E. E. DUNCANSON.

Improvement in Inhaler and Vaporizer.

No. 119,748. Patented Oct. 10, 1871.

Fig. 1.

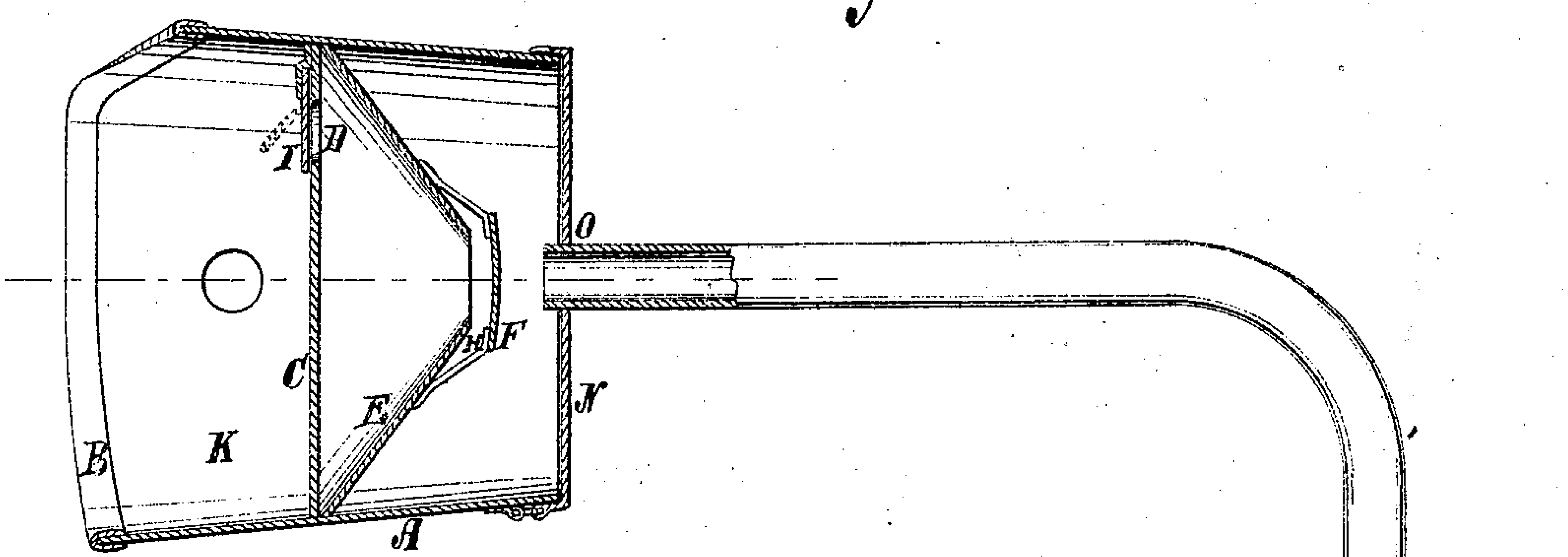
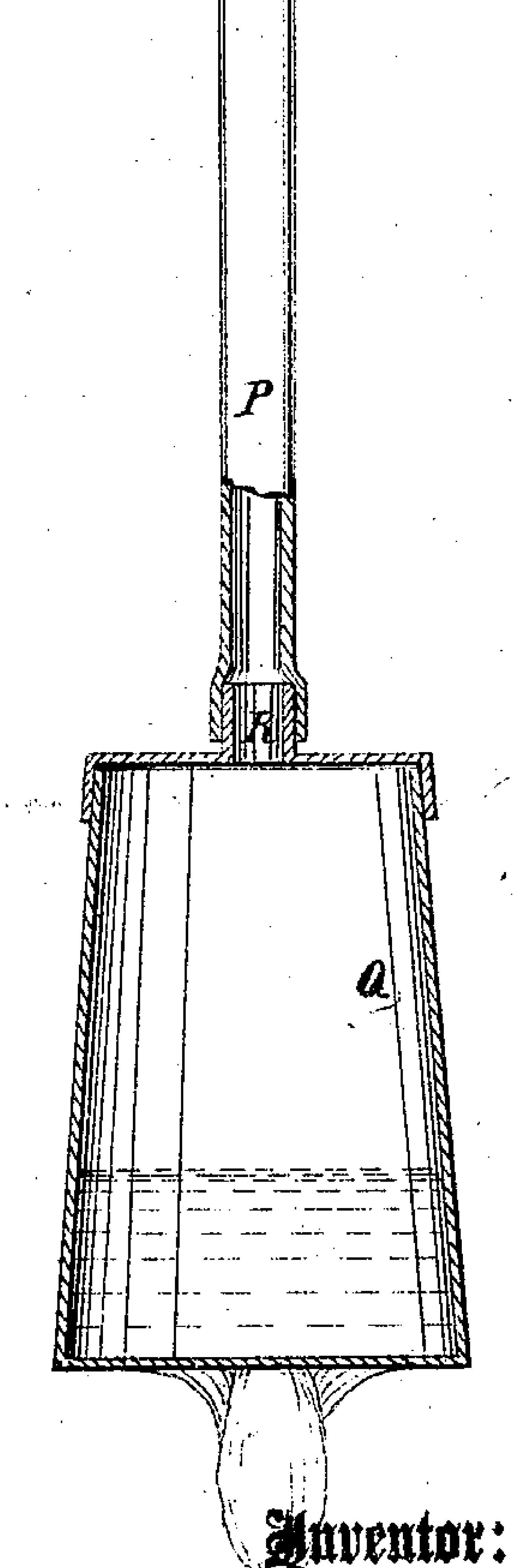
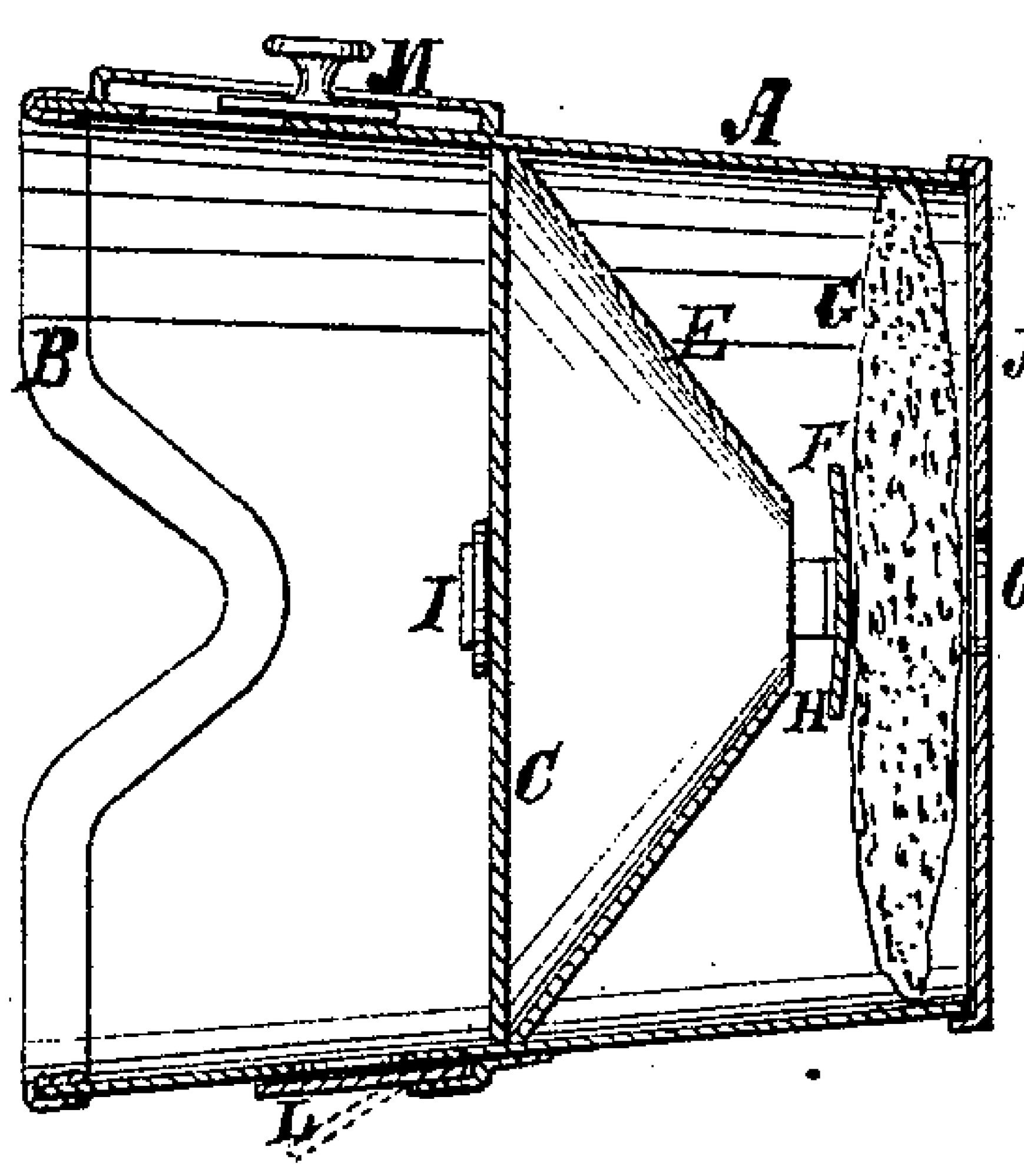



Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

ETHELBERT E. DUNCANSON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN INHALERS AND VAPORIZERS FOR ADMINISTERING ANÆSTHETICS.

Specification forming part of Letters Patent No. 119,748, dated October 10, 1871.

To all whom it may concern:

Be it known that I, ETHELBERT E. DUNCANSON, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Anæsthetizer, Vaporizer, and Inhaler; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming a part of this specification.

My invention relates to new and useful improvements in apparatus for generating and inhaling vapor; and it consists in an inhaler peculiarly arranged for separating the excess of moisture from the vapor; also, for preventing the out-breath of the patient from mixing with the vapor, combined with a vapor-generator and a flexible tube leading from the latter to the said inhaler, all as hereinafter described.

Figure 1 is a sectional elevation of the inhaler and the vaporizer, and Fig. 2 is a section of the inhaler.

Similar letters of reference indicate corresponding parts.

The inhaler consists of a truncated cone, A, made of metal or other material, with the outline of the base fitted to be applied to the face of the patient so as to cover the mouth and nose, the edge being turned and protected by a cushion, B, of chamois-leather, or other substance from injuring the face on application. It is divided near the center by a horizontal diaphragm, C, so as to form two compartments connected by a valvular opening, D, the upper being fitted with a basin, E, shield F, and sponge G; the sponge to be moistened, saturated, or wet with chloroform, ether, or other anæsthetic, the vapor being drawn by inhalation through the opening H left around the lower margin of the shield, the shield itself to protect the patient from any moisture in the sponge by shedding that excess or droppage into the space below. The vapor passes into the lower chamber through the passage D, having a valve, I, connected to the diaphragm and opening inward toward the face of the patient and then enters the lungs by inhalation. The expiration from the lungs, passing into the lower chamber K, is conveyed by a lateral valve, L, to the open air-valve I closing at the time, thus saving a vast expenditure of the agent employed, and also preventing it from being saturated with noxious gases passing from the lungs, the out-breathing not passing through the sponge, but by the aforesaid valve in the side of the lower chamber, thus forming the simplest and most scientific instrument yet in existence for anæsthetizing and inhaling purposes.

The slide M on the side of the lower chamber opposite the valve is for the admission of atmospheric air, by raising or lowering which the density of the vapor can be graduated to any desired strength, thus hastening or shortening the rapidity of action at the administrator's pleasure, or as the necessity of the patient may require. A movable cover, N, is placed on the top for the easy saturation, removal, or cleansing of the sponge and basin. The top has an opening, *o*, in the center for the admission of air or insertion of the flexible pipe attached to the vaporizer *a*, or the tube of the nitrous acid gas-bag or any other tube or valve used for inhaling purposes.

This vaporizer consists of a simple vessel, Q, of any material, with a close fitting cover and small tube R in the center of cover for attachment or connection between the inhaler and the vaporizer; the attachment consisting of an India-rubber or other tube passing from the pipe on the vaporizer to the apertures in the cover of the inhaler.

The bottom of the vaporizer being fixed above a lamp or on any other heating surface, the medicine, water, or any other agent to be administered in the form of a vapor or steam having been previously placed inside, remove the sponge from the inhaler, establish the connection by means of the tube between the vaporizer and inhaler, and the vapor or steam passes abundantly and efficiently to the nose, mouth, throat, or lungs, either or all, as may be required.

This improved instrument furnishes a cheap, convenient, and efficient apparatus which greatly economizes the material used and administers

it in such a way that the vapor cannot become charged with the impurities discharged from the lungs.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The inhaler A, constructed, arranged, and combined with a vaporizer and a connecting-tube, substantially as herein specified.

2. The inhaler A, provided with an air-induction passage and a regulating slide, substantially as specified.

ETHELBERT E. DUNCANSON.

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