No. 750,038. PATENTED JAN. 19, 1904.

M. H. SHOENBERG.

ATTEMPERATING DEVICE.

APPLICATION FILED MAR. 16, 1903.

NO MODEL.

Fig. 1.

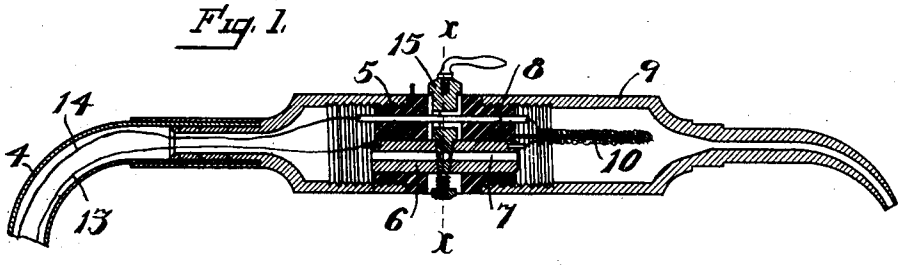


Fig. 2.

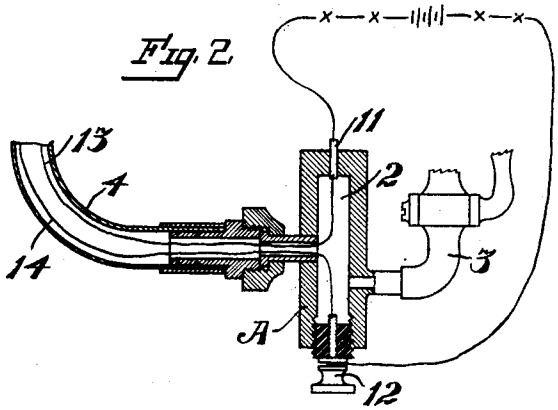


Fig. 3.

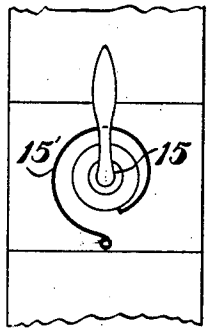


Fig. 4.

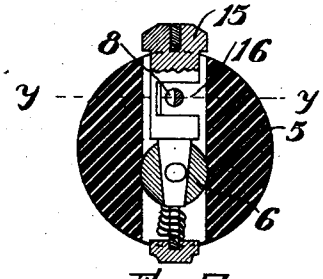


Fig. 5.

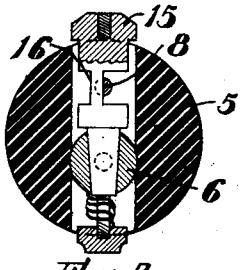


Fig. 6.

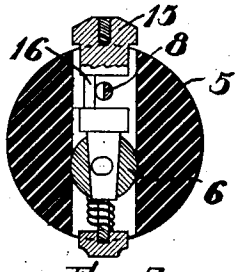


Fig. 7.

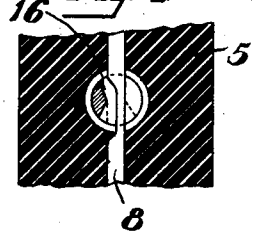


Fig. 8.

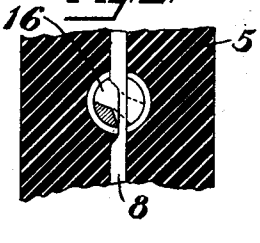
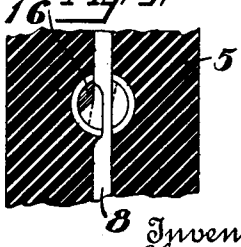


Fig. 9.



Witnesses,

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Milton H. Shoenberg

By Geo. H. Strong.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 750,038. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

MILTON H. SHOENBERG, OF SAN FRANCISCO, CALIFORNIA,

ATTEMPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 750,038, dated January 19, 1904.

Application filed March 16, 1903. Serial No. 148,037. (No model.)

To all whom it may concern:

Be it known that I, MILTON H. SHOENBERG, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Attemperating Devices; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in means for heating air forced under pressure through a tube or nozzle, and pertains particularly to an improved air-blast handpiece for dentists and others. Its object is to provide a simple electrical heating apparatus whereby air at any pressure or temperature may be instantly obtained by the manipulation of a single combined cock and switch.

It consists of the parts and the construction and combination of parts hereinafter more fully described, having reference to the accompanying drawings, in which—

Figure 1 is a longitudinal central section of dental handpiece, showing my attachment. Fig. 2 is a section of chambered box and tube connection with diagrammatic lamp-circuit. Fig. 3 is an enlarged plan of valve, showing cut-off spring. Fig. 4 is an enlarged transverse section on lines x x, Fig. 1, showing valve open for warm air. Fig. 5 is the same view with valve closed. Fig. 6 is the same view with valve opened for cold air. Fig. 7 is a section-line y y, Fig. 4, showing valve open for warm air. Fig. 8 is a similar view with valved closed. Fig. 9 is a similar view with valve opened for cold air.

A represents a block or box inclosing a chamber 2, which communicates with any convenient or usual source of compressed-air supply. The admission of air to chamber 2 may be controlled by a cock 3. A tube or flexible conductor 4 connects with box A and carries on its outer end the heating mechanism by which the air is attemperated immediately before being discharged from the nozzle. This heating mechanism comprises an insulator-section 5, longitudinally perforated to one side of its axis to receive a brass plug 6, which has an air-passage 7 extending through it. A solid conducting-rod 8, insulated from plug 6, also extends lengthwise through section 5 and has its ends projecting beyond the section to allow of the necessary connections being made with it. The ends of section 5 are threaded, one to receive the union on the end of tube 4 and the other to receive the discharge-nozzle 9. The latter is suitably chambered to inclose a resistance-coil 10, which has one end connected with plug 6 and the other with rod 8. By connecting up the plug and rod with a suitable source of electrical energy and sending a current of air through the tube-plug and nozzle a hot-air blast will be obtained at the nozzle.

The means of effecting electrical connection between the rheostat 10 and a source of energy and the means of controlling the current and the air-supply may be effected in a variety of ways. In the present instance I have shown the box A, carrying two binding-posts 11 12 in an ordinary incandescent-lamp circuit. Post 11 is connected through tube 4 with plug 6 by means of an insulated wire 13. Post 12 is insulated from box A and connects in like manner with rod 8 through wire 14. The current thus in its course through the lamps passes through posts 11, wire 13, plug 6, rheostat 10, rod 8, wire 14, plug 12 to the lamp-circuit again. As there is no necessity of the rheostat being in circuit when the air-supply is shut off and as there may be times when cold instead of heated air is desired, I have devised a simple form of combined switch and stop-cock whereby the air-supply through the nozzle may be controlled and the current passing through wires 13 14 short-circuited to avoid the rheostat either when the air-supply is turned on or off. Accordingly I use a plug-valve 15, of brass or other good electrical conducting material, passing transversely through section 5 and plug 6 and turnable in the manner of other plug-valves to regulate the air-flow through passage 7. The part of the valve, however, seated in the section above plug 6 has a transverse notch 16 nearly severing the valve. Rod 8, which traverses the valve-opening in the section, is accommodated in this notch in such fashion that when the valve is turned to cut off the air the rod 8, valve, and plug 6 may be in electrical connection and cut out the rheostat, and when the

valve is opened a certain distance the connection between the rod and valve will be broken and the full current will pass through the rheostat to heat the air as desired, and when the valve is turned still farther in the same direction the valve will be brought again into electrical connection with the rod to cut out the rheostat, but not so as to cut off the air, whereby a cold blast will be discharged from the nozzle. Hence it is that the valve is a combined hot and cold air controller and switch. There is no danger of the rheostat burning out, since the fluid-blast keeps it cool. A spring 15′ acts to close the valve automatically as soon as it is let go by the operator.

This heating and air controlling apparatus is applicable wherever an attemperated fluid-blast is desired. It has been here shown as applied to a dental handpiece, in which connection it has been used with marked success.

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

1. The combination of a suitable support interposable in a fluid-conduit; a rheostat carried by said support; and connections including a conducting-plug parallel with the support and having a fluid-passage through it, and a solid conductor parallel with the said perforated plug said rheostat in electrical connection with the conductor and plug.

2. The combination of opposing unions forming a part of a fluid-conduit; a section having projecting ends to engage said unions said section perforated to one side of its axis; a conducting-plug fitting said perforations and having a longitudinally-extending fluid-passage; a conductor mounted in the section parallel with the plug and having its ends projecting beyond the section; a rheostat located in a chamber beyond the section and electrical connections between the same and the conductor and plug; and means for cutting off the fluid-passage in the plug and short-circuiting the electric current.

3. The combination of opposing unions forming a part of a fluid-conduit; a coupling-section having projecting ends to engage the unions said section perforated to one side of its axis; a conducting-plug in said perforation and having a longitudinal fluid-passage; a conductor in the section parallel with the plug and electrical connections between the rheostat and the conductor and plug, one of said unions having a chamber to contain the rheostat; and a plug disposed at right angles to the plug and conductor and traversing the fluid-passage in the plug, and provided with a port to register with said passage, said plug turnably mounted and provided with a recessed side to receive the conductor to maintain the turning plug out of contact with the conductor in one position and to contact with the plug to short-circuit the current when the plug is turned into position to cut off the fluid-passage.

4. A fluid-attemperating apparatus comprising a receiving-chamber connected with a source of fluid-supply, a discharge-conduit from said chamber, a discharge-nozzle, an insulator-section interposed between the conduit and nozzle, said section having a metallic core provided with an air passage-way, a cock controlling the flow through said passage-way, an electrical conductor carried by said insulator, a resistance-coil having one terminal connected with said core and the other with said conductor and extending into the nozzle-chamber, connections of the opposite ends of said conductor and core through said conduit with a source of electrical energy, and switch mechanism by which the conductor and core are brought into electrical connection to cut out the resistance-coil.

In witness whereof I have hereunto set my hand.

MILTON H. SHOENBERG.

Witnesses:
S. H. Nourse,
Jessie C. Brodie.