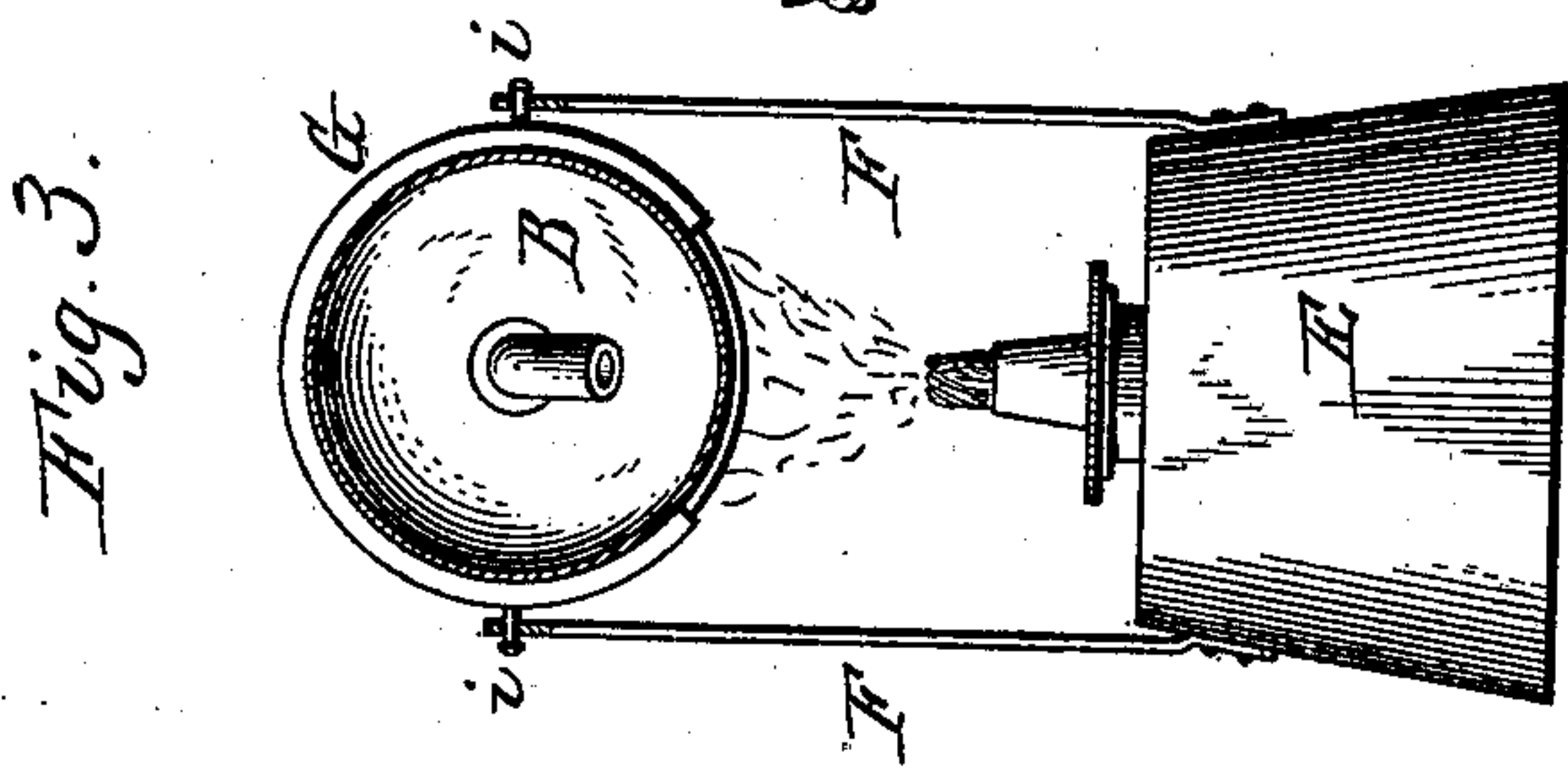
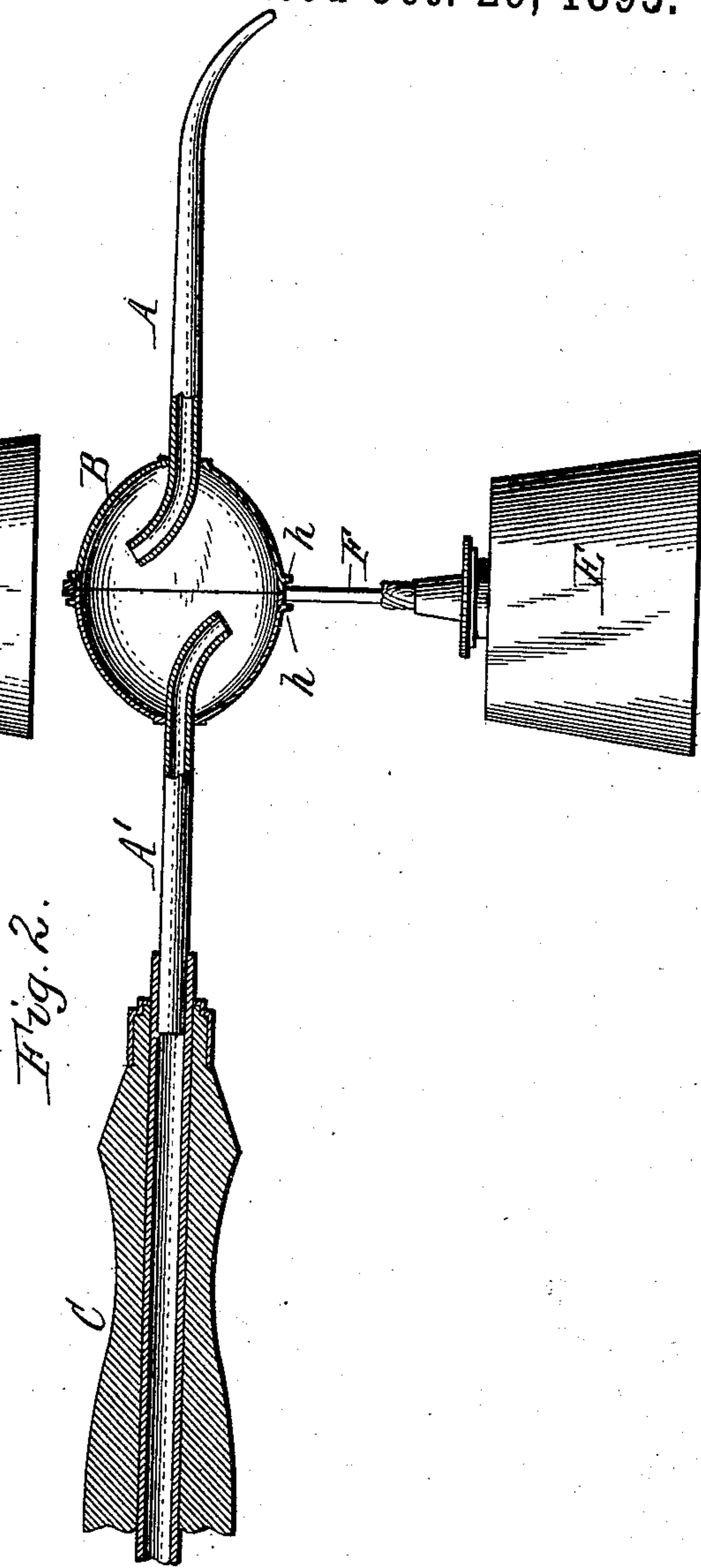
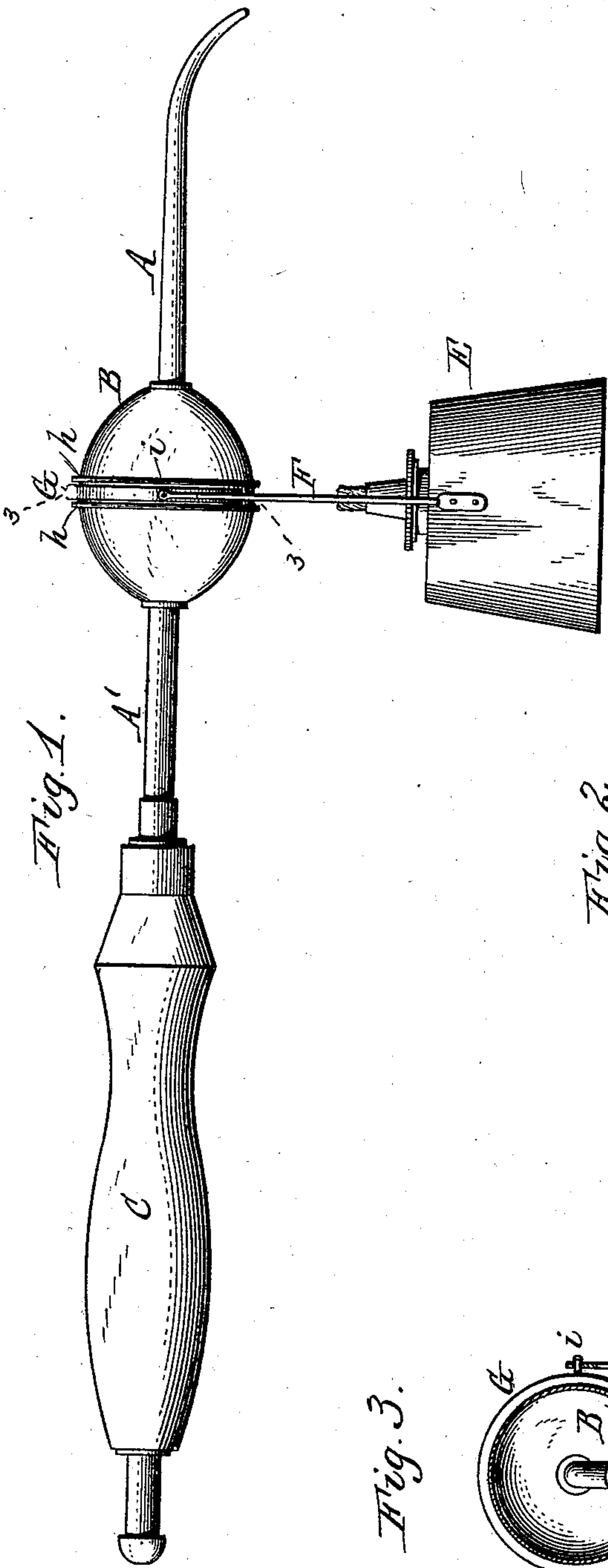


(No Model.)

J. H. STACKHOUSE.  
DENTAL HOT AIR SYRINGE.

No. 548,766.

Patented Oct. 29, 1895.



WITNESSES:

Chas. F. Burkhardt.  
F. Gustav Wilhelm.

John H. Stackhouse INVENTOR.  
By Wilhelm Bonner ATTORNEYS.



# UNITED STATES PATENT OFFICE.

JOHN HENRY STACKHOUSE, OF BUFFALO, NEW YORK.

## DENTAL HOT-AIR SYRINGE.

SPECIFICATION forming part of Letters Patent No. 548,766, dated October 29, 1895.

Application filed March 2, 1895. Serial No. 540,330. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN HENRY STACKHOUSE, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Hot-Air Syringes, of which the following is a specification.

This invention relates to the hot-air syringes which are employed by dentists, and more especially to blast devices of this character in which the blast-tube has a heating chamber or enlargement, under which is suspended a small lamp or heater.

My invention has for its objects to produce an inexpensive syringe or blast device of this kind which can be conveniently manipulated without liability of burning the hand and without discomfort to the patient and to connect the heater with the blast-tube or heating-chamber in such a manner that the tube may be turned or held at any desired angle without affecting the perpendicular position of the heater, whereby an uninterrupted heating of the chamber is insured.

In the accompanying drawings, Figure 1 is a side elevation of my improved dental syringe. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is a section in line 3 3, Fig. 1.

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

The blast or delivery tube of the syringe has the usual curved nozzle or discharge end, and is preferably composed of two sections A A', which are connected by a hollow bulb or enlargement B, forming a heating-chamber.

C is a handle, of wood or other non-conducting material, surrounding the rear tube-section A'. The latter extends beyond the handle, and to this projecting portion a flexible supply pipe or hose is attached, which hose connects the blast-tube with the usual foot-bellows or with a tank containing nitrous-oxide or other suitable gas, whereby a blast of air or gas is delivered through the tube.

E is the heater suspended underneath the heating-chamber or enlargement B and consisting, preferably, of a small alcohol-lamp. This heater is carried by depending arms or links F, pivoted at their upper ends to a supporting band or ring G, which loosely embraces the heating-chamber, so as to permit the chamber to be turned in the ring without

affecting the position of the latter and the heater suspended therefrom. The supporting-ring is seated in an annular groove or depression formed in the central portion of the heating-chamber, whereby it is held against longitudinal displacement on the chamber. This groove or seat is preferably formed by providing the heating-chamber with raised annular beads or shoulders h, as shown. The pivotal connections between the suspension-arms of the heater and the supporting-ring G may be of any suitable construction; but the same preferably consist of headed trunnions i, projecting from diametrically-opposite sides of the ring and arranged at right angles to the axis of the blast-tube, as shown, the trunnions passing through openings formed near the upper ends of the arms.

The supporting-ring is preferably split or cut away on its under side, as most clearly shown in Fig. 3, to permit it to be sprung into its seat in the air-chamber and to allow it to expand under the action of the heat and thereby prevent its binding on the chamber. By cutting away the lower portion of the ring the flame of the heater is allowed to play directly against the heating-chamber through the gap of the ring, whereby the chamber is more effectually heated at this point.

The supporting-ring and the suspension-arms F form practically a universal joint or connection between the heater and the blast-tube, which permits the tube to be turned in the ring for directing its bent nozzle upward, downward, or at any desired angle and to be held at any convenient inclination without swinging the heater out of a perpendicular position, thus maintaining the flame directly under the heating-chamber and insuring the constant heating of the same and the air or gas passing through it.

By arranging the handle in rear of the heater the device can be conveniently manipulated without danger of burning the hand. This arrangement also permits the tube and the heating-chamber to be rigidly connected together, so that these parts cannot become accidentally disconnected in manipulating the instrument.

The heating-chamber is preferably constructed of two similar sections, each of which is formed near its edge with one of the beads



or shoulders *h*, and the meeting portions of the sections are secured together by soldering or any other suitable means.

In order to effectually direct the air or gas against the surrounding wall of the heating-chamber, the tube-sections are extended into the chamber and their end portions are bent outward or at an angle to the body of the sections, as shown in Figs. 2 and 3.

10 I claim as my invention—

1. The combination with a blast or delivery tube having a hollow enlargement or heating chamber, of a ring or band encircling said enlargement or chamber, and a heating device 15 suspended from said ring, substantially as set forth.

2. The combination with a blast or delivery tube having a hollow enlargement or heating chamber provided with an annular seat or 20 groove, of a loose ring or band confined in said seat or groove, and a heating device arranged underneath said chamber and having suspension arms pivoted to said ring or band, substantially as set forth.

25 3. The combination with a heating chamber and a blast tube connected therewith, of a split, removable ring or band embracing

said heating chamber, and a heater arranged underneath said chamber and having suspension arms pivoted to said ring or band, substantially as set forth. 30

4. The combination with a blast tube, of a hollow enlargement or heating chamber communicating therewith and composed of sections secured together at their meeting portions and each having an annular bead or 35 shoulder, a ring or band loosely embracing the heating chamber between said shoulders, and a heater suspended from said ring or band, substantially as set forth. 40

5. The combination with the heating chamber of a dental syringe, of blast-tube sections communicating with the front and rear portions of said heating chamber and extending 45 into the same, the adjacent end portions of the tube-sections being bent or curved at an angle to the body of the sections, substantially as set forth.

Witness my hand this 27th day of February, 1895.

JOHN HENRY STACKHOUSE.

Witnesses:

CARL F. GEYER,  
KATHRYN ELMORE.