S. S. WHITE.

Dental-Drill.

No. 167,208. Patented Aug. 31, 1875.

Fig 1.

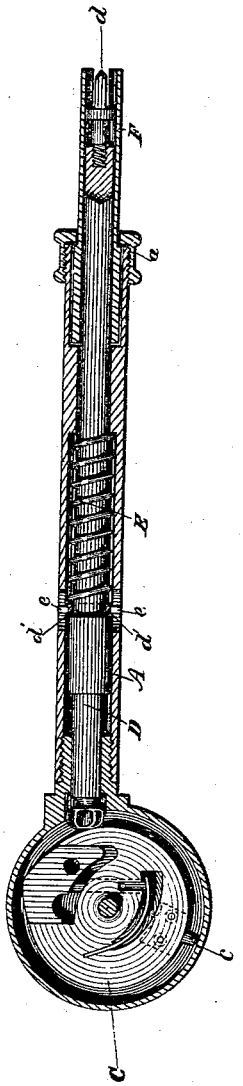


Fig 4.

Fig 3.

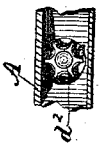
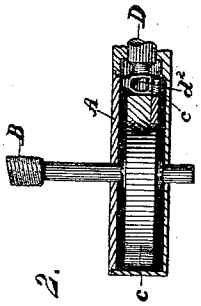


Fig 2.



WITNESSES

Harry King

Wm J Peyton

S.S.White.

INVENTOR

By his Attorney

Henry D Baldwin

UNITED STATES PATENT OFFICE.

SAMUEL S. WHITE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN DENTAL DRILLS.

Specification forming part of Letters Patent No. **167,208**, dated August 31, 1875; application filed July 9, 1875.

CASE F.

To all whom it may concern:

Be it known that I, SAMUEL STOCKTON WHITE, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Drills, of which the following is a specification:

My invention relates to that class of drilling-tools in which a series of blows is given to the tool in rapid succession. Its objects are to impart a turning movement to the tool in order to drill a round hole.

My invention constitutes an improvement on Letters Patent No. 161,393, granted March 30, 1875, to R. B. Donaldson.

The subject-matter claimed is hereinafter specified.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section through my improved drill; Fig. 2, a horizontal transverse section through the hammer-casing; Fig. 3, a vertical transverse section, showing the end of the drill-shank next to the revolving hammer; and Fig. 4, a horizontal longitudinal ection through the end of the tool parallels with the face of the drill.

The casing A, driving-shaft B, revolving hammer C, drill-shank D, and encircling spring E are substantially similar in construction to the corresponding parts shown in the Letters Patent above recited, except as hereinafter mentioned, and therefore need no detailed description here. Instead, however, of the non-rotating plugger-point shown in that patent, I employ a drill, *d*, slightly wider than the diameter of the tubular tool-holder F, in which it reciprocates, working in longitudinal guide-slots in its end.

By this mode of construction a hole is drilled of a diameter sufficient for the insertion of the tool-holder, and the drill and holder are caused to turn together.

This tool-holder, it will be observed, is capable of turning in its bearings in the casing, being prevented from moving endwise therein by the abutting of its shoulders against the screw-cap *a* on the end of the casing through which it passes.

The drill-shank D reciprocates and turns freely within the casing, its range of motion being determined by the throw of the hammer and the recoil of the spring E, which bears against the collar carrying guide-pins *e*, working in longitudinal slots in the casing, and abutting against the shoulder d^1 on the drill-shank. In order to rotate the tool and its holder I employ a star-wheel, d^2, on the drill-shank, which is struck at each revolution of the hammer by a stud, *c*, projecting from the periphery of the hammer-disk on one side of or eccentric to the axis of the drill-shank, so that at every revolution of the hammer the shank is turned the distance of one tooth of the star-wheel. The shaft, however, might be revolved in various well-known ways by devices actuated by the hammer.

The operation of the invention will be obvious from the foregoing description, a blow being imparted to the drill at each revolution of the hammer, and a slight turn being given to the drill after it has been retracted by the spring from the surface upon which it is operating.

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

The combination, substantially as hereinbefore set forth, of the casing, the drill-shank mounted therein, a revolving hammer striking the drill-shank, a retracting-spring, and a stud on the hammer, acting on the drill-shank to turn it after each stroke of the hammer.

In testimony whereof I have hereunto subscribed my name.

SAMUEL S. WHITE.

Witnesses:

J. A. B. WILLIAMS,

FRANK L. HISE.