A. E. SMITH.

NASAL INHALER.

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1,206,045.

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Fig. 1.

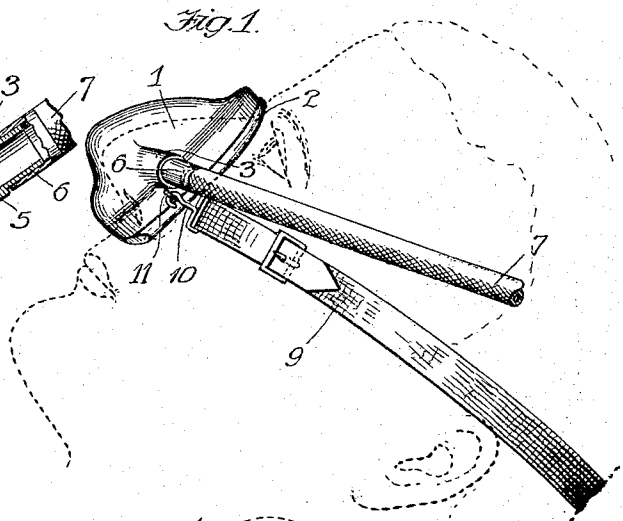


Fig. 2.

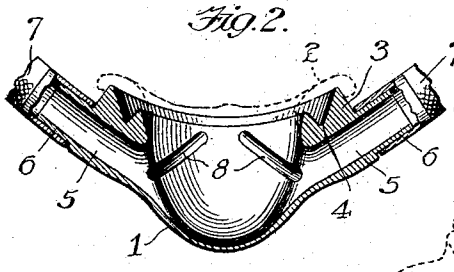


Fig. 3.

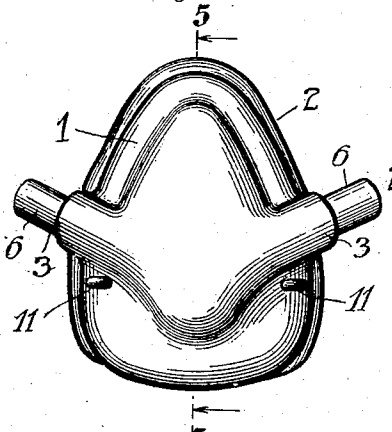


Fig. 4.

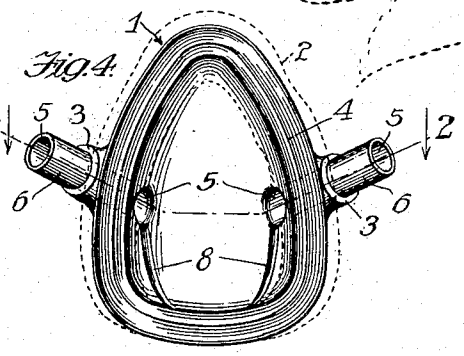


Fig. 5.

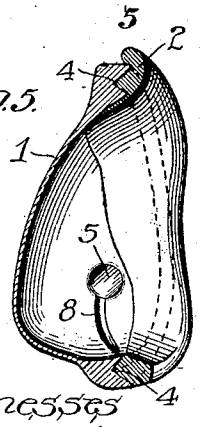
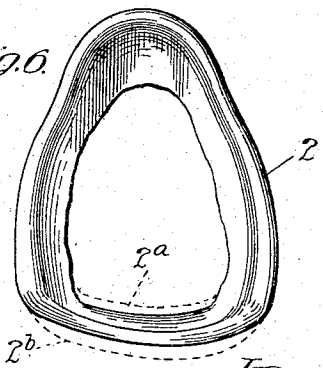


Fig. 6.



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UNITED STATES PATENT OFFICE.

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NASAL INHALER.

1,206,045. Specification of Letters Patent. Patented Nov. 28, 1916.

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To all whom it may concern:

Be it known that I, ARTHUR E. SMITH, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Nasal Inhalers, of which the following is a specification.

My invention relates to a nasal inhaler such as used in the administering of a gas or gases for producing anesthesia or analgesia and the object thereof is to make a simple and efficient device of this character possessing many advantages over nasal inhalers now in use.

One of the principal objections to the use of nasal inhalers is the fact that they cannot be made to accurately and comfortably fit the noses or face contour of different patients, with the result that the gas will escape around the margins of the inhaler and the patient will be irritated by the misfit of such inhaler. Various shapes of inhaler have been devised and various means have been provided to prevent leakage and to give comfort to the patient in the application of the device but they have not been a success inasmuch as the difficulties referred to have not been entirely overcome. Included among the means employed for a close fit of the inhaler is rubber, but such material has not given full satisfaction, and moreover, the same is not entirely sanitary inasmuch as it is affected and deteriorated by solutions or boiling water used for antiseptic purposes.

The principal object of my invention is to provide a nasal inhaler which can be fitted accurately and comfortably to the nose of the patient and may be made and kept sanitary for use from time to time as the patient returns for further work.

Speaking in general terms, my inhaler comprises a casing of a somewhat general or more or less universal shape and size, and a ring of a plastic material of any suitable nature removably held upon the inner edge of the casing and adapted to be shaped to the shape of the nose and face of the patient. The plastic material is such that the same will harden sufficiently in a few moments and is also such that it may be readily made sterile. Inasmuch as the plastic material is removable, the casing itself may be utilized as a universal one, that is it may be used for different patients, but the material itself can be preserved for future work of a patient and be reapplied to the casing when the time comes, thereby saving the expense of new plastic material. In order to cover extreme conditions more than one of the nasal inhaler casings may be kept at hand although a single casing is intended to cover the majority of conditions.

In the drawing, Figure 1 is an elevation of my nasal inhaler shown applied; Fig. 2 a cross section on the irregular line 2—2 of Fig. 4; Fig. 3 a front elevation of the inhaler; Fig. 4 a rear elevation thereof; Fig. 5 a section on the line 5—5 of Fig. 3; and Fig. 6 an elevation of the plastic material shown removed from the casing.

Referring to the present embodiment of my invention as herein shown, the inhaler comprises essentially a body or casing 1 and a plastic material 2 removably secured to the casing on its inner marginal edges. The casing may be made of any suitable material such as metal, glass, celluloid, etc., but by preference it is made of metal, and the same is made hollow to receive the nose by being extended outwardly or forwardly in the general shape or contour of a nose. This construction results in inner marginal edges 3 which are substantially elliptical or egg-shaped. These edges are provided with a groove 4 whose purpose will be hereinafter explained. The casing is provided with one or more gas inlet openings or passages, and while I have herein shown two passages 5 entering from opposite sides, such number and particular arrangement is not essential. The casing is also provided with nipples or hose connections 6 communicating with the gas inlets 5 and adapted to receive the supply hose 7. By preference the inner side walls of the inhaler are provided with grooves 8 extending downwardly from the passages 5 to a position at the bottom of the inhaler in order that the lobes or sides of the nose of a patient may not obstruct or interfere with the passage of the gas.

The plastic material may be of any suitable nature for the purpose in view, such as modeling compound or the like, which is initially plastic at ordinary temperatures and capable of being easily worked and of hardening in a short time and also of being treated with antiseptics and boiling water for sanitary purposes. In practice the plastic material is worked into the form of a ring of the general shape shown in Fig. 6, and the same is thereupon applied to the

marginal edges 3 and pressed thereon so as to enter the groove 4. The casing together with the plastic material is now applied to the nose of the patient and pressed with a sufficient force so that the plastic material will conform accurately to the contour of the nose and face. The operation may now proceed inasmuch as the plastic material will start to set or harden. The plastic material may be applied to the edges of the casing without any special care excepting that a greater mass thereof may be used at the point or points where it is liable to be most needed, and I prefer to trim off the material at the lower side flush with the bottom of the casing, such removed material being shown by the dotted lines 2^a in Fig. 6. This will provide a proper fit with the lower part of the nose and will prevent any irritation thereof. Also if desired the plastic material on the lower side as at 2^b may be trimmed off. Otherwise the material both inside and outside may be left as it becomes after the inhaler has been applied to the patient in the manner already explained.

The plastic material after having thus been used may be removed from the casing and preserved for subsequent work of the same patient, and the casing itself may be utilized for the next patient by applying new plastic material thereto and proceeding as above described. This newly formed material or removable form may be preserved for the subsequent work of such patient. Any form which has once been used and thus preserved may be applied to the casing and used as before. The form of course will fit the patient accurately and comfortably inasmuch as it has been molded to the contour of his nose and face. The plastic material may be of such character that it may be readily cleaned and rendered sanitary by antiseptics or the like without affecting the form. Also, if the material is capable of being softened by heat, it may be sterilized by boiling water and used over and over again, either with respect to the same patient from time to time or different patients. If desired the casing may be provided with an elastic head band 9 having hooks 10 for attachment to the casing through the medium of the eyes 11. Any other suitable means of attachment of the inhaler to the patient may be employed if any such attachment is deemed necessary in addition to the tubes 7 which extend rearwardly and would have a tendency to hold the inhaler in position.

By the use of my invention I am enabled to provide an accurately fitting and comfortable nasal inhaler and one, moreover, in which the part that bears upon the nose and face of the patient is individual to such patient, the remainder thereof being capable of more or less universal use.

I claim:

1. A nasal inhaler comprising a casing which is of the general shape of a nose and has inner marginal edges, and a hardening material on said edges which is initially plastic at ordinary temperatures and adapted to receive and retain the contour of the nose when applied thereto.

2. A nasal inhaler comprising a casing which is of the general shape of a nose and has inner marginal edges, and a hardening material removably mounted on said edges which is initially plastic at ordinary temperatures and adapted to receive and retain the contour of the nose when applied thereto.

3. A nasal inhaler comprising a casing which is of the general shape of a nose and has inner marginal edges provided with a groove, and a hardening material fitting upon said edges and in the groove which is initially plastic at ordinary temperatures and adapted to receive and retain the contour of the nose when applied thereto.

4. A nasal inhaler comprising a casing which is of the general shape of a nose and has inner marginal edges, and a hardening material in the shape of a ring corresponding to the shape of such edges and applied thereto, said material being initially plastic at ordinary temperatures and adapted to receive and retain the contour of the nose when applied thereto.

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