

No. 789,161.

PATENTED MAY 9, 1905.

S. H. LINN.

DENTAL ELECTRODE FOR MEDICAMENTAL DIFFUSION.

APPLICATION FILED SEPT. 30, 1903. RENEWED SEPT. 19, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

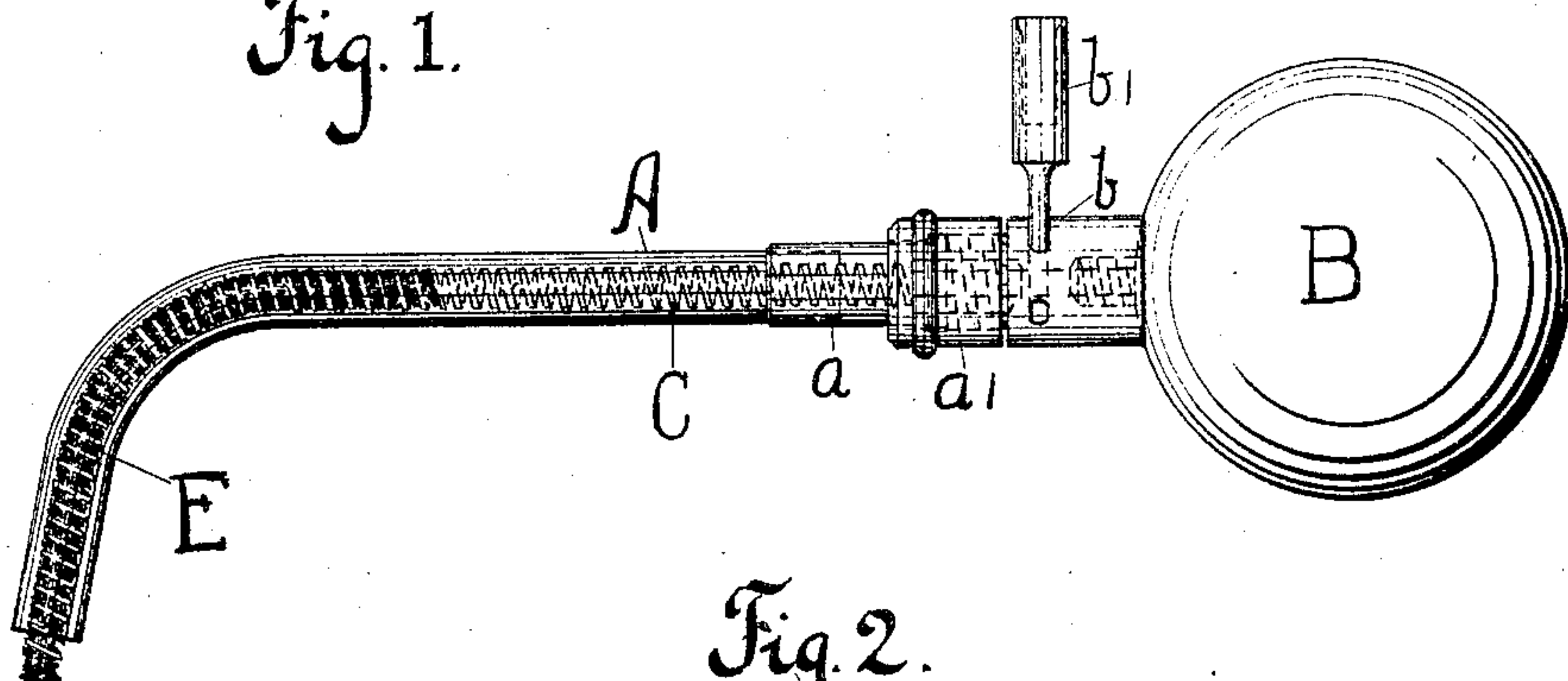


Fig. 2.

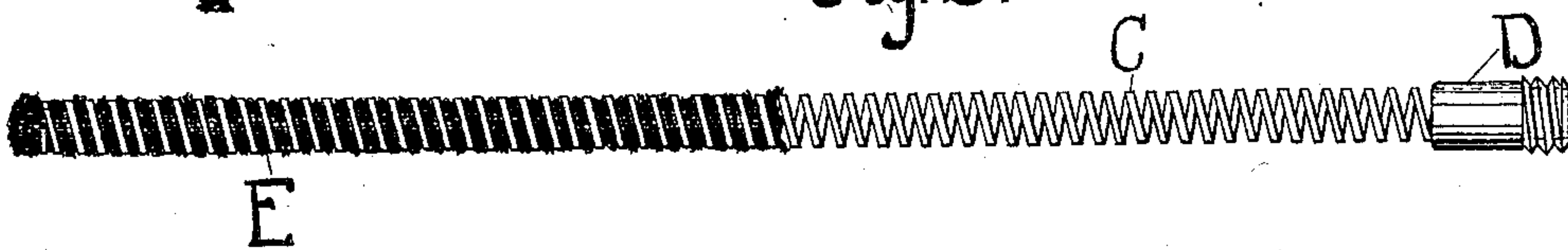


Fig. 3.

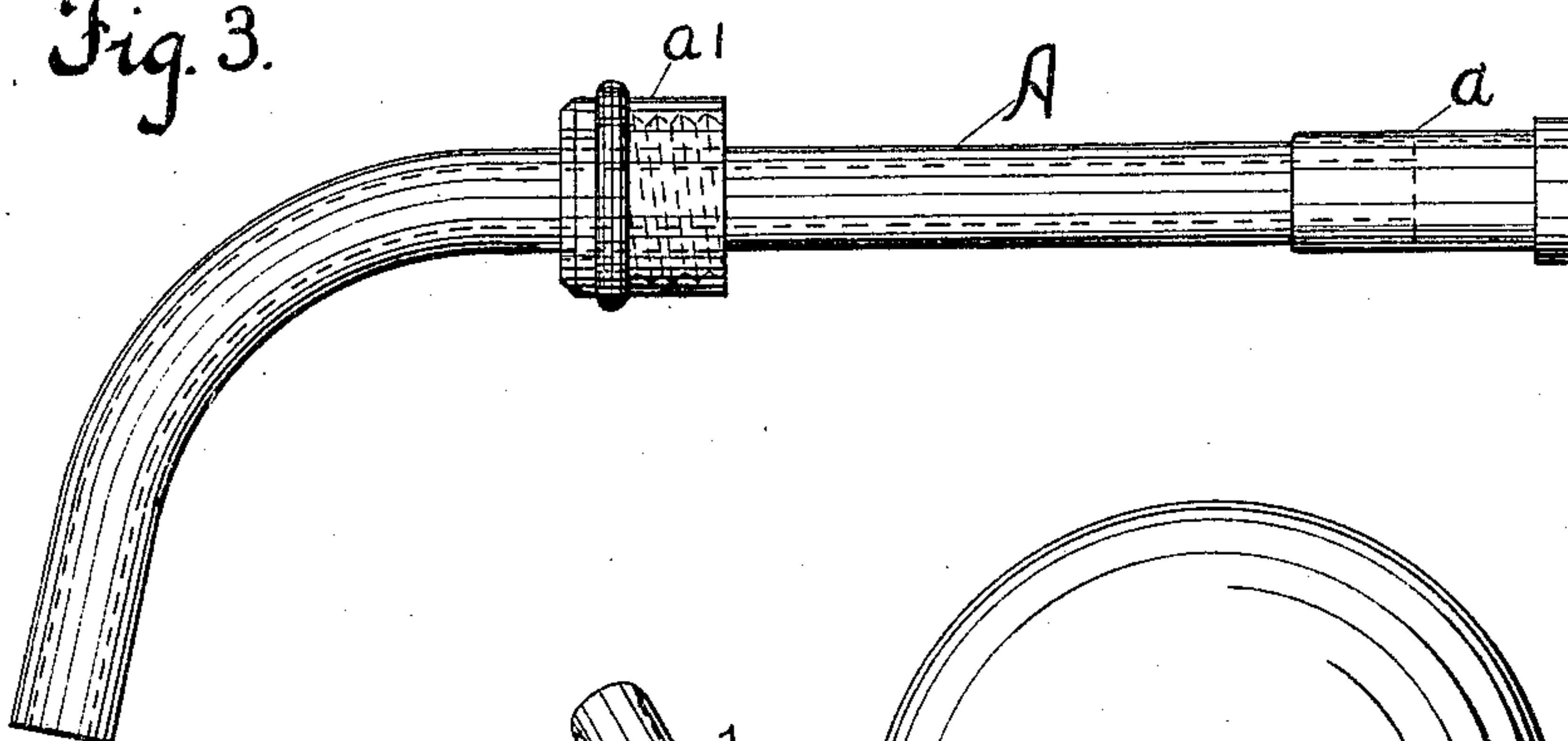
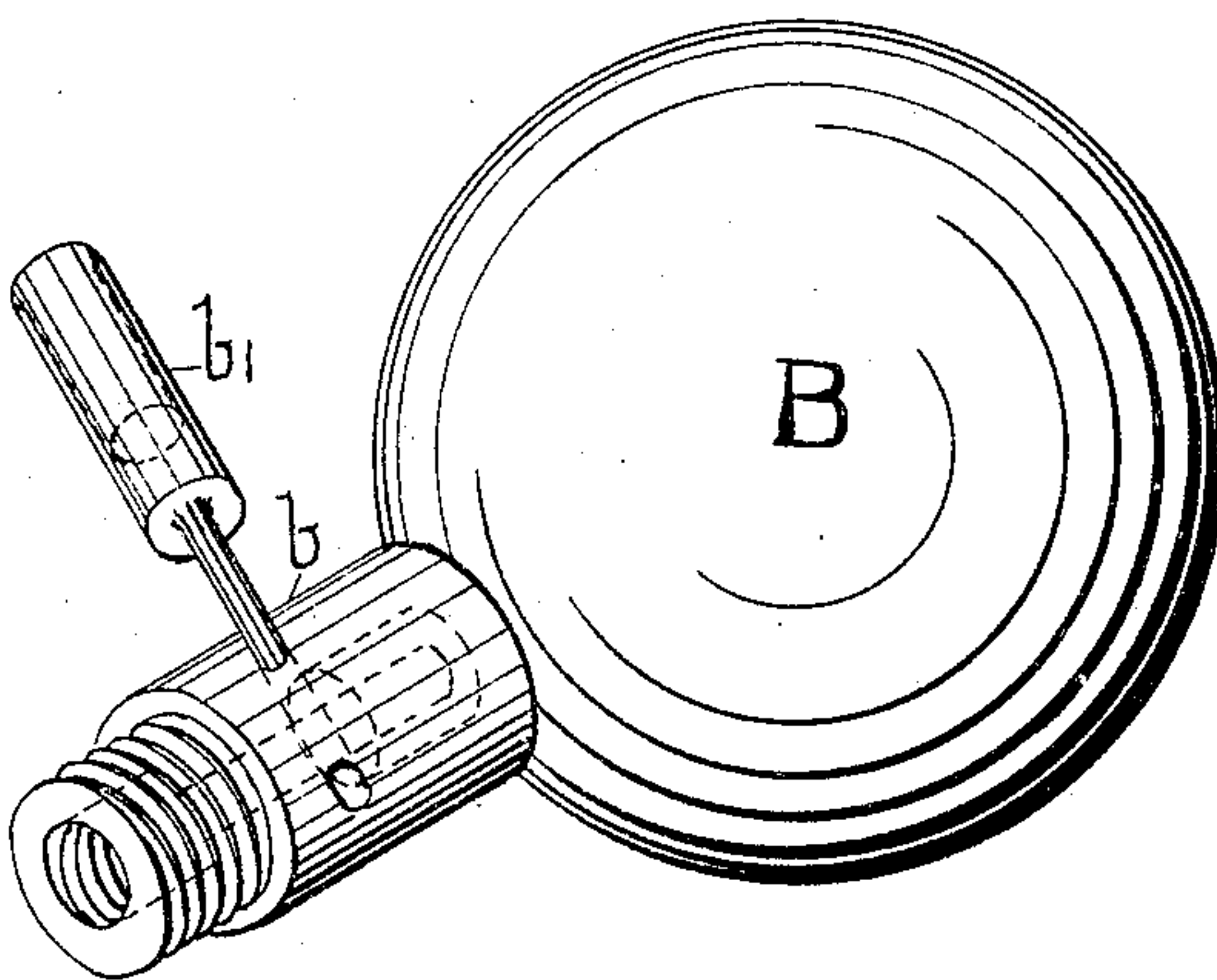


Fig. 4.



Witnesses:

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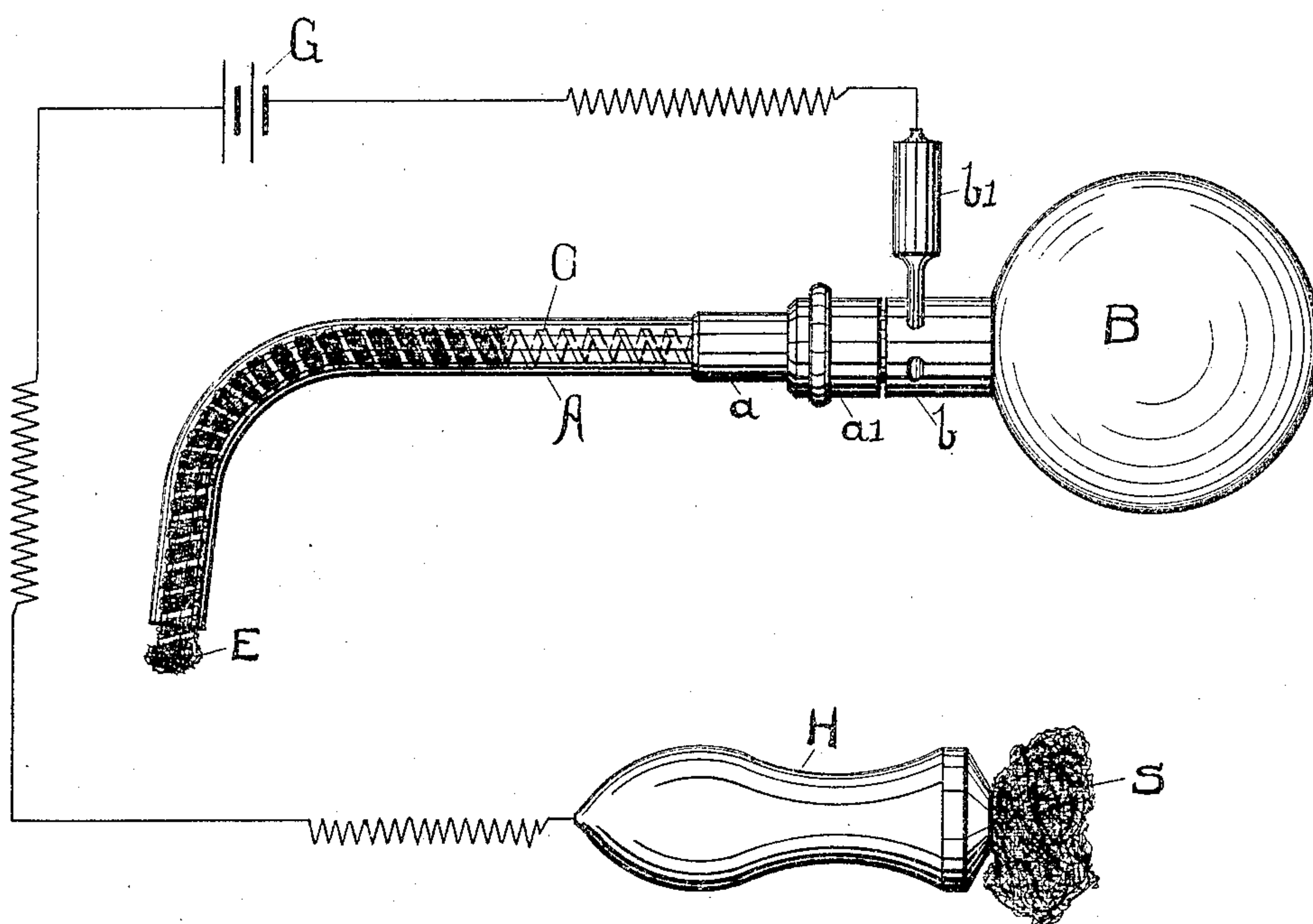
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2 SHEETS—SHEET 2.

FIG. 5.



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## UNITED STATES PATENT OFFICE.

SAMUEL H. LINN, OF ROCHESTER, NEW YORK.

## DENTAL ELECTRODE FOR MEDICAMENTAL DIFFUSION.

SPECIFICATION forming part of Letters Patent No. 789,161, dated May 9, 1905.

Application filed September 30, 1903. Renewed September 19, 1904. Serial No. 225,087.

*To all whom it may concern:*

Be it known that I, SAMUEL H. LINN, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and Improved Dental Electrode for Medicamental Diffusion, of which the following is a specification.

Reference is herein made to the accompanying drawings, in which—

Figure 1 is a side view of my electrode complete. Fig. 2 shows the internal electrode proper. Fig. 3 shows the construction and method of securing the insulating-sheath for my electrode, while Fig. 4 shows the bulb and its connecting-piece removed from the sheath and electrode proper. Fig. 5 is a diagrammatic representation of my electrode and the battery connections therefor when in use.

The object of my invention is to provide an electrode especially for dentists' use for bleaching and treating sensitive dentine and anæsthetizing the tissues surrounding the teeth for painless extraction of same by means of what is known as "medicamental diffusion." In this class of treatment I have found it desirable that the electrode proper should be projected slightly beyond its insulating-sheath by means of an elastic body, which will under ordinary use subject the tissues to be treated at all times to a practically uniform mechanical pressure, while at the same time providing means for supplying the electrolyte under different pressures to the tissues to be treated, and at the same time maintaining a constant flow of the electrolyte for the purpose of securing the desired medicamental diffusion.

Referring to the drawings, in which similar letters refer to similar parts throughout the different views, B is an ordinary air-bulb, secured in the usual way to the connecting-piece, having inserted in a suitable opening therein the terminal piece *b'* for the electric battery. This connecting-piece *b* has a shouldered projection thereon which is threaded externally, as seen, to receive the coupling-piece *a'*, arranged to make a tight connection with the shoulder seen on the tubular metallic connecting-piece *a'*, secured

to the glass sheath A. This sheath A is curved, as seen, to facilitate the insertion thereof in the mouth of the patient for treating the tissues in the different parts of the mouth of the patient in the usual way. Within this sheath A is seen a coiled spring C, having threaded through the outer end thereof a wick E, of asbestos or other absorbent material. This spring C terminates at its right-hand end in the externally-threaded connecting-tube D, arranged, as indicated, to screw into the interiorly-threaded open end of the connecting-piece *b*.

In using my electrode the suitable medical solutions are inserted within the sheath A after first removing such sheath from the connecting-piece *b* and bulb B by unscrewing the coupling *a'* and while the electrode proper, E, is still within the sheath A. The parts are then put together as indicated in Fig. 1, and the point of the electrode is applied to the tissues to be treated, and the bulb is pressed, as desired, to modify or adjust the supply of medicated liquid, which under the action of the electric current is caused to be diffused through the tissues thus treated, while the amount of the liquid supplied during a given time, and the pressure thereof may be regulated by modifying the pressure upon the bulb B.

It will of course be understood that one terminal of a suitable electric battery is connected to my electrode through the terminal piece *b'*, while the other terminal of such battery is applied to the patient in the usual way, and also that the terminal piece *b'* is in electrical connection with the coiled spring C, which also in turn is of suitable conducting material. In Fig. 5 there is shown at G a battery or other source of electric energy having one of its terminals connected to my electrode through the terminal piece *b'* and with the other terminal of this battery, G, connected to an electrode H, consisting of the usual insulating-handle, having carried therethrough a connection to the sponge S. The terminal E of my electrode is applied to the tissues to be treated, and the sponge S is applied to the body of the patient in the usual way.

What I claim is—



1. In a dental electrode an insulating-sheath and a coiled spring therein having threaded in one end thereof suitable absorbent material extending through an opening in  
5 such sheath.
2. In a dental electrode an insulating-sheath containing an electrode of suitable absorbent material threaded into the end of a coiled spring, projecting through an opening  
10 in such sheath and arranged to be held in contact with the tissues to be treated by the action of such spring.
3. In a dental electrode an insulating-sheath and a coiled spring therein having  
15 threaded in one end thereof suitable absorbent material extending through an opening in such sheath, and means for varying the pressure under which the electrolyte is supplied to such absorbent material.
- 20 4. In a dental electrode a sheath containing an electrode of suitable absorbent material threaded into the end of a coiled spring, projecting through an opening in such sheath and arranged to be held in contact with the  
25 tissues to be treated by the action of such spring and means for varying the pressure under which the electrolyte is supplied to such absorbent material.
- 30 5. In a dental electrode an insulating-sheath and a coiled spring therein having threaded in one end thereof, suitable absorbent material extending through an opening in such sheath, such coiled spring composed of conducting material and in electrical con-  
35 nection with a suitable terminal piece for an electric battery.
- 40 6. In a dental electrode an insulating-sheath containing an electrode of suitable absorbent material threaded into the end of a coiled spring, projecting through an opening in such sheath and arranged to be held in contact with the tissues to be treated by the action of such spring, such coiled spring composed of conducting material and in electrical  
45 connection with a suitable terminal piece for an electric battery.
- 50 7. In a dental electrode an insulating-sheath and a coiled spring therein having threaded in one end thereof suitable absorbent material extending through an opening in such sheath, and means for varying the pressure under which the electrolyte is supplied to such absorbent material, such coiled spring composed of conducting material and  
55 in electrical connection with a suitable terminal piece for an electric battery.
- 60 8. In a dental electrode a sheath containing an electrode of suitable absorbent material threaded into the end of a coiled spring, projecting through an opening in such sheath and arranged to be held in contact with the tissues to be treated by the action of such spring and means for varying the pressure under which the electrolyte is supplied to  
65 such absorbent material, such coiled spring composed of conducting material and in electrical connection with a suitable terminal piece for an electric battery.
9. In a dental electrode, an insulating-sheath having an opening therein, an electrode of suitably-absorbent material within such sheath and an elastic medium for supporting such absorbent material and projecting the same through such opening in such sheath and in contact with the tissues to be  
70 treated.
10. In a dental electrode, an insulating-sheath having an opening therein, an electrode of suitably-absorbent material within such sheath, an elastic medium for supporting such absorbent material and projecting the same through such opening in such sheath and in contact with the tissues to be  
80 treated, and means for supplying an electrolyte to such absorbent material.
- 85 11. In a dental electrode, an insulating-sheath having an opening therein, an electrode of suitably-absorbent material within such sheath, an elastic medium for supporting such absorbent material and projecting  
90 the same through such opening in such sheath and in contact with the tissues to be treated, and means for supplying an electrolyte to such absorbent material and for varying the pressure under which such electrolyte  
95 is supplied thereto.
12. In a dental electrode, an insulating-sheath having an opening therein, an electrode of suitably-absorbent material within such sheath and an elastic medium of electric  
100 conducting material for supporting such absorbent material and projecting the same through such opening in such sheath and in contact with the tissues to be treated.
- 105 13. In a dental electrode, an insulating-sheath having an opening therein, an electrode of suitably absorbent material within such sheath, an elastic medium of electric conducting material for supporting such absorbent material and projecting the same  
110 through such opening in such sheath and in contact with the tissues to be treated, and means for supplying an electrolyte to such absorbent material.
- 115 14. In a dental electrode, an insulating-sheath having an opening therein, an electrode of suitably-absorbent material within such sheath, an elastic medium of electric conducting material for supporting such absorbent material and projecting the same  
120 through such opening in such sheath and in contact with the tissues to be treated, and means for supplying an electrolyte to such absorbent material and for varying the pressure under which such electrolyte is supplied  
125 thereto.

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Witnesses:

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