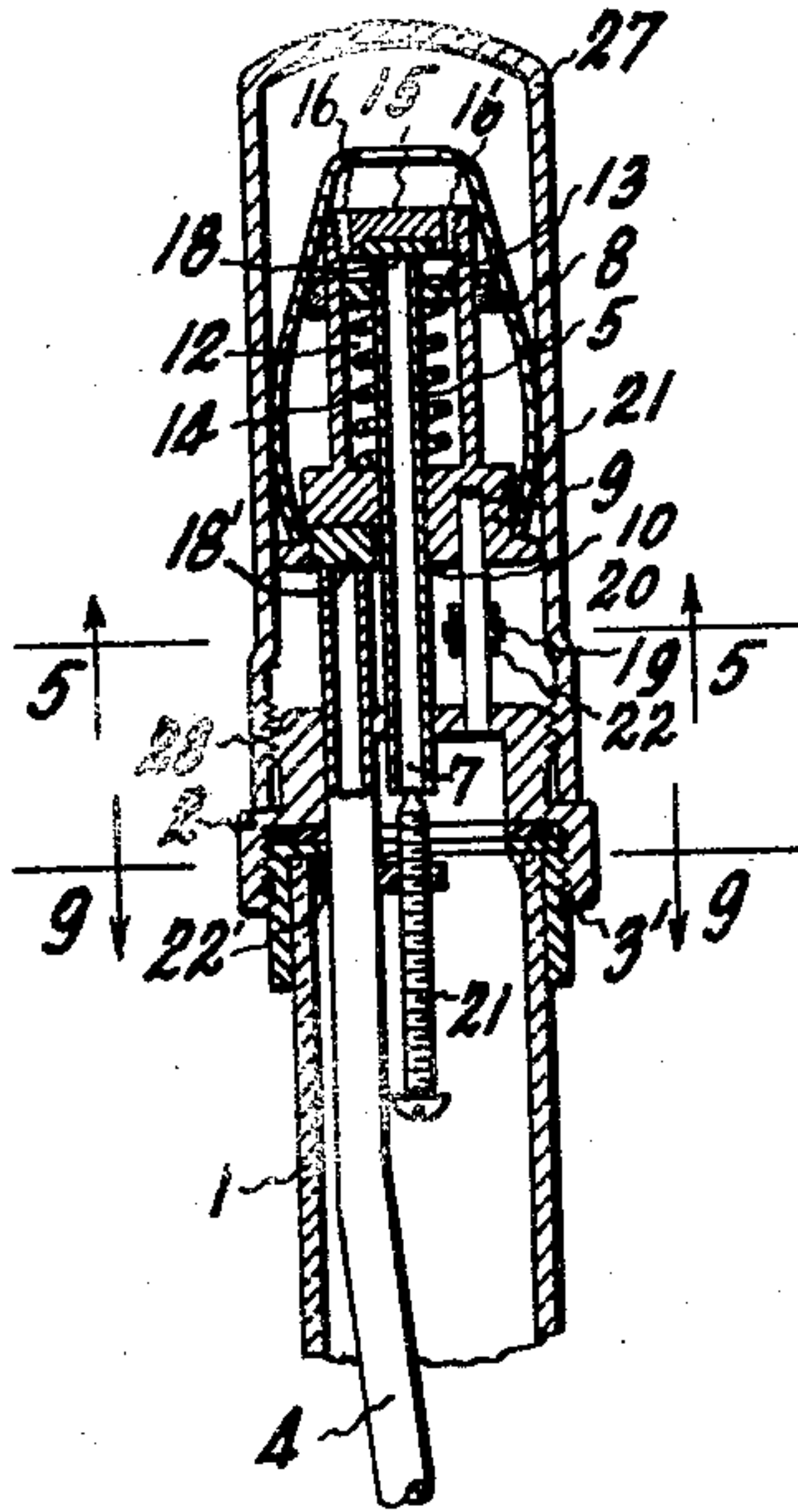


Fig. 3.

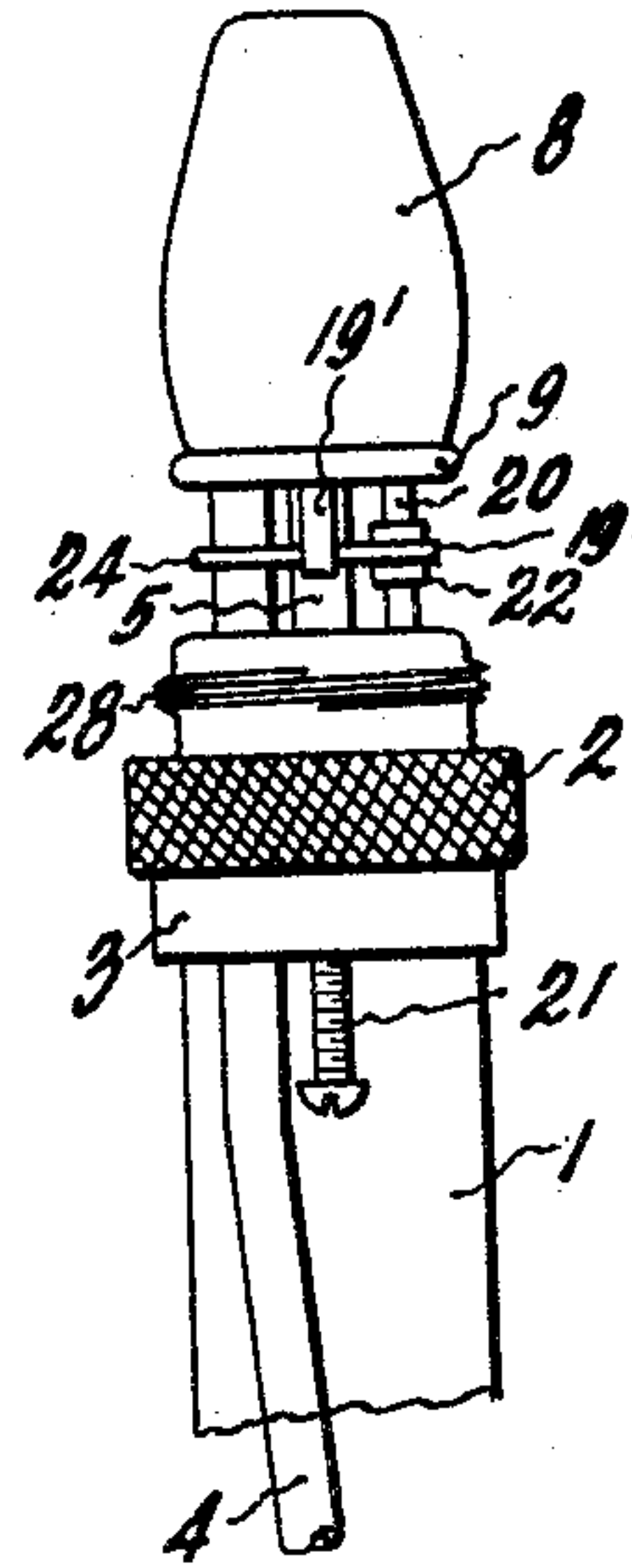


Fig. 4.

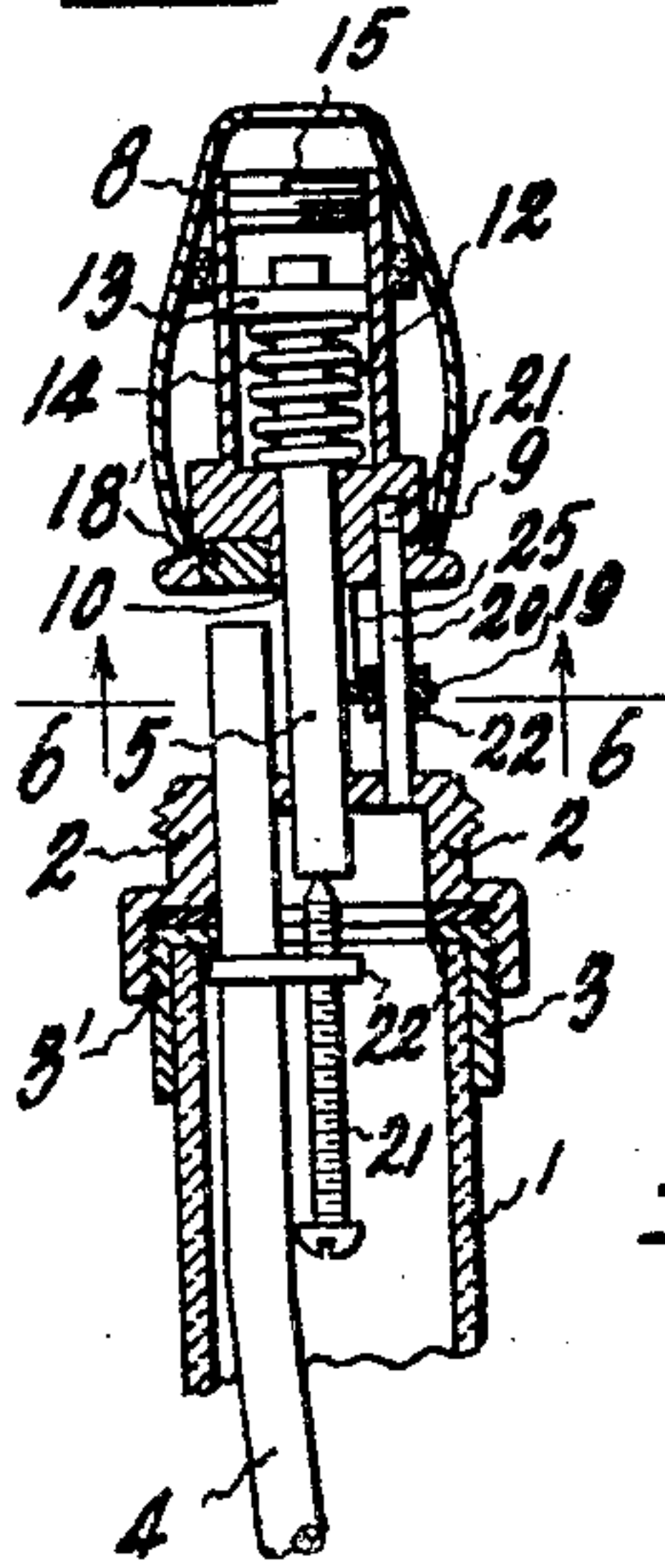


Fig. 5.

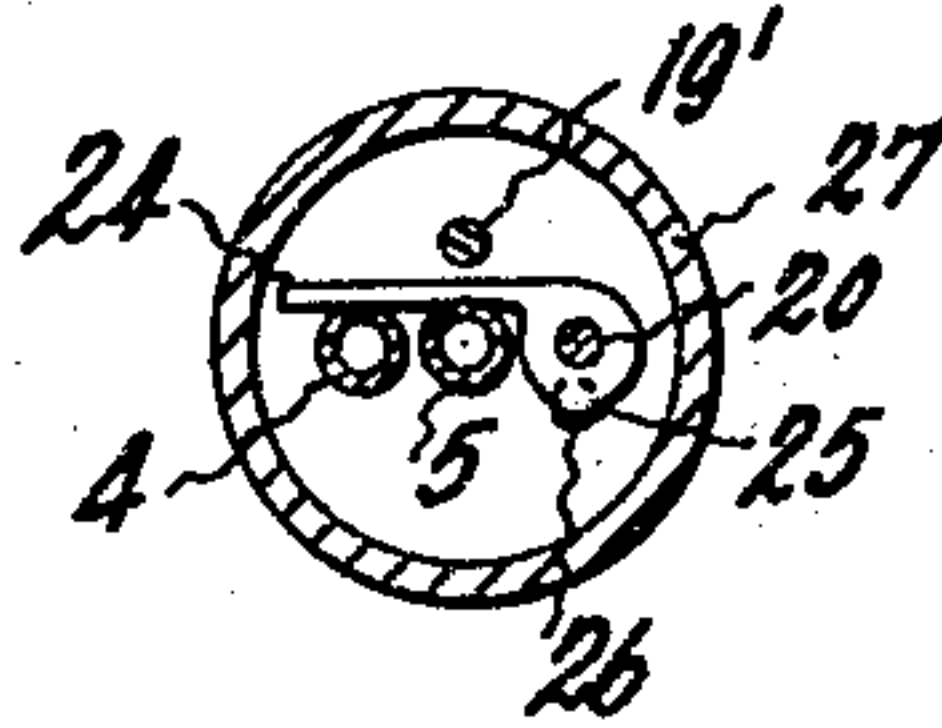


Fig. 7.

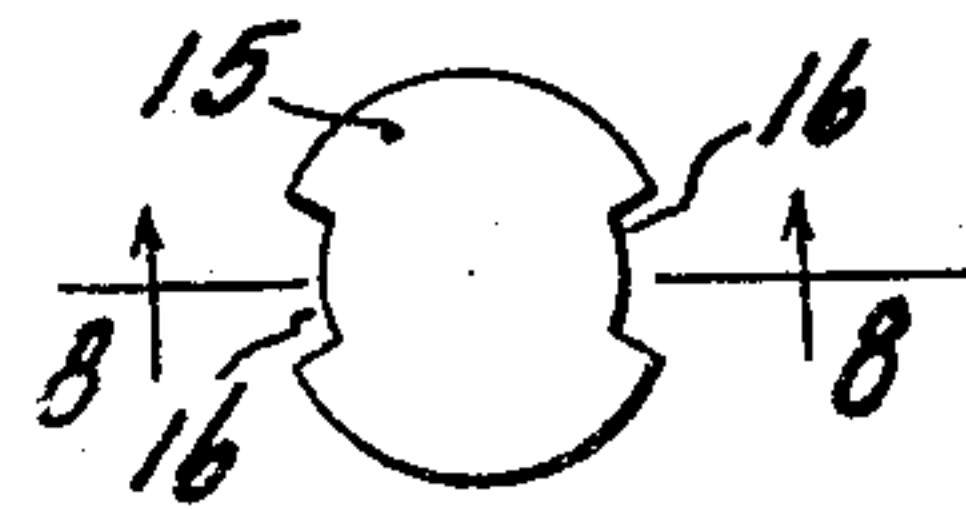


Fig. 6.

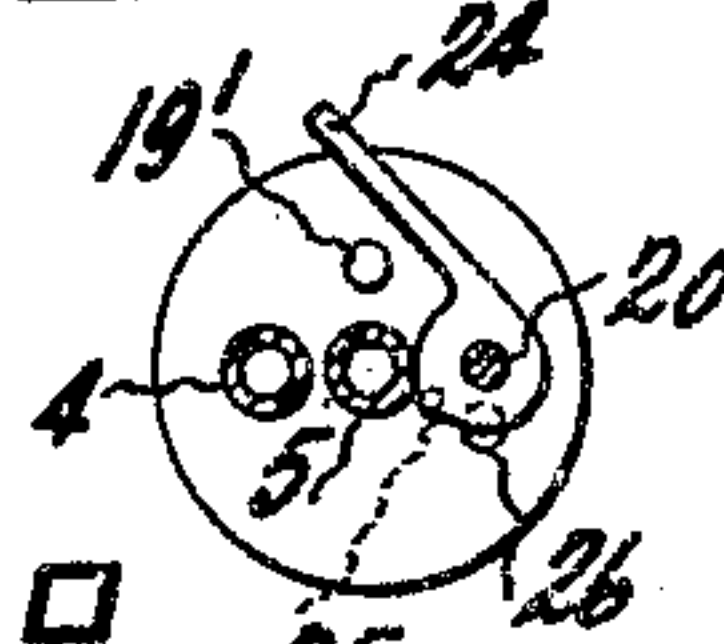


Fig. 8.

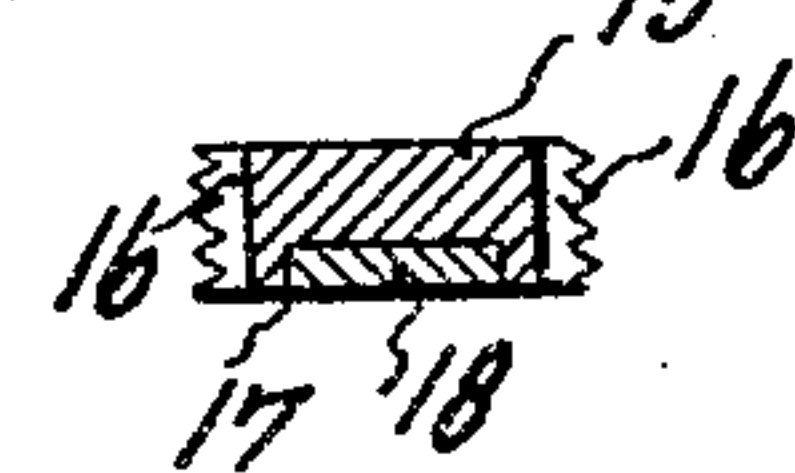
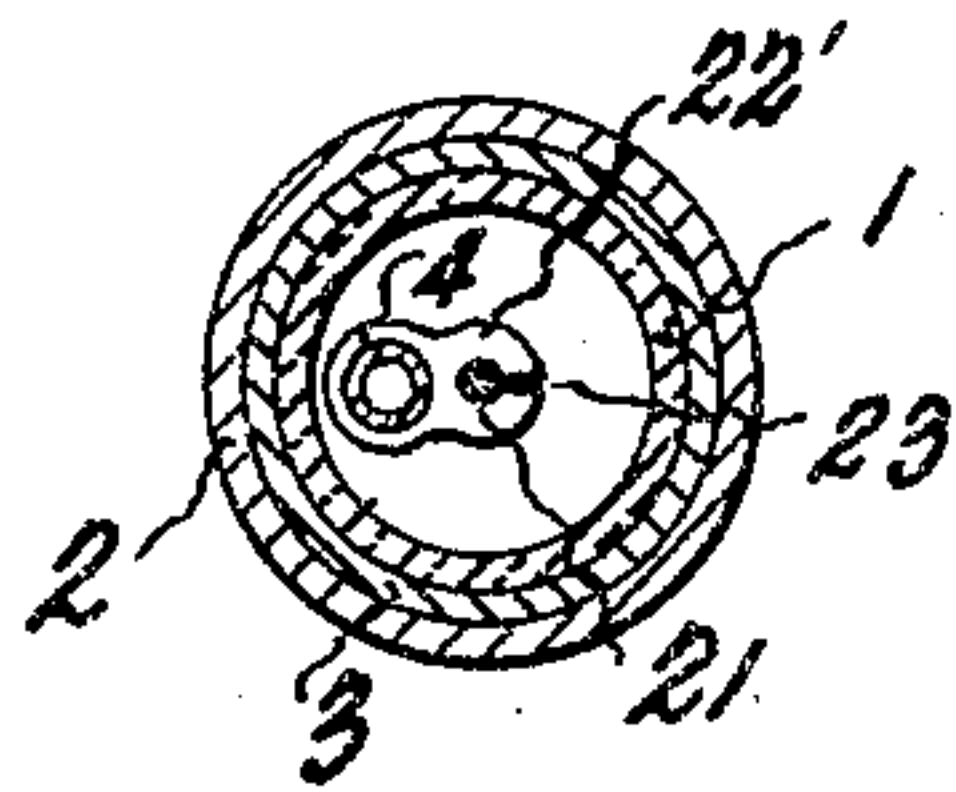


Fig. 9.



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# UNITED STATES PATENT OFFICE

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## ASPIRATOR

Application filed September 17, 1931. Serial No. 563,328.

My invention relates to aspirators and more particularly to aspirators by means of which a quantity of liquid is vaporized for breathing through the nose or mouth in the treatment of colds or other disorders of the nose or throat.

It is an object of my present invention to provide a device of this character which is normally closed and in which a positive operation is necessary to open it but which may be quickly and semi-automatically returned to closed position. A further object is to provide a device of this character in which the strength of the inhalation may be controlled. Other and further objects will be apparent from the following specification and claims.

This application is a continuation in part of my co-pending application Serial No. 503,531, filed December 19, 1930.

In the accompanying drawing which illustrates one embodiment of my invention:

Fig. 1 is a side elevation of a device made according to my invention;

Fig. 2 is a vertical section of the structure shown in Fig. 1;

Fig. 3 is a view similar to that of Fig. 1 but with the cap removed, the parts being in inoperative position;

Fig. 4 is a vertical section with the cap removed showing the parts in operative position;

Fig. 5 is a section, on an enlarged scale, taken substantially on line 5—5 of Fig. 2;

Fig. 6 is a similar view taken substantially on line 6—6 of Fig. 4;

Fig. 7 is a detail plan view on an enlarged scale showing the end plug of the inhaler head;

Fig. 8 is a section taken substantially on line 8—8 of Fig. 7; and

Fig. 9 is a section taken substantially on line 9—9 of Fig. 2.

Referring to the drawing, 1 designates a liquid container preferably formed of glass and provided with a closure member 2 threaded as at 3' to a ferrule 3 cemented or otherwise secured to the container. The closure member supports inlet and outlet pipes respectively designated at 4 and 5. The

inner end of inlet pipe 4 opens adjacent the bottom of the container and its outer end rises a relatively short distance above the closure 2. The inner end of outlet pipe 5 opens adjacent the inner surface of the closure 2 through a duct 7, its outer end rising a substantial distance above the closure 2. Slidably mounted on the outer end of pipe 5 is an inhaling head generally indicated at 8. The inhaling head comprises a base member 9, bored at 10 to receive pipe 5, the upper end of the bore being enlarged and forming a chamber 12 to accommodate a collar 13 secured to pipe 5. A spring 14 positioned between collar 13 and the bottom of the chamber 12 urges the head towards the closure member 2. The opening of the chamber 12 is screw threaded to receive a threaded plug 15 forming the end of the head. Plug 15 is provided with grooves 16 communicating with the chamber. The central portion 17 of the plug, intermediate the grooves 16, is recessed to engage and seal the outer end of pipe 5, as shown in Fig. 2, under the action of spring 14. A block of lead, rubber or other suitable material 18 may be inserted in recess 17 to increase the efficiency of the seal. At the same time pipe 4 is sealed by engagement with the underside of the head, a block of lead, rubber or other suitable material 18' being preferably inset in that surface to increase the efficiency of the seal.

It will thus be seen that spring 14 normally maintains the head 8 in position to seal the pipes 4 and 5. For operation the head 8 is raised against spring 14 to the position shown in Fig. 4, thus opening pipe 4 to the atmosphere and placing pipe 5 in communication with the end of the inhaling head through apertures 16. In order to releasably hold the head in operative position, I provide a latch in the form of a lever 19 pivoted intermediate its ends on a pin 20 secured to the closure 2 and engaging in a recess 21 formed in member 9. A collar 22 holds lever 19 in position on the pin 20. Pin 20 in addition to supporting lever 19 serves to prevent rotation of the head about pipe 5. One end of lever 19 serves as a handle



24, the opposite end being provided with an upright pin 25 adapted when the parts are in inoperative or closed position to engage in a recess 26 (see Figs. 2 and 6), and to engage the under surface of the head when the latter has been raised and lever 19 turned to the position shown in Fig. 6, thus holding the head in raised position. A pin 19' is positioned to engage behind lever 19 when the head is in closed position preventing movement of lever 19, the pin 19 being of a height to permit the lever to clear it when the head is in raised position.

In some cases the inhalent used may be of such strength that for some individuals, children for example, the amount of vapor drawn through the inhaling head in one breath should be reduced below the full capacity of duct 7. In order to permit control of the dosage, I provide a needle valve 21 threaded through a fixed nut 22' and seating in the end of duct 7. Nut 22' is conveniently secured to pipe 4 and is split as at 23 to provide a spring grip on the threads of valve member 21.

A cap 27 is provided for enclosing the parts carried by closure 2, the cap being releasably held to the closure as by threads 28. As shown in Fig. 6, when lever 19 is in position to hold the head open, the handle member 24 extends beyond the periphery of the closure 2, preventing the application of the cap. Before the cap can be applied, the lever must be swung to the position shown in Figs. 3 and 5, bringing pin 25 into line with recess 26 and permitting the head 8 to drop under the action of spring 14 to close pipes 4 and 5. If desired, a clip 29 may be applied to cap 26 to hold the device upright in the pocket.

In operation, the container is filled with a suitable liquid so as to bring the liquid level above the lower end of pipe 4 yet leave a substantial space between the liquid and the closure. The proper liquid level may be indicated to the user by a line 30 molded or otherwise formed on the container. With the cap removed and the head held in raised position (as shown in Fig. 4), inhalation through the head 8 will draw air through pipe 4 and through the liquid, the thus treated air passing through duct 7, pipe 5, chamber 12 and apertures 16 to the nose or throat.

What I claim is:

1. An aspirator bottle which comprises a liquid container having inlet and outlet pipes opening endwise of the container, a portion of the outlet pipe being extended beyond the end of the container, and an inhaling head slidably mounted on the extended portion of the outlet pipe for movement to and from sealing engagement with the outer ends of said pipes.

2. An aspirator bottle which comprises a

liquid container having inlet and outlet pipes, an inhaling head slidably mounted on the outlet pipe for movement into sealing engagement with the outer ends of said pipes, spring means normally holding the head in sealing position, and means for releasably holding the head disengaged from the pipes against the action of said spring means.

3. An aspirator bottle which comprises a liquid container having inlet and outlet pipes, an inhaling head slidably mounted on the outlet pipe for movement into sealing engagement with the outer ends of the pipes, spring means normally holding the head in sealing position, a catch for releasably holding the head disengaged from the pipes against the action of said spring means, and means to lock said catch in inoperative position when the head is in sealing position.

4. 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, means carried by the head to respectively close the inlet and outlet pipes, spring means normally holding the head in position to close the outer ends of said pipes, and means carried by the closure to releasably hold the head in position to release both said closing means.

5. 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 urging the head towards the closure, means carried by the head to respectively engage and close the outer ends of the pipes under the action of said spring means, and means carried by the closure for releasably holding the head in position to space said closing means from the pipes.

6. An aspirator bottle which comprises a liquid container, a closure for the container, inlet and outlet pipes supported by the closure, an inhaler head slidably mounted on the outlet pipe and overhanging the inlet pipe, eccentric openings formed in the outer end of the head, spring means adapted to urge the head towards the closure to bring the overhanging portion of the head and that portion of the head intermediate the eccentric opening, respectively, into sealing engagement with the outer ends of the inlet and outlet pipes, and means to releasably hold the head spaced from the ends of the pipes against the action of said spring means.

In testimony whereof I have affixed my signature.

THOMAS B. STEPHENSON.