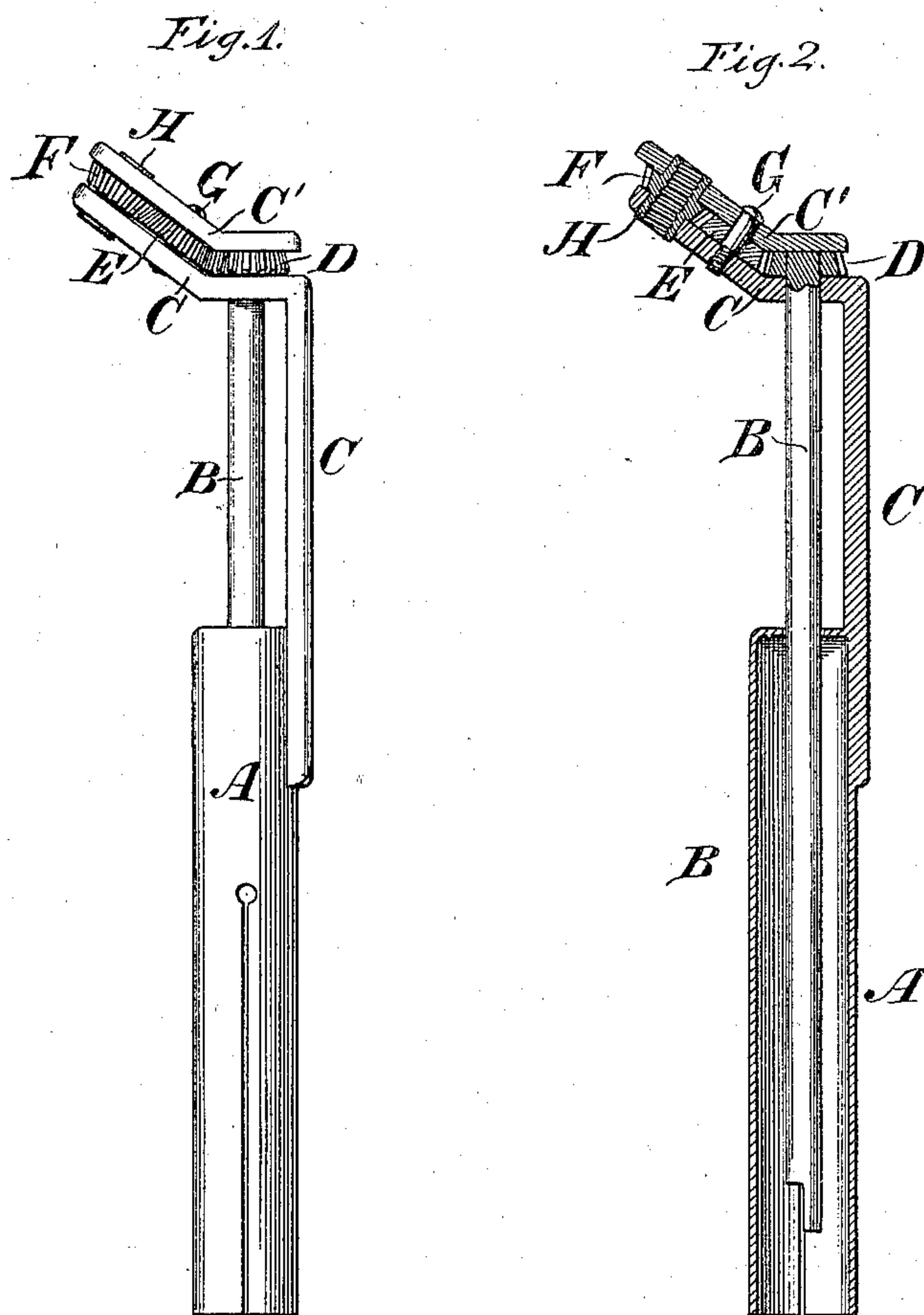


T. COGSWELL.

TOOL-CARRIERS FOR DENTAL-ENGINES.

No. 170,057.

Patented Nov. 16, 1875.



WITNESSES

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UNITED STATES PATENT OFFICE.

THOMAS COGSWELL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO SAMUEL S. WHITE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN TOOL-CARRIERS FOR DENTAL ENGINES.

Specification forming part of Letters Patent No. **170,057**, dated November 16, 1875; application filed November 5, 1875.

To all whom it may concern :

Be it known that I, THOMAS COGSWELL, of Boston, Massachusetts, have invented certain new and useful Improvements in Tool-Carriers for Hand-Pieces of Dental Engines, of which the following is a specification :

My invention relates to a carrier of that class adapted for the support of rotary tools, such as burrs, drills, disks, &c., known as "angle attachments;" and my object is to support and rotate the tool in the carrier at an angle both to the carrier and to the hand-piece, and in a fixed position relatively thereto.

The subject-matter claimed will hereinafter specifically be designated.

In the accompanying drawings, which represent my improved instrument on an enlarged scale, Figure 1' is a view in elevation; and Fig. 2, a longitudinal central section thereof.

A tubular support or attachment, A, adapted to be fitted on the hand-piece of a dental engine, is provided with suitable bearings for a shaft or spindle, B, rotated in any suitable well-known way—such, for instance, as by the flexible shaft of a dental engine, with which it may be connected by interlocking or detachable fastenings, as usual. A carrier for supporting a rotary tool-holder projects at an angle from the outer end of the hand-piece attachment, with which it is rigidly united. The carrier is, in this instance, made in two sections, being composed of an angular arm, C, which may either be formed with, or detachably but firmly connected to, the tubular part A, and a removable side piece or plate, C', together constituting a frame projecting beyond the end of the hand-piece, in which gearing for communicating motion from the driving-spindle B to the tool is mounted. The arm C, as shown, is, for a portion of its length, parallel with the hand-piece attachment A, then bends or turns at a right angle, crossing a line drawn through the longitudinal axis of the hand-piece, and then is inclined outward, projecting laterally and away from the outer end of the hand-piece attachment. That portion of the arm C which crosses the axis of the hand-piece attachment at a right angle forms a bearing for the outer end of the spindle B, as shown. A bevel-pinion, D, fast on the end of the spindle B, out-

side of the arm, turns freely with the spindle upon the arm, and gears with a corresponding pinion, E, mounted upon the laterally-projecting inclined portion of the arm. This pinion, in turn, meshes with a pinion, F, mounted in the arm, near its outer end. The pinion E is shown as turning upon a pivot formed by a bolt or pin, G, having a screw cut at one end and an ordinary head at the other, which removably fastens it in position in the arm and plate of the sectional carrier-frame, and the pinion F is formed with a hollow central hub or trunnion, H, projecting at the sides of the pinion and turning in the sections of the frame. The hub of the pinion F, it will be seen, is at an angle both to the hand-piece attachment or support A and to the carrier, and forms a holder or socket for the tool shank or spindle.

The hub, in this instance, is shown as internally threaded to receive and hold the correspondingly-threaded shank of a tool. Obviously, other well-known means of detachably securing the tool in the holder may be employed.

By removing the screw-bolt G the plate C' (which, it will be seen, forms a cap-piece for partially covering and protecting the gearing) may be detached from the arm C, and the gearing removed. This plate may, if desired, be dispensed with, and the pinions supported in bearings in the arm only, which might of itself constitute the carrier; but I prefer to employ the plate, as it gives a firmer bearing for the tool-holder, thus rendering the tool steady in operation and lessens strain on the parts, the sections of the frame mutually sustaining and bracing each other, while admitting of the ready separation of the parts.

The angle at which the carrier projects from the hand-piece obviously may differ from that herein shown and described, and be such as best adapted to the tool to be used, or the work to be performed.

By forming a shoulder upon the pivot G, above its threads, as shown, accidental clamping of the pinions between the frame-sections is prevented, the shoulder bearing against the arm when the pivot is screwed down, and holding it and the plate the proper distance apart.

The tool, it will be observed, when in posi-

tion, lies at an acute or at an obtuse angle to the hand-piece, according as it is used as a front or as a back action, which positions experience has demonstrated to be more advantageous than the right-angle attachments at present in use. I have shown three gears to drive the tool, but the intermediate one may be omitted with advantage under some circumstances.

I claim as my invention—

1. The combination of the tubular support or attachment of the hand-piece, the driving-spindle revolving therein, the carrier, rigidly united to the hand-piece attachment and projecting laterally therefrom, the gearing, mounted in the carrier, and the tool-holder, likewise

mounted therein, both at an angle thereto and to the hand-piece attachment, these members being constructed and operating in combination, substantially as set forth.

2. The sectional tool-carrier and gearing-frame, consisting of the combination of the angular arm and the plate detachably secured thereto, substantially as set forth, whereby the gearing is protected and removably secured in position.

In testimony whereof, I have hereunto subscribed my name.

THOS. COGSWELL.

Witnesses:

WM. COGSWELL,
C. S. BOVELL.