

(No Model.)

H. R. KLINE.
DENTAL PLUGGER.

No. 487,843.

Patented Dec. 13, 1892.

Fig. 1.

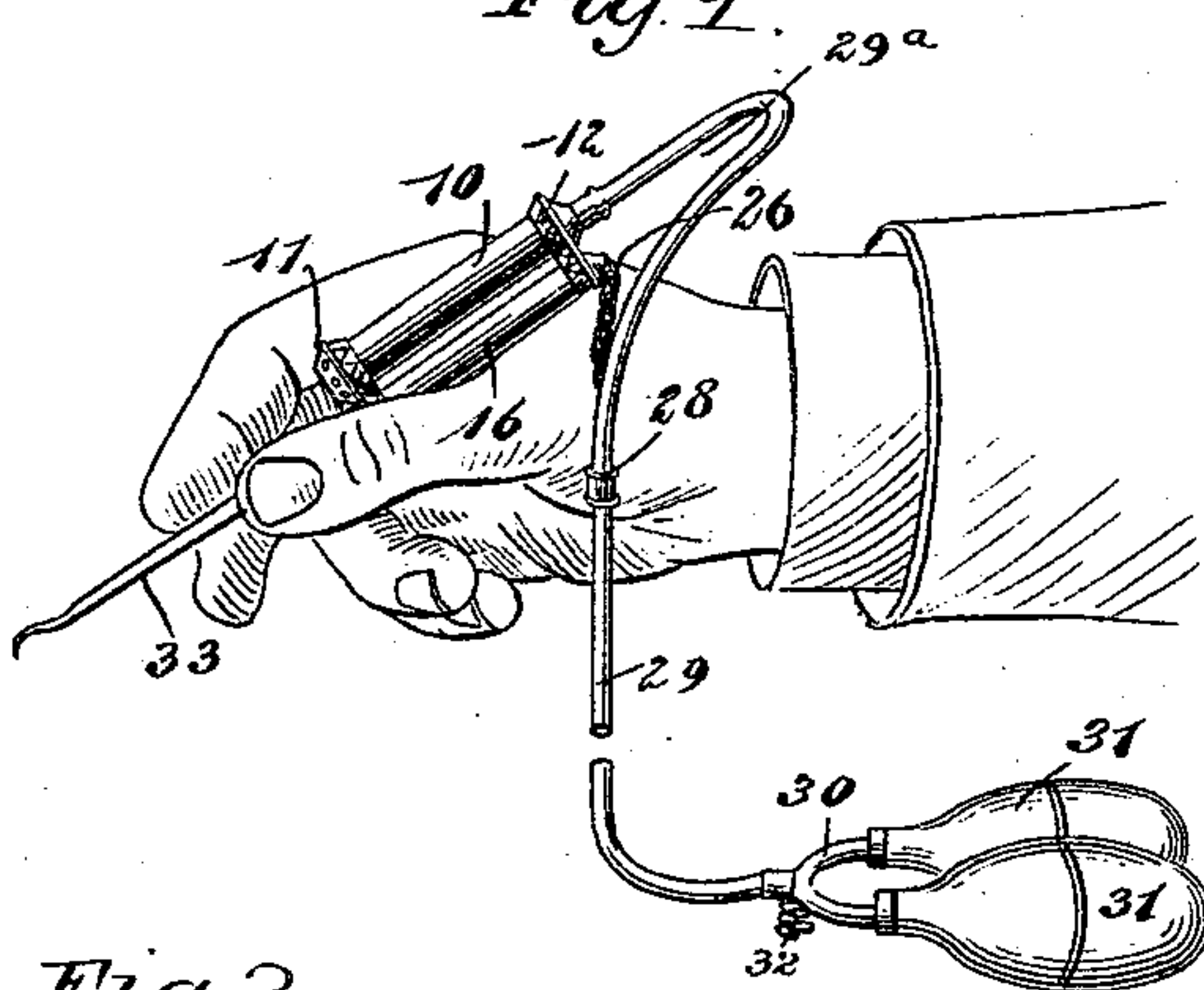


Fig. 2.

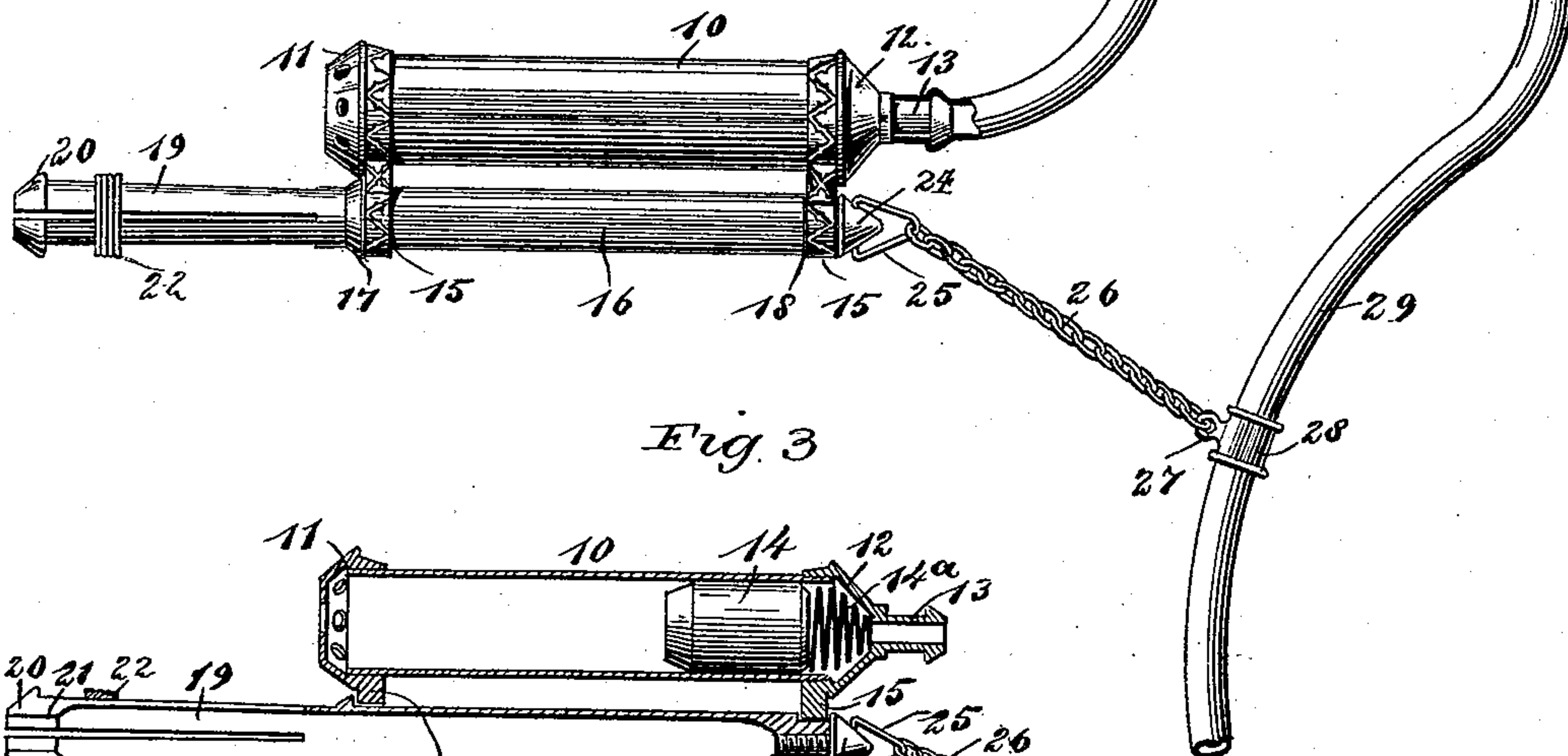


Fig. 3.

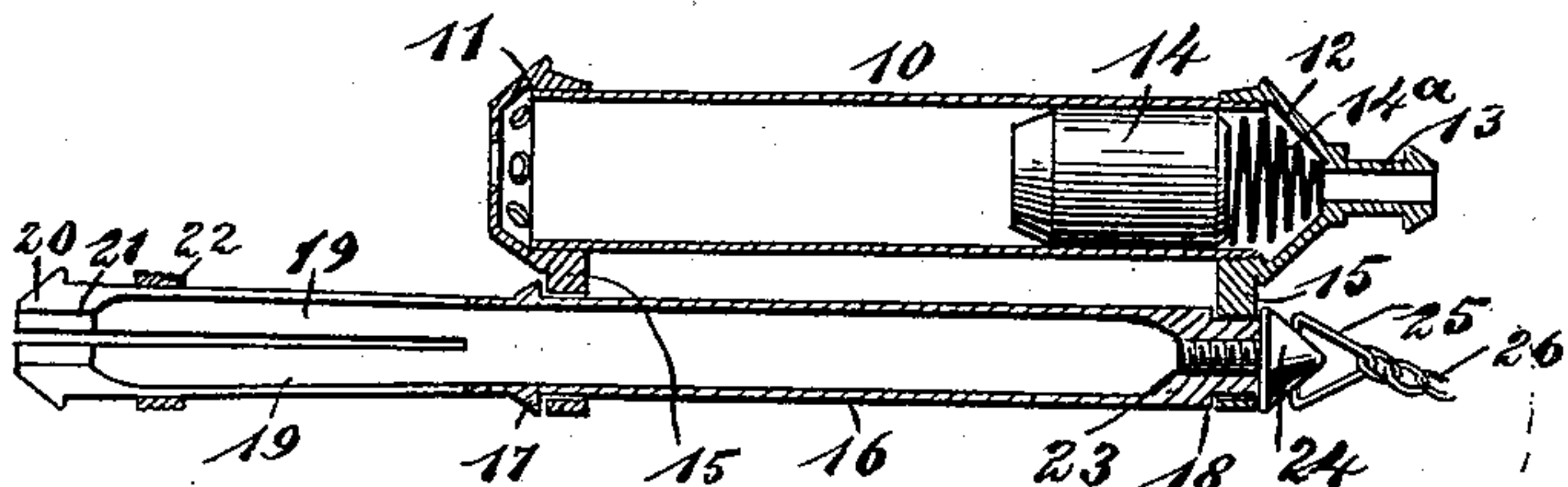
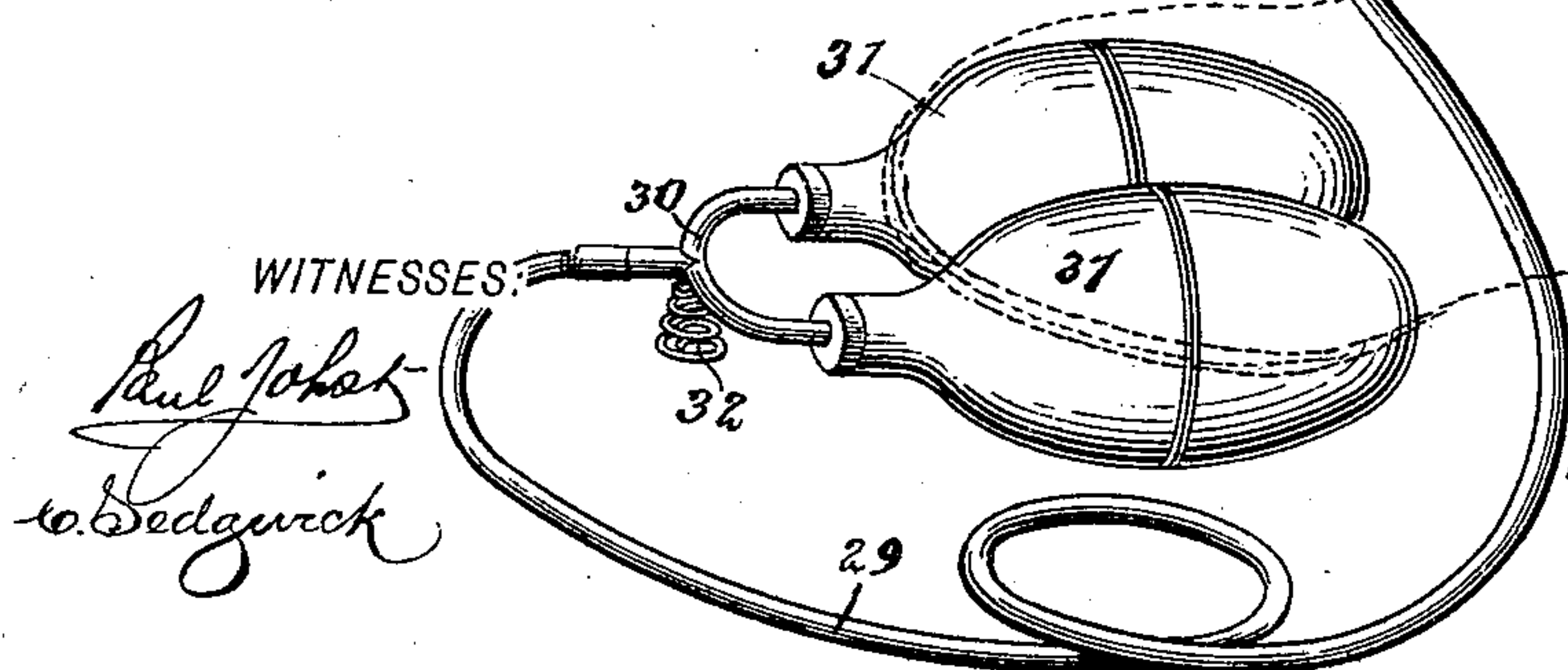


Fig. 4.



WITNESSES:

Paul J. J. J.
W. Sedgwick

INVENTOR:

H. R. Kline
Munn & Co

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY R. KLINE, OF ASHTABULA, OHIO.

DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 487,843, dated December 13, 1892.

Application filed April 6, 1892. Serial No. 427,984. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. KLINE, of Ashtabula, in the county of Ashtabula and State of Ohio, have invented a new and Improved Dental Plugger, of which the following is a full, clear, and exact description.

My invention relates to improvements in pneumatic dental pluggers such as are used for compressing metallic fillings into cavities in the teeth; and the object of my invention is to produce a simple apparatus which is adapted to hold any of the hand-pluggers in ordinary use, which is constructed in such a way that the air-tube cannot accidentally close so as to interfere with the working of the hammer, and which is provided with a pair of air-bulbs, so that the requisite force may be imparted to the hammer with a very slight pressure of the foot upon the bulb.

To this end my invention consists of certain parts and details and combinations of the same, as will be hereinafter described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken perspective view of the apparatus embodying my invention, showing it held in the hand in position for use. Fig. 2 is a broken enlarged side elevation of the hammer-tube and plugger-socket. Fig. 3 is a longitudinal section through the hammer-tube and plugger-socket; and Fig. 4 is a detail perspective view of the two air-bulbs, showing their connection with the air-tube.

The plugger is provided with a hammer-tube 10, which is of substantially the common form, having a perforated cap 11 at one end, which provides for the issuing of air from in front of the hammer, and having at the opposite end a cap 12, into which the tube is screwed, this latter cap having a projecting nipple 13, to which the air-tube is connected, as described below. A hammer 14 is held to slide in the tube 10, and behind the hammer is a spring-cushion 14^a, against which it strikes when retracted by the partial vacuum in the rear end of the tube. The end caps 11 and 12 of the hammer-tube have laterally extend-

ing stay-rings 15, into which the tubular plugger-socket 16 is held loosely, the plugger-socket having shoulders 17 and 18, adapted to abut with the rings 15, so that the movement of the hammer-tube will be imparted to the plugger-socket.

The front end of the plugger-socket is open, and this end portion of the socket is provided with a plurality of split fingers 19, composed of spring metal and having thickened outer ends 20 with concave inner sides 21, this construction enabling the hand-pluggers to be easily inserted in the socket and preventing the displacement of the slip-ring 22, which is held to slide on the front end portion of the socket. The inner closed end of the socket is concaved, as shown at 23, to facilitate the easy centering of the pluggers, and the front inner end is similarly beveled to permit the easy withdrawal of the instruments.

At the inner or rear end of the socket 16 is a screw 24, to the head of which is fixed a hook 25, and this connects by means of a short chain 26 with a perforated lug 27 on a ring 28, which ring is fastened loosely upon the elastic air-tube 29, and by properly adjusting the tube in relation to the ring the chain 26 will hold it so that the upper end of the tube will form a loop 29^a, as shown in Figs. 1 and 2, and the tube will thus be prevented from twisting and the air will always pass directly into the hammer-tube 10, so as to exert its full force on the hammer. The lower end of the air-tube 29 connects with a Y-tube 30 of metal, the stem of the tube being connected to the air-tube 29 and its diverging ends being connected with the air-bulbs 31.

At the junction of the diverging members of the Y-tube and on the under side thereof is a spring 32, which acts as a cushion and supports the tube 30. The air-bulbs 31 are arranged in pairs, and the object of the bulbs is to enable the hammer 14 to be moved with the requisite force when only a slight pressure is applied to the bulbs—that is to say, if it is necessary to compress a single bulb a certain amount to produce the required force it will be only necessary to compress the two bulbs to half this extent, and consequently with the two bulbs the instruments may be

very easily operated. A further advantage of the two bulbs is that by placing them side by side, as shown, they will lie firmly upon the floor and will not be so easily displaced as a single bulb.

The operation of the apparatus is as follows: The ring 22 is slipped down against the shoulder 17 of the socket 16, a plugger 33 of any desired pattern is inserted in the socket, and the ring 22 is then pushed out toward the free end of the socket, so as to bind the spring-fingers 19 firmly upon the plugger. The operator then grasps the instrument and places the end of the plugger upon the metal to be hammered in the usual way, and with his foot steps lightly and repeatedly upon the air-bulbs, as shown by dotted lines in Fig. 4. When pressure is applied to the bulbs, the air will pass upward through the tube 29 and into the hammer-tube 10, thus throwing the hammer 14 to the outer end of the hammer-tube, and the shock causes the stay-rings 15 to strike the shoulders 17 and 18 of the plugger-socket 16, thus moving the socket and the plugger therein, so as to deliver a blow upon the metal or tooth, as the case may be.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a dental plugger, the combination, with a hammer-tube, of a plugger-socket loosely connected therewith and operated by the shock imparted to the hammer-tube by its hammer, substantially as described.

2. The combination, with a pneumatic dental hammer, of a socket held to one side of

the hammer-tube and adapted to receive a plugger, substantially as described.

3. The combination, with the hammer-tube having the usual hammer and pneumatic connections, of stay-rings secured to the hammer-tube and a socket carried by the rings and adapted to hold a plugger, substantially as described.

4. The combination, with the hammer-tube having the usual hammer and pneumatic connections, of projecting stay-rings secured to the hammer-tube, a tubular socket held to slide in the stay-rings and having shoulders to engage the same, and a fastening device to fix the plugger in the socket, substantially as described.

5. The combination, with the pneumatic hammer and the air-tube connected therewith, of a plugger-holding socket held to one side of the hammer and a chain having one end secured to the air-tube and the other end connected with the socket, substantially as described.

6. In a pneumatic plugger, the combination, with the air-tube and hammer, of a pair of air-bulbs arranged side by side and connected with the air-tube, substantially as described.

7. In a dental plugger, the combination, with the pneumatic hammer, of a pair of bulbs provided with a Y-pipe and a cushion-support therefor, and an air-tube leading from the Y-pipe to the hammer, substantially as described.

HENRY R. KLINE.

Witnesses:

HENRY H. HALL,
FRED B. DICKINSON.