

ST. GEORGE CRAIG.
DENTAL TOOL MOISTENER.
APPLICATION FILED MAY 21, 1908.

902,942.

Patented Nov. 3, 1908.

Fig. 1.

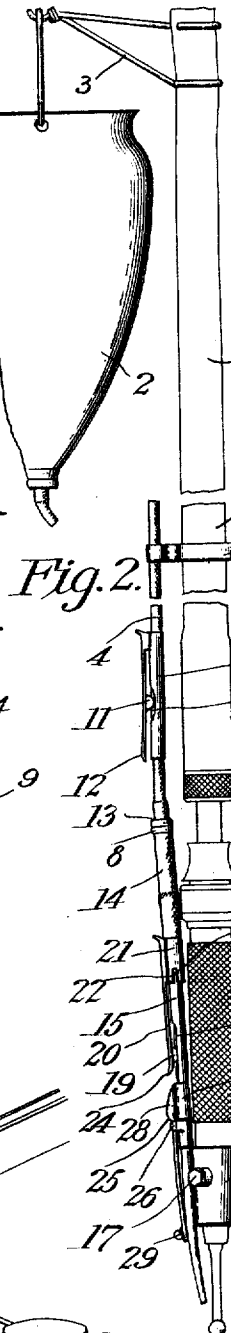


Fig. 2.

Fig. 3.

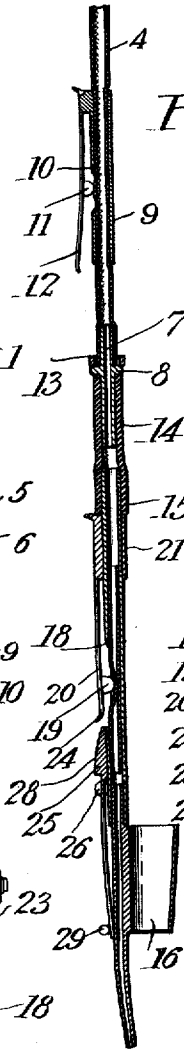


Fig. 4.

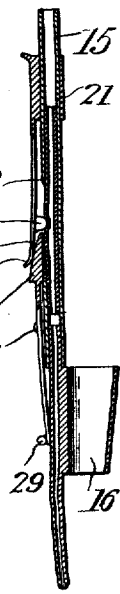


Fig. 5.

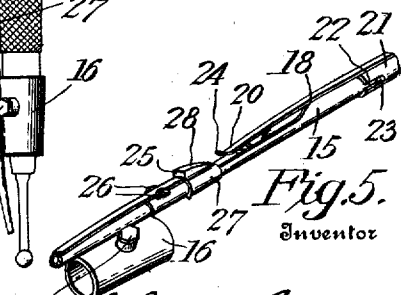
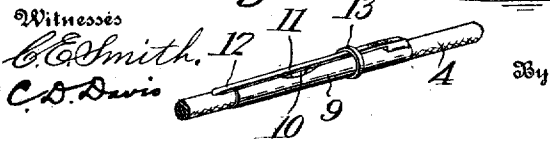


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

ST. GEORGE CRAIG, OF CLARKSVILLE, TENNESSEE.

DENTAL-TOOL MOISTENER.

No. 902,942.

Specification of Letters Patent.

Patented Nov. 3, 1908.

Application filed May 21, 1908. Serial No. 434,060.

To all whom it may concern:

Be it known that I, ST. GEORGE CRAIG, a citizen of the United States of America, residing at Clarksville, in the county of Montgomery and State of Tennessee, have invented certain new and useful Improvements in Dental-Tool Moisteners, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an attachment for dental engines and has for its object the provision of a neat, simple and easily manipulated device by which the tool and the patient's tooth may be kept cool without stopping or interfering with the operation of the tool. This object is attained by the use of the device shown in the accompanying drawings and the invention consists in certain novel features of the same as will be hereinafter first fully described and then particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a dental engine and my attachment in position thereon. Fig. 2 is an elevation of the handpiece and the attachment fitted thereto. Fig. 3 is a longitudinal section through the device, the tube valve being open and the nozzle valve being closed. Fig. 4 is a similar view of the nozzle showing the valve therein open. Fig. 5 is a detail perspective view of a portion of the nozzle, and Fig. 6 is a detail view of the end of the tube.

The dental engine may be of any approved type but I have shown a form of electrically-driven engine having the usual cord and flexible shaft. Upon the cord, 1, is hung a cup or reservoir, 2, by means of a detachable bracket, 3, and from this cup depends a tube or flexible conveyer, 4, which is held to the flexible shaft, 5, by clips, 6, and terminates near the handpiece. In the lower end of this tube or flexible pipe is secured a coupling sleeve, 7, having an annular shoulder, 8, and above the said sleeve an elongated collar, 9, is fitted on the tube, the said collar having an opening, 10, in one side. A portion of the tube is accessible through this opening 10 and a compression-valve, 11, is arranged to bear thereon and compress the tube to shut off the flow when

so desired. The said valve is in the form of a lug or block carried by a leaf spring, 12, having its upper end secured to the collar 9 and its lower end free, as shown, the spring being held to and compressed against the collar by a slidable ring, 13, when it is desired to cut off the flow of water through the tube. When the ring is moved on the tube so as to pass below the end of the spring 12, the said spring at once flies outward, as shown in Figs. 2, 3 and 4, thereby opening the tube so that the water may flow therethrough. When the flow is to be stopped and the nozzle removed from the handpiece, the spring 12 is pressed against the tube with one hand while with the other hand the ring 13 is pushed up over the spring so as to hold the same in its tube-compressing position, as shown in Fig. 6. When the valve is open to permit the flow of the water, the ring 13 is caught by the shoulder 8 of the coupling sleeve 7 so that it can not be lost.

Upon the lower end of the coupling sleeve is removably fitted a short flexible coupling tube, 14, into which is fitted the end of the nozzle, 15, which is intended to convey the water to the tool or tooth and is provided with a sleeve, 16, adapted to fit upon the handpiece of the dental tool and carrying a set screw, 17, by which it may be fastened thereto. The nozzle, it will be noticed, is a small pipe having its lower end tapered and turned slightly toward the handpiece or tool in order that the water discharged therefrom may be directed against the tool at the point of contact of the same and the tooth. In its upper side, the nozzle is formed with an opening or slot, 18, which is covered by a diaphragm of rubber or other flexible material secured within the nozzle and bearing upon this diaphragm is a lug or valve, 19, carried by a spring, 20, which is secured to a collar, 21, mounted on the upper portion of the nozzle. This collar is slidably mounted on the nozzle in order that it may be readily removed when desired to clean the device or for other purposes, and in order to prevent it rotating on the nozzle and thereby carrying the valve away from its proper position I form a small notch, 22, in the end of the collar which engages a pin or teat, 23, on the side of the nozzle as clearly

shown. The free end of the spring beyond the valve is turned outward, as shown at 24, in order that it may readily ride upon the beveled end of the operating slide, 25. The said slide consists of a small bar or plate fitting between guide lugs, 26, on the nozzle and having at its upper end a split ring or collar, 27, fitting around the nozzle to hold the slide thereon. Immediately over the said split ring, the end of the slide is enlarged and beveled, as shown at 28, in order that it may readily engage and pass under the end of the spring 20 and thereby force the spring outward whereupon the pressure of the valve or lug on the diaphragm will be relieved and the diaphragm will expand outward to permit the flow of the water. The free end of the slide is provided on its outer side with a small knob or enlargement, 29, in order that it may be easily engaged by the finger of the operator in the manipulation of the device.

The use of the device will, it is thought, be readily understood. The tendency of the spring 12 is to carry its valve away from the tube while the tendency of the spring 20 is to force its valve into the tube so that if the cup be filled with water and the device fitted up as shown in the drawings, water will flow to the nozzle and will be held therein by the compressed diaphragm. When the drill, stone or other tool becomes heated, the operator pushes the slide upward with his forefinger and thereby forces the beveled end of the same under the outturned end of the spring on the nozzle consequently releasing the diaphragm and permitting the water to flow from the end of the nozzle. Having accomplished the desired result, the operator pushes the slide toward the end of the nozzle whereupon the spring at once forces the valve against the diaphragm to compress the same and cut off the flow. Should it be desired to remove the device from the handpiece, the ring 13 is pushed up over the spring 12 and the valve on said spring is thereby forced inward against the tube so as to compress the same and cut off the flow of water to the nozzle as before described. The flexible coupling tube is then slipped off the end of the coupling sleeve thereby disconnecting the nozzle from the tube whereupon the nozzle may be readily removed from the handpiece by loosening the screw as will be understood. Should it be desired to repair or clean the nozzle, the coupling tube is disconnected from the nozzle after which the spring and the slide may be easily pushed from the end of the nozzle, the water-conveying tube and the cup remaining in position on the shaft and cord. The device presents a very neat appearance when in position on the dental tool and can be easily manipulated without in any way affecting the usual operation of the tool.

When the work to be done is such that the moistening of the tool will be unnecessary, the nozzle may be removed from the handpiece without requiring the removal of the cup or conveyer tube or causing any waste of water, and as the cup is mounted on the dental engine cord it may be refilled without requiring the operator to leave his usual position at the chair. The attachment of the device to the engine shaft and handpiece adds no material weight to be handled by the operator while the simplicity of its construction and the ready detachability of its parts enables the user to keep it scrupulously clean.

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

1. In a device of the character set forth, the combination of a nozzle having an opening in its side, a diaphragm covering said opening, a valve mounted on the nozzle at one side of the opening therein and normally projecting through said opening to compress the diaphragm, and a slide mounted on the nozzle at the opposite side of the said opening and arranged to project across the same and lift the valve from the diaphragm.

2. In a device of the character set forth, the combination of a nozzle, a diaphragm therein arranged to cut off the flow through the nozzle when compressed, a spring on the nozzle carrying a valve adapted to normally hold the diaphragm compressed, and a slide mounted on the nozzle and having a beveled end adapted to engage under the end of the spring and raise the valve from the diaphragm.

3. The combination of a nozzle having lugs on one side, a slide playing on the nozzle between said lugs, a diaphragm in the nozzle, a spring fitted on the side of the nozzle and having its end arranged in the path of the slide, and a valve carried by the spring and arranged to compress the diaphragm.

4. The combination of a nozzle, a fluid-conveyer, a rigid coupling sleeve secured in the end of the conveyer, a flexible coupling tube detachably engaging the said rigid sleeve and the nozzle, and a valve in the conveyer near the coupling sleeve.

5. In a device of the character set forth, the combination with a conveyer tube, of a collar fitted thereon and having an opening in its side, a spring on the side of the said collar carrying a plug or valve in position to bear on the tube through the opening in the collar, a coupling sleeve in the end of the tube provided with an annular shoulder, and a ring mounted on the tube and arranged to rest on the said annular shoulder or to pass over the spring and hold the same and the valve carried thereby pressed inward to compress the tube.

6. The combination with a dental engine

and handpiece, of a conveyer tube mounted on the engine, a nozzle removably fitted on the handpiece and detachably connected with the conveyer tube, a valve in the nozzle, and a valve in the lower end of the conveyer tube.

In testimony whereof, I have signed this

specification in the presence of two subscribing witnesses.

ST. GEORGE CRAIG.

Witnesses:

JOHN W. MEACHAM,
WILLIAM E. SWAN.