T. F. BATES.

DENTAL INSTRUMENT HOLDER.

APPLICATION FILED AUG. 1, 1921.

1,406,143. Patented Feb. 7, 1922.

Fig. 1.

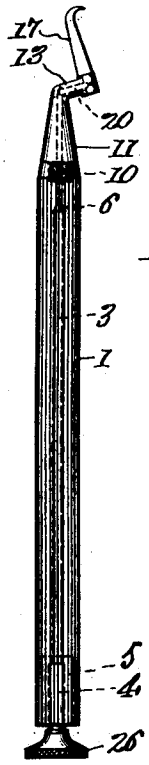

Fig. 2.

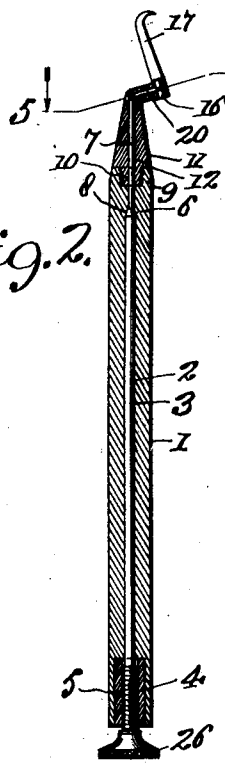

Fig. 9.

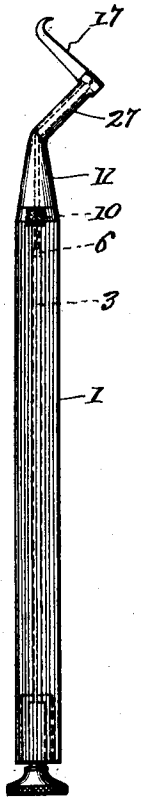

Fig. 3.

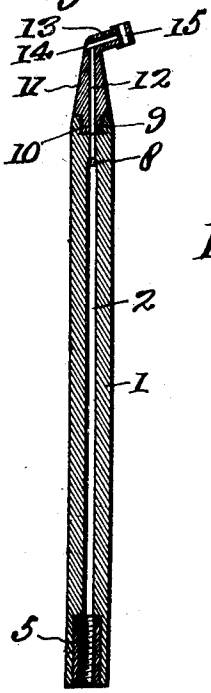

Fig. 4.

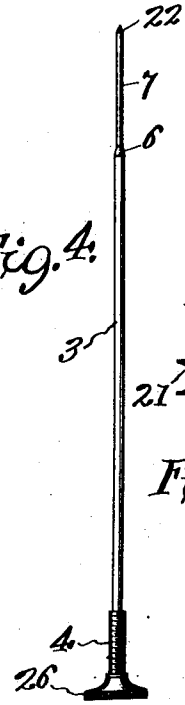

Fig. 5.

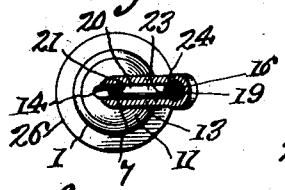

Fig. 8.

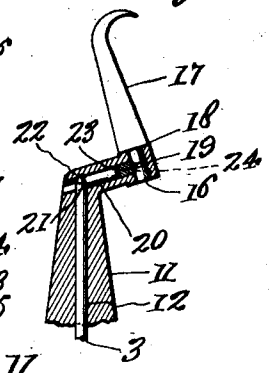

Fig. 6.

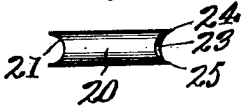

Fig. 7.

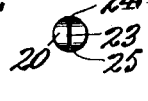

Fig. 10.

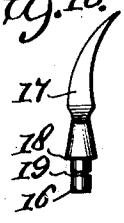

Fig. 11.

Inventor
Thomas F. Bates
by Wilkinson & Giusta
Attorneys

UNITED STATES PATENT OFFICE.

THOMAS F. BATES, OF SHELBYVILLE, TENNESSEE.

DENTAL INSTRUMENT HOLDER.

1,406,143. Specification of Letters Patent. Patented Feb. 7, 1922.

Application filed August 1, 1921. Serial No. 488,934.

To all whom it may concern:

Be it known that I, THOMAS F. BATES, a citizen of the United States, residing at Shelbyville, in the county of Bedford and State of Tennessee, have invented certain new and useful Improvements in Dental Instrument Holders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in dental instrument holders, and has for an object to provide a common holder for the great variety of instruments used by dentists to thereby reduce the expense and the amount of material necessary to the provision of an individual handle on each implement and making the retail cost of implements greatly reduced.

Another object of the invention is to accomplish the above described purpose by a simple and inexpensive device in which the implement itself will be held most securely against likelihood of rotation in the holder and from being accidentally dislodged therefrom.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views,

Fig. 1 is a view in elevation of an improved instrument holder constructed according to the present invention;

Fig. 2 is a longitudinal sectional view taken through the same;

Fig. 3 is a similar view with the plunger rod and the implement removed;

Fig. 4 is a side view of the plunger rod;

Fig. 5 is a sectional view taken on the line 5—5 in Fig. 2;

Fig. 6 is a plan view of the locking pin;

Fig. 7 is an end view thereof;

Fig. 8 is an enlarged fragmentary side view through the tip or instrument;

Fig. 9 is an elevational view of a slight modification; and

Figs. 10 and 11 are elevational views of different implements to be used in the holders.

Referring more particularly to the drawings, 1 designates an elongated barrel traversed axially by a bore 2 in which a plunger rod 3 slidably fits. The lower enlarged portion 4 of the plunger rod is provided with screw threads to take into the complemental threads provided upon a bushing 5 fitted in the cored-out end of the barrel 1. A conical shoulder 6 is produced between the major portion of the plunger rod 3 and the upper reduced end 7 thereof. A corresponding reduction is made in the bore 2 which is attended by the formation of a shoulder 8.

At the upper end of the barrel a recess 9 is made with internal threads to receive the external threads on the lower reduced end 10 of a tip 11 which is provided with a bore 12 in continuation of the bore 2 and being of a reduced diameter to agree with the diameter of the upper portion of said bore 2 above the shoulder 8. The tip 11 terminates in an angled extension 13 having also a bore 14 disposed at an angle to the bore 12 and further having a socket 15 opening through both sides of the tip and being disposed at substantial right angles to said bore 14.

The socket 15 is adapted to receive a shank 16 of a dental implement or tool 17, which is provided with a shoulder 18 adjacent the shank 16 for taking against the upper side of the tip 11. The shank 16 is provided with an annular groove 19 for a purpose to be presently described. The bore 14 of the tip 13 extends through the side wall of the tip and is adapted to receive therethrough the pin 20 having at one end a concave face 21 receivable into the upper coned end 22 of the plunger rod.

The opposite end of the pin 20 is likewise cut out to a concave form and is provided with a rib 23 which takes into the groove 19 of the tool shank 16. The side portions 24 and 25 of the pin 20 embrace the side walls of the shank 16 and firmly hold the tool against rotation.

The plunger rod 3 is preferably provided with a knurled head 26 for purposes of manual turning. The device shown in Figs. 1 and 2 is for use more particularly on anterior teeth or in anterior parts of the mouth. The device shown in Fig. 9 is used on posterior teeth or for instrumentation in the posterior portion of the mouth. This implement differs from the instrument shown in Figs. 1 and 2 by the provision of an elongated portion 27 differing from the part 13 in its relation to the axis of the tip and the barrel.

In each case it will be understood that

the working point of the implement 17 is disposed in the prolongation of the axis of the barrel to prevent its turning in the hand while using under pressure. The implement will be found amply strong for the purpose for which it is intended, yet slender and delicately formed so as to admit of ease in handling. It is of course understood that the annular tip portion may be made of any length or inclination to meet every possible requirement.

In use, the implement 17 is inserted with its shank 16 entering the socket 15 of the tip. The pin 20 is put through the bore 14 and the plunger 3 inserted through the bore 2 of the barrel 1. The portion 4 is screwed up into the bushing 5, and as this is accomplished the conical end 22 will fit within the concavity 21 of the locking pin 20 and cause such pin to be forced upwardly with its rib 23 entering the groove 19 of the tool shank and also causing the side portions 24 and 25 of the locking pin to tightly embrace the sides of the shank. The tool is thus effectively locked in the holder or handle, and it is also prevented from turning therein.

The removal of the plunger rod 3 is effected in the same way by rotation reversely through the knob 26. As the plunger rod is withdrawn, the locking rod will fall out of locking engagement with the implement, and the latter may be removed and another implement inserted in its place. The locking device is exceedingly simple, positive and secure and is not accompanied by any spring and will not be apt to give or release, and the engagement of the locking pin and instrument makes it substantially impossible to pull the latter out of the handle under any strain or vibration without, of course, first unlocking the device.

The circular grooves or concavities in the ends of the locking pin are so arranged as to make the pin always seat itself correctly against the shouldered shank of the tool and in the annular groove made to receive same, whereby the instrument point is securely locked in the socket of the handle. The handles may be made heavier and stronger of course, to adapt them to carry larger instruments or tool points for heavier work, and may be used for mechanical purposes to enter places of difficult access.

The improved device makes it possible to adjust the implement about at various angular positions for cutting or working in a different direction while using only one blade or point, and in this way a great saving is made in the handling and cleaning of many instruments. The device also admits of easy separation and cleaning and sterilization. A great number of instruments may be made with one blade by turning the shouldered instrument point around the entire circumference of a circle and locking it at any point in the circumference by tightening the threaded plunger rod, the blade cutting in a different direction, each time it is turned in the socket of the handle.

The improved holder is adapted to receive various kinds of dental and surgical instruments such as scalers, files, lancets, curets, excavators, chisels, probes, pluggers, etc.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. A dental implement holder comprising a barrel having a bore therein with a tip having a communicating bore and an angled extension having a bore extending through one side of the tip and a socket in the angled extension for receiving a tool shank, a locking pin in the bore of the angled extension on said tip adapted to project into the socket, and a locking pin extending through the bore of the handle and the bore of the tip and having engagement with the locking pin, substantially as described.

2. A dental and surgical implement holder comprising a handle portion having a socketed tip part carried angularly thereto with communicating bores in the handle and tip, a locking pin in the angled tip extension adapted to extend into the socketed part, and locking means lying through the handle and tip for engagement with the locking pin, substantially as described.

3. In combination with a tool having a shank with a groove therein, of an implement holder therefor comprising a handle portion with a socketed extension adapted to receive the shank of the tool, a locking pin having a concave end fitting the groove of the shank portion, and means for urging the pin into the groove, substantially as described.

4. In combination with a tool having a shouldered portion and a grooved shank on an elongated thin handle, a tip portion removably connected therewith and having an angled extension with a socket therein to receive the shank of the tool, a locking pin inserted through the angled extension and having a rib in one end to engage the groove in the tool shank and the portions at the sides of the rib for engaging the shank to avoid turning of the tool, and a locking rod threaded in the handle and having a conical portion adapted to engage the other end of the locking pin, said pin having a concave end engaging the conical portion of the rod, substantially as described.

THOMAS F. BATES.