

(No Model.)

C. WARREN.

INHALER.

No. 298,802.

Patented May 20, 1884.

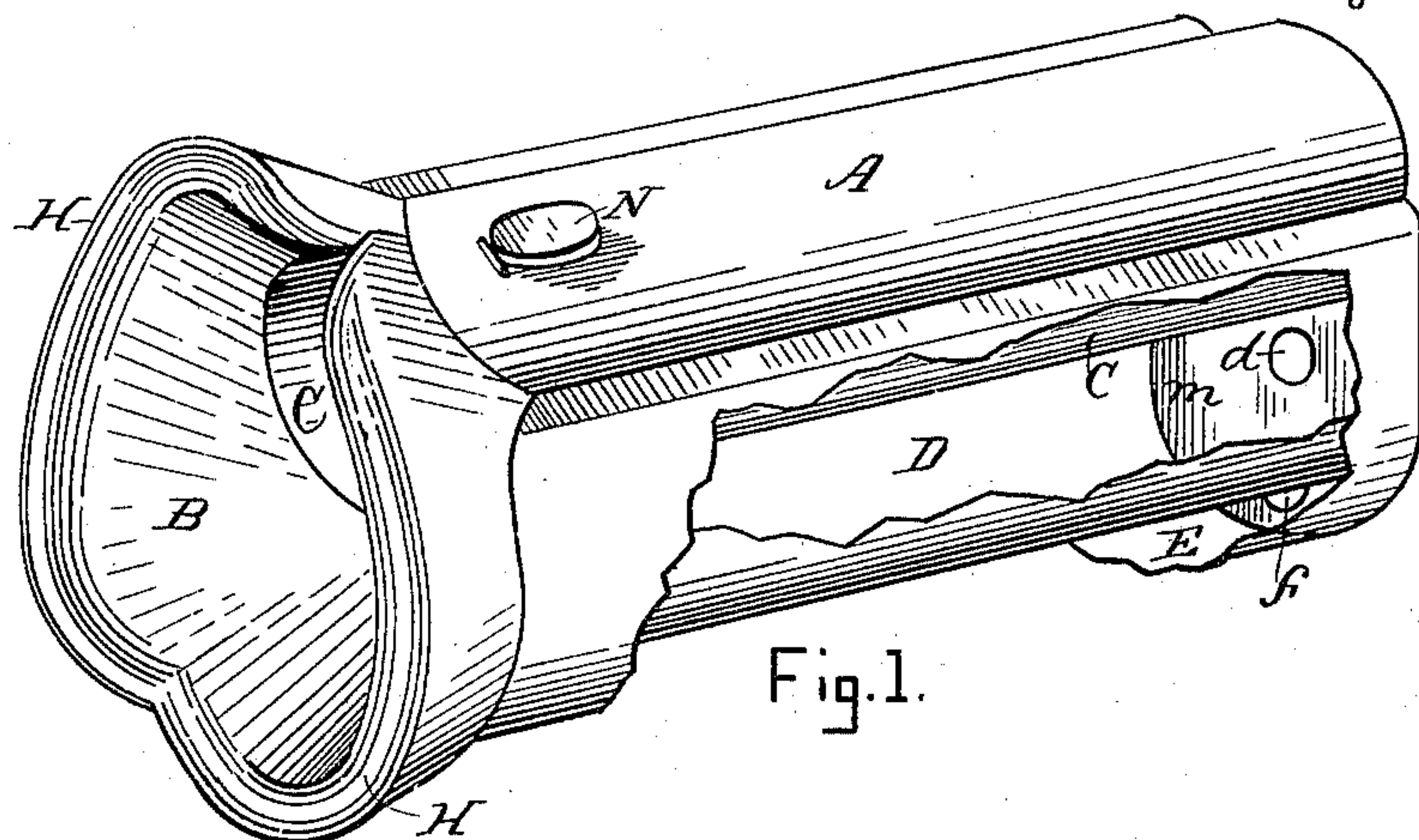


Fig. 1.

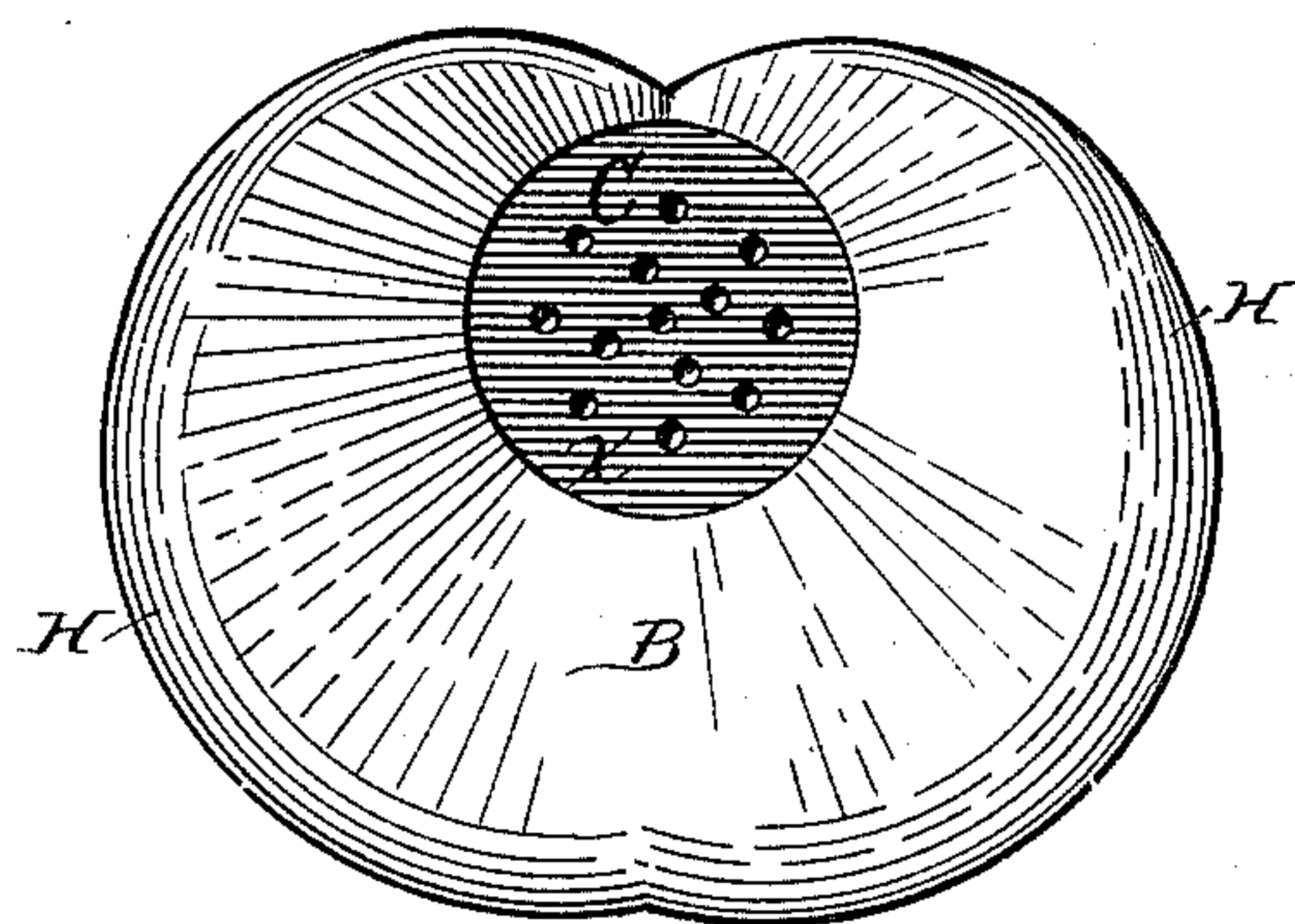


Fig. 2.

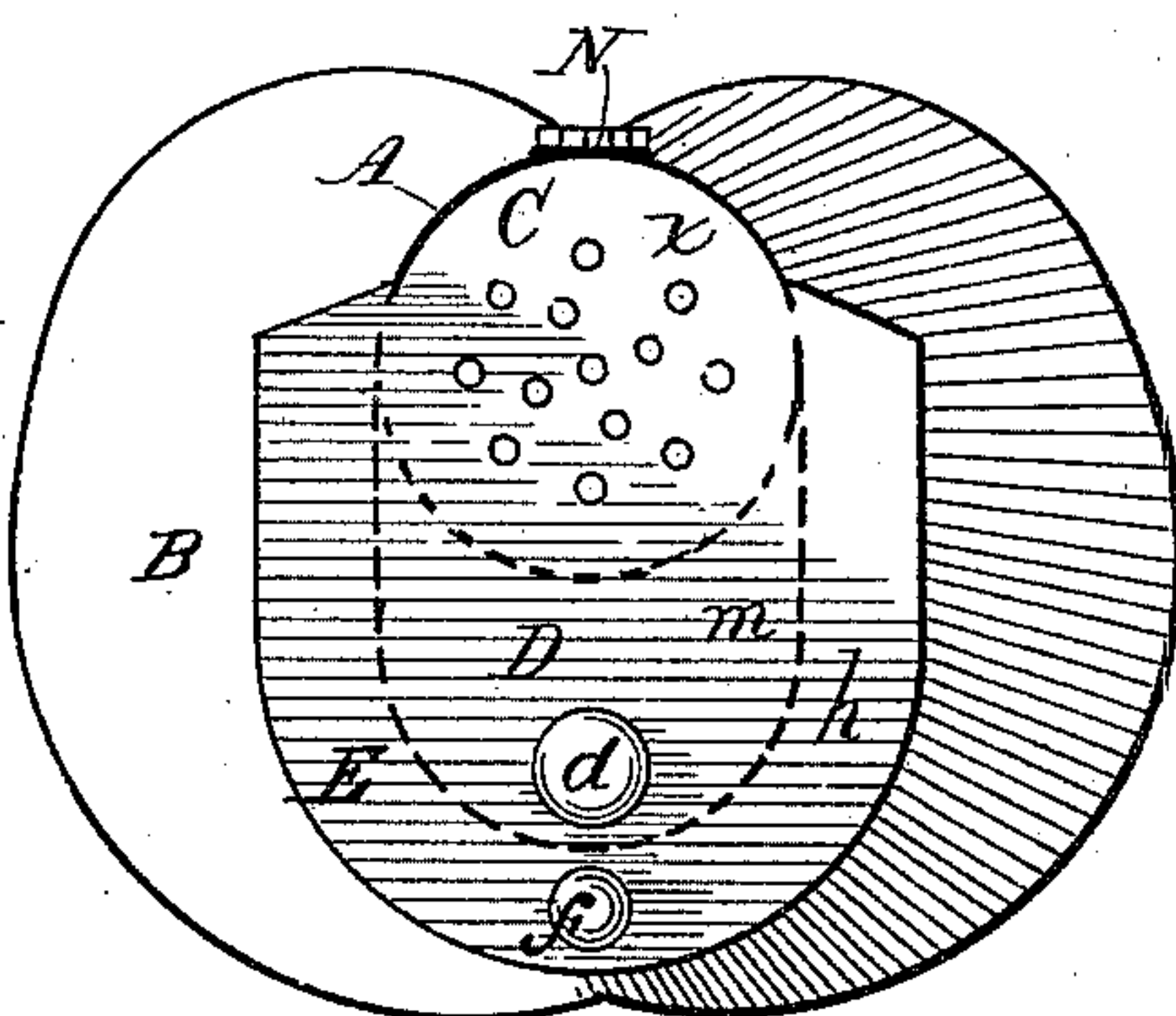


Fig. 3.

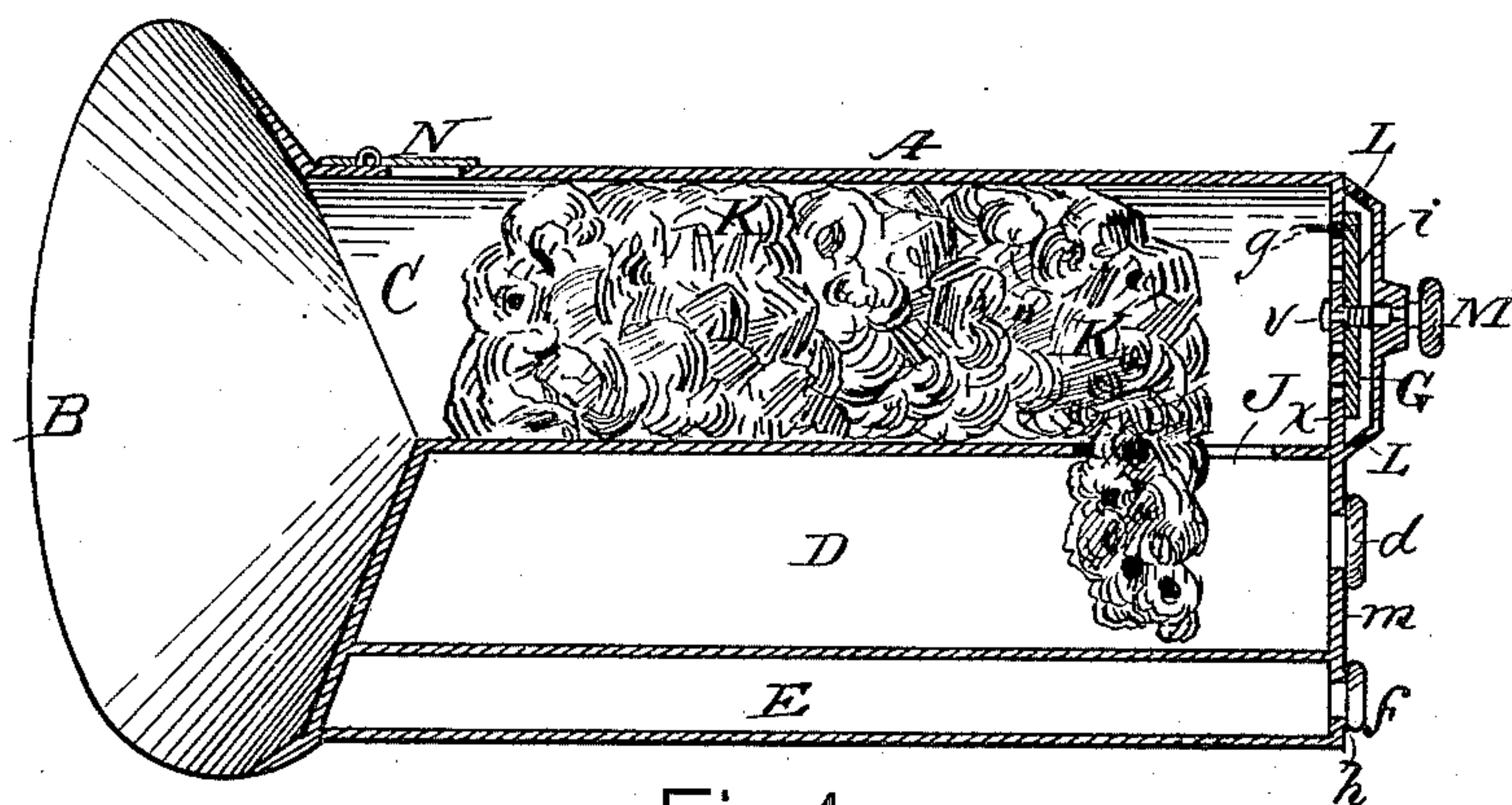


Fig. 4.

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UNITED STATES PATENT OFFICE.

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INHALER.

SPECIFICATION forming part of Letters Patent No. 298,802, dated May 20, 1884.

Application filed September 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WARREN, of Wellesley, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Inhalers, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view of my improved inhaler, a portion of the body being represented in section or broken away to show the interior; Fig. 2, a front elevation; Fig. 3, a rear elevation, and Fig. 4 a vertical longitudinal section.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of inhalers which are employed for administering anaesthetics in performing surgical operations, extracting teeth, &c.; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a more effective device of this character is produced than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation, the extreme simplicity of the invention rendering an elaborate description unnecessary.

In the drawings, A represents the body of the inhaler, and B the mouth-piece, which may be composed of metal, hard rubber, or any other suitable materials. The body is divided into three principal compartments—to wit, the air-tube C, ether-tank D, and hot-water tank E. The air-tube opens outwardly into the mouth-piece, and is provided with a foraminous bottom, *x*, through which the air is inhaled or passed into the tube. The ether-tank D is semicircular in form, being located between the water-tank and air-tube E, and provided with the screw-cap or plugged opening *d* in its bottom *m*. The water-tank E is also semicircular in form, being located outside of and partially surrounding the ether-tank, and pro-

vided with a screw-cap or plugged opening, *f*, in its bottom *h*, both of the tanks D E abutting against the under side of, and being permanently closed by, the mouth-piece B, which serves as a top for each. A valve, G, is provided for closing the openings in the bottom *x* of the tube C, this valve consisting of an annular metallic disk, *i*, provided with an inwardly-projecting stud, *g*, which works freely in a hole in the bottom of the tube, the inner face of the disk being packed or covered with leather or chamois-skin to prevent the valve from leaking when shut. A truss or cap, L, is attached to the bottom of the tube C, the truss being provided with a centrally-arranged screw, M, which passes through the truss, valve, and bottom *x*, in which it freely turns, its inner end, *v*, being upset or headed to prevent it from being withdrawn. This screw is not provided with threads, except on that portion which passes through the valve *i*, so that when it is turned in or to the right the valve will be raised or lifted off its seat and the holes through the bottom *x* opened, and vice versa, the pin *g* preventing the valve from revolving with the screw. A hinged gravitating or pump valve, N, is disposed on top of the air-tube C, near the mouth-piece, through which the breath is exhaled, and the outer rim of the mouth-piece is covered with a soft rubber or cloth packing, H, to render it tight at the point of contact with the face of the patient, thereby preventing the escape of the vapor. An opening, J, leading to the tank D, is formed in the lower side walls of the tube C, through which the liquid ether passes into said tank.

In the use of my improvement a sponge, K, is inserted in the tube C, the sponge being of a proper size to closely fit into the tube without being compressed to such an extent as to prevent the air from passing readily through it, a portion of the sponge preferably extending through the opening J into the chamber D, to absorb the ether in said chamber. The tank E is then filled with warm water and the plugs *f d* and valve *i* closed, after which ether is poured into the open mouth of the tube C, from whence it passes through the sponge into the tank D by way of the opening J. The valve *i* is then opened by the screw M, and the vapor

inhaled in a manner which will be readily obvious without a more explicit description.

In filling the inhaler, as described, the sponge becomes thoroughly saturated, the surplus fluid passing into the tank D through the hole J, where it is rapidly evaporated by the heat from the water-tank E, the vapor passing back through said hole into the tube C, where it is mixed with the air which enters through the bottom *x*. After the inhaler has been used, the ether is drawn off through the plug or cap *d* and the water through the cap or plug *f*. As the breath of the patient is exhaled the sponge checks its passage through the tube C, thus causing it to lift and escape through the valve N, which falls or closes at each inhalation.

I do not confine myself to constructing the valves *i* N as shown, as any other valves adapted to perform the same functions may be used instead. Neither do I confine myself to closing the openings in the tanks by means of the screw caps or plugs *f* *d*, as any suitable means for that purpose may be employed; or to filling the tank D through the air-tube C, as the ether may be introduced through the cap or plug *d*; or to closing one end of the tanks D E with the mouth-piece B, as other means may be used, if desired.

The bottoms *x m h* are preferably made in one piece, but may be made separately, if desired.

Having thus explained my invention, what I claim is—

1. In an inhaler substantially such as described, a mouth-piece adapted to fit closely around the mouth of the patient, an air-tube adapted to receive and hold a sponge, an induction-opening through which fresh air may enter said tube when in use, a valve or means for closing said opening as required, an education-opening through which the breath may be exhaled, a valve or means for closing said education-opening as the vapor is inhaled, a tank for holding the liquid ether or other anæsthetic, provided with an opening into said air-tube, and a plugged or capped opening through which the liquid may be drawn off or inserted, and a water-tank provided with a plugged or capped opening, through which the tank may be filled or emptied, combined and arranged to operate substantially as specified.

2. The air-tube C, tanks D E, and mouth-piece B, constructed and arranged substantially as shown and described, the tank D partially surrounding the tube C, the tank E partially surrounding the tank D, and the mouth-piece forming the top or end for both of said tanks, whereby space is greatly economized and the cost of construction reduced.

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Witnesses:

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