(No Model.)

C. F. RICH.

DENTAL PLUGGER.

No. 263,960. Patented Sept. 5, 1882.

Fig. 1.

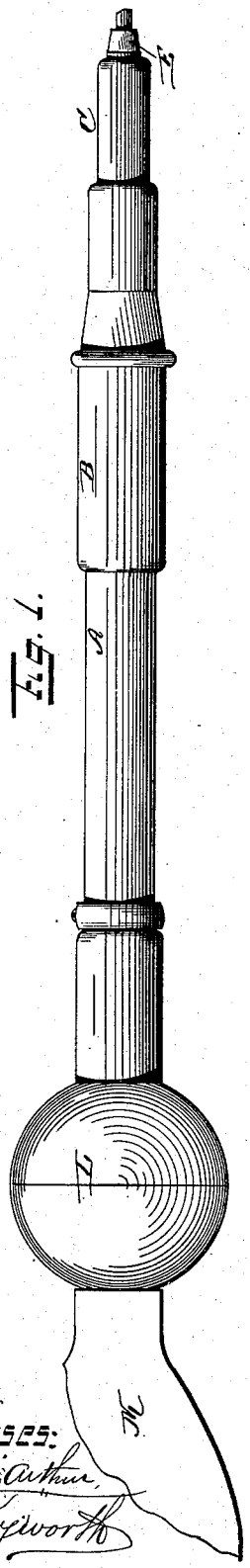

Fig. 2.

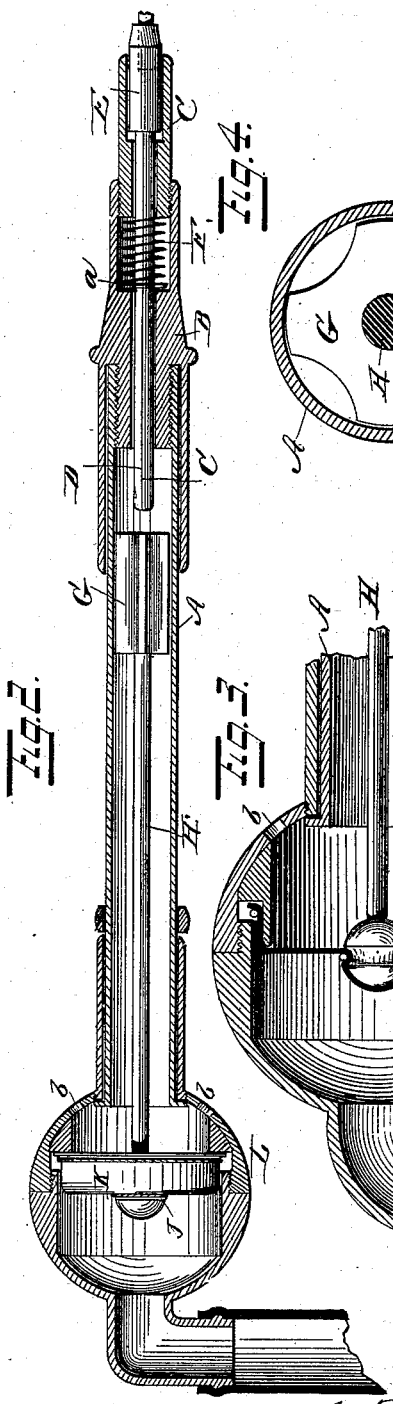

Fig. 4.

Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

CYRUS F. RICH, OF SARATOGA SPRINGS, NEW YORK.

DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 263,960, dated September 5, 1882.

Application filed May 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, Dr. CYRUS F. RICH, of Saratoga Springs, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Dental Pluggers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a side view. Fig. 2 is a central longitudinal section. Fig. 3 is an enlarged section of the diaphragm-case, and Fig. 4 is a cross-section of the tube or barrel, showing the hammer-head.

This invention relates to dental or tooth-plugging instruments; and the nature of my invention consists in certain novel combinations of parts, whereby compressed air can be usefully and practically employed as a prime motor for a piston or hammer working in a tube or barrel and acting on a plunger or rod adapted to receive a plugging-tool, as will be fully understood from the accompanying description when taken in connection with the annexed drawings.

The letter A designates a tube or barrel, which may be made of any suitable material and of any desired diameter or length. On one end of this tube or barrel A is adjustably applied a mallet-case, B, which is preferably adjustable by means of a screw-threaded tenon, outside of which is a tube inclosing the lower extremity of the tube or barrel A, so that the joint is air-tight. This mallet-case B is bored out to receive a stem, C, which is adjustable by means of a screw, and the stem C is also bored out to receive a mallet-rod, D, and the socketed head E, into which latter may be inserted any suitable dental tool.

Between the inner end of the adjustable stem C and a collar formed on the mallet-rod D is a helical spring, F, which operates to retract the mallet-rod D after each blow given to it by the means hereinafter explained.

Instead of the spring F and the collar *a*, located in the space formed between the end of the stem C and the inner end of the socket of the mallet-case, as shown in Fig. 2, the spring and collar may be arranged inside of the tube or barrel A.

G designates a hammer-head or plunger, which is scored longitudinally, as shown in Figs. 3 and 4, and adapted to slide freely and truly inside of the barrel A. This hammer-head is secured to a rod, H, which is attached, by means of the grooved head *p* and a tie, J, or other suitable means, to a diaphragm, K, made of rubber or other flexible substance, which is air-proof and forms an air-tight chamber. The diaphragm K is secured to a case, L, which is preferably applied to swivel on the barrel A, and to this case an air-forcing pump or flexible hand-bulb, M, is suitably attached. The case L is perforated at *b b* for the purpose of allowing the entrance of air when there is an exhaustion behind the plunger or hammer-head.

It will be seen from the above description that I have a portable compact hand tooth-plugger which contains within itself an air engine or bulb, and that the plugging-instrument fixed in the head E can be given any desired blow by a simple pressure of the hand on the bulb M. It will also be seen that the parts B and C are both adjustable for the purpose of regulating the blow of the hammer, so that by a very slight effort the most delicate blow may be produced. Other means may be employed for effecting this object.

In some instances I shall connect the case L to an air-forcing engine by means of a long flexible tube.

I may use, instead of air, steam or electricity for actuating the plunger.

I may also use a diaphragm the central part of which is rigid and the external part or margin flexible; but I prefer a diaphragm made entirely of rubber, as above described, and secured to a grooved head, *p*, as described.

I claim as my invention—

1. The combination of the grooved head *p* on the plunger-rod, the diaphragm drawn over one end of this head, and the tie J, for binding the diaphragm to the head, substantially as described.

2. The combination of the rigid bulb L, the flexible diaphragm therein, secured to the grooved head *p* by a binder, *j*, the rod H, the grooved plunger G, case A, and a plugging device, substantially in the manner and for the purposes described.

3. The dental tooth-plugger consisting

the following elements in combination: a flexible hand-bulb, a flexible diaphragm, a sectional case, L, in which said diaphragm is confined, a head, J, confined to said diaphragm, a rod, H, a rugated piston inclosed in a tube, A, and a dental plugging-instrument, all arranged and constructed in the manner and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

CYRUS F. RICH.

Witnesses:
PHINEAS F. ALLEN,
WATSON E. PHELPS.