No. 815,153. PATENTED MAR. 13, 1906.

C. P. FRITZ.

DENTAL TOOL.

APPLICATION FILED JUNE 13, 1905.

FIG. I.

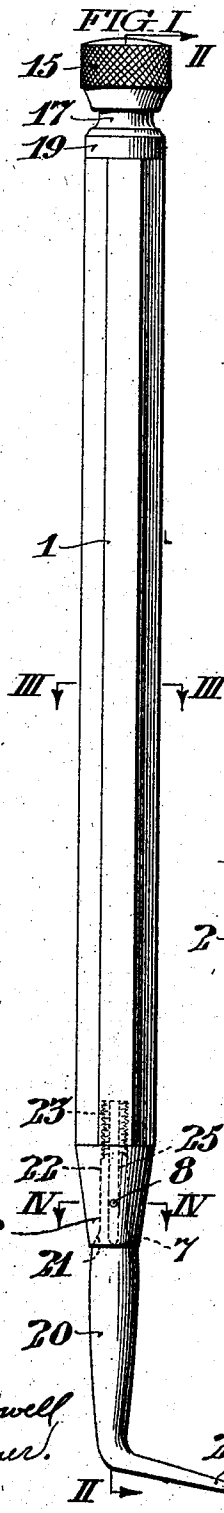


FIG. II.

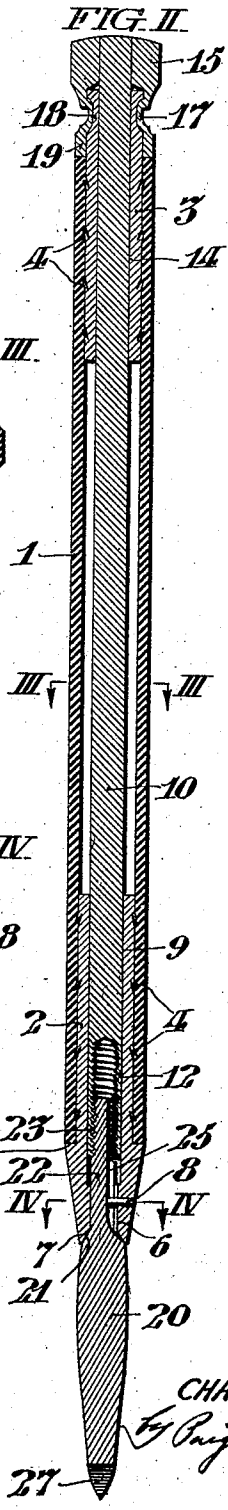


FIG. III.

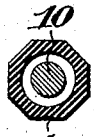
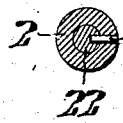


FIG. IV.



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UNITED STATES PATENT OFFICE.

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DENTAL TOOL.

No. 815,153. Specification of Letters Patent. Patented March 13, 1906.

Application filed June 13, 1905. Serial No. 264,999.

To all whom it may concern:

Be it known that I, CHARLES P. FRITZ, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Dental-Tool Handles, whereof the following is a specification, reference being had to the accompanying drawings.

My invention may be advantageously employed in handles arranged to removably hold dental tools, such as excavators, scalers, probes, and the like, each having a screw-thread on its shank for engagement with a screw-thread in the handle.

Tools having characteristics essential to their employment in handles embodying the present invention are claimed in my application for Letters Patent of the United States, Serial No. 265,000, filed June 13, 1905.

Heretofore such instruments have been so arranged that it is necessary to rotate the tool in the handle in order to engage and disengage it, and particularly with tools comprising blades or points extending transversely with respect to the axis of the screw-threaded shank it has been necessary to forcibly set the tool in engaged position in order to prevent its accidental disengagement under the stress to which it is subjected during use. Consequently it is difficult to remove tools from handles in which they have been thus set, and they are frequently damaged by efforts to disengage them.

It is the object of my invention to provide a handle of the class specified wherein a tool provided with a screw-threaded shank may be engaged without relative rotation of the tool and handle, such relative rotation being, in fact, prevented at all times during the engagement of the tool in the handle by means distinct from the screw-threaded connection.

As hereinafter described, the means preventing rotation of the tool in the handle comprises a key extending radially inward from the tool-socket in the handle in engagement with a corresponding keyway in the tool-shank, the tool being drawn into position in the handle and discharged therefrom by rotation of a nut within the handle, the rotation of the nut being effected independently of the exterior casing of the handle in which the key aforesaid is mounted by a knurled head exterior to said casing.

My invention comprises the various novel features of construction and arrangement hereinafter more definitely specified.

In the drawings, Figure I is an elevation of an instrument conveniently embodying my improvements. Fig. II is a vertical sectional view of said instrument, taken on the line II II in Fig. I. Fig. III is a transverse sectional view of said instrument, taken on the line III III in Figs. I and II. Fig. IV is a transverse sectional view of said instrument, taken on the line IV IV in Figs. I and II.

In said figures, 1 is the exterior casing, conveniently formed of a tube of hard rubber, conveniently having an exterior polygonal configuration, as indicated in Fig. III. Said casing is provided at its opposite ends with the metal bushings 2 and 3, which may be roughened or provided with barbed projections 4 on their exterior surfaces, so as to remain stationary in the casing 1 when forced into the position shown in Fig. II.

The bushing 2 is provided with the shoulder 5, extending flush with the exterior surfaces of the casing 1, and said bushing comprises a tool-socket 6, terminating in the conical shoulder 7. The key 8 extends radially in said socket 6, as indicated in Figs. II and IV, and is secured in said bushing 2 by any convenient means, such as a screw-thread or solder. Said bushing 2 comprises the cylindrical bearing 9 for the rotary spindle 10, which is provided with the nut 12 at its end adjacent to the tool-socket. The bushing 3 is provided with the cylindrical bearing 14 for said spindle, and the end of the latter projecting exterior to said bushing 3 is provided with the knurled head 15, which may be soldered, riveted, or otherwise permanently secured thereon. Said head 15 is provided with the annular flange 17, which is pressed into engagement with the corresponding circumferential groove 18 in the end of the bushing 3, so as to prevent relative longitudinal movement of said spindle and bushing, and said head 15 comprises the flange 19, extending flush with the exterior surface of said casing 1.

The handle above described is adapted to receive a tool 20, having its shoulder 21 fitted to the shoulder 7 in the tool-socket 6 and having its shank 22 provided with the screw-thread 23, fitted to the screw-thread in the nut 12 of the spindle 10. Said tool-shank 22

also comprises the keyway 25, extending parallel with the axis of its screw-thread and arranged to engage the key 8, which prevents the rotation of the tool in the socket independently of the screw-threaded connection. Said tool 20 may have a laterally-extending blade or point 27 or may be of any other desired configuration.

Although I have illustrated a handle having its exterior casing formed of hard rubber having a polygonal configuration uniform throughout its length, it is to be understood that other material and other shapes of handles may be employed.

I claim—

1. In a tool-handle, the combination with an exterior casing provided with a tool-socket at one end; of a key extending radially in said tool-socket; a nut in said casing in registry with said tool-socket; and, a head exterior to said casing whereby said nut may be rotated, substantially as set forth.

2. In a tool-handle, the combination with an exterior tubular casing; of bushings secured in the opposite ends of said casing; a tool-socket in one of said bushings; a key extending radially in said tool-socket; a spindle arranged to rotate in said casing, having a nut in registry with said tool-socket; a head on said spindle, exterior to said casing, arranged to rotate said nut; and, an annular flange on said head, engaging a corresponding groove in the contiguous bushing, arranged to prevent relative longitudinal movement of said spindle and casing, substantially as set forth.

3. In a tool-handle, the combination with an exterior tubular casing; of bushings in the opposite ends of said casing; a tool-socket in one of said bushings comprising a conical shoulder at the end thereof; a key extending radially in said tool-socket; a spindle arranged to rotate in said casing, in said bushings, having a nut in registry with said tool-socket; and, a head on said spindle, exterior to said casing, arranged to rotate said nut, substantially as set forth.

4. In a tool-handle, the combination with an exterior casing comprising a tube of resilient material; of bushings in the opposite ends of said tube, comprising projections arranged to secure said tube and bushings in relatively stationary relation; a tool-socket in one of said bushings; and, means extending through the other of said bushings arranged to engage a tool in said socket, substantially as set forth.

5. In a tool-handle, the combination with an exterior casing, comprising a tube of hard rubber, and bushings in the opposite ends thereof; of a tool-socket in one of said bushings; a key extending radially in said tool-socket; a spindle arranged to rotate in said casing, having a nut in registry with said tool-socket; a head on said spindle, exterior to said casing, arranged to rotate said nut; and, an annular flange on said head engaging a corresponding groove in the contiguous bushing, arranged to prevent relative longitudinal movement of said spindle and casing, substantially as set forth.

6. In a tool-handle, the combination with an exterior casing comprising a tube of hard rubber and metal bushings in the opposite ends thereof; of barbed projections on said bushings, securing them in stationary relation in said tube; a tool-socket in one of said bushings; a key extending radially in said tool-socket; a spindle arranged to rotate in said casing, in said bushings, having a nut in registry with said tool-socket; a head on said spindle, exterior to said casing, arranged to rotate said nut; and, an annular flange on said head engaging a corresponding groove in the contiguous bushing, arranged to prevent relative longitudinal movement of said spindle and casing, substantially as set forth.

In witness whereof I have hereunto signed my name, at Philadelphia, Pennsylvania, this 8th day of June, 1905.

CHARLES P. FRITZ.

Witnesses:

ARTHUR E. PAIGE,

CLIFTON C. HALLOWELL.