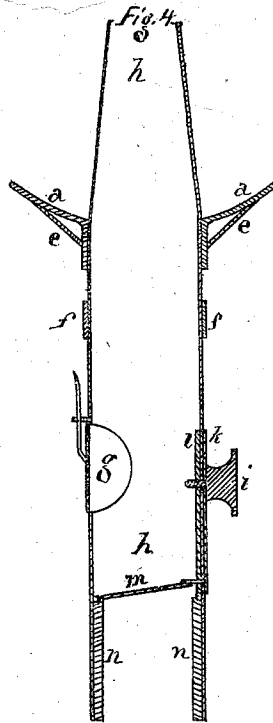
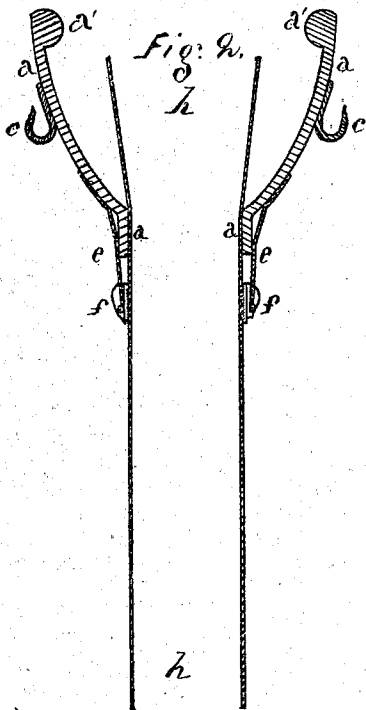
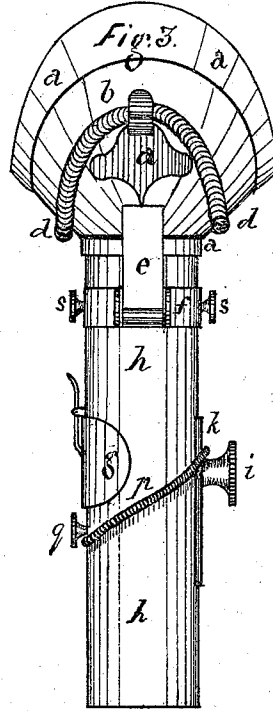
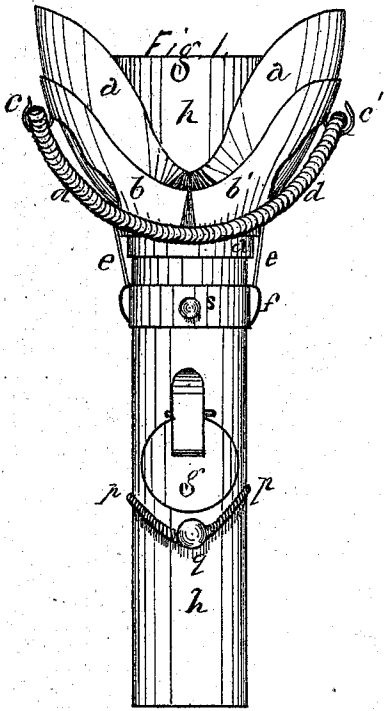


A. E. PURSELL.
Improvement in Inhaling Apparatus.
 No. 131,780. Patented Oct. 1, 1872.



Attest
Robert Keating
Edward J. Purcell.

Abner E. Purcell
 Inventor

UNITED STATES PATENT OFFICE.

ABNER E. PURSELL, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN INHALING APPARATUS.

Specification forming part of Letters Patent No. 131,780, dated October 1, 1872.

To all whom it may concern:

Be it known that I, ABNER E. PURSELL, of the city of Indianapolis, county of Marion and State of Indiana, have invented a Device for Inhaling Gases and Vapors, of which the following is a specification:

The first part of my invention relates to the combination and arrangement of a soft-rubber hood or cup, such as will hereinafter be described, of such a form that it will fit over the mouth of the patient, and two hinged shields of sheet metal, hereinafter to be described, with a helical spring, also to be described, in such a way as to form an automatic mouth-piece for the inhaling of gases and vapors, adapted to fit any ordinary mouth.

The second part of my invention relates to the combination and arrangement of the various parts of a stop-valve in the body of the inhaling-tube, as will hereinafter be more fully described.

The object of my invention is to produce, by means of the combination and arrangement of the devices hereinbefore mentioned, such an inhaling apparatus as will so automatically fit over any mouth and face as to exclude the external atmosphere while gas or vapor is being inhaled.

Figure of the accompanying drawing is a side view of the device; Fig. 2, a section of the same; Fig. 3, an edge view of the device; and Fig. 4, a section of the same.

A hood or cup of soft vulcanized India rubber, represented by *a*, is placed upon the tube *b*, which tube is to be a little flattened at the end on which the rubber cup or hood is placed. This cup or hood *a* is thickened at *a'*, as shown in section 3 in Fig. 2, and gradually thinned off at the same edge until it becomes as represented in Fig. 4. This rubber cup or hood *a* is supported by a metal shield consisting of two pieces, represented, respectively, by *b* and *b'*, each of which terminates in a strap represented by *c*. These straps are hinged in convenient jaws at *f*. These jaws are so constructed that the side pieces act as a brace upon the edges of *c* to prevent it from playing from side to side, as shown in Figs. 1, 2, and 3. *d* is a helical spring of sufficient length to wrap around the shields *b* and *b'*, and is supported in the hooks *c* and *c'*, as represented in the drawing. *g* is a valve for the exit of the patient's breath. *m* is a valve fitting on the end of the interior tube *n* to regulate the entry of

the gas. This valve is controlled by the slides *l* and *k*. When the binding-screw *i* is loose the helical spring *p* will always hold the slide *l* down upon the valve *m* and keep it closed, but the slide *l* may be drawn up to any desired height and then fastened with the binding-screw *i*. When the screw is released the elasticity of the spring *p* will carry down the slide until it comes against the valve *m* and holds it to.

For inhaling protoxide of nitrogen or laughing-gas this device is attached to the gas-holder in the usual way, so that the gas may be made to flow through the tube *h*. The patient now takes the flat end of the tube *h* in the mouth and presses the inside edge of the rubber hood or cup *a* against the lips and cheeks. Now, as the spring *d*, by its elasticity, constantly compresses the rubber cup or hood *a*, it will be found that a thin face will be effectually fitted by the closing up of this hood or cup *a*, and that a fuller face will be just as effectually fitted by the hood or cup *a* spreading out. If the helical spring *d* should be too stiff it may be made to work easier by drawing it down over the knob or button *s* so that the rubber hood or cup *a* may be more easily extended to accommodate a full face.

The great difficulty which practitioners had heretofore to contend against in administering intoxicating gases and vapors was, that as soon as the patient begins to be smartly influenced he will open his mouth and breathe so much atmosphere that it will so considerably dilute the gas or vapor as greatly to hinder its effect. This device acts so automatically that it will fit any face of any ordinary size in such a way as to effectually prevent such a result by excluding the external atmosphere. The device may be used for the inhalation of any gas or vapor used in medicine or surgery.

I claim—

1. The combination and arrangement of the hood *a*, the shields *b* and *b'*, the straps *c*, the hinges *f*, the spring *d*, the knobs *s*, and the hooks *c*, substantially as set forth.

2. The combination and arrangement of the slides *l* and *k*, the binding-screw *i*, and the spring *p*, substantially as set forth.

ABNER E. PURSELL.

Witnesses:

ROBERT KERSTING,
EDWARD W. PURSELL.