(No Model.)

E. S. GRIGSBY.

INHALER.

No. 582,124. Patented May 4, 1897.

Fig. 1.

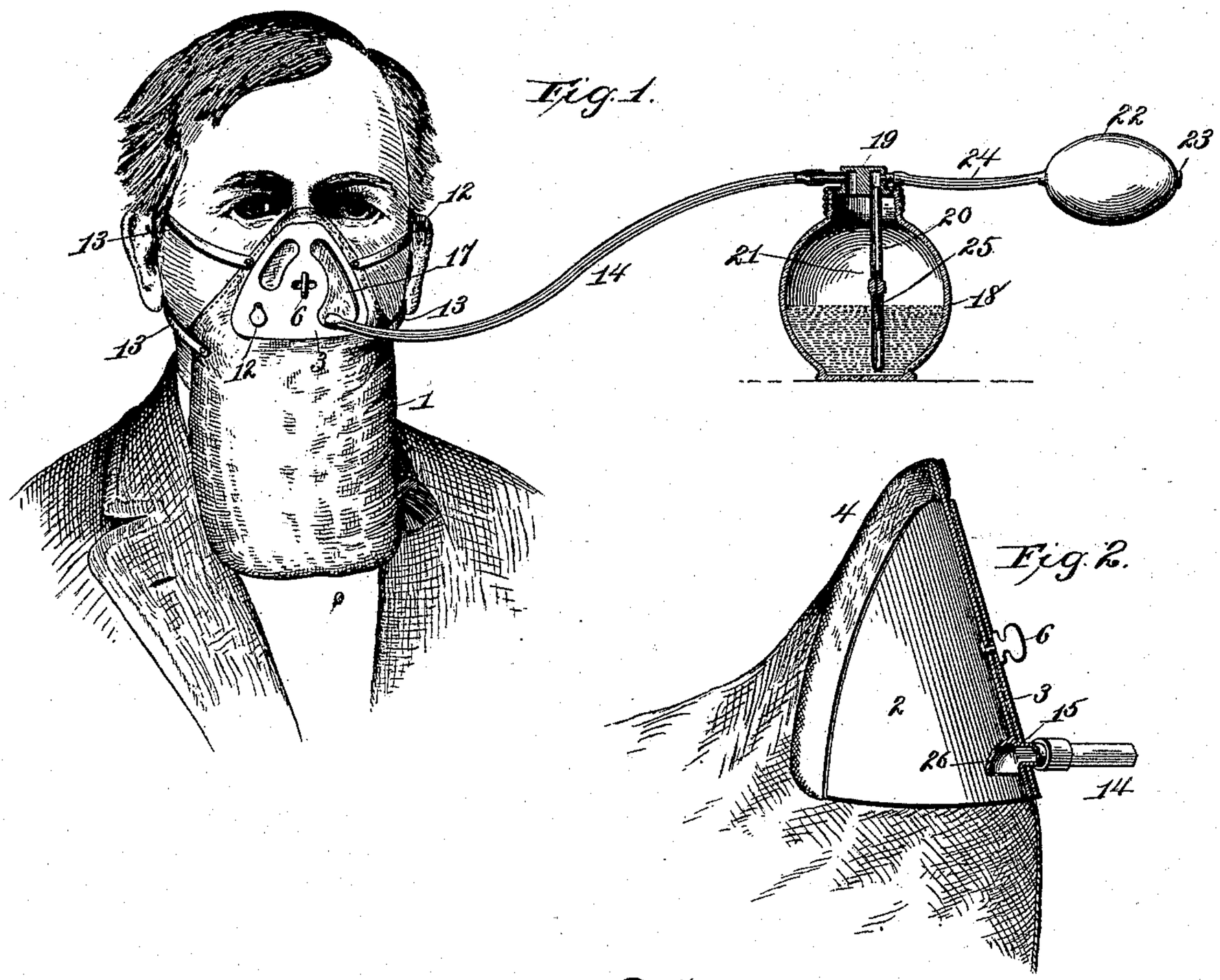


Fig. 2.

Fig. 4.

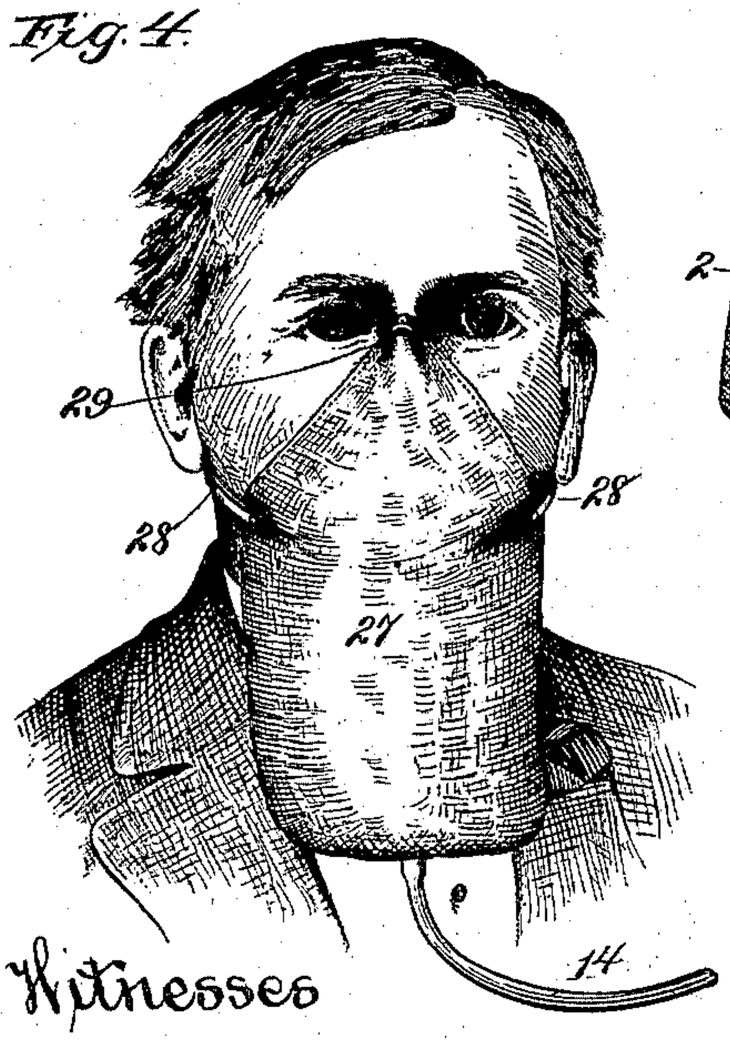
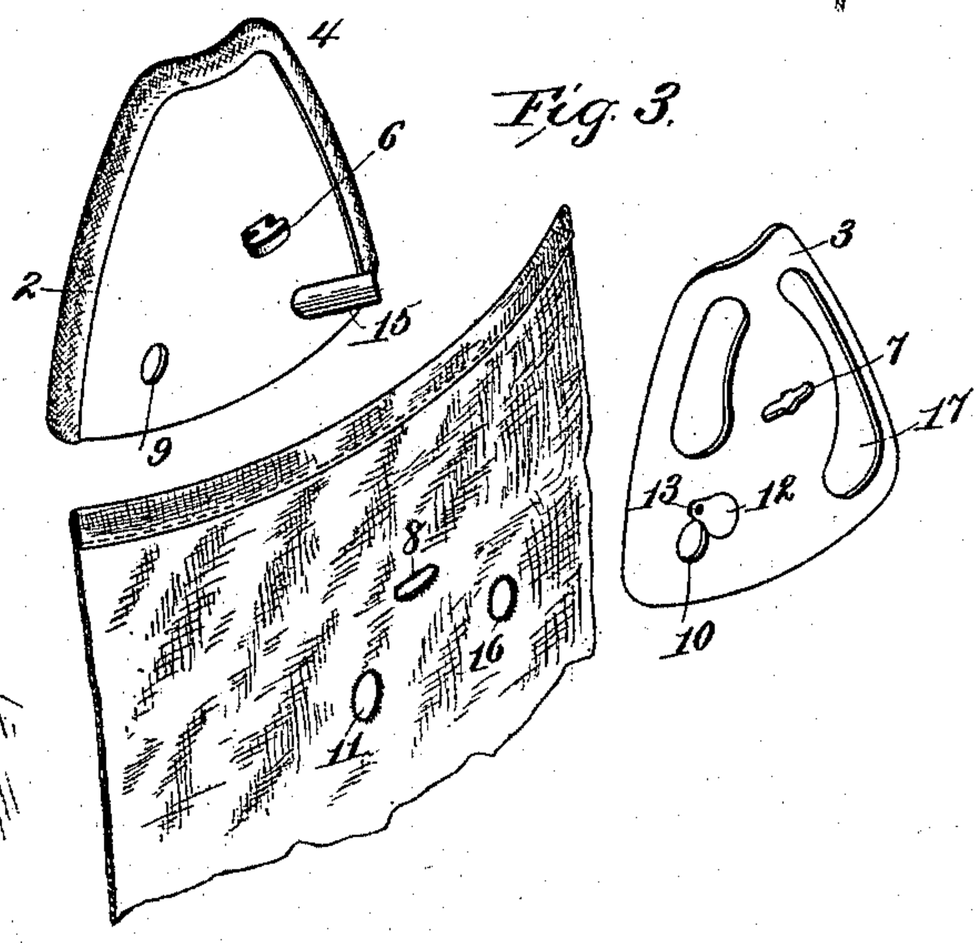


Fig. 3.



Witnesses

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Fig. 5.

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UNITED STATES PATENT OFFICE.

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INHALER.

SPECIFICATION forming part of Letters Patent No. 582,124, dated May 4, 1897.

Application filed April 21, 1896. Serial No. 588,472. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. GRIGSBY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Inhalers for Anesthetics, of which the following is a specification.

My invention relates to a new and useful improvement in devices for giving anesthetics, and has for its object to provide an apparatus and appliance therefor which will thoroughly vaporize ether or the like and convey it to a closed casing from which it may be inhaled; and a further object of my invention is to so construct such a casing and its fastenings that it may be secured to the head of a person in proper position for inhalation therefrom and when removed from the head may be thoroughly cleansed and sterilized for further use, thereby preventing the transmission of disease germs.

With these ends in view my invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction and operation in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents my improvement as applied to the head of a person, the gas-generator being shown in section; Fig. 2, a central vertical section of the shield to which the gas-holder is secured; Fig. 3, a detailed dismembered perspective of the two sections of the shield and the portion of the holder to which said sections are secured; Fig. 4, a modified form of the gas-holder and the means of applying the same to the head of a person, and Fig. 5 a detailed view of the spring-fork for attaching this form of holder to the nose.

Referring in detail to Figs. 1, 2, and 3, 1 represents a gas-holder, preferably formed of a fabric of fine mesh, such as silk, and in the general shape of a bag, as shown in Fig. 1, and this bag is secured between the two sections 2 and 3 of the shield when these sections are secured together, as next explained. The section 2 is preferably of thin sheet metal, such as aluminium, and has formed upon its edge a bead 4, adapted to conform to the general shape of the shield 3, so as to match therewith when the fabric is placed therebetween, thereby increasing the hold upon said fabric.

6 is a turn-button pivoted to the section 2 and adapted to pass through the double-ended buttonhole-slot 7, formed crosswise of the section 3. By this arrangement it will be seen that when the two sections are brought together and the turn-button passed through this slot and turned at right angles thereto the two sections will be firmly held together, and in attaching the fabric thereto it is placed between these sections before they are secured, as before described, and the slot 8 is formed in the fabric so as to permit the passage of the button therethrough.

9 and 10 are holes formed in the sections 2 and 3, respectively, which fall in line with each other when these sections are secured together, and 11 is also a hole in the fabric, which alines with the last-named holes. A shutter 12 is pivoted at 13 to the section 3 and adapted to close the hole 10.

The gas-holder is cut away toward its rear edge, so as to fit under the chin of a person, and 12 are tapes which are secured to the front edge of this holder and adapted to pass around the head above the ears, and also attached to the holder are tapes 13, which pass around the head below the ears and are secured together by any suitable clamps or buckles. When the holder is secured in position over the nose and under the chin, as shown in Fig. 1, by these tapes, the anesthetic gas is conveyed thereto by the flexible tube 14, which is attached to the inner section by being passed over the end of the metal tube 15, which projects through the hole 16, formed in the fabric for that purpose, and through the cut-away portion 17 of the section 3.

While it is obvious that any suitable apparatus for generating the gas to be supplied to the holder may be used, the apparatus here shown and next described is the one which I prefer to use for this purpose, and it consists of a reservoir 18 of any desired or convenient shape, and upon the top of this reservoir is screwed a cap 19, which has a tube 20 projecting downward therefrom and terminating

in a nozzle 21, which is immersed in the liquid to be vaporized, and 22 is a rubber bulb having a valve 23 at one end and connected by the tube 24 to the cap, so as to communicate with the tube 20, and by this arrangement air may be forced through the tube 20 and projected through the orifice 25 over the surface of the liquid to be vaporized, and, as is well understood, this forced passage of air over the liquid will vaporize the same, and such a gas will of course be diluted with the air with which it was formed and will then pass from the reservoir through the tube 14 to the gas-holder 1, from whence it will be inhaled by the patient.

In order to prevent the gas when entering the holder from being forced directly in contact with the face of the patient, I provide a hood 26, so arranged as to deflect the stream of gas, causing it to move downward into the holder.

In practice I have found that when a gas-holder as just described is made of silk or other closely-woven fabric the air expelled from the lungs will escape therefrom through the meshes on account of its being heated and its molecules being thereby widely separated, but the anesthetic gas being of low temperature when entering the gas-holder will not pass through the same mesh that the heated air passed through, and therefore the gas-holder is relieved from the air exhaled by the patient without carrying with it any material amount of gas. This is of great advantage in the art of administering anesthetics, as will be readily understood by those skilled therein.

It is to be noted that by the use of my improvement a vapor is not delivered to the holder for inhalation, but the liquid is vaporized and diluted with air before passing to said holder, so that the best effects are had upon the patient with the use of the smallest quantity of liquid. The object of the shutter is to regulate the passage of air through the holes 9, 10, and 11, in order that the strength of the gas administered to the patient may be regulated by diluting it more or less with air.

After the gas-holder has been used by a patient it may be thoroughly cleansed and sterilized by removing it from the shield, as before described, when no metal parts will remain therewith hindering the operation of cleansing.

In the modification shown in Figs. 4 and 5 I have omitted the shield and formed a gas-holder 27 so that it will fit high upon the bridge of the nose of the patient, and I attach thereto the tapes 28, adapted to pass around the neck of a person beneath the chin and be secured to the inhaler by a suitable clamp or buckle, and in order to secure this bag to the nose I use a spring-fork 29, adapted to embrace the bridge of the nose after the manner of a nose-piece in a pair of eyeglasses; and when this construction is used the tube 14 enters the holder at the bottom thereof, so that when it is necessary to cleanse the holder no metallic parts are attached thereto, and therefore the time and labor necessary to remove the shield, as described, will not be required; and a further advantage of this construction is that the cost thereof is materially lessened by the omission of the shield and parts attached thereto.

Other slight modifications might be made in the construction here shown and described without departing from the spirit of my invention, which rests in the broad idea of providing a holder and delivering anesthetic gas thereto, and I therefore do not wish to be limited to the exact design here shown and described or the material from which the device is made.

Having thus fully described my invention, what I claim as new and useful is—

1. In an inhaler, a holder formed of a closely-woven fabric, tapes for attaching said holder to the head, a shield composed of two sections secured together by a turn-button formed on the inner section, passing through a hole in the fabric and a hole in the outer section, the inner section having a bead formed on its upper edge adapted to conform to the general shape of the outer section, said inner section having a tube leading therefrom through a hole in the holder and outer section, the tube having a hood formed on its inner end to deflect the stream of gas downward, a reservoir for containing the liquid to be vaporized and connected to said tube through a flexible tube or pipe as and for the purpose described.

2. In an inhaler, a holder formed of closely-woven fabric, means for attaching said holder to the head, a shield composed of two sections secured together by a turn-button formed on the inner section and passing through a hole in the fabric and a hole in the outer section, a bead around the upper edge of the inner section adapted to conform to the shape of the outer section, a tube attached to the inner section extending through the holder, a hood formed on the inner end of said tube to deflect the stream of gas downward, a shutter for regulating the passage of air to said holder and a reservoir for containing the liquid to be vaporized and connected to said tube by a flexible tube or pipe as and for the purpose described.

3. In an inhaler, a holder formed of closely-woven fabric, a shield composed of two sections, a bead formed around the edge of one of the sections adapted to conform to the shape of the other section, said sections being secured together with the holder intervening, the section having the bead being secured on the interior with the bead next to the holder, a tube leading to the interior of the holder having a hood formed on its inner end to deflect the stream of gas downward, as and for the purpose described.

4. In an inhaler for anesthetics, a holder of closely-woven fabric, a shield composed of

two sections, a bead formed around the edge of one of the sections adapted to conform to the shape of the other section, said sections being secured together with the fabric intervening, the section having the bead being secured on the interior with the bead next to the holder and means for supplying gas to said holder as and for the purpose described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

EDWARD S. GRIGSBY.

Witnesses:
S. S. WILLIAMSON,
MARK BUFORD.