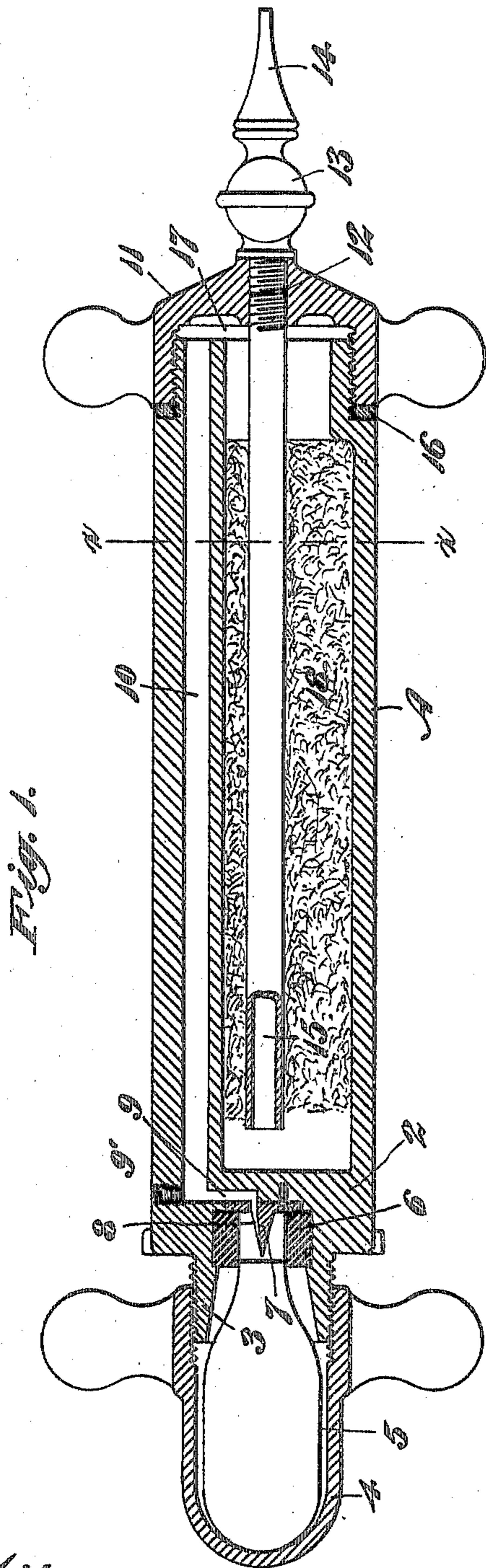


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W. L. MOORE & E. L. HUTCHINSON.
DENTAL AND SURGICAL OBTUNDER.

APPLICATION FILED APR. 24. 1905.



Witnesses,
Chas. E. Chapin.
B. Nurse

Inventors,
William L. Moore
Edson L. Hutchinson
By Geo. H. Strong. atty

UNITED STATES PATENT OFFICE.

WILLIAM L. MOORE AND EDSON L. HUTCHINSON, OF HONOLULU, TERRITORY OF HAWAII.

DENTAL AND SURGICAL OBTUNDER.

No. 811,864.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed April 24, 1905. Serial No. 257,104.

To all whom it may concern:

Be it known that we, WILLIAM L. MOORE and EDSON L. HUTCHINSON, citizens of the United States, residing at Honolulu, in the Island of Oahu and Territory of Hawaii, have invented new and useful Improvements in Dental and Surgical Obtunders, of which the following is a specification.

Our invention relates to an apparatus for local anesthesia, and especially to a convenient and portable hand-tool for rendering dentin insensitive for operative procedure in dental practice. Its object is to provide a simple practical device for producing pressure anesthesia, and which shall be capable of being easily held and operated in the hand and carried in the bag with the other dental tools or surgical instruments.

The invention comprehends a hollow handle-like body of convenient size and shape having a chamber to contain an anesthetizing agent and a frangible capsule containing liquefied gas or gas under high pressure, with means for controlling the discharge of the vaporized anesthetic on the fracture of the capsule.

Having reference to the accompanying drawings, Figure 1 is a longitudinal sectional view of our improved obtunder. Fig. 2 is a section on line *x x*, Fig. 1.

A represents a hollow handle-like body of suitable shape, size, and material. Preferably it is cylindrical and is of convenient size to be easily held in the hand. One end of the body has a head 2, provided with an externally-threaded hollow projection 3 to receive the chambered cap 4. The latter is adapted to contain a capsule 5, of suitable puncturable material, containing compressed or liquefied gas under high pressure. The inner end of the capsule is normally supported, by means of the rubber ring 6 in the projection 3, out of contact with the puncturing-tool 7, which is suitably supported in the head 2, as shown. A groove 8 in the pointed member 7 communicates with a radially-extending port 9 in the head, and port 9 opens into a longitudinal passage 10 in the wall of the cylinder A. A removable plug 9' permits of the cleaning of port 9. The end of the cylinder opposite to cap 4 is externally threaded to receive a cap 11, having a central threaded perforation 12. A valve 13 screws into the outer end of this perforation, and a nozzle 14 of suitable de-

sign screws on or is otherwise attached to the valve. A tube 15 screws into the inner end of perforation 12, the length of tube 15 being such that it extends nearly to head 2, even if washer 16, which is interposed between cap 11 and the end of the cylinder A, were omitted. The bottom of cap 11 has an annular groove 17, communicating with the open end of passage 10 and with the annular chamber 18, formed around tube 15.

The operation of the instrument is as follows: The cap 11 is unscrewed from the end of the body A, and the chamber 18 is filled with gauze and saturated with the medicine to be used. The cap 11 is then screwed on tightly against the interposed washer and the body A. The valve 13 is now closed, and the cap 4 is screwed farther onto the projection 3 by means of the handles or ears 19 and 20 on the respective caps 4 11, thereby forcing the end of the contained capsule 5 into the rubber ring 6 and onto the point 7, puncturing the capsule and allowing the gas to escape through the groove 8 and passages 9, 10, and 17 into the space 18 in the interior of the body. As the gas has now expanded to many times its former volume when confined in the capsule, the pressure has been lowered to a safe working pressure for applying the medicine. The gas in entering the space 18 has to pass through the gauze saturated with the medicine. When the valve 13 is now slightly opened, the gas rushes out through the tip 14 from the space 18 through the tube 15, carrying with it vaporized medicine. After using until the gas in the space 18 has expanded until there is no longer pressure enough to operate, the capsule 5 is replaced by a charged one and the operation is repeated.

It is possible that various modifications in our invention may be made without departing from the principle thereof, and we do not wish to be understood as limiting ourselves to the specific construction as herein shown and described.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. An obtunder comprising a hand-tool provided with a chamber containing an anesthetizing medium and having means to hold a frangible capsule, means for puncturing the capsule, and means for delivering the con-

tents of the fractured capsule into said chamber to produce a pressure to expel said anesthetizing medium.

2. An obtunder comprising a hand-tool
5 having a chamber containing an anesthetizing medium, said chamber having a valve-controlled outlet, said tool also having means to hold a frangible capsule, means for puncturing said capsule, said hand-tool having
10 passages communicating with said chamber whereby on the puncturing of said capsule the contents of the latter are expanded into the chamber.

3. An obtunder comprising a casing having
15 a chamber containing an anesthetizing medium, said chamber having an outlet-passage, a part movable relative to the casing and having a chamber to contain a frangible capsule, means for puncturing the capsule
20 and communicating passages between the two chambers whereby on the puncturing of the capsule the contents of the latter are expanded into the anesthetizing-chamber.

4. The combination of a casing having a
25 chamber containing a packing saturated with a vaporizable medium, said chamber having a valve-controlled outlet, a cap screwing onto said casing and having a chamber to contain a frangible capsule, a puncturing-tool in the
30 path of the contained capsule and communicating passages between the two chambers whereby the contents of the capsules may be expanded into the chamber in the casing.

5. The combination of a casing provided
35 with an exit-tube and having the chamber to

contain a vaporizable medium, caps screwing onto each end of said casing, one of said caps having a chambered portion to contain a frangible capsule, a puncturing-tool and passages communicating with the chamber in the casing to deliver the contents of the fractured capsule. 40

6. The combination of a hollow casing, caps screwing onto opposite ends thereof, one of said caps provided with a valved discharge and having a tubular projection which communicates with said discharge extending into the chamber in the casing, means at the opposite end of the casing for holding a frangible capsule, a puncturing-tool, means for
45 compressing said capsule, and means for delivering the contents of the punctured capsule into the chamber in the casing. 50

7. The combination of a casing having a chamber to contain a vaporizable medium, said chamber having a valved discharge-tube, a hollow cap screwing onto the casing adapted to contain a frangible capsule, a puncturing-tool on the adjacent end of the casing and said casing having ports communicating
55 with the chamber in the casing to deliver the contents of the punctured capsule. 60

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WM. L. MOORE.

EDSON L. HUTCHINSON.

Witnesses:

ROBT. J. PRATT,

P. E. R. STRAUCH.