(No Model.)

O. B. BACHMAN.

THERMO ELECTRIC VOLATILIZING OBTUNDER.

No. 524,156. Patented Aug. 7, 1894.

Fig. 1.

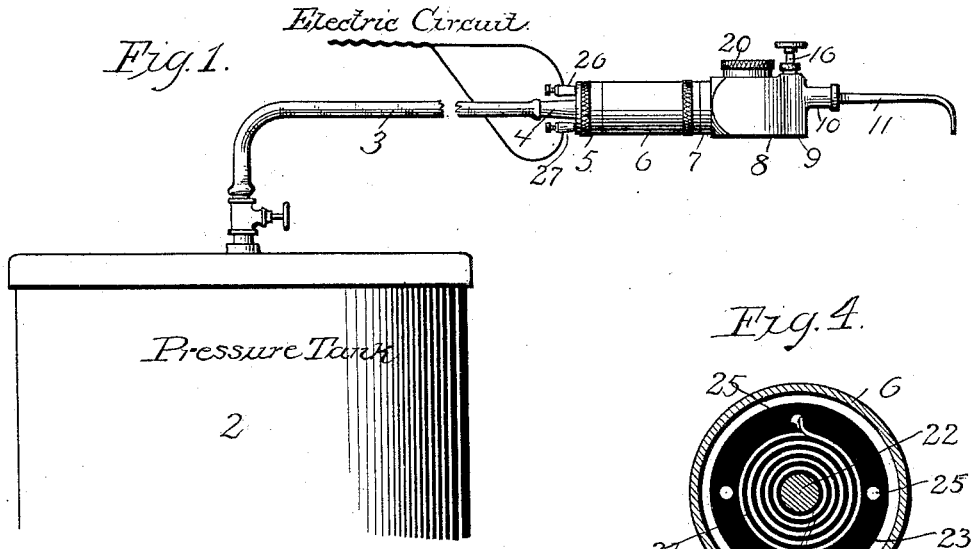


Fig. 4.

Fig. 2.

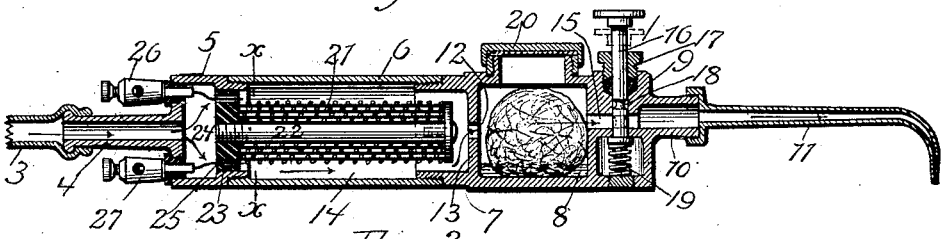
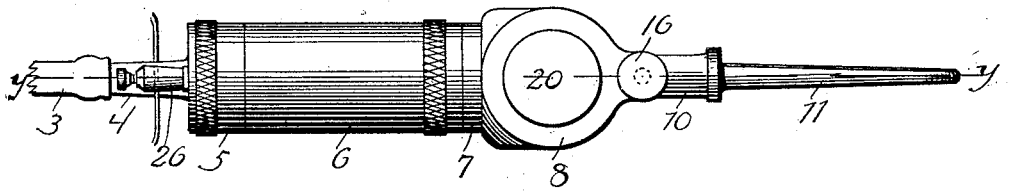


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

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THERMO-ELECTRIC VOLATILIZING OBTUNDER.

SPECIFICATION forming part of Letters Patent No. 524,156, dated August 7, 1894.

Application filed April 6, 1893. Serial No. 469,342. (No model.)

To all whom it may concern:

Be it known that I, OTTO BRAYTON BACHMAN, of the city of Minneapolis, in the county of Hennepin, State of Minnesota, have invented a certain new and Improved Thermo-Electric Volatilizing Obtunder, of which the following is a specification.

My invention relates to a dental instrument to be employed in deadening the pain resulting from the use of the burr or other tools in the tooth. And my invention has for its object the provision of a light, small and convenient instrument which can be held in one hand while the working tool is held in the other. And further, an instrument whereby heated air or gas may be blown into the cavity of the tooth to expel the chips therefrom and at the same time, by the use of an obtundent within the instrument, greatly decrease the pain caused the patient, and in some cases, completely deaden the pain.

My invention consists in the combination with an air or gas receptacle adapted to be held in the hand and provided with a discharge nozzle, of means for forcing air or gas into said receptacle, and a heater arranged within said receptacle and whereby the air or the gas passing through the same is heated.

My invention further consists in the combination with said receptacle of a medicine chamber, and still further in various details of construction and in combinations all as hereinafter described and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 illustrates an obtunder embodying my invention. Fig. 2 is a longitudinal section thereof the section being taken on the line *y—y* of Fig. 3. Fig. 3 is a plan view of the instrument. Fig. 4 is a longitudinal cross section on the line *x—x* of Fig. 2.

In the drawings, I have shown a pressure tank 2 as the source of the compressed air or gas; from this tank extends the tube 3 connected with the nipple 4 of the instrument. The nipple is arranged upon the end piece or plug 5 which is screwed into the end of the sleeve 6, which with the part 7 forms the air or gas receptacle of my instrument. The part 7 is screw threaded to receive the end of the sleeve 6 and is itself preferably formed of an integral casting, which includes the medicine chest or chamber, upon the outer end of which is the extension or part 9 containing the valve and provided with the nipple 10. The nozzle 11, the end of which is preferably curved, is secured upon the end of the nipple 10; the end of the nozzle being drawn down to a size which will admit of its use within a tooth cavity. An opening 12 is provided in the wall 13 between the air or gas chamber 14 and the medicine chamber 8, and from the chamber 8 an opening 15 leads into the nipple 10. A hole is bored through the part 9 at right angles with the opening or duct 15, and within this I arrange the valve stem 16 operating through a small packing box 17 and having the groove 18, which, when the stem is pressed down against the tension of a light spring 19, permits the passage of the vapor from the medicine chamber 8 into the nozzle. The top of the chamber 8 is open except as closed by the cap 20. Within the chamber 14 I arrange the electrical heater, which may be of any desired construction, though I prefer that shown. As constructed in Fig. 2, it is made up of a coil of bare wire, having a high resistance, the several layers and coils being insulated by interposed layers 21 of mica, or like insulating material, the whole being supported upon a spindle 22, the rear end of which is fastened in the insulating block 23 arranged in the part 5.

The compressed air or gas passes from the nipple 4, first into the intermediate channel 24, and thence through openings 25 in the block 23 and into the chamber 14. Being heated in the chamber 14, the air or gas escapes through the opening 12 into the volatilizing chamber 8 and thence out through the nozzle, first absorbing a considerable quantity of the anæsthetic or obtundent previously placed in the chamber 8. To render the volatilization more rapid I preferably place a small sponge, or a piece of like porous material, in the chamber 8. The ends of the heating coil are passed through two of the openings 25 and are connected with the insulated binding posts 26 and 27 extending from the end of the instrument, and whereto the terminals of a live electric circuit are connected.

My instrument is extremely light and so

small as to be readily and easily held in the hand, and when ready for use, the obtundent may be administered by merely pressing down the valve, while at all other times the discharge or escape of air from the tank is prevented. The comparatively high degree to which the anæsthizing vapor is heated aids materially in producing the desired effect.

It is obvious that a small gas jet may be used, within a heating bulb arranged within the receptacle and replacing the electrical heater.

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

1. The combination, in an obtunder, of an air or gas receiving chamber, with a heater arranged therein, a discharge nozzle connected with said chamber, and, means for charging the air or gas with an obtundent or anæsthetic before discharging the same through said nozzle, substantially as described.

2. The combination, in an obtunder, of a receiving chamber, with a discharge nozzle connected therewith, a regulating valve arranged in said nozzle an opening through which the air, gas or vapor is forced into said chamber, and a heater arranged within said chamber for heating the air, gas or vapor, substantially as described.

3. The combination, in an obtunder, of a receiving chamber, with a discharge nozzle connected therewith, an opening or openings through which the air, gas or vapor is forced into said chamber, a heater arranged within said chamber for heating the air, gas or vapor, and a chamber to receive the anæsthetic or obtundent and interposed between said receiving chamber and said nozzle, substantially as described.

4. The combination, in an obtunder, of a receiving chamber, means for supplying the obtunding medium under pressure to said chamber, an electrical heater arranged within said chamber, and an obtundent chamber connected with said receiving chamber, a discharge nozzle leading from the obtundent chamber, and a valve arranged between said parts, substantially as and for the purpose specified.

5. The combination, with the chamber 14, of the chamber 8, the valve channel leading therefrom, the valve arranged therein, the nozzle connected with said channel, the electrical heater arranged within said chamber 14, and an opening leading into the chamber 14, substantially as described.

In testimony whereof I have hereunto set my hand this 25th day of March, 1893.

OTTO BRAYTON BACHMAN.

In presence of—

C. G. HAWLEY,

M. E. COOLEY.