

H. R. HURD.
Inhaler.

No. 217,691.

Patented July 22, 1879.

Fig. 1

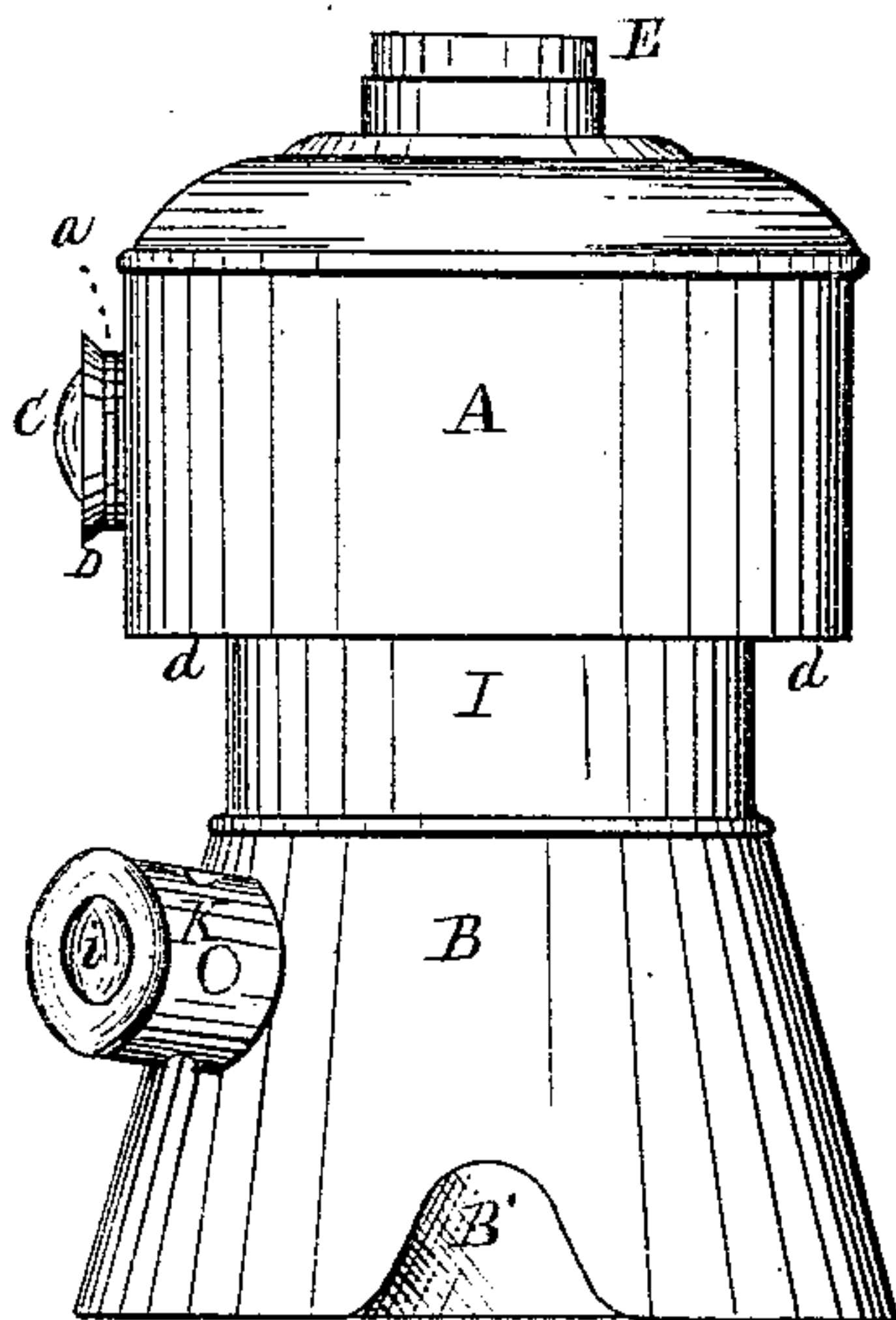
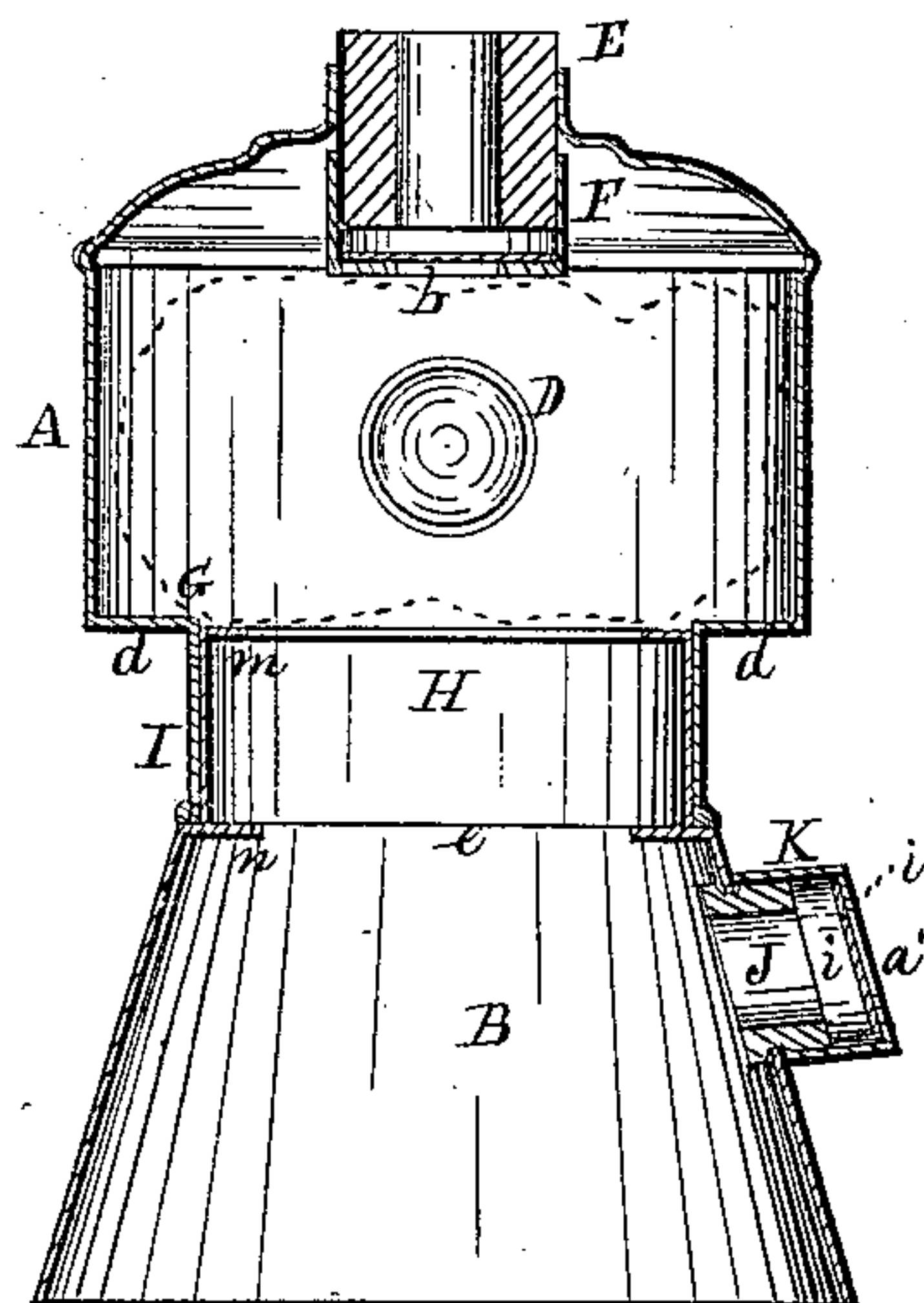


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN INHALERS.

Specification forming part of Letters Patent No. **217,691**, dated July 22, 1879; application filed January 10, 1879.

To all whom it may concern:

Be it known that I, HUTSON R. HURD, D. D. S., of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Inhaler; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings, making a part of the same.

This invention relates to improvements in inhalers for administering anæsthetics to patients undergoing dental or other surgical operations. Said improved inhaler consists of a chamber made of metal or of any other suitable material, provided with an aperture having therein a tube in which is a valve corresponding to the bore of said tube. In combination with the chamber is a flexible mouth-piece which is also provided with a valve. The mouth-piece is attached to the said chamber by a neck provided with certain flanges, hereinafter described, so that on forcing the neck of the mouth-piece into a corresponding neck of the chamber the two parts will be securely united by the expansion of the neck of the flexible mouth-piece in that of the chamber, substantially as described, and shown in the drawings, in which—

Figure 1 is an external view of the inhaler. Fig. 2 is a vertical transverse section.

Like letters of reference refer to like parts in the several views.

The inhaler above alluded to consists of two sections, A and B. The upper section, A, is a chamber constructed of metal, or of any other suitable material, and of the shape shown, or such modification thereof as may be desirable, the exact shape of which not being essential.

In the side of the chamber is an aperture, D, for introducing the anæsthetic fluid or gas to be inhaled. Said aperture is closed by a screw-cap, C, Fig. 1, made tight-fitting by a packing, *a*. In the top of the chamber is an aperture, in which is inserted a flexible tube, E. To the end of the tube projecting into the chamber is fitted a cap or valve-seat, F, of which G is the valve covering the opening *b*, corresponding to the bore of the tube E. Said valve consists of a thin piece of mica, and

opens outwardly. The valve may be of any suitable material. Mica, however, is preferable, as it is sufficiently flexible for the purpose and is easily kept clean. In the chamber is placed a sponge. (Indicated by the dotted line.) The sponge is prevented from falling from the chamber by the shoulders *d*, on which it rests.

The lower section, B, of the inhaler consists of a flexible mouth-piece of the shape of a truncated cone from the bottom to the line *e*. From said line upward the sides of the section are parallel, forming a neck, H, adapted to fit tightly in the neck I of the upper section of the implement, as shown in Fig. 2.

To render the neck of the mouth-piece firmer and more resisting to compression than the facial or larger part without increasing its thickness, annular flanges *m* and *n* are formed along the inside of the upper and lower part of the neck, so that on forcing the neck of the mouth-piece into the neck I it will remain there by the expansive force of the material without other fastening; hence the mouth-piece can be easily and readily attached to and detached from the chamber for cleaning and for other purposes.

In the side of the mouth-piece is secured an elastic collar, J, by an annular groove near the inner end thereof, in which the edges of the opening in the side of the mouth-piece are received on springing the collar into said opening, as shown in Fig. 2 of the drawings. Over the outer end of the collar is fitted a metal cap or valve-seat, K, of which *i* is the valve, covering the opening *a'*. Said valve consists of a thin piece of mica.

In the side of the valve-seat or cap are openings for the admission of air. The valve opens inwardly, for a purpose presently shown.

B' is a notch in the edge of the mouth-piece to accommodate the nose on placing the mouth-piece over the mouth for inhaling the contents of the chamber.

The practical use of the above-described inhaler is as follows: The sponge above alluded to is charged with the anæsthetic through the opening D, or through the mouth-piece, in the first instance. The mouth-piece is then placed over the mouth of the patient and adjusted

so that the notch B' will span the nose. The thin flexible edge of the mouth-piece will cause it to fit closely around the mouth.

The patient on breathing inhales the fumes from the saturated sponge, at the same time drawing fresh air from the outside for respiration through the valve E, while the exhaled breath escapes through the valve i in the mouth-piece.

In the event a further supply of the anæsthetic is required during the operation, the sponge is charged therewith through the opening D. This obviates the necessity of removing the inhaler from the patient's mouth for that purpose when under surgical operation.

What I claim as my invention, and desire to secure by Letters Patent, is—

An inhaler consisting of a chamber, A, provided with an aperture in which is inserted a tube, E, having adapted to the end thereof a valve, G, corresponding to the bore of the tube, in combination with a flexible mouth-piece also provided with a valve, and attached to the chamber A by a neck constructed with annular flanges, so that on forcing the neck of the mouth-piece into the neck of the chamber it will be retained therein by the expansive force of the material, in the manner substantially as described, and for the purpose set forth.

HUTSON R. HURD.

Witnesses:

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