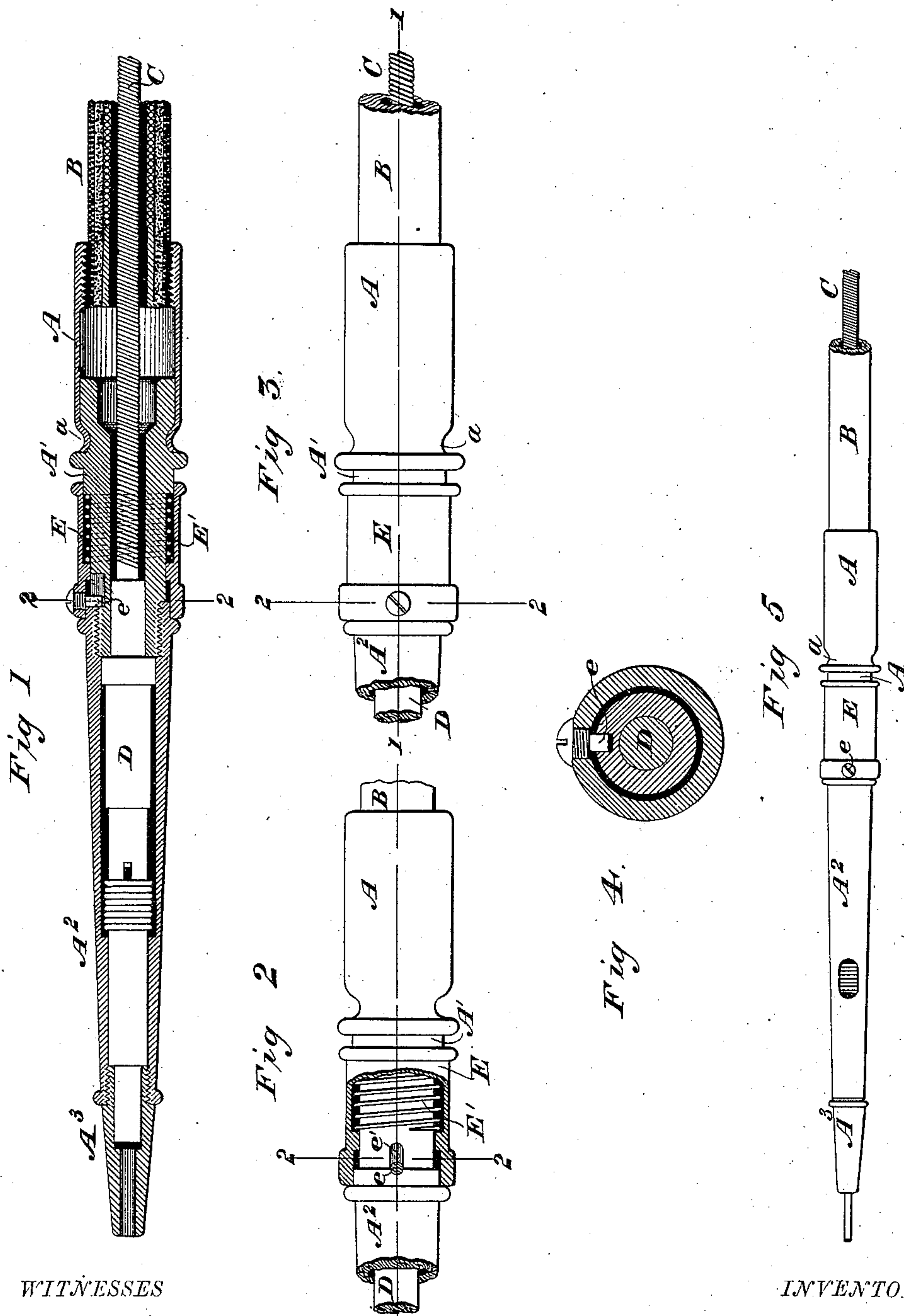


E. T. STARR.  
DENTAL-ENGINE HAND-PIECES.

No. 194,850.

Patented Sept. 4, 1877.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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

## IMPROVEMENT IN DENTAL-ENGINE HAND-PIECES.

Specification forming part of Letters Patent No. 194,850, dated September 4, 1877; application filed March 22, 1877.

*To all whom it may concern:*

Be it known that I, ELI T. STARR, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Dental-Engine Hand-Pieces, of which the following is a specification:

My invention constitutes an improvement upon the hand-piece shown in Letters Patent of the United States granted to me November 16, 1875, as No. 170,125, the shell or casing of which is composed of sections separable from each other for the ready inspection of the chuck or tool-holder mounted therein, and is so connected with the flexible non-rotating sheath of a dental engine, through which passes a flexible power-driven shaft to impart motion to the tool-chuck, that the casing is free to swivel to conform to the movements of the hand of the operator without liability of the sections becoming separated.

The object of my invention is to improve and render more efficient the device for preventing accidental separation of the sections, while allowing them readily and quickly to be separated when it is desired to inspect the interior of the hand-piece.

The subject-matter claimed hereinafter specifically will be designated.

In the accompanying drawings, Figure 1 represents a longitudinal central section through the hand-piece and the end of the sheath to which it is attached on the line 1 1 of Figs. 2 and 3; Fig. 2, a view, partly in section, of the spring-clutch to prevent accidental separation of the sections; Fig. 3, a view similar to Fig. 2, showing the exterior of the clutch; Fig. 4, a transverse section through the hand-piece and clutch on the line 2 2 of Figs. 1, 2, and 3; and Fig. 5, a plan view of a hand-piece embodying my improvements.

The hand-piece, shell, or casing is shown as composed of four sections, A A<sup>1</sup> A<sup>2</sup> A<sup>3</sup>, as usual, the inner one, A, being firmly secured to a flexible non-rotating sheath, B, which may be similar to that employed in the well-known S. S. White dental engine, through

which a flexible power-driven shaft, C, passes to impart motion to a chuck or tool-holder, D, of any improved construction, mounted in the casing.

The second section, A<sup>1</sup>, is connected to the fixed section by a swivel-joint, *a*, of well-known construction, so as to permit it and the balance of the casing to turn freely to conform to the movements of the hand of the operator.

The third section, A<sup>2</sup>, which envelops the chuck or tool-holder, is connected to the swiveling section by screw-threads, as usual, so as to permit of its ready detachment for inspecting the chuck, and carries upon its end the fourth section, A<sup>3</sup>, or nose of the hand-piece.

These parts are substantially like those shown in my former patent.

To prevent accidental separation of the detachable and swiveling sections when turning to conform to the movements of the hand of the operator, I mount upon the swiveling section a spring-clutch, consisting, in this instance, of a sleeve or barrel, E, provided with a pin or lug, *e*, working in a groove, *e'*, in said section, the pin being adapted to enter a notch cut in the end of the detachable section, when it is screwed upon the swiveling section to lock the two together, the tension of a spiral spring, E', inclosed within the sleeve or barrel, being constantly exerted to throw forward the clutch, which must be retracted before the sections can be unscrewed or separated.

This spring-clutch is intended to obviate some defects incident to the clutch shown in my patent aforesaid, and has in practice been found very efficient, permitting of the ready and quick separation of the sections when desired, and also of a handsome and smooth finish being given to the exterior of the hand-piece throughout.

I claim as of my own invention—

1. A swiveling sectional hand-piece provided with a spring-clutch between the detachable sections to prevent accidental separation.

ration thereof when turning to conform to the movements of the hand of the operator, substantially as described.

2. The combination, substantially as hereinbefore set forth, of the swiveling and detachable sections of the hand-piece with the overlapping sliding sleeve carrying a pin working in a groove in one section and interlocking with a notch in the other, and the spring

inclosed within the sleeve, whereby accidental disconnection of the sections is prevented.

In testimony whereof I have hereunto subscribed my name.

ELI T. STARR.

Witnesses:

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JULES M. RAND.