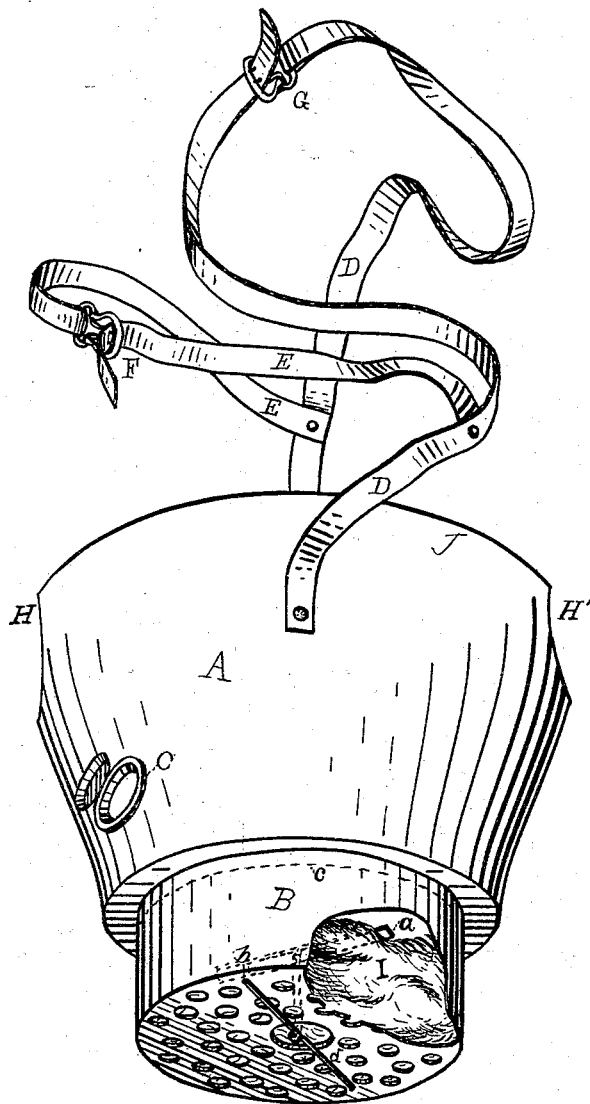


H. R. HURD.
Inhaler and Respirator.

No. 218,976.

Patented Aug. 26, 1879.



Witnesses:

H. M. C. Harding.

Hutson R. Hurd, Inventor

By

Geo. C. Tracy & Co., Attorneys.

UNITED STATES PATENT OFFICE

HUTSON R. HURD, OF CLEVELAND, OHIO.

IMPROVEMENT IN INHALER AND RESPIRATOR.

Specification forming part of Letters Patent No. **218,976**, dated August 26, 1879; application filed December 5, 1878.

To all whom it may concern:

Be it known that I, HUTSON R. HURD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and Improved Inhaler for Anæsthetics; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to that class of inhalers which are worn as masks over the nostrils and mouth, to prevent the admission of poisonous or noxious gases, or particles of dust or other matter, into the throat and lungs; and the invention consists in the peculiar construction of my device, as hereinafter explained.

The drawing is a perspective view of my improved respirator, with a portion broken away to show the interior construction.

A is a cup-shaped mask, of soft rubber or other suitable flexible material. B is an extended chamber, at its forward end made integral with the mask, in which chamber is placed sponge, cotton-wool, or other substance, the perforations in front admitting air through this substance, which is suitably saturated with water, or a preparation for the purpose, as the case may require, to arrest and counteract the effect of poisonous gases, or, by chemically combining, to render such gases innocuous or change their character. I represents a wad of cotton, held in by the strips of metal *a b*, connected together by a link or piece of wire, though in many cases a rim, of the same material as the mask within the chamber B, as shown by the dotted line *c*, is sufficient to hold any substance placed within it without further assistance. C is a valve of any proper construction, to allow the free outlet of impure air exhaled from the lungs without its passing through the chamber B.

In operation, the mask A is placed over

the face, covering the mouth and nostrils, the recessed portions H H' being designed to fit over the nose and under the chin, the upper being made thicker on its inner side, to more readily set into the concavity of the nostrils, the entire circuit of the rim J tapering to a thin edge, thus admitting of the mask fitting closely to the face, and preventing the admission of air except through the perforations *d* in the extended chamber B.

By means of the elastic bands D and E and the buckles F G, the cap may be adjusted so as to fit faces of different shape in a comfortable manner, and, being light and strong, is easily carried in the pocket, and can be quickly adjusted upon the face.

In entering dense smoke I have found that while the length of the chamber B, as shown in the drawing, is sufficient for various purposes, such as emery-grinding, polishing, &c., it is not adequate to arresting smoke, and for this purpose I have designed to provide an extended cap of rubber, of any desired length, to fit over the chamber B, when it may be filled with cotton-wool, &c., in common with the chamber.

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

The respirator described, consisting of the cup-shaped mask A, constructed of soft rubber, and having a thin edge, J, the sponge-chamber B, made integral with the mask, and of the same material, and having perforations *d*, the valve C, and the elastic straps for securing the mask over the face of the wearer, substantially as described and shown.

This specification signed and witnessed this 1st day of June, 1878.

H. R. HURD.

Witnesses:

GEO. C. TRACY,
A. S. HARRIS.