E. T. STARR.
Dental-Tool.

No. 203,858. Patented May 21, 1878.

Fig 1.

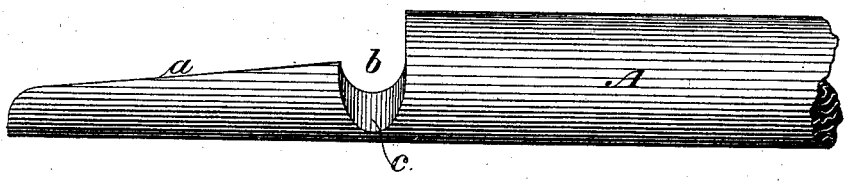
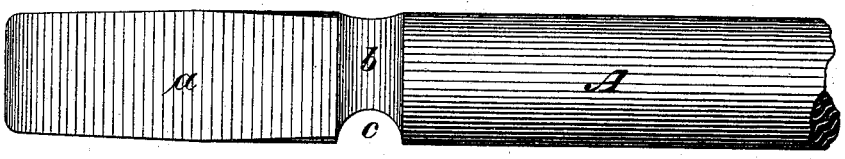


Fig 2



WITNESSES

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UNITED STATES PATENT OFFICE.

ELI T. STARR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO SAMUEL STOCKTON WHITE, OF SAME PLACE.

IMPROVEMENT IN DENTAL TOOLS.

Specification forming part of Letters Patent No. **203,858**, dated May 21, 1878; application filed March 9, 1878.

To all whom it may concern:

Be it known that I, ELI T. STARR, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Dental and other Tools, of which the following is a specification:

My invention relates to tools of the class adapted to be readily inserted in or removed from the socket of a rotary chuck or mandrel, and yet be securely locked therein against endwise or turning movements while in operation.

This result has heretofore been accomplished in various ways, some of which are exemplified in Letters Patent of the United States granted, respectively, to W. R. Nutz, June 2, 1874, J. A. B. Williams, December 7, 1875, and W. S. How, December 5, 1876.

In each of the above-enumerated patents is shown a round-shanked tool having a driving end which is sometimes flattened and sometimes wedge-formed, with a groove formed in the shank between its round stem and its driving end. This construction has been found of great practical advantage.

When the shank of the tool is wedge-formed its end is permitted to pass a spring-locking device in the socket of the chuck to an extent sufficient to allow of the engagement of the locking device with the groove to secure the tool against endwise movement. When the driving end is flattened it also presents a surface to be acted upon to lock the shank from turning in the socket and to enable the tool to be firmly driven without strain upon the retaining-pin, lug, or locking device.

It is to this particular class of tools that my invention belongs; its object being to adapt the tool to the locking devices, whether constructed for engagement with a groove formed in the tool-shank transversely to the face of the wedge-formed or flattened driving end, or with a cross-groove formed between the round portion and the driving end of the shank parallel with the face of said driving end.

To this end my invention consists of a tool-shank constructed with either a flattened or a wedge-formed driving end, a cross-groove between the driving end and round portions of the shank, and a transverse groove at right angles to the said cross-groove and to the face of the driving end.

In the accompanying drawings, Figure 1 represents a side elevation, on an enlarged scale, of the rear end of a tool-shank embodying my improvement in the best form at present known to me; and Fig. 2, a plan view thereof.

A represents the shank of a drill, slotter, burr, disk, or other operating tool, and *a* the driving end thereof; *b*, the cross-groove, and *c* the transverse groove between the round portion and driving end of the shank, the two grooves, in this instance, intersecting and running at right angles to each other.

My improved tool is especially adapted for use in connection with the rotary chuck or mandrel and tool-locking devices of a dental-engine hand-piece, but obviously might be adapted to rotary chucks of other engines or lathes.

Its advantages are that it may be used indifferently in connection with mandrels having tool-locking devices of different kinds in common use. Thus it may be used in connection with a spring-locking device, in which case engagement with said device is effected by forcing the shank endwise into the socket of the mandrel until the driving end passes the catch of the spring-locking device and the latter engages in the cross-groove.

My said tool-shank may also be used in connection with a fixed pin-locking device, in which case the shank is pushed endwise into the mandrel until the driving end passes the locking-pin, when engagement is effected by turning the shank partly around, so as to engage the locking-pin in the transverse groove.

I claim as my invention—

The improved tool constructed, substantially as hereinbefore described, with a driving end, a cross-groove between the round portion and driving end of the shank, and a transverse groove at right angles to the cross-groove.

In testimony whereof I have hereunto subscribed my name.

ELI T. STARR.

Witnesses:

J. A. B. WILLIAMS,

S. T. JONES.