(No Model.)

R. G. STANBROUGH.

DENTAL BURRING TOOL.

No. 481,740. Patented Aug. 30, 1892.

Fig. 3.

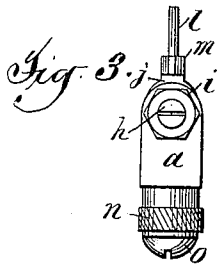


Fig. 1.

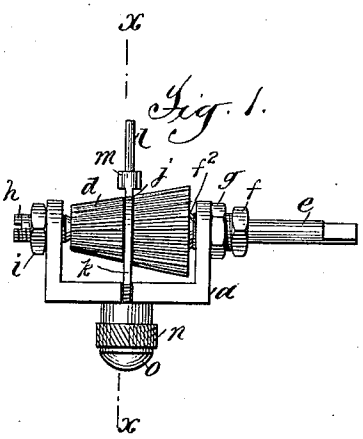


Fig. 2.

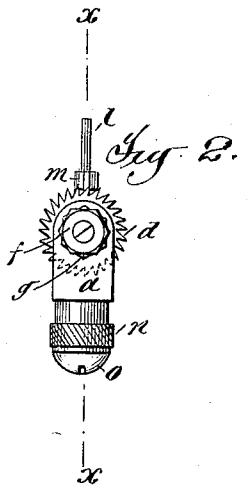


Fig. 4.

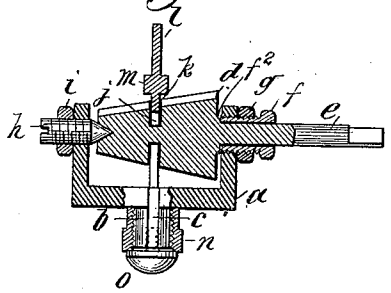
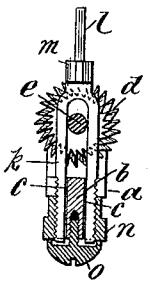


Fig. 5.



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UNITED STATES PATENT OFFICE.

RUFUS G. STANBROUGH, OF NEW YORK, N. Y.

DENTAL BURRING-TOOL.

SPECIFICATION forming part of Letters Patent No. 481,740, dated August 30, 1892.

Application filed January 20, 1892. Serial No. 418,696. (No model.)

To all whom it may concern:

Be it known that I, RUFUS G. STANBROUGH, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Burring or Cutting Mechanisms, of which the following is a specification.

My invention relates to certain new and useful improvements in burring or cutting mechanism for dental operations, and particularly to that class in which the rotary burrs or cutters are secured in a frame and provided with a guide-pin or holder carrying a templet designed to enter a previously-formed cavity in the tooth or root and hold the mechanism accurately in place during the burring or cutting operation.

With the devices of the class mentioned heretofore on the market it has been impossible to remove the burrs or cutters and substitute larger ones, as said substitutes would then bind against the templet on the guide-pin, and thereby be prevented from rotating, and as no provision was made to adjust and regulate the bearings of the shaft carrying the burrs or cutters an entirely new tool must be used when a larger or a smaller groove was desired to be cut in the tooth or root.

It is the object of my invention, therefore, to make the guide-pin and templet vertically adjustable, so that different-sized burrs or cutters may be used in the same frame, and to make the bearings for the said rotary burrs or cutters of such a character that different burrs or cutters may be readily substituted and the bearings adjusted to securely hold the same in position, and also to form the burrs or cutters in one piece instead of separately, as heretofore done, so that they may be cut or sharpened at one operation, thus reducing the cost of manufacture and repair.

To this end my invention consists in the details of construction and arrangement and combination of parts, all as hereinafter more particularly described, and set forth in the claims.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a side elevation. Fig. 2 is a right end view. Fig. 3 is a left end view. Fig. 4 is a longitudinal section; and Fig. 5 is a vertical section on the line x x, Figs. 1 and 2.

a is the frame, preferably of the form shown and having depending therefrom the central circular portion b, Figs. 4 and 5, which is provided with the oppositely-arranged grooves c. Within the vertical portions of the frame the burrs or cutters d are arranged to rotate by means of power communicated from a suitable source through shaft e. I prefer to have the burrs or cutters permanently secured to said shaft, and they may be integral therewith.

The method of securing said shaft and cutters in the frame is preferably that shown, and consists in passing said shaft e through the opening in the vertical portion of the frame and adjusting the same in position through the screw-threaded collar or hollow bearing f, slipped over the end of the shaft and engaging proper screw-threads in the opening in the vertical portion of the frame, said collar or hollow bearing carrying the jam-nut g to secure proper adjustment. This collar or hollow bearing is beveled or chamfered at its inner end, as at f', adapting the same to surround and engage with the taper f^2 on the shaft e, thus forming a cone-bearing. The opposite bearing is of the form known as "pivot bearing," and consists of the screw h, conical or pointed at its inner end, secured through the opposite vertical portion of the frame, and engaging with an appropriate hollow or recess on the shaft e, and retained in its adjusted position by the jam-nut i. The burrs or cutters may be duplex or independent; but I prefer to make them integral and formed with the central encircling slot j, said burrs or cutters being straddled by the bifurcate k, the legs thereof passing through groove j and the free end constituting the guide-pin or holder for retaining the device in proper position during the cutting or boring operation. As shown, this bifurcate is provided with the upwardly-extending pin l, provided with the templet m near its base, which templet may be of any desired configuration, but is preferably of the form shown, comprising the central circular portion having two oppositely-arranged lugs, the said pin and templet

being designed to fit in previously-prepared orifices in the tooth or root shaped to receive them. The opposite end or legs of the bifurcate are screw-threaded and pass through grooves in the frame *a* and the grooves *c* in the circular extension thereof. The adjusting-nut *n* is then passed over the said circular extension of the frame and engages the screw-threaded legs of the bifurcate *k*, being retained in position and having a bearing against the screw *o*, screwed into the said circular extension.

It will be obvious from the foregoing that when it is desired to substitute burrs or cutters of a different size from those already in the frame the same may be accomplished by turning the adjusting-nut *o*, which raises the bifurcate *k* by its screw-threaded legs until the same may be removed from the device. The collar or hollow cone-bearing *f* is unscrewed from the vertical portion of the frame and removed from the shaft *e*, while the pin or pivot *h*, forming the opposite bearing for the shaft, is unscrewed a sufficient distance to permit the removal of the burrs or cutters and the substitution of others, a firm and secure bearing being obtained by the use of the jam-nuts *g* and *i*, and obviously the bifurcate *k* may be adjusted to any altitude which may be desirable or necessary to escape the burrs or cutters through the medium of the adjusting-nut *n*.

As illustrated, the burrs or cutters are in the shape of a frustum of a cone; but it is obvious that other well known or desirable forms may be substituted.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In burring or cutting mechanisms for dental operations, a vertically-adjustable bifurcated guide-pin or holder, substantially as described.

2. In combination with a frame, a shaft carrying burrs or cutters and means, substantially as described, for adjustably securing the shaft and burrs in the frame, for the purposes set forth.

3. In burring or cutting mechanisms for dental operations, a shaft carrying burrs or cutters held in a frame by means of a collar or hollow cone-bearing at one end and a pin or pivot bearing at the other end and jam-nuts for rendering said bearings adjustable, substantially as described.

4. In burring or cutting mechanisms for dental operations, a bifurcated guide-pin or holder the legs of which are screw-threaded and adapted to straddle the shaft carrying the burrs or cutters and to engage with a set or regulating screw to adjust said guide-pin or holder to different altitudes, substantially as described.

5. In burring or cutting mechanisms for dental operations, a frame having a central slotted extension, a regulating-screw working over said extension, a shaft carrying burrs or cutters secured in said frame by a collar or hollow cone-bearing on one side and a pin or pivot bearing on the other side, with jam-nuts for rendering said bearings adjustable, and a bifurcated guide-pin or holder the legs of which are screw-threaded and adapted to straddle the shaft carrying the burrs or cutters and to extend through slots in the frame and central extension thereof and be adjusted vertically by means of the regulating-screw thereon, substantially as described, for the purposes set forth.

6. In burring or cutting mechanisms for dental operations, integral burrs or cutters provided with an encircling groove, substantially as described, for the purposes set forth.

7. In burring or cutting mechanisms for dental operations, burrs or cutters integral with the shaft and provided with a central encircling groove and a hollow or recess at one end to engage a pivot-bearing, in combination with a tapered centering point *h*, substantially as described.

8. In burring or cutting mechanisms for dental operations, burrs or cutters integral with the shaft and provided with a central encircling groove, a hollow or recess at one end to engage a pivot-bearing, and a tapering or conical projection on the other side to form a cone-bearing, in combination with the conical centering-point *h*, substantially as described, for the purposes set forth.

Signed at New York, in the county of New York and State of New York.

RUFUS G. STANBROUGH.

Witnesses:

J. B. SABINE,

ERNEST C. WEBB.