(No Model.)

J. H. NELSON.

INHALER.

No. 256,495. Patented Apr. 18, 1882.

Fig. 1

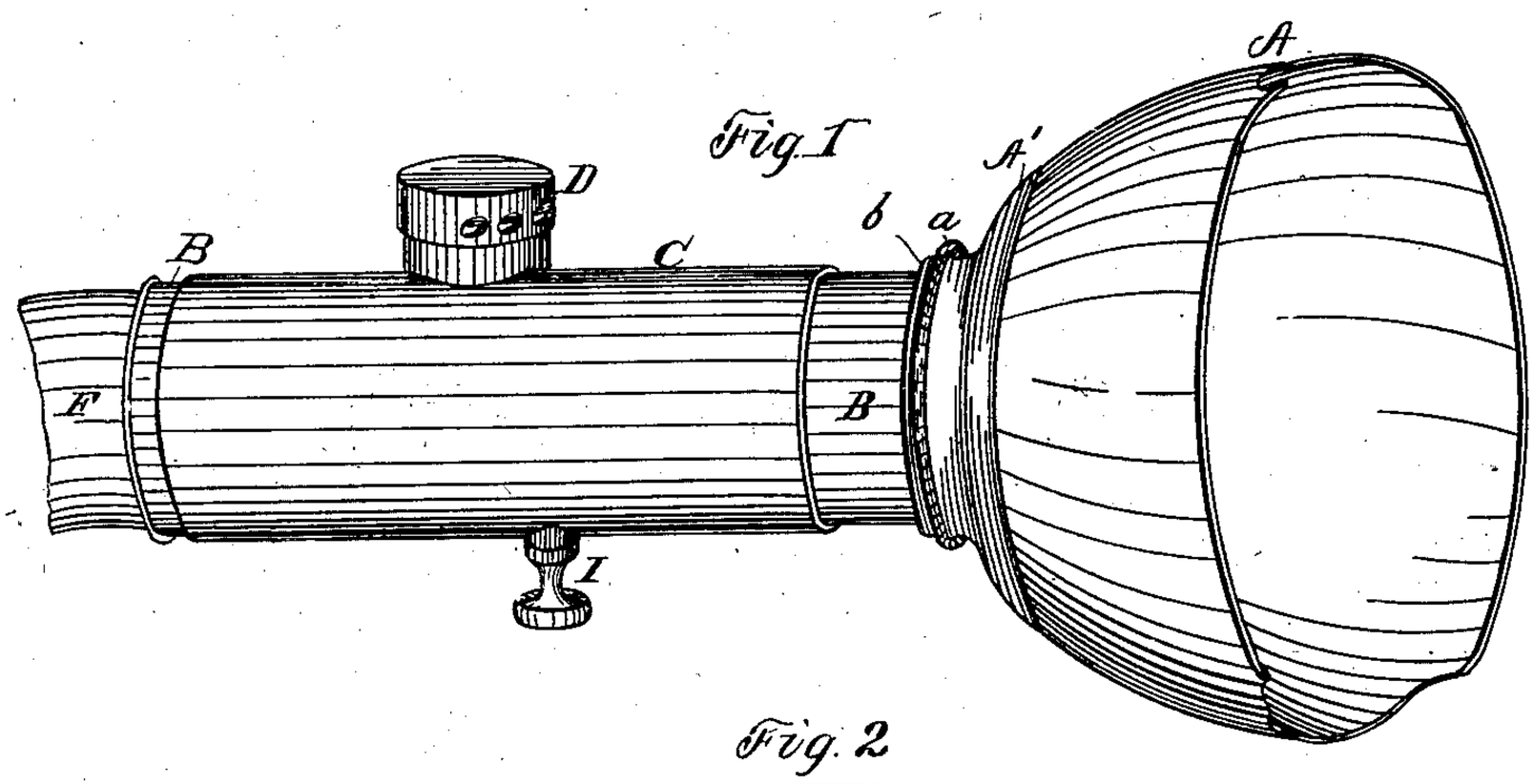


Fig. 2

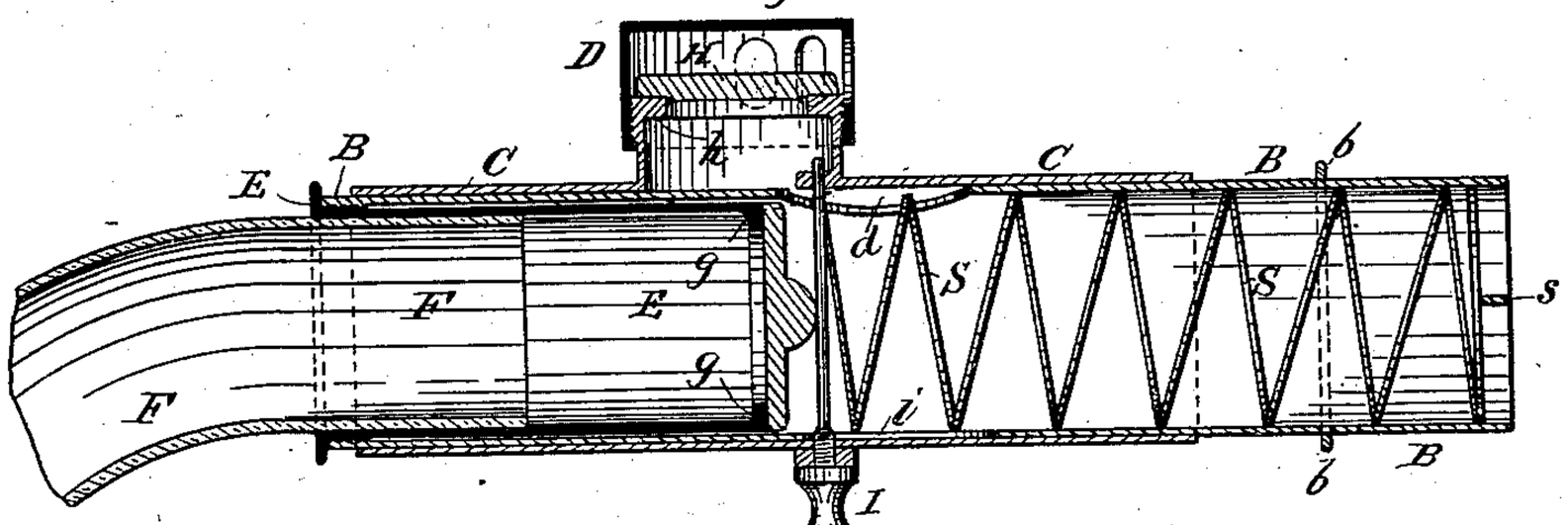
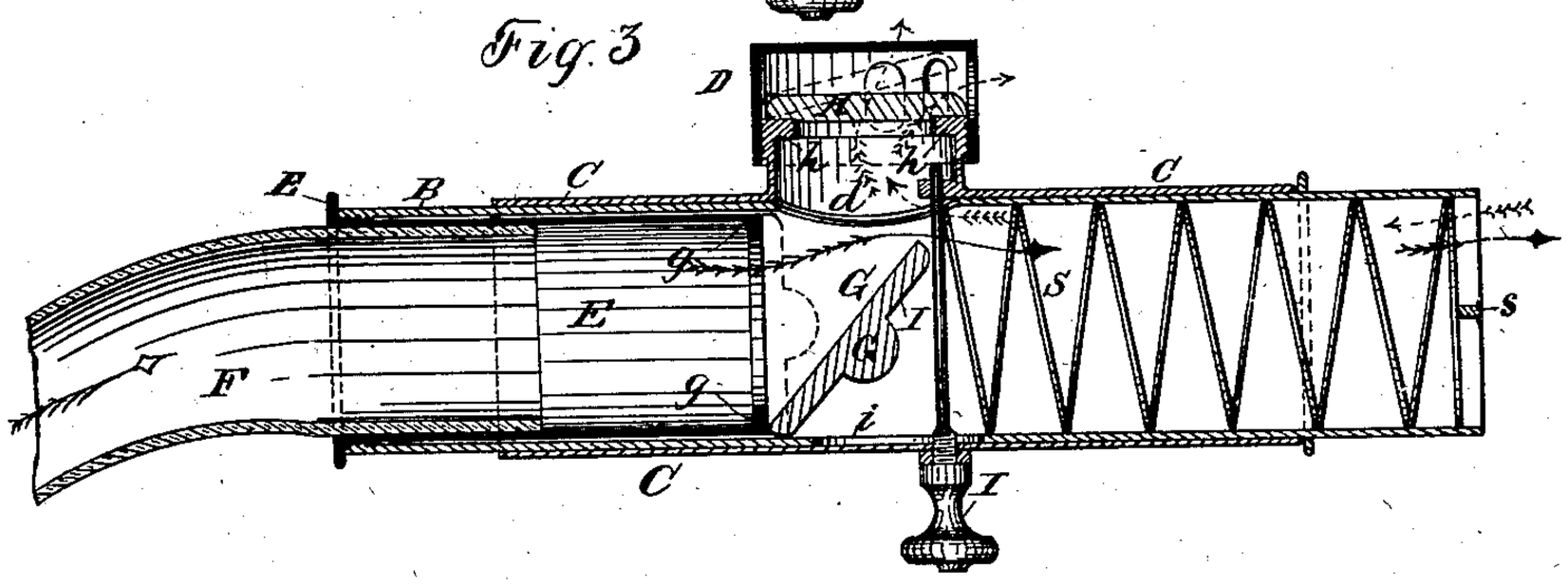


Fig. 3



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN H. NELSON, OF NORTH EAST, PENNSYLVANIA.

INHALER.

SPECIFICATION forming part of Letters Patent No. 256,495, dated April 18, 1882.

Application filed October 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. NELSON, a citizen of the United States, residing at North East, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Inhalers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and the letters or figures of reference marked thereon.

My invention relates to the construction and operation of devices used for inhaling gases or medicated air, which devices are known as "inhalers."

My invention consists in improvements in the construction of said devices, which improvements will fully appear in the following general description and claims.

My invention is shown in the accompanying drawings, as follows:

Figure 1 is a perspective view. Fig. 2 is a longitudinal section, the flexible face-piece A being removed. Fig. 3 is a like view with the position of parts changed to show operation.

The parts are designated by letters of reference, as follows:

A is the flexible face-piece. F is the flexible hose connecting with the reservoir. Neither of these parts nor their manner of attachment forms any part of my invention, and therefore requires no description.

B is the body of the device. C is a movable sleeve. D is the exhalation-escape-valve cage; H, its contained valve; *h*, its valve-seat. E is a sleeve slipping into the body, and carries at its inner end a valve-seat for the inhalation-valve G. I is a thumb-screw, which forms a finger-pull on the outside, but extends across the tube, forming a bridge or rest for the spring S. *s* is the bearing of the spring at its opposite end from I.

The construction and operation of my device are as follows:

The tubes B, C, and E are made of metal, hard rubber, or any proper substance. The tube B is made with an opening, *d*, to communicate with the cage, which opening may be called the "exhalation-port." On the opposite side of the tube from this port is a slot, *i*, for the passage of the screw I. The tube C is sufficiently large to slide easily but snugly on the tube B. To this, or forming a part of it, is attached the cage D, or that part containing the exhalation-valve. The tube E slips inside the tube B and screws fast. Its inner end serves as a valve-seat for the inhalation-valve G.

S is an ordinary spiral spring.

The parts are put together in the following manner: The spring S is put into the tube B and seats itself against the bridge *s*. The sleeve C is then slipped on and the screw I is inserted and holds the tubes C and B together and the spring S in place. The valve G is then dropped in and the tube E inserted after it. The valve H is then laid onto the seat *h* and the cage D is screwed on. The flexible tube F slips inside the tube E and the face-piece A slips on over the tube B until it comes in contact with the rib *b*. When thus put together the spring S will keep the parts in the position shown in Fig. 2, where it will be seen that the valve G is kept shut by the spring pressing the bridge I against it.

The operation is as follows: The face-piece is placed in proper position upon the face of the patient. To do this the operator's best position is by the side and a little back of the patient. The inhaler should be so held in the hand that the cage D and the screw I will serve as finger-rests. The hand should only be in contact with the sleeve C and the screw and cage. The face-piece A being in place, a slight pressure against the face of the patient, exerted by the hand holding the inhaler, as described, will open the inhalation-valve G, and the gas to be inhaled will pass in the direction shown by full-line arrows in Fig. 3. The exhalations of the patient will close the valve G and pass, as shown by dotted-line arrows in Fig. 3. The moment the instrument is removed from the face of the patient the spring S will close the valve G. The utilization of the pressure which is in all cases necessary in order to cause the face-piece to fit snug upon the face of the patient and to open the valve G, so as to avoid the use and the necessity of operating any other apparatus, I consider a very useful contrivance. It enables the operator to have easy and complete control of the

instrument. If necessary for him to attend to something else suddenly, he can drop the instrument and the valve G will instantly close.

The exhalation-valve need not necessarily be in the position shown. It can be on the rubber face-piece, if desired. However, I consider the position shown to be preferable.

What I claim as new is—

1. An inhaling apparatus having its face-piece connected to a tube provided with a contained valve operated by a movable sleeve, which is adapted to slide upon the tube when the face-piece is pressed against the face, substantially in the manner set forth.

2. The combination, substantially as shown, with the face-piece of an inhaling apparatus, of the tube B, sleeve C, spring S, and valve G, arranged in substantially the relations and for the purposes mentioned.

3. The combination, with the face-piece of an inhaling apparatus, of the tube B, spring S, and valve G, with the sleeve C, having thereon the exhalation-valve H and a bearing for the spring S, substantially as and for the purposes mentioned.

4. The combination, with the face-piece of an inhaling apparatus, of the tubes B and E, the valve G, bar or bridge I, spring S, and sleeve C, substantially as and for the purposes mentioned.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of September, 1881.

JOHN H. NELSON.

Witnesses:

JNO. K. HALLOCK,

F. B. WHIPPLE.