

No. 743,866.

PATENTED NOV. 10, 1903.

H. HARRIS.
VAPORIZER.

APPLICATION FILED APR. 21, 1902.

NO MODEL.

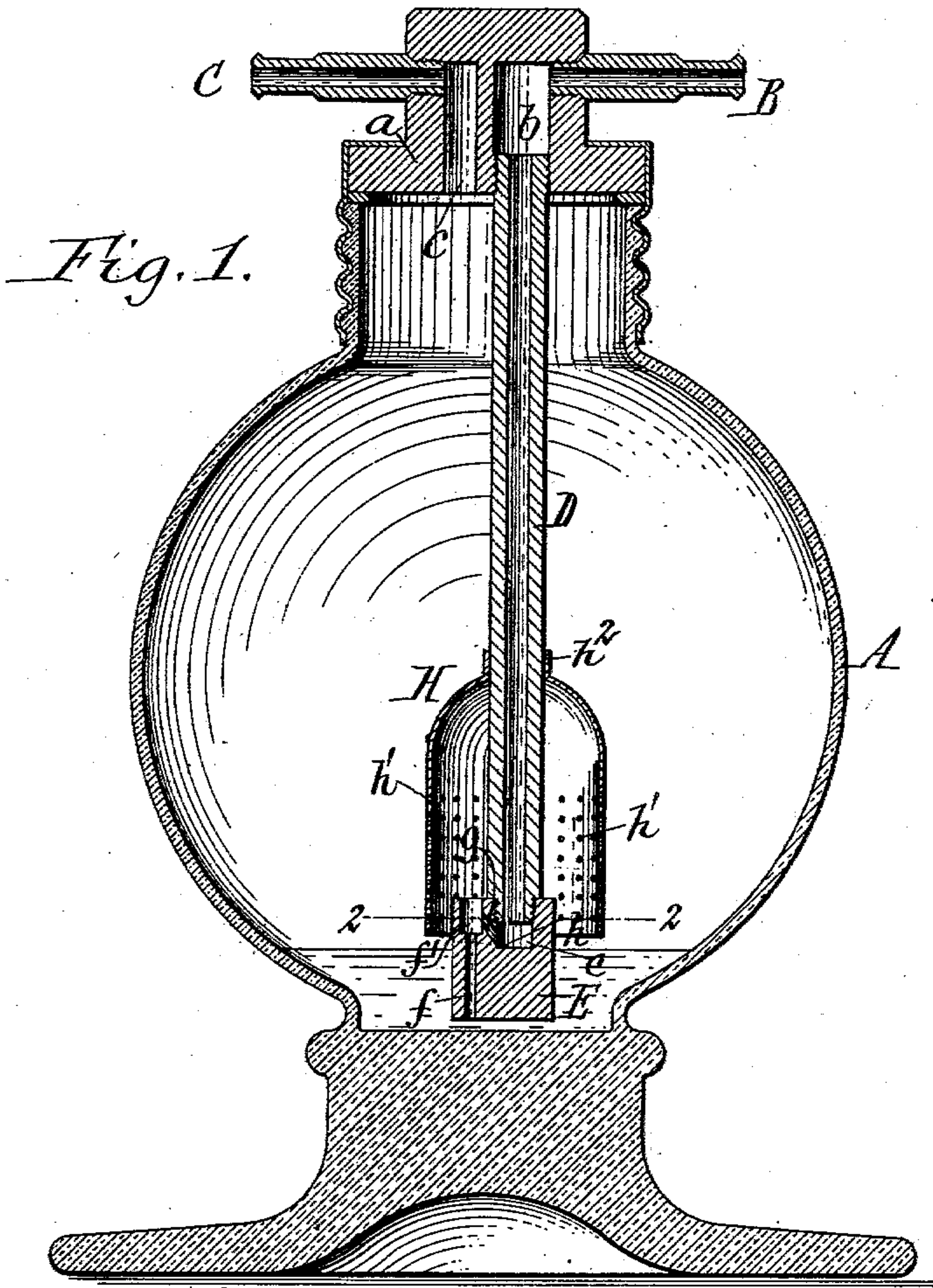
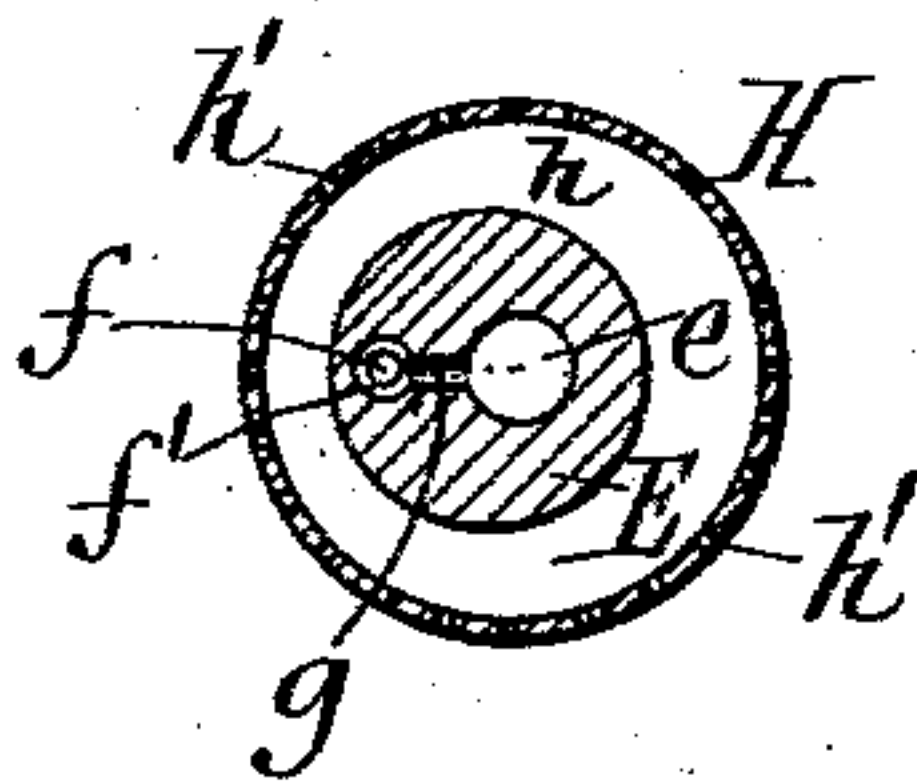


Fig. 2.



Witnesses:
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HARRY HARRIS, OF WESTFIELD, NEW YORK, ASSIGNOR OF TWO-THIRDS
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VAPORIZER.

SPECIFICATION forming part of Letters Patent No. 743,866, dated November 10, 1903.

Application filed April 21, 1902. Serial No. 103,980. (No model.)

To all whom it may concern:

Be it known that I, HARRY HARRIS, a citizen of the United States, residing at Westfield, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Vaporizers, of which the following is a specification.

This invention relates to a vaporizer intended more especially for producing medicated vapors which are to be inhaled or otherwise used for the treatment of patients.

One of the objects of this invention is the provision of an ejector or sprayer nozzle for such vaporizer which is very simple and inexpensive in construction and in which all the passages can be readily cleaned.

Another object of my invention is to provide simple and efficient means for vaporizing the spray and separating the surplus moisture, so as to produce a light and dry vapor.

In the accompanying drawings, Figure 1 is a vertical section of my improved vaporizer. Fig. 2 is a horizontal section thereof in line 2 2, Fig. 1.

Like letters of reference refer to like parts in both figures.

A represents the chamber or receptacle which incloses the vaporizing device and which preferably consists of a glass bottle having its neck closed by a cap *a*. The latter is provided with inlet and outlet passages *b c*, which communicate at their inner ends with the vaporizing-chamber and terminate at their outer ends in nipples B C, respectively. The inlet-nipple B is connected by a tube or otherwise with an air-pump which supplies air to the vaporizer, and the outlet-nipple is connected by a tube with a nozzle whereby the vapor is delivered to the place of consumption in the usual and well-known manner.

D represents an air-pipe which extends from the inlet-passage *b* downwardly into the vaporizing-chamber. Upon the lower end of this pipe is mounted the sprayer nozzle or head, which is partly immersed in the liquid in the lower part of the chamber and whereby the liquid is lifted and delivered upwardly in the form of a spray. This sprayer consists of an upright body E, having an inlet

passage or socket *e* extending downwardly a short distance from the upper end of the body, a lifting passage or conduit extending from the lower end to the upper end of the body and comprising a narrow or reduced lower part *f* and a wide upper part *f'*, and an air duct or jet passage *g* extending from the lower end of the inlet-socket *e* to the enlarged upper part *f'* of the lifting-passage. The lower end of the air-pipe D is screwed into the upper end of the socket *e*, whereby the air-pipe and sprayer are secured together. The air supplied by the pump passes from the air-pipe D downwardly into the socket *e*, thence upwardly through the oblique air-duct, and thence upwardly through the upper enlarged part of the lifting-passage into the vaporizing-chamber. This movement of the air produces an upward suction in a well-known manner, whereby the liquid in the chamber is drawn into the lower end of the lifting-passage and discharged from the upper end thereof in the form of a spray into the vaporizing-chamber. By providing the lifting-passage with the enlarged upper portion *f'* the stream of liquid as it ascends past the oblique jet-passage *g* is permitted to expand and yet is confined in proximity to the air-jet, thus subjecting the liquid to the action of the air-jet in a somewhat-diffused form and causing it to be thoroughly vaporized. This form of sprayer head or nozzle can be produced at small cost, is not liable to get out of order by becoming clogged, and all its parts are accessible for cleaning.

H represents a bell-shaped hood or dome into which the spray is delivered by the sprayer for the purpose of thoroughly mixing the air and liquid and separating the surplus moisture from the vapors before the same escape into the inclosing chamber. This hood is mounted with its closed upper end on the air-pipe D, and its open lower end overhangs the upper end of the sprayer and is separated therefrom by an intervening annular space *h*. The spray which is thrown by the sprayer upwardly into the hood strikes the top of the latter and is deflected downwardly by the same. This causes an agitation of the vapor in the hood, whereby thorough saturation of the air with liquid and complete separation

of free moisture from the air is effected, so that only dry and light vapors escape from the hood around the lower edge thereof into the inclosing chamber. The free moisture
 5 which is separated from the vapors by the hood gathers on the inner side of the hood and drips from the lower edge of the same into the body of the liquid in the receptacle. For the purpose of facilitating the escape of
 10 the vapors from the hood and increasing the vaporizing effect the lower part of the hood is provided with a plurality of perforations h' for the passage of the vapors. For the purpose of enabling the hood to be conveniently
 15 adjusted, so that its lower edge is arranged slightly above the liquid-level, the top of the same is provided with a collar h^2 , which is fitted on the air-pipe, so as to be held frictionally thereon and permit the same to be
 20 slid up and down on the pipe. The hood H not only serves to separate the surplus moisture from the vapors delivered into the same by the nozzle, but also forms a wall which divides the space within the inclosing chamber
 25 into an inner compartment, which receives the moist vapor, and an outer compartment, which receives the dry vapor. By this means the dry vapor is practically prevented from commingling with the moist vapor and reab-
 30 sorbing excess moisture, thereby obtaining the highest efficiency from the apparatus.

I claim as my invention—

1. A sprayer-nozzle, consisting of a body having an air-supply passage which extends
 35 downwardly from the upper end of the body and stops short of the lower end thereof, a vertical liquid-conduit arranged in the body on one side of the air-supply passage and hav-

ing a reduced lower portion and an enlarged upper portion extending to the upper end of
 40 the body, and an oblique air-jet passage opening at one end into the lower end of the air-supply passage and at its opposite end into the upper enlarged portion of the liquid-con-
 45 duit, substantially as set forth.

2. In a vaporizer, the combination of an inclosing chamber, a hood arranged within the chamber and having a closed top and an open bottom, means for supporting the hood within
 50 the chamber, and a sprayer-nozzle arranged below the hood and constructed to deliver the liquid upwardly into the same in the form of vapor, substantially as set forth.

3. In a vaporizer, the combination of a liquid-chamber, a sprayer arranged within the
 55 same and constructed to deliver an upward spray, and a separating-hood arranged over said sprayer, the hood being closed at its upper end and open at its lower end and provided in its lower portion with a plurality of
 60 perforations, substantially as set forth.

4. In a vaporizer, the combination of a liquid-chamber, an air-pipe extending into the same and provided at its lower end with a
 65 sprayer, and a hood mounted on said pipe and overhanging the sprayer, the upper end of the hood being closed and its lower end being open and separated from the sprayer by an intervening space, substantially as set
 70 forth.

Witness my hand this 17th day of April, 1902.

HARRY HARRIS.

Witnesses:

FLOYD HOLT,
 E. W. POWERS.