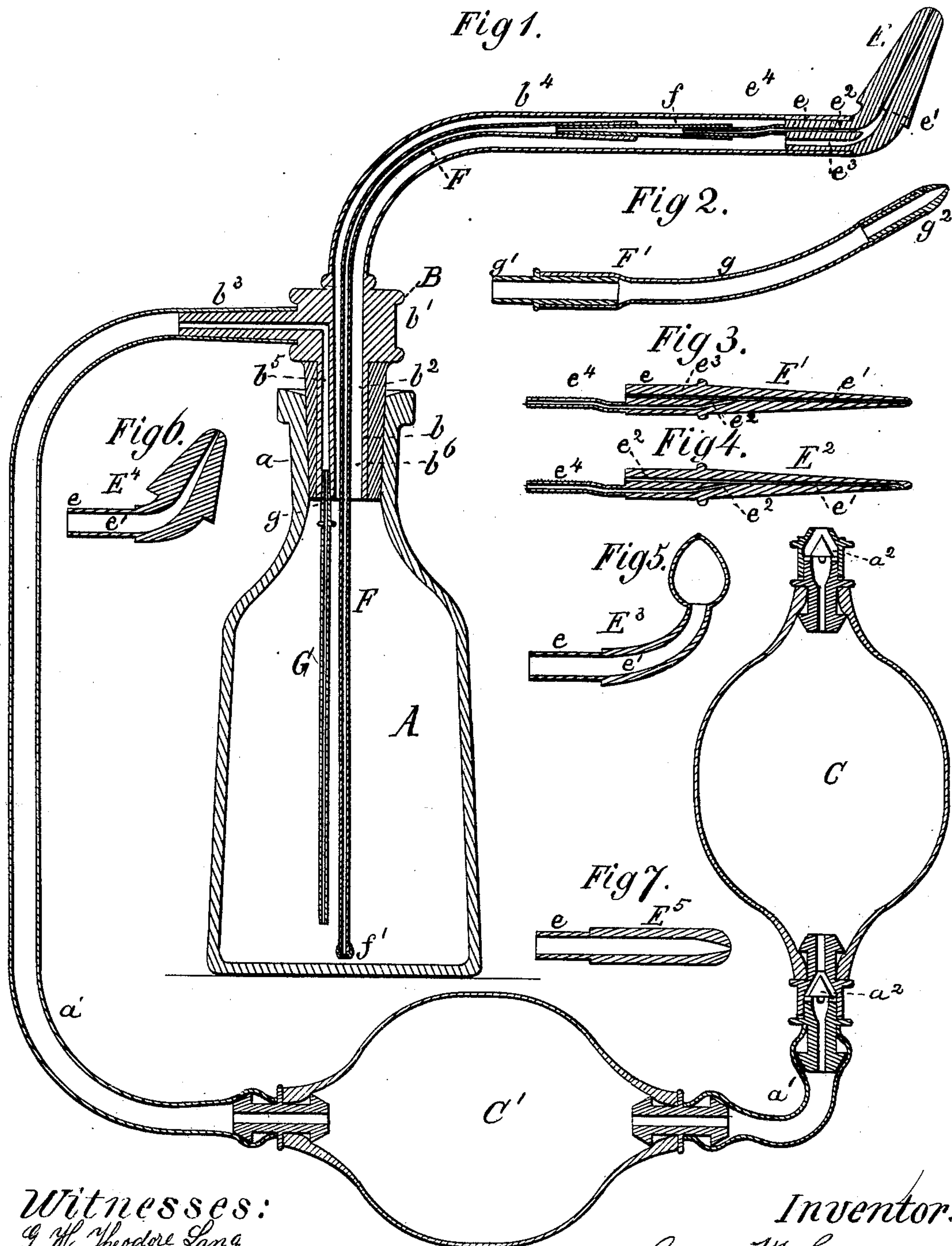


G. W. COREY.
Catarrh Apparatus.

No. 218,164.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN CATARRH APPARATUS.

Specification forming part of Letters Patent No. **218,164**, dated August 5, 1879; application filed January 7, 1879.

To all whom it may concern:

Be it known that I, GEORGE W. COREY, of Cheyenne, in the county of Laramie and Territory of Wyoming, have invented a new and useful Improvement in Catarrh Apparatus; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central section through my improved catarrh apparatus. Figs. 2, 3, 4, 5, 6, and 7 are detail sectional views of nozzles and pipes used in connection with my apparatus, as will be hereinafter described.

The nature of my invention consists in certain constructions, combinations, and arrangements of parts hereinafter fully described and specifically claimed, whereby an instrument is produced which is complete in its various parts and appliances for the purpose of making applications of medicines to various cavities and surfaces of the human body in the form of powders, liquid douches, spray douches, and vapor and air douches, the said apparatus being capable of effecting the various douches enumerated at any temperature above that of the freezing-point of water or below the boiling-point of said liquid.

In the accompanying drawings, A represents a douch-bottle having a neck, as at *a*, adapted to receive a tightly-fitting stopple. B indicates a hollow conical stopple, consisting of a metal body, *b*, a head, *b*¹, an india-rubber gasket, *b*², placed around the body *b* below the head *b*¹, and having a conical extension-pipe, *b*³, a curved extension-pipe, *b*⁴, and passages *b*⁵ *b*⁶, which form a communication between the bottle and the pipes when the stopple is applied water or air tight to the bottle, as shown in Fig. 1.

The conducting-passages *b*⁵ *b*⁶ of the stopple B are separate from each other, and the one *b*⁵ is intended for conducting air down into the bottle A, and the one *b*⁶ is intended to conduct substances out of the bottle.

Into the discharging end of the pipe *b*⁴ a hollow discharging tip or nozzle, E, is tightly fitted by inserting its shank *e* some distance into the same. This tip is in the form of a flattened cone with its outer end rounded, so

as to easily enter the cavities of the human nose without producing irritation of its membranes. A central passage, *e*¹, extends through this tip from its rounded end and divides into two branches, *e*² *e*³, in its shank *e*. The passage *e*² is continued back beyond the shank *e* by means of a tubular extension, *e*⁴, of smaller diameter than the shank, which extension is screw-threaded, in order to connect it with the metallic tip *f* of a pipe, F, which extends through the pipe *b*⁴ and passage *b*⁶ of the stopple B down to near the bottom of the bottle.

The pipe F is a flexible rubber tube, and is provided at its lower end with a metallic tip, *f*¹, having a capillary opening. This pipe is of smaller diameter than the pipe *b*⁴ and the passage *b*⁶ of the stopple, in order to allow substances to pass through these parts to the nozzle E while substances are passing through the pipe F to said nozzle E.

Into the lower end of the passage *b*⁵ of the stopple the tapered end of a tube, G, is fitted, which tube extends down to near the bottom of the bottle, as shown in Fig. 1.

To the extension *b*³ of the stopple a flexible pipe, *a*¹, is attached so as to be air-tight, and this pipe is provided with two "hand-balls," C' C, which are connected together by a flexible pipe, *a*².

The ball C is provided with valves *a*³, which admit the air inwardly, but prevent its escape outwardly through said valves.

The apparatus thus far described is adapted for producing spray douches, the operation of which will be hereinafter explained, and when thus arranged either of the nozzles shown in Figs. 3 and 4 may be substituted for the nozzle E, these nozzles being the same as nozzle E in respect to their passages *e*¹ *e*² *e*³, except that the passage *e*¹ of nozzle E² discharges at one side of the end instead of at the center of its end. These nozzles, Figs. 3 and 4, are of considerable length and of tapering form, and are provided with a shank, *e*, and a screw-threaded extension, *e*⁴, the same as shown in Fig. 1.

In Fig. 5 I have shown a nozzle, E³, having a shank, *e*, and a passage, *e*¹, and a heart-shaped discharging end, adapted for application of douches to the interior of the human ear.

In Fig. 6 a flattened nozzle similar in form to nozzle E in Fig. 1 is shown. This nozzle has but one passage, e^1 , through it, and is intended to enter the front or anterior portion of the cavities of the nose.

The nozzle shown in Fig. 7 is intended to be inserted into various cavities of the human body, and has a shank, e , and passage e^1 , and a rounded outer end.

The device F' (represented in Fig. 2) is designed as a substitute for the pipe F when nozzle E and the pipe F are removed from the stopple B and bottle A, and another nozzle—as, for instance, E⁴—inserted in the pipe b^4 . This device F' consists of a flexible rubber tube, g , provided with a hollow shank, g^1 , which is made to fit air-tight into the lower end of the passage b^6 of the stopple, and with a heavy metallic point, g^2 , having a small opening at its lower end, which end when in use will be near the bottom of the bottle. The metallic parts of my said apparatus I prefer to make of silver, such metal not being liable to corrode; but they may be made of nickle-plated metal or any other suitable substance.

Operation: The pipe a of the air-forcing apparatus C C' is secured to the inlet b^3 , which, being conical in form, permits a very firm and air-tight attachment. If it is intended to make applications of powdered substances, the powder is placed into the douche-bottle, and the head B, with the forcing apparatus attached, is secured to the bottle, as shown.

According to requirements, one of the nozzles shown in Figs. 4, 5, 6, 7 is secured to the upper end of the discharge-pipe b^4 , as described, and the pipes F and G (shown in Fig. 1) are removed.

By alternately compressing the hand-balls C C', a strong current of air is forced into the douche-bottle A, sufficient to drive the powders out through the discharge-opening of the nozzle.

To make applications in the form of liquid douches, the pipes F and G being still removed, the shank g^1 of the tube g , Fig. 2, is inserted into the lower end of the passage b^6 of the stopple, allowing the point g^2 to hang down. The liquid to be used is placed in the douche-bottle and the stopple B secured in the neck a , as described, and the tube g immersed in the liquid. A current of air being now forced into the bottle will drive out the liquid through the pipes F and b^4 and through the orifice of the nozzle used with the apparatus.

For the purpose of making application in the form of air or vapor douches, the metallic air-tube G is inserted into the lower end of passage b^6 of the stopple B. The liquid from which vapor is to be made is placed into the douche-bottle so as to fill it to about two-thirds of its height, and the stopple B fitted to the bottle A, and the lower end of the pipe

G made to occupy a position near the bottom of the bottle. Air being now forced into the bottle descends through the pipe G into the liquid, through which it ascends heavily laden with moisture and passes on through the pipe b^4 , and finally through the orifice of the nozzle attached to the apparatus.

In all of the above-described operations, any of the nozzles shown in Figs. 1, 3, 4, 5, 6, 7 may be successively used as occasion requires; but for the purpose of producing spray douches only those nozzles shown in Figs. 1, 3, and 4 are suitable.

For the application of spray douches the tube G is attached to the stopple B, and the pipe F to the threaded tubular extension e^4 of either one of the nozzles shown in Figs. 1, 3, 4, and is then passed into the pipe b^4 and through the stopple. The stopple is now secured to the bottle A, which has previously been filled to about two-thirds its height with a suitable liquid. The pipe F extends down into the liquid, as represented in Fig. 1. Air is now forced into the bottle sufficient to force a portion of the liquid up the pipe F through extension e^4 and passages e^2 and e^1 . The air above the surface of the liquid passes up through the pipe b^4 and passage e^3 , and arriving in passage e^1 commingles with the liquid forced through passage e^2 , thereby producing slight and rapid explosions, whereby the liquid is divided into spray as it passes into the air from the delivery end of the nozzle.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The hollow stopple B of a douche-vessel, consisting of the metal body b , head b^1 , elastic gasket b^2 , placed around the body b below the head b^1 , the passages b^5 b^6 through the body and head, and the pipes b^3 b^4 , substantially as and for the purpose set forth.

2. The combination of the pipe G, douche-vessel A, and hollow stopple B, constructed as described, and provided with a suitable nozzle, substantially as and for the purpose set forth.

3. The combination of the pipes F and G, douche-vessel A, hollow stopple B, constructed as described, and provided with a nozzle, E, or its equivalent, having two passages e^2 , e^3 , which intersect one another and terminate in a single passage, substantially as and for the purpose set forth.

4. The nozzle E, or its equivalent, constructed with two passages e^2 , e^3 , which intersect one another and terminate in a single passage, e^1 , substantially as and for the purpose described.

GEORGE W. COREY.

In presence of—

A. H. REEL,
C. HILL BRINTON.