

No. 643,867.

Patented Feb. 20, 1900.

A. DE VILBISS.
INSUFFLATOR.

(Application filed June 3, 1899.)

(No Model.)

Fig. 1.

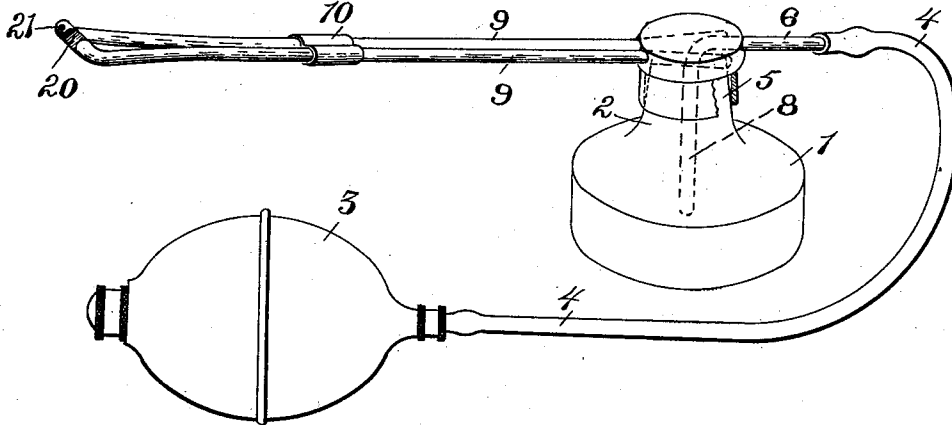


Fig. 2.

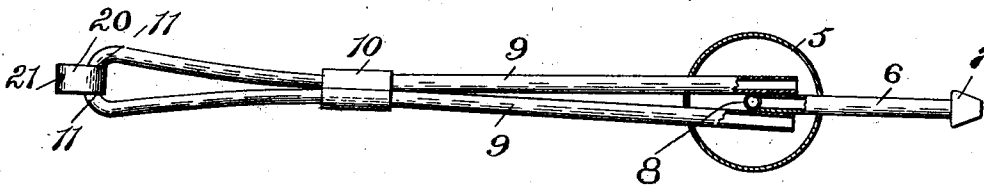


Fig. 3.

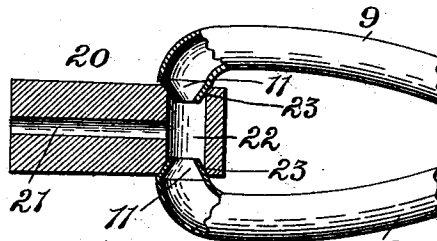
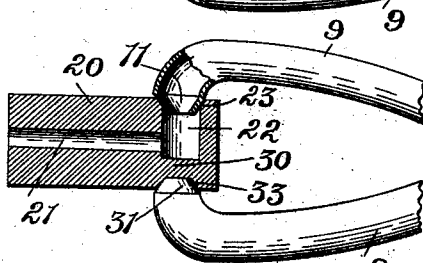


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALLEN DE VILBISS, OF TOLEDO, OHIO.

INSUFFLATOR.

SPECIFICATION forming part of Letters Patent No. 643,867, dated February 20, 1900.

Application filed June 3, 1899. Serial No. 719,190. (No model.)

To all whom it may concern:

Be it known that I, ALLEN DE VILBISS, a citizen of the United States, and a resident of Toledo, Lucas county, State of Ohio, have invented certain new and useful Improvements in Insufflators; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to surgery, and more especially to that class of devices therein known as "atomizers;" and the object of the same is to produce an improved insufflator adapted especially for introducing powders into the throat or other portions of the human anatomy, although it may be used for liquids or gases.

To this end the invention consists more especially in certain details of construction described and claimed below and illustrated in the accompanying drawings, wherein—

Figure 1 is a general perspective view of this device complete. Fig. 2 is a plan view of the metallic parts, partly in section. Fig. 3 is an enlarged horizontal section of the nozzle, and Fig. 4 is a similar section of my preferred form thereof.

Referring to the drawings, 1 is the reservoir, consisting, usually, of a small bottle with a tapering and exteriorly-ground neck 2. 3 is the ordinary bulb, and 4 is the rubber tubing, all of which are well known in the art.

The metallic portion of this insufflator consists of a cap 5, shaped interiorly to fit closely upon the neck 2 by pressing or screwing it onto the same; an inlet-tube 6, whose outer end carries a head 7, fitting into the rubber tubing 4 and whose body passes into the cap 5 just under its top and turns downward at about its axial center, as at 8, and a pair of parallel tubes 9, extending at their inner ends into the cap 5 opposite the inlet-tube and with their extremities open on either side thereof, their bodies extending thence outward and through a clasp 10 at about the center of their length and their outer ends turned inward and made conical, as best seen at 11 in Fig. 3.

20 is the nozzle, which consists of a block bored longitudinally, as at 21, through its front end inward and provided with a larger trans-

verse bore 22 near its rear end intersecting the longitudinal bore 21, the ends of the transverse bore being formed into flaring sockets 23 for the reception of the conical ends 11 of the tubes 9. The latter are more or less resilient, and the clasp 10 causes their front ends to be normally thrown toward each other, whereby their extremities 11 fit frictionally into the flaring ends 23 of the bore 22 in the nozzle and permit this nozzle to be set at any desired angle, as will be clear.

In the preferred form of my invention illustrated in Fig. 4 precisely the same construction is adopted, except that the transverse bore 22 is not extended completely across the block 20, whereby a wall 30 is formed at one end thereof, and there is therefore no inlet from the tubing 9 at that side, and this tube, if desired, can have its passage closed at this extremity. However, it has a conical end 31 fitting a flaring socket 33, whereby the same adjustment as above described is possible.

In operation and use the reservoir is filled with powder, the nozzle set at the desired angle and introduced into the patient's mouth, and the bulb or other source of air-supply is operated. Air passing into the closed reservoir along the inlet-tube forces the powder up into the cap into one or both of the outlet-tubes, into one or both ends of the transverse bore in the nozzle, and thence out the fine longitudinal bore thereof. It will be obvious that if a fluid is used instead of a powder the operation will be substantially the same.

I do not confine myself to the sizes, shapes, and specific details of construction. I am aware that it is old, broadly, to provide a block with hollow trunnions fitting holes in the free ends of two flattened tubes for substantially the purpose above outlined; but I consider the present construction preferable, in that the wear of the conical tips 11 and the flaring sockets 23 is taken up after the nature of a cone-bearing. Moreover, it is essential that the tubes 9 turn at their delivery ends and extend for some distance inward, so that the passages through said tubes will stand in true alinement with the transverse bore of the nozzle and shall have no angles which would be likely to become clogged with powder or fouled with acids. Again, I consider the form

illustrated in Fig. 4 of advantage in a device of this character, because if the passage in one of the tubes 9 is closed when the insufflator is not in use the block can be sprung out of place and reversed, so as to close the exit end of the other tube 9 and prevent the escape of anything from the reservoir.

What is claimed as new is—

1. In a device of the character described, the combination with a reservoir having a neck tapering upwardly on its exterior; of an interiorly-smooth cylindrical cap fitting frictionally on said neck and closed at its top, an inlet-tube entering one side of the cap and turned down at its axial center, a source of air-supply to the outer end of this tube, a pair of tubes entering the other side of the cap near its top with their inner ends disposed therein at opposite sides of the inlet-tube, and a nozzle at the outer end of the pair of tubes, as and for the purpose set forth.

2. In an insufflator, the combination with the reservoir, a removable cap thereon, an inlet-tube, and a source of air-supply; of a pair of tubes whose inner ends are secured rigidly within the cap and whose outer ends curve inward toward each other and are made conical at their tips, a clasp surrounding the tubes between their ends, and a nozzle consisting of a block having flaring sockets in its opposite sides adapted to frictionally engage said conical tips, a longitudinal bore in its front end, and a second bore communicating therewith and extending transversely of the block between said sockets, as and for the purpose set forth.

3. In a device of the character described, the combination with the reservoir, the inlet-

tube, and a source of air-supply; of a pair of tubes standing substantially parallel and connected with each other between their ends, their inner ends leading from said reservoir and their outer ends being curved toward each other and provided with exteriorly-conical tips, and a nozzle consisting of a block having flaring sockets in its opposite sides for engagement with the tubes, a longitudinal bore in its front end, and a second bore intersecting the longitudinal bore and opening into one of the sockets so as to leave a closed wall between its inner end and the other socket, substantially as described.

4. In a device of the character described, the combination with the reservoir, and a source of air-supply; of a pair of tubes standing substantially parallel and connected with each other between their ends, their inner ends leading from said reservoir and their outer ends being curved toward each other and the passage in one of said tubes being closed at its tip, and a nozzle consisting of a block having sockets in its opposite sides for engagement with the tubes, a longitudinal bore in its front end, and a second bore intersecting the longitudinal bore and opening into one of the sockets so as to leave a closed wall between its inner end and the other socket, substantially as described.

In testimony whereof I have hereunto subscribed my signature this the 23d day of May, A. D. 1899.

ALLEN DE VILBISS.

Witnesses:

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MARTHA MYERS.