H. A. WETTSTINE.

DENTAL INSTRUMENT.

APPLICATION FILED MAR. 19, 1913.

1,066,966. Patented July 8, 1913.

Fig. 1.

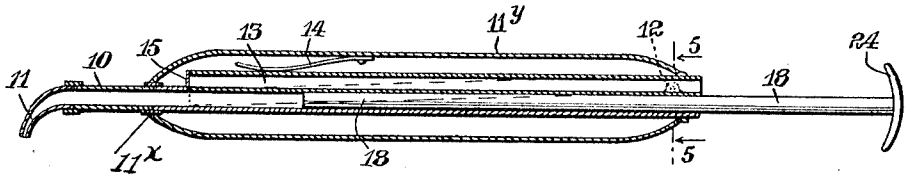


Fig. 2.

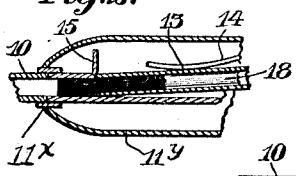


Fig. 3.

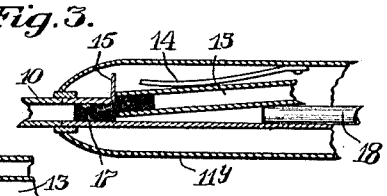
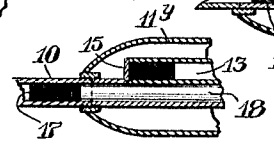


Fig. 4.



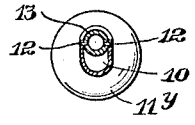


Fig. 5.

Fig. 6.

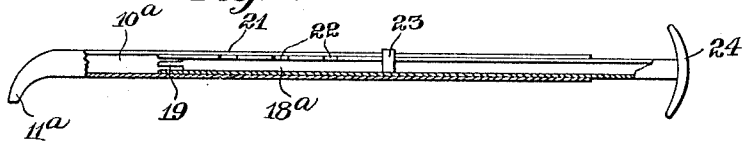


Fig. 7.

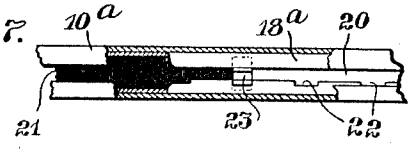
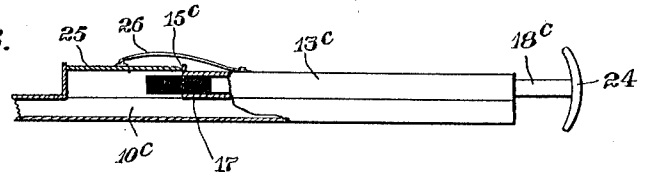


Fig. 8.



Attest:

E. C. Mitchell

Claire Franck

by

Inventor:

Henry A. Wettstine

his Atty

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY A. WETTSTINE, OF HAZLETON, PENNSYLVANIA.

DENTAL INSTRUMENT.

1,066,966. Specification of Letters Patent. Patented July 8, 1913.

Application filed March 19, 1913. Serial No. 755,330.

To all whom it may concern:

Be it known that I, HENRY A. WETTSTINE, a citizen of the United States of America, residing at 13 West Broad street, Hazleton, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Dental Instruments, of which the following is a specification.

My invention relates generally to improvements in dental instruments, and refers more particularly to a type of dental instrument adapted for the application of fusible or plastic substances, such as gutta percha, to the cavities in teeth.

The principal object of the invention is to provide a simply constructed sanitary instrument adapted to receive gutta percha in solid form, and to eject measured quantities thereof in fused or plastic condition into cavities, more particularly for the purpose of partially filling cavities in places not readily accessible.

A further object of the invention is to provide means for preventing the instrument from being gummed or choked when the plastic substance is fused by the application of heat to the instrument.

The invention is susceptible of embodiment in numerous forms, and in the accompanying drawing I have shown several forms of carrying the invention into practice.

Figure 1 is a vertical sectional view of one form of the invention; Fig. 2 is a fragmentary vertical sectional view of the form of invention shown in Fig. 1, the bar of gutta percha being in position to have a portion severed therefrom; Fig. 3 is a view similar to Fig. 2, showing the gutta percha magazine in the act of being raised from the casing; Fig. 4 is a similar view showing the magazine entirely raised from the casing; Fig. 5 is a vertical sectional view on the line 5—5 of Fig. 1; Fig. 6 is a substantially vertical sectional view, parts being shown in elevation, of a modified form of the invention; Fig. 7 is a horizontal sectional view of a fragment of the device shown in Fig. 6, and Fig. 8 is a side elevational view parts being broken away of a still further modified form.

In all forms of the invention I provide means for containing a solid fusible body of the substance to be injected, such as gutta percha, and means for ejecting the fused gutta percha through a suitable nozzle or emission opening. In the interest of simplicity of description, gutta percha will be referred to as the substance used in connection with the device.

Referring in detail to the accompanying drawings, and particularly to Figs. 1 to 5 thereof, 10 designates a tube or casing of suitable material and preferably annular in cross section, having the curved constricted emission end or nozzle 11. The nozzle is threaded at 11^x to receive the threaded end of a casing 11^y which incloses part of the device and serves as a handle.

Pivotally mounted at 12 near the rear end of the casing 10, is a magazine 13 which extends forwardly to a point short of the emission end 11 of the casing 10. The magazine 13 which is similar in cross section to the tube 10 is open at its forward end and the casing 10 is partly open at the top in order that when the magazine is depressed, as hereinafter explained, it may enter the casing and the gutta percha contained within the magazine may pass into the casing 10 under suitable conditions.

14 is a spring attached to the inner side of the handle 11^y and has a normal tendency to depress the forward part of magazine 13 within the casing 10. A cutter or knife 15 is provided near the forward end of the casing 10 to sever the desired lengths from the gutta percha bar 17 contained within the magazine 13. By feeding but a limited and relatively small amount of gutta percha from the magazine into the casing at any one time, I eliminate any tendency to choke or gum the instrument, which might occur if the entire body of gutta percha were heated and rested in front of the plunger, about to be described.

18 designates a plunger of suitable formation, preferably solid, which is adapted to be inserted either in the magazine 13 to advance the gutta percha therein, or in the casing 10 to eject the fused gutta percha therefrom.

The form of invention above described operates as follows:—Assuming the magazine 13 to contain a substantially solid bar or rod of gutta percha, the plunger 18 is withdrawn from the casing 10 wherein it normally rests, and is inserted in the magazine 13. Owing to the withdrawal of the plunger 18 from the casing 10, the magazine is depressed about its pivots by the action of the spring 14 so that it assumes the posi-

tion indicated in Fig. 2. The plunger 18 is then advanced in the magazine 13 until the limited length of gutta percha to be severed from the bar projects beyond the cutter 15. If now the plunger be withdrawn from the magazine and inserted and advanced in the casing 10, the action will be that indicated in Fig. 3, the magazine being elevated and the cutter or knife serving to sever a predetermined length of gutta percha from the bar. The plunger is then farther advanced in the casing 10 until the parts assume the position indicated in Fig. 4, in which it will be noted that the magazine is supported above the casing 10 by the plunger 18, and the severed section of gutta percha is in front of the plunger. The front portion of the device is now subjected to the action of heat, whereby the severed section of gutta percha in the casing 10 is fused, and by farther advancing the plunger in the casing suitable quantities of the semi-liquid or plastic gutta percha may be injected into the cavity to be filled. Inasmuch as the instrument is held and operated entirely in one hand, the plunger should not extend beyond the end of the instrument more than is absolutely necessary, and by severing limited sections from the entire bar of gutta percha the plunger need be retracted but a short distance to effect the desired result.

In the modified form of invention disclosed in Figs. 6 and 7, 10^a denotes the hollow casing provided with the curved emission end 11^a. In this form of the invention I employ a hollow plunger 18^a which is designed to contain the bars of solid gutta percha with a portion thereof projecting beyond the plunger head. The plunger is provided with forwardly extending jaws or spring fingers 19 which are so constructed that upon the forward stroke of the plunger in the casing 10^a the gutta percha bar is advanced, while upon retraction of the plunger the gutta percha bar is not moved. As shown particularly in Fig. 7, the plunger 18^a is formed with a longitudinal slot 20 on its upper side registering with a similar slot 21 in the upper face of the casing 10^a, one edge of the slot 20 being serrated at 22, to provide stops against which a spring clip 23 is adapted to engage, said spring clip being designed to take against the rear end of the gutta percha bar and advance the same in the casing 10^a as successive sections of gutta percha are used up.

The operation of the form of invention described in Figs. 6 and 7, is as follows:— When the device is to be used in filling cavities, the spring clip 23 is moved toward the front of the plunger in order to cause the solid gutta percha within the latter to project a certain distance beyond the jaws 19. The device is then subjected to the action of heat whereby the projecting portion of the gutta percha is fused, and then upon further protraction of the plunger, the fused gutta percha is ejected through the curved nozzle 11^a. When the operation is completed the plunger is retracted by means of the handle 24, and when another filling is desired, the spring clip is again employed to advance the gutta percha within the plunger and cause another portion thereof to project beyond the forward end of the latter.

In the modified form of invention shown in Fig. 8, I provide a casing 10^c having superimposed thereon and preferably formed integrally therewith a magazine 13^c, the latter being adapted to contain the solid bars of gutta percha 17. 18^c is a solid plunger which may be inserted in either the magazine 13^c or the casing 10^c. Near the forward end of the cylinder is a vertically slidable shelf or plate 25 carrying a cutter 15^c at its rearward edge. 26 designates a spring of which one end is secured to the upper face of the casing 10^c and the other end is secured to the upper face of the shelf 25, said spring having a normal tendency to draw the cutter upwardly out of the casing 10^c. When it is desired to use the form of device last described in filling cavities, the plunger 18^c is inserted in the magazine and advanced therein until the desired length of gutta percha to be severed projects beyond the cutter carried by the shelf. The shelf is then depressed against the tension of the spring 26 whereby a section of gutta percha is severed and caused to drop into the casing 10^c near its front end. The plunger is then inserted in the casing, the latter is heated to fuse the severed section of gutta percha, and the plunger is then farther advanced in the casing to eject the fused gutta percha therefrom and apply it to the cavity to be filled.

From the foregoing description it will be noted that I provide a device wherein a very substantial quantity of gutta percha in solid form may be stored practically air tight and germ proof, and only so much thereof as is needed at any particular time is ejected from the device. From what has been said above it will be noted that the gutta percha may be placed in the magazine, or inserted directly in the casing, as described. All waste and loss of gutta percha, and gumming or choking of the instrument are avoided. The construction is so devised as to permit of the instrument being held and operated with one hand. The instrument is simple and is entirely self-contained, and may be disassembled so as to take up but little room.

I claim:

1. A dental instrument, embodying therein means for receiving a substantially solid fusible substance, means for severing sections from said substance, means for receiv-

ing said severed sections and wherein the same may be fused, and means for ejecting such fused substance from the last named means.

2. A dental instrument, embodying therein a magazine for receiving a substantially solid fusible substance, a casing for receiving parts of the substance from said magazine and wherein said parts are adapted to be fused, and means for ejecting said fused substance from said casing.

3. A dental instrument, embodying therein a magazine, a casing to which said magazine is pivotally attached, means for normally depressing said magazine into said casing, and a plunger adapted for insertion either in said magazine or in said casing.

4. A dental instrument, embodying therein a casing having a forwardly curved constricted emission end, a magazine adapted to receive a fusible substance and to deliver quantities thereof to said casing, and a plunger adapted for insertion either in said magazine or in said casing.

5. A dental instrument, embodying therein a casing open at one side, a magazine pivoted to said casing and having one of its sides open and in registry with the open side of the casing, said magazine being adapted to contain a substantially solid fusible substance, a cutter carried by said casing, means for normally depressing one end of said magazine into said casing, and means for raising said magazine to cause said cutter to sever sections from the fusible substance contained in the magazine.

In testimony whereof I have affixed my signature in presence of two witnesses.

HENRY A. WETTSTINE.

Witnesses:

LILLIAN SAUNDERS,

JOHN R. SHARPTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."