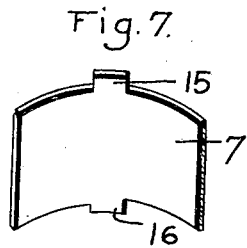
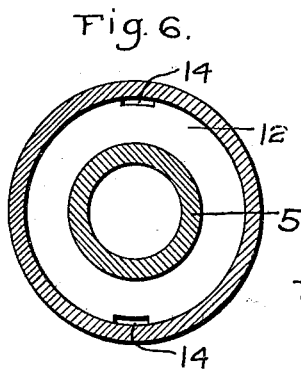
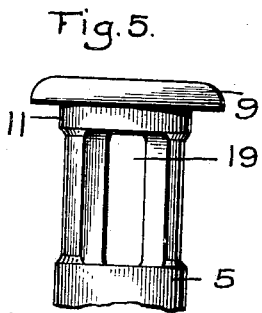
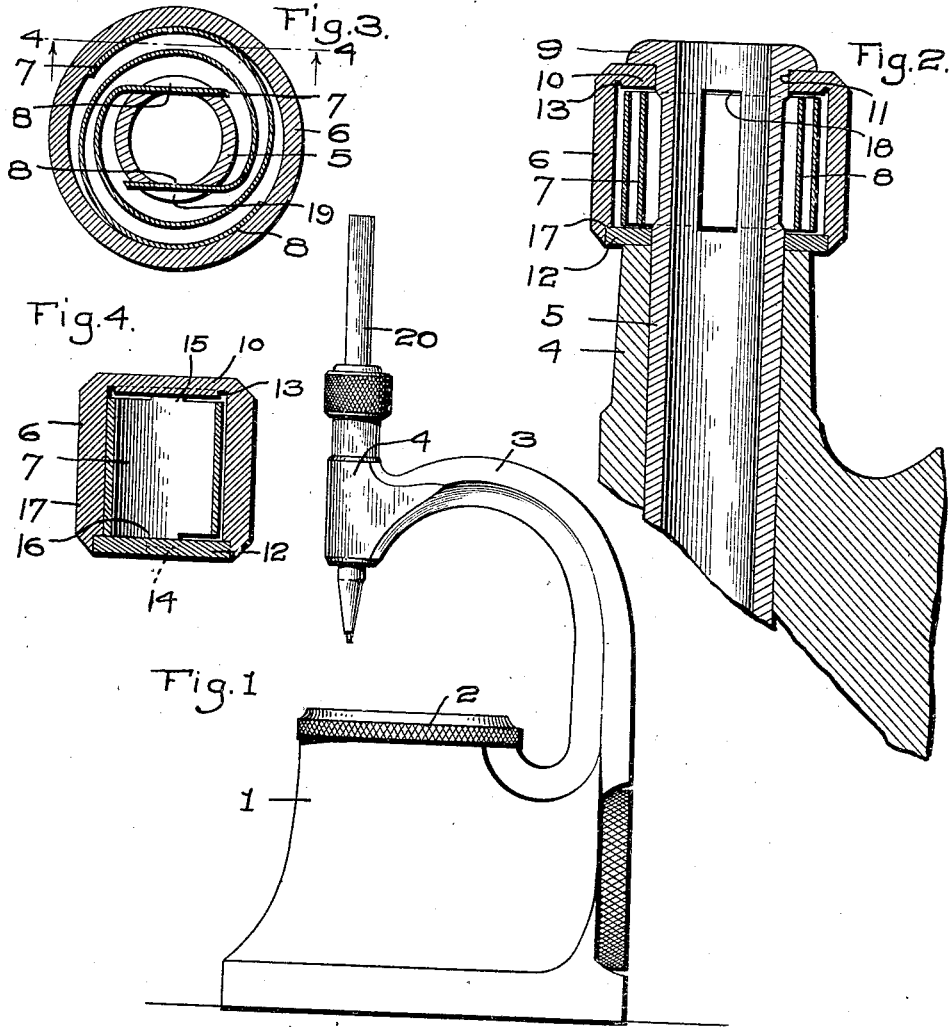


F. R. CUNNINGHAM.  
 STAKING TOOL.  
 APPLICATION FILED AUG. 21, 1908.

923,495.

Patented June 1, 1909.



Witnesses.  
 W. C. Lunsford.  
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 by *Wm. L. May*  
 Att'y.

# UNITED STATES PATENT OFFICE.

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## STAKING-TOOL.

No. 923,495.

Specification of Letters Patent.

Patented June 1, 1909.

Application filed August 21, 1908. Serial No. 449,725.

*To all whom it may concern:*

Be it known that I, FRANK R. CUNNINGHAM, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Staking-Tools, of which the following is a specification.

This invention relates to staking tools for jewelers' and watch-makers' work, and has relation to a clamp by which the punches, centering tools or other operating tools used in this sort of apparatus may be held yieldingly in any position, and may be readily released.

The invention consists in spring clamps and a holder therefor which are associated with the rest of the staking tool so that they may press yieldingly upon and grasp the shank of the operating tool, but may be released by a simple rotary movement of the holder.

Of the accompanying drawings,—Figure 1 represents an elevation of a staking tool having my improvement applied thereto. Fig. 2 represents a vertical section through the head of the staking tool and the attachment. Fig. 3 represents a horizontal section of the staking tool head and of the attachment constituting my invention. Fig. 4 represents a sectional view taken on line 4—4 of Fig. 3. Fig. 5 represents an elevation of the upper part of the tube which is set into the head of the staking tool and upon which the attachment constituting my invention is mounted. Fig. 6 represents a plan view of the bottom of the clamp holder forming part of my invention. Fig. 7 represents a perspective view of one end of one of the spring clamps.

The same reference characters indicate the same parts in all the figures.

A staking tool is shown in Fig. 1 and consists as usual of the base 1 having a die plate 2 and a curved neck 3 with a head 4 which overhangs the die plate. This head, as appears most clearly in Fig. 2, is bored vertically, and contains a tube 5 having a longitudinal bore or passage through which the punch, centering member or other operating tool used in connection with a staking tool, is passed. My invention has to do entirely with a device by which the operating tool may be retained against displacement through the passage by gravity, while permitting such tool to be moved by the application of a slightly greater force, and with the means by

which the device may be rendered inoperative by a single slight movement. The device constituting the invention consists of a clamp holder 6 in the form of a sleeve, and spring clamps 7 and 8 contained in such sleeve. The sleeve is journaled upon a portion of the tube 5 which projects above the head 4 and is contained between the upper end of this head and a flange 9 on the tube. The clamps are in the form of spirally curved flat springs which are contained within the sleeve 6, the interior diameter of which is sufficiently greater than the tube 9 to contain the springs and permit flexure. At or near the upper end of the clamp holder is an internal flange 10, the annular surface of which fits an upper bearing surface 11 of the tube 5, while the other end of the sleeve is recessed to receive an annular plate 12. In the angle between the side walls and flange of the sleeve is a groove 13, and in the plate 12 near its periphery are notches 14. This groove and these notches are provided to receive lugs 15 and 16 on opposite sides near the outer ends of the springs which form the clamps. In assembling the parts, these springs are placed in the clamp holder 6 with their outer ends lying against the cylindrical walls thereof and their lugs 15 entering the groove 13. They are adjusted so that the lug 16 of each will enter one of the notches 14 of the plate 12, and the latter plate is then put in place. It is preferably made so that it will fit tightly into the end of the holder 6 and abut against a shoulder 17 formed therein.

The inner ends of the springs are straight and parallel with each other, lying on opposite sides of the center of the clamp holder, and when not distorted, located at a distance from one another less than the diameter of the shank of an operating tool. When the clamp holder is mounted upon the bearing tube 5 the clamps lie on opposite sides of the latter. They are enabled to make contact with and grasp the shank of the operating tool by reason of the fact that the tube 5 is slabbed off on opposite sides to a depth sufficient to provide openings or slots 18 19 which communicate with the internal bore or passage, and are of sufficient length to admit the spring clamps. When the clamp holder is in the position shown in Fig. 3, the clamps enter the openings 18 and 19 and bear against the shank of the operating tool, grasping the

same with a yielding pressure, which is sufficient to hold the operating tool in any position which it may occupy and prevent it from slipping downward against the die plate.

5 In Fig. 1 an operating tool is represented by the punch 20, this figure illustrating how the tool is held up by the spring clamps. Upon rotating the clamp holder 6 slightly in  
10 either direction, the ends of the springs which form the clamps abut against the sides of the tube 5 adjacent the openings, and are drawn outward by the wedging action of the same so as to be removed from contact with  
15 the tool shank. The operating tool is then free. Thus the parts of the tube adjacent these openings, or, in other words, the walls of the openings, constitute abutments which, when the clamp holder is in one position, retain the springs out of engagement with the  
20 operating tool and, when the holder is in another position, allow the springs to press with a yielding frictional engagement against the tool.

I claim:—

25 1. A staking tool having a head provided with a passage through it for admitting an operating tool, a spring friction member supported on said head and arranged to bear normally with a yielding frictional pressure  
30 upon such tool, and means for disengaging said friction member from the operating tool.

2. A staking tool having a head provided with a passage through it for admitting an  
35 operating tool, a holder mounted movably with respect to said head, a spring friction member carried by said holder, and means constructed to hold said friction member out of contact with such operating tool when said  
40 holder is in one position, and to permit said member to bear with a yielding frictional pressure on the tool when the holder is in another position.

3. A staking tool having a head provided with a passage through it for admitting an  
45 operating tool, a holder mounted rotarily on said head, a spring carried by said holder and arranged to bear with a yielding frictional pressure against such operating tool, and an abutment located beside such passage in the  
50 path traversed by said spring when rotated, whereby rotation of said holder causes the spring to engage said abutment and to be withdrawn thereby from engagement with the operating tool.

55 4. In a staking tool, a head having a tubular bearing for an operating tool, a holder rotarily mounted on said head, springs carried by said holder arranged to enter slots in the sides of said tubular bearing and press yield-  
60 ingly against the shank of such operating tool, and adapted to be withdrawn from contact with the tool when the holder is rotated.

5. In a staking tool, a head, a tube set in said  
65 head having a bore to receive an operating tool

and having an opening in its side, a sleeve rotarily mounted on said tube, and a spring held in said sleeve with its end arranged tangentially of the shank of said operating  
70 tool, and located so as to enter such opening and press against said shank, being withdrawn from contact therewith when the sleeve is rotated.

6. A staking tool having a head provided with a passage through it for admitting an  
75 operating tool, a holder mounted movably with respect to said head, a spring friction device carried by said holder for holding such operating tool with a yielding pressure, and an abutment against which said friction de-  
80 vice is brought by movement of said holder and by which said device is withdrawn from engagement with the operating tool.

7. In a staking tool, a head having a pas-  
85 sage to contain an operating tool and provided with a lateral opening affording access to the passage, a sleeve rotatably mounted on said head, and a spring carried by said sleeve ar-  
90 ranged to enter said lateral opening and bear yieldingly on the shank of the operating tool to serve as a frictional retainer therefor, said spring being caused to withdraw from  
said shank by bearing against an edge of the opening when the sleeve is rotated.

8. In a staking tool, an independent clamp  
95 holder, spring clamps carried thereby adapted to grasp the shank of an operating tool yieldingly, and provisions for causing said clamps to release the operating tool while  
100 said holder remains in connection with the staking tool.

9. In a staking tool, an independent clamp  
holder, spring clamps carried thereby adapted to grasp the shank of an operating tool  
105 yieldingly, and fixed abutments on the staking tool arranged so as to be engaged by said clamps, when the holder and clamps are moved out of grasping position, and thereby  
110 cause withdrawal of the clamps from said shank.

10. A staking tool having a head, a tube  
set into said head having a bore to receive an  
operating tool, a clamp holder journaled on a  
part of said tube, and spring clamps carried  
115 by said holder; the tube having openings communicating with its bore in the zone sur-  
rounded by the holder into which said clamps extend to grasp the shank of said operating  
tool when the holder is in one position and  
120 from which the clamps are retracted by abutting against the sides of the openings when the holder is turned into a different position.

11. In a staking tool, a clamp holder con-  
sisting of a sleeve having an internal flange  
125 near one end and an annular plate attached removably to the other end thereof, and spirally coiled springs held at their outer ends between said flange and plate, their inner  
ends being free and arranged to grasp be-  
130 tween them the shank of an operating tool.

12. In a staking tool, a clamp holder consisting of a sleeve having an internal flange near one end and an annular plate attached removably to the other end thereof, said plate having notches, and spirally coiled springs held at their outer ends between said flange and plate, each spring having a lug entering one of the notches of said plate and held thereby against displacement, their inner ends being free and arranged to grasp between them the shank of an operating tool. 10

In testimony whereof I have affixed my signature, in presence of two witnesses.

FRANK R. CUNNINGHAM.

Witnesses:

C. F. BROWN,  
A. C. RATIGAN.