

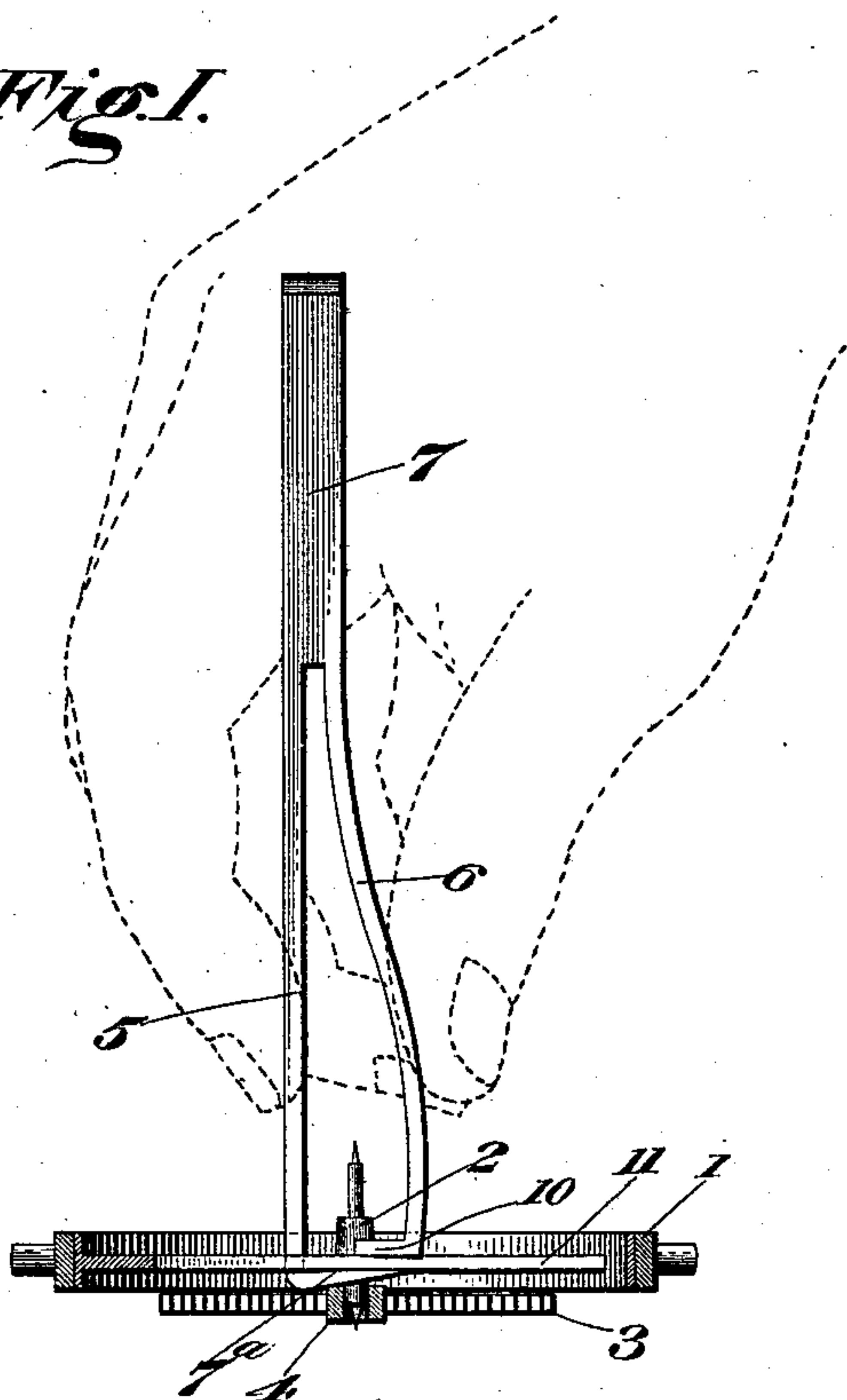
(No Model.)

W. C. SEYFRIEDT.  
WATCHMAKER'S TOOL.

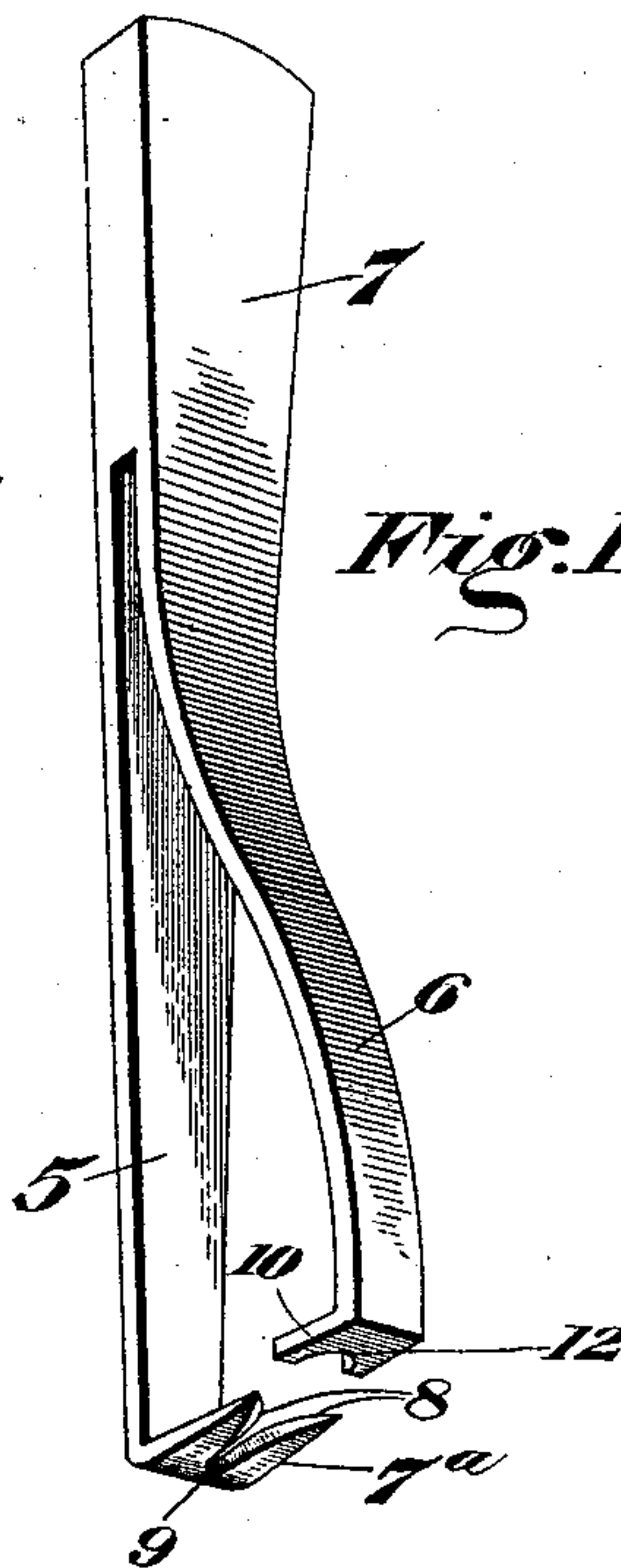
No. 533,923.

Patented Feb. 12, 1895.

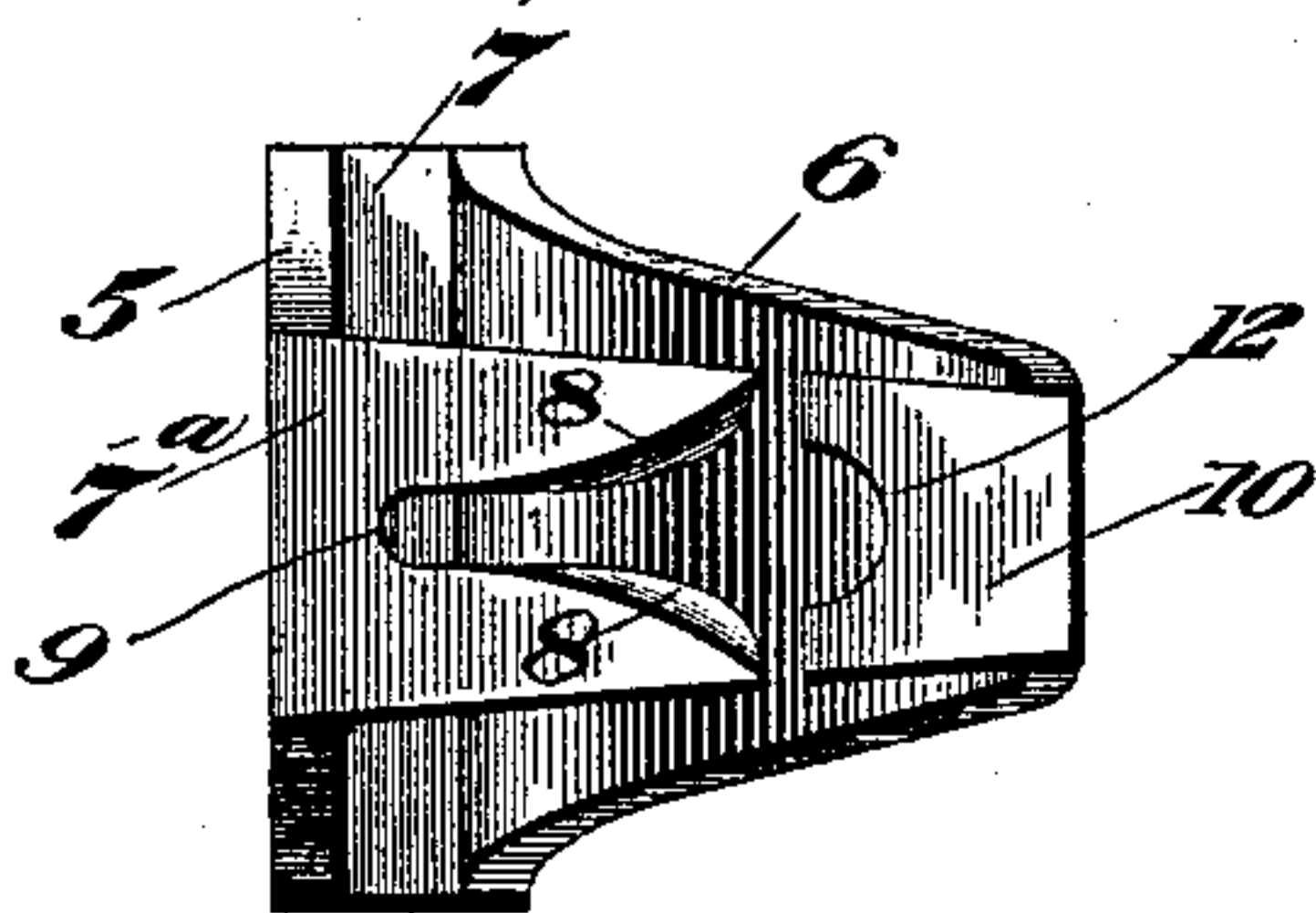
*Fig. I.*



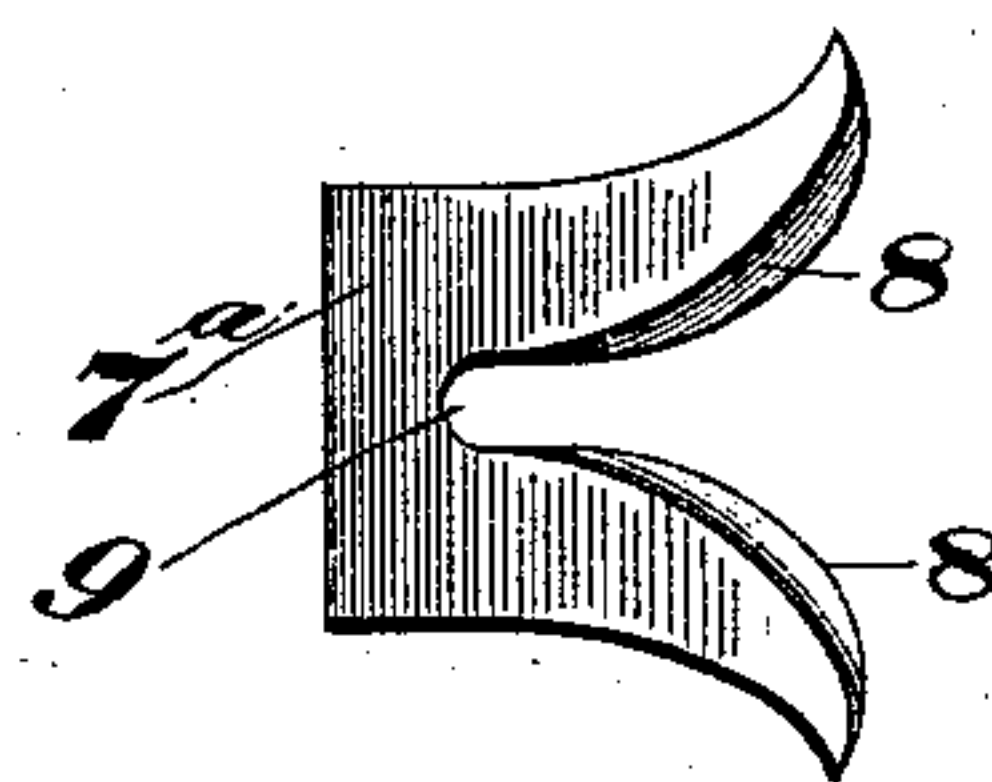
*Fig. II.*



*Fig. III.*



*Fig. IV.*



Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM C. SEYFRIEDT, OF FORT WORTH, TEXAS.

## WATCHMAKER'S TOOL.

SPECIFICATION forming part of Letters Patent No. 533,923, dated February 12, 1895.

Application filed October 10, 1894. Serial No 525,498. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM C. SEYFRIEDT, of Fort Worth, county of Tarrant, State of Texas, have invented certain new and useful Improvements in Watchmakers' Tools, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce an improved tool for removing the collet and hair spring of a watch from the balance wheel arbor, without injuring the hair spring of the watch and at the same time holding the balance wheel secure against accident or injury.

In the accompanying drawings: Figure I is a side elevation of my tool, in operative relation with the balance wheel, both being shown on an enlarged scale and the collet being shown in section. Fig. II is a perspective view of my tool detached and opened. Fig. III is an end view thereof. Fig. IV is a modified form of the fork or collet separator.

Referring to the figures on the drawings: 1 indicates the balance wheel of a watch and 2 its arbor.

3 indicates the hair spring and 4 the collet to which, at one end as usual, the hair spring is attached.

5 indicates one leg of my tool and 6 the other. They are united together at their upper ends, as indicated at 7 and one or both may be of resilient spring metal constructed so as to stand normally in the separated position shown in Fig. II of the drawings, after the manner of ordinary tweezers. I prefer, however, to make the leg 5 straight, as illustrated, and comparatively rigid, making the leg 6 the active one.

7<sup>a</sup> indicates the collet separating fork which may be made integral with the leg 5 and bent at right angles thereto, or it may be made of a separate piece of metal and welded, or otherwise united to it. The fork may be of the shape illustrated in Fig. III, or of the flared shape shown in Fig. IV. It has beveled or comparatively sharp inside edges 8 and has an arbor seat 9 at the bottom of the fork. This arbor seat should be made to fit snugly around the ordinary sized arbor.

10 indicates an arbor bearing piece that is separated from the collet separating fork by a distance a little greater than the thickness

of the ordinary cross piece 11 of a balance wheel. It is formed with or attached to the end of the leg 6 at right angles thereto and moves in a direction parallel with the fork but in a different plane. It is provided with an upper arbor seat 12 preferably rounded to fit around a balance wheel arbor above the cross piece.

In practice, the legs being separated, as shown in Fig. II of the drawings, the fork is slipped upon the arbor between the collet and the cross piece and the leg 6 is pressed between the thumb and fore finger of the operator until it strikes the arbor above the cross piece. In this position the cross piece is closely confined between the upper face of the fork and the lower face of the arbor bearing piece 10 and is prevented from tilting or twisting, but by a continuous pressure upon the legs is forced along with the arbor until the arbor is confined between the arbor seats in the fork and the arbor bearing piece, where it is securely held by the hand of the operator. As the arbor is driven into the fork, the beveled or wedge shaped edges of the fork force themselves between the cross piece and the collet and, by an even and easy movement, separate the collet from the arbor with a precision which insures its separation with perfect safety to the hair spring.

In practice different sizes of tools to suit various sizes of watches will be manufactured.

I am aware that a collet removing, tweezer-shaped tool, such for example as is shown in Patent No. 262,875, issued August 15, 1882, is not new, but the subject matter of that patent and devices of similar character are easily distinguishable from my invention, and the differences are clearly defined in the following claims, to wit:

1. In a collet removing tool, the combination with a pair of legs adapted to close toward each other, of a collet separating fork on one and an arbor bearing piece on the other, and arbor bearing seats in the fork and in the arbor bearing piece, respectively, between which the arbor is adapted to be securely held, substantially as specified.

2. In a collet removing tool, the combination with a pair of legs adapted to move toward each other, of a collet separating fork, and an arbor bearing piece in different planes

and moving parallel to each other to securely clamp an arbor between the seats in the fork and in the arbor bearing piece, substantially as specified.

5 3. In a collet removing tool, the combination with a pair of tweezer legs, of a collet separating fork, and an arbor bearing piece carried at right angles on the legs, respectively, and moving parallel to each other, but in different planes whereby an arbor may be securely clamped between the bearing seated in the fork and in the arbor bearing piece, substantially as specified.

15 4. In a collet removing tool, the combination with a pair of tweezer legs, of an arbor

bearing piece on one leg, and an arbor seat therein, a collet separating fork on the other leg, beveled edges on the fork, and an arbor bearing seat at the end of the fork whereby the arbor bearing piece co-operates with the collet separating fork to separate the collet, the arbor being thereafter securely clamped between the seats in the fork and arbor bearing piece, substantially as specified.

In testimony of all which I have hereunto subscribed my name.

WILLIAM C. SEYFRIEDT.

Witnesses:

R. H. GREER,  
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