No. 699,255. Patented May 6, 1902.

E. STEVENS.

INHALER.

(Application filed June 11, 1901.)

(No Model.)

FIG. 1.

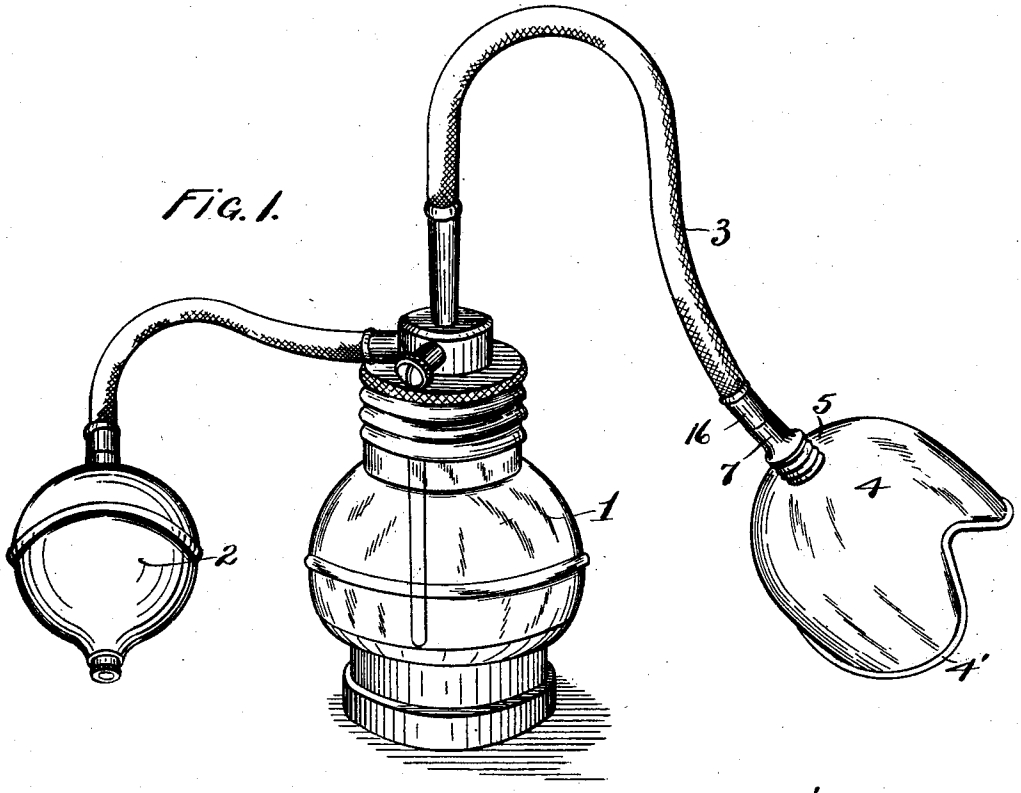


FIG. 2.

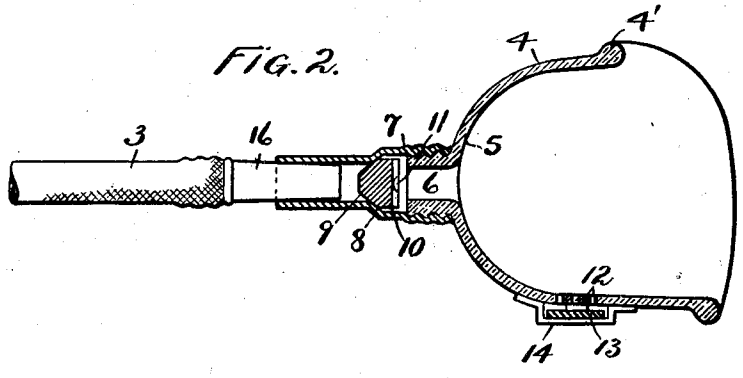
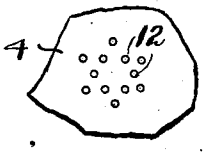


FIG. 3



WITNESSES:

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ERNEST STEVENS, OF PHILADELPHIA, PENNSYLVANIA.

INHALER.

SPECIFICATION forming part of Letters Patent No. 699,255, dated May 6, 1902.

Application filed June 11, 1901. Serial No. 64,120. (No model.)

To all whom it may concern:

Be it known that I, ERNEST STEVENS, a subject of the King of Great Britain, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Inhalers, of which the following is a specification.

My invention relates to an inhaler of that character in which the medicinally-prepared liquid is first nebulized in the receiver and then inhaled through proper connections with the nebulizers.

My invention has for its object to provide a more perfect, inexpensive, and antiseptic connection with the nebulizer than heretofore produced.

With these objects in view the invention consists in improvements in the mask and its connections with the nebulizer.

In the drawings, Figure 1 is an elevation of a complete inhaler. Fig. 2 is a vertical sectional elevation of the mask and pipe, showing a valve located within the pipe and also a disk-valve upon the mask. Fig. 3 is a detail view of a portion of the mask, showing the openings therein.

1 designates the liquid-receptacle, into which the medicated liquid is vaporized by air forced through the liquid by bulb 2 and its connections, the atomized medicament passing in vapor through the flexible tube 3 to the mask 4. Mask 4 is constructed with a view to hygienic and antiseptic effect and which I will now proceed to describe. The mask is constructed of vitreous material, the facial rim 4' being of a smooth round contour in cross-section, and fits the face perfectly when pressed closely thereto without the necessity of the use of a supplemental compressible covering heretofore necessary. The inner end 5 of the mask is formed with an exterior screw-thread 6, upon which is screwed an internally-screw-threaded pipe 7. The mask being of vitreous material is germ-proof and convenient to clean, while the tube connection is inexpensive and convenient of attachment and detachment and also contributes to the antiseptic features of the mask.

By reason of the novel construction of the mask and pipe 7 I am enabled to locate a valve within the pipe, forming a conical seat 8 within the interior of the pipe, upon which the conical end of valve 9 may seat when the patient is exhaling, the opposite end 10 of the valve seating against the end of the mask when the patient is inhaling the medicated vapor, the end 10 being corrugated transversely to form passages 11 for the vapor. The exhalation may pass out of the openings 12, formed in the mask and closed by a disk 13 during inhalation by the vacuum, but opening to the limit of its containing-frame 14 during exhalation. This latter valve is of minimum expense and being unrestrained is free to seat by vacuum or unseat by pressure, as shown in Fig. 2, wherein is also shown a convenient means of connecting the flexible hose 3 with the mask, consisting of a tapered coupling-piece 16, preferably of hard rubber, the tapered portion being inserted frictionally into the outer end of pipe 7, producing an air-tight connection easily uncoupled or coupled, the opposite end being of a diameter to allow of stretching the flexible hose thereon to firmly connect the two.

I form the openings 12 at the lower portion of the mask for two reasons—first, that the exhalation may not contact with the eyes, as would be the case if the exit were at the top, and, second, that I may dispense with the disk-valve 13 in some instances, in which event the openings 12 are located at a convenient point to permit the patient to close the same with the thumb during inhalation and allow escape during exhalation by removing the thumb, thus dispensing with the expense of the valve. (See Fig. 3.)

It will be understood from the foregoing that I have reduced the possibility of germ lodgment to a minimum, as well as reducing the expense of construction.

It will be apparent that my attachment is adaptable to any form of spray outfit, whether nebulizer, atomizer, or simple spray.

What I claim is—

In an inhaler, the combination of a nebulizer, a mask formed with a screw-threaded inner end, a pipe screwed on the end of the mask, said pipe being reduced at its inner end, forming an internal conical valve-seat, a valve contained in the larger chamber of the pipe

having a movement limited by the seat and the inner end of the threaded portion of the mask, a flexible connection between the mask and the nebulizer, a tapered coupling-piece screwed in the outer end of the flexible connection, the tapered end of said coupling-piece being of a size to enter the outer reduced end of the pipe and to frictionally engage therewith, and a plurality of openings in the under side of the mask, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

ERNEST STEVENS.

Witnesses:
MAI W. STOUT,
THOMAS FLAVELL, 2d.