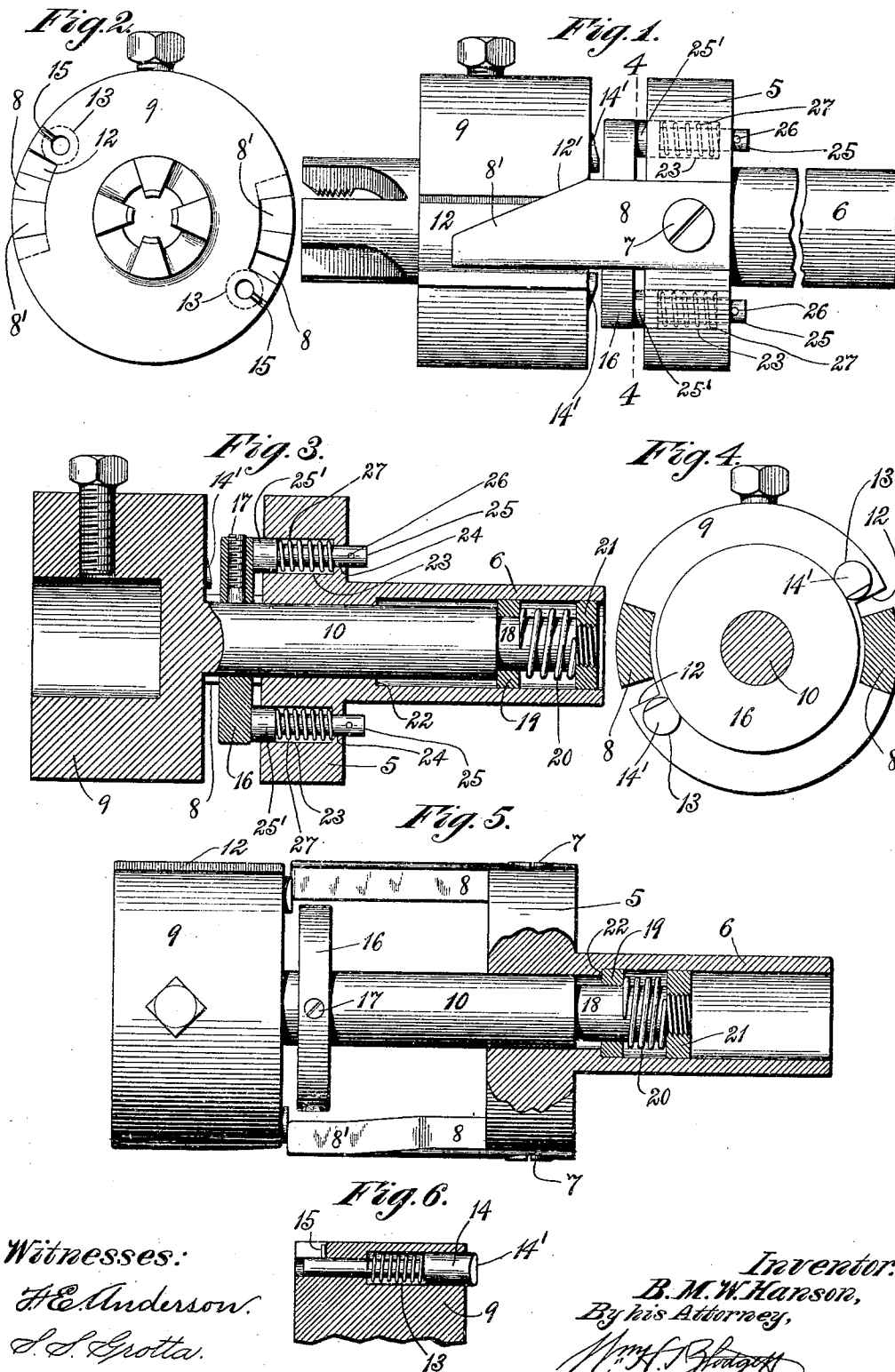


No. 809,257.

PATENTED JAN. 2, 1906.

B. M. W. HANSON.
TOOL HOLDER.

APPLICATION FILED AUG. 9, 1905.



Witnesses:

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UNITED STATES PATENT OFFICE.

BENGT M. W. HANSON, OF HARTFORD, CONNECTICUT, ASSIGNOR TO PRATT & WHITNEY COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF NEW JERSEY.

TOOL-HOLDER.

No. 809,257.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed August 9, 1905. Serial No. 273,479.

To all whom it may concern:

Be it known that I, BENGT M. W. HANSON, a citizen of Sweden, (but having declared my intention of becoming a citizen of the United States,) residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification.

This invention relates to tool-holders, and is shown applied to a device of the kind set forth in the application of C. L. Goodrich, filed December 27, 1904, Serial No. 238,549, although it is not limited to use with any particular type of tool-holder.

In the prior art known to me when the screw-cutting tool engages the work it does so in a rigid and unyielding way and is therefore liable to blunt or round the edges of the threads first formed, and thus impair their looks and efficiency.

Primarily, the object of my invention is the provision, in connection with any type of movable tool-holder carrying the die or tap, of means for enabling said die or tap to engage the work in a yielding manner, so that as the tool-holder and turret to which it is attached move forward the tool is on contact forced slightly backward against the action of the yielding device—for instance, a spring—the threads of said tool making proper contact with the work, thereby avoiding any marring or jamming of the thread at the commencement of the cutting action.

A further object of the invention is the provision, in connection with a sliding tool-holder, of a collar adjustably secured to a stem thereof and devices for permitting the retreat of said tool-holder on the contact of the tool with the work, so that it will engage said work under yielding pressure.

Various means may be employed for accomplishing this yielding contact of the screw-cutting tool with work, and it is distinctly to be understood that the invention is not limited in scope to the devices shown and described.

In the accompanying drawings, Figure 1 is a side elevation of a tool-holder embodying my invention. Fig. 2 is a front end view thereof. Fig. 3 is a longitudinal vertical section. Fig. 4 is a section taken on line 4 4, Fig. 1. Fig. 5 is a side elevation, partially in section, showing the tool-carrying part of

the invention in projected position and in readiness to be withdrawn from the work; and Fig. 6 is a detail view of my invention, partially in section.

Like numerals designate similar parts throughout the several views.

Referring to the drawings, the numeral 5 designates the head of the stationary member of the tool-holder, said head having a tubular shank 6, adapted to be inserted in a socket of a turret or suitable support on the usual slide. Secured at intervals to the head 5 by screws 7 and projecting from said head are clutch arms or projections 8, each inclined for a portion of its length at 8'.

Designated by 9 is the head of the movable member, said head being chambered to receive a die or tap and being provided with a stem 10, entering the tubular shank 6. In this head 9 are grooves 12 to receive the guide-arms 8, and at 12' the wall of each groove is cut away to form a bearing-surface for the inclined part of the projection 8. Each groove 12 of the movable member is wide enough to permit of the rocking movement of the head on the clutching guide arms or projections, and as the wall of the groove bears against the guide but at a single point friction is reduced to a minimum and ease of action facilitated.

In the illustration given the inclines on the guides and grooves are those necessary in cutting a right-hand thread, and, as is obvious, such inclines will be placed on the sides of the grooves and guides opposite to that shown in forming a left-hand thread. In the head of the movable member are bores or seats 13 for the reception of spring-actuated clutch-plungers 14, provided with beveled forward ends 14' and with stop-pins 15, said plungers operating in the manner set forth in Patent No. 726,674, dated April 28, 1903, to which reference may be had.

Surrounding the stem of the movable member is a stop-collar 16, adjustably held in position by a screw 17. At its rear end the stem of the movable member is reduced at 18, and on this reduced part is fitted a loose collar 19 and beyond the collar a coiled spring 20. A nut 21 retains the spring in place and serves as a rear abutment for the same. In the bore of the shank 6 a shoulder 22 is formed, and this constitutes an abutment to limit the movement of the collar 19, and thereby cause

compression of the spring 20 when the movable member is withdrawn to release the arms or projections 8, as shown in Fig. 5.

As thus far described the tool-holder constitutes no part of the present invention, except as the elements thereof cooperate with the improvement now to be described in producing the result set forth.

The disk or collar 16 is slipped upon the stem 10 of the movable member and is secured in the desired position thereon by said screw 17. In the head 5 of the stationary member are chambers 23, and a perforation 24 leads from each of the chambers through the rear wall thereof, as illustrated in Fig. 3. Located in each chamber is a plunger 25, having a head 25' at its outer end and a pin 26 at its inner end for limiting the movement of said plunger. Surrounding the stem of each plunger is a helical spring 27, the tendency of which is normally to force the plunger to the left and to hold the head 25' thereof in contact with the disk or collar 21, all as illustrated in Fig. 3. Supposing the tool-holder to be carried by the turret of a lathe, as the slide of said lathe moves forward the screw-cutting tool will engage the work and on its first contact with said work will be held with yielding pressure against the same by the spring-actuated plungers 25, as aforesaid, this action continuing until a full engagement of the die or tap with the work is effected, and thereby preventing, as before stated, the thread from being marred or jammed and causing a much easier engagement of the tool with said thread.

Changes may be made in the various details of the invention without departure therefrom, and the yielding contact of the tool with the work may be effected by means widely different from those shown and described, if desired, and still be within the purview of the invention.

Having thus described my invention, what I claim is—

1. The combination, with a fixed member, of a member movable thereon and carrying a screw-cutting tool; a yielding device carried by one of the members; and an adjustable collar on the other member adapted to engage said yielding device when the tool engages the work.

2. The combination, with a fixed member, of a tool-carrying member having a stem movable with respect to said fixed member; a collar on said stem and yielding devices between the collar and the fixed member, said yielding devices serving to permit the tool to engage the work under yielding pressure.

3. The combination, with a fixed member having a head provided with a series of chambers, of a movable member mounted on the fixed member; spring-actuated plungers carried in the chambers of the fixed member; and a device carried by the movable member and adapted to engage said plungers when the tool comes into contact with the work.

4. The combination, with a fixed member having a tubular shank, of spring-actuated plungers carried by said fixed member; a movable member having a stem inserted in the tubular shank of the fixed member; and a stop disk or projection secured to said stem, and bearing against the heads of said plungers.

5. The combination, with a fixed member having a tubular shank, and provided with a head having a series of chambers, of spring-actuated plungers operable in said chambers; a movable member having a stem fitted in the tubular shank of the fixed member; and a stop disk or projection adjustably secured to said stem, and receiving the impact of the spring-actuated plungers.

In testimony whereof I affix my signature in presence of two witnesses.

BENGT M. W. HANSON.

Witnesses:

F. E. ANDERSON,
FRANCES E. BLODGETT.