No. 817,451. PATENTED APR. 10, 1906.

O. G. SIMMONS.

THREAD CUTTING TOOL FOR LATHES.

APPLICATION FILED MAR. 14, 1905.

Fig. 1.

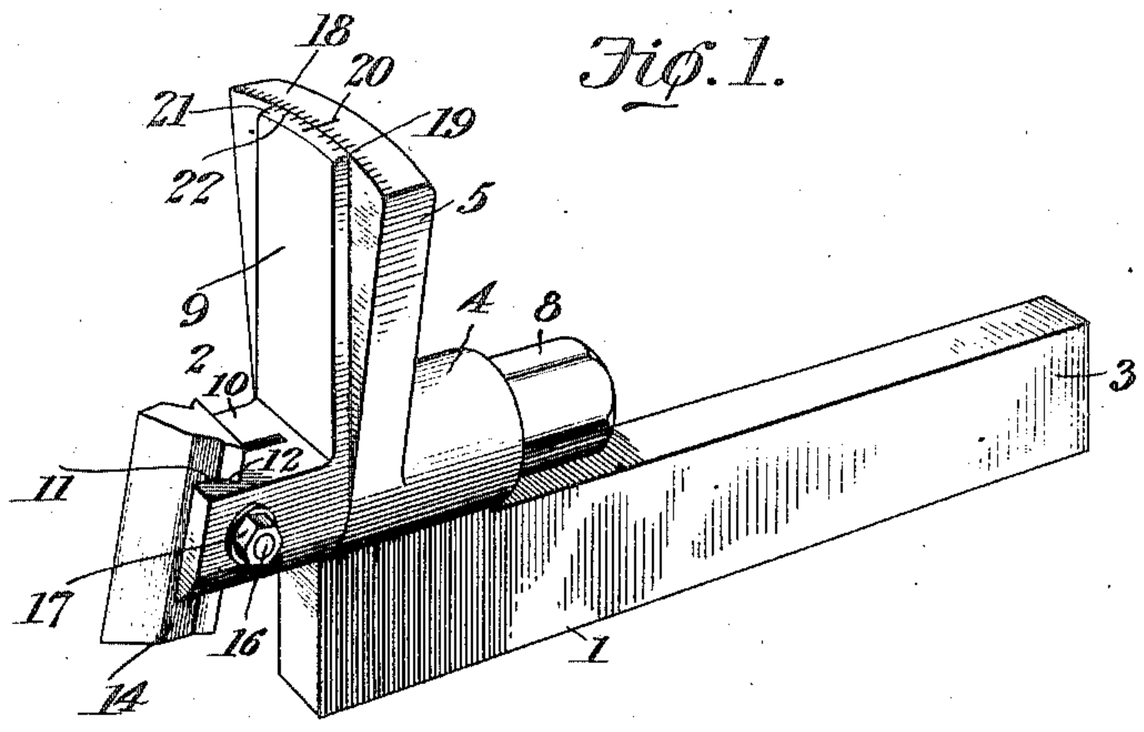


Fig. 2.

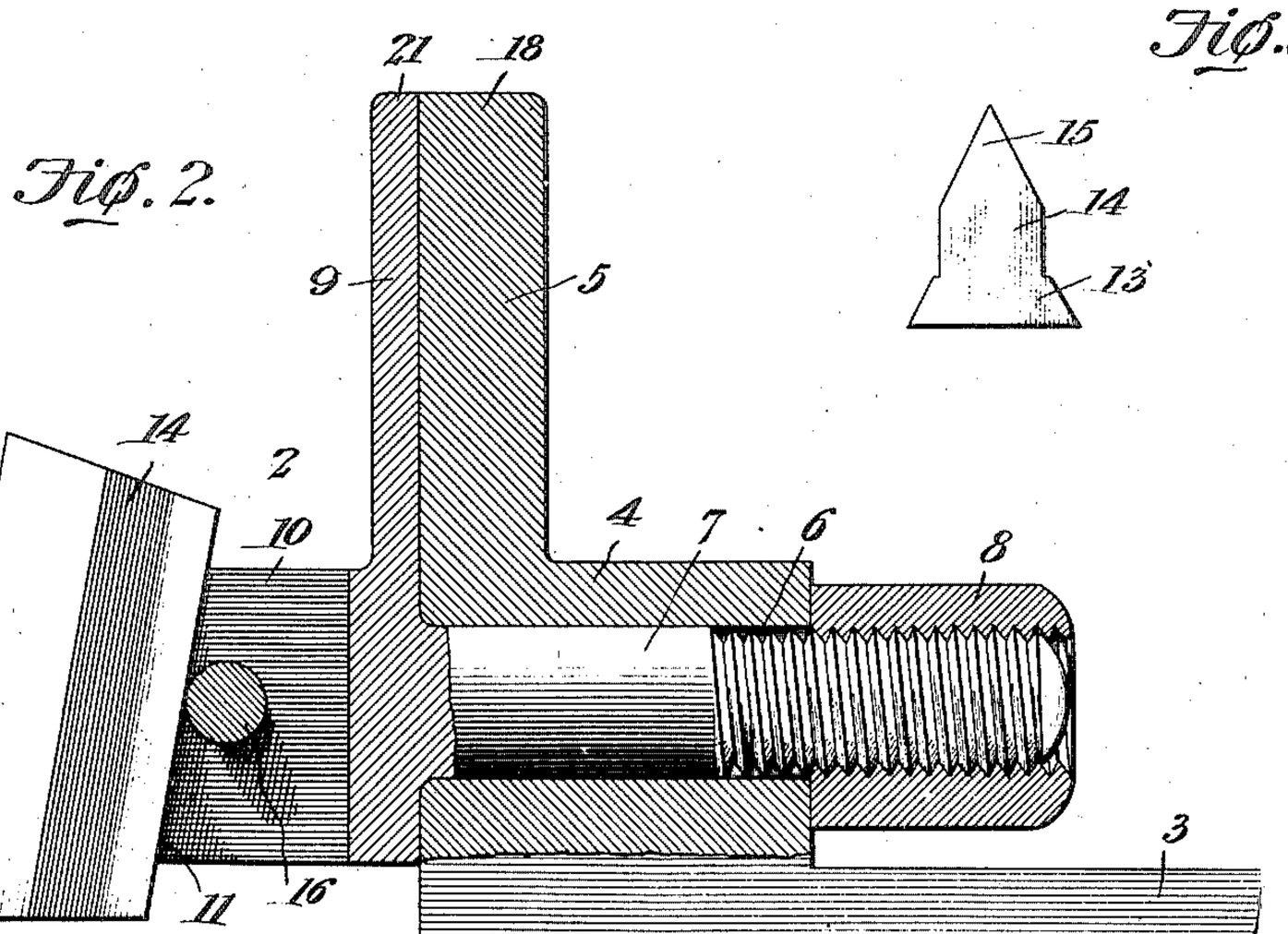
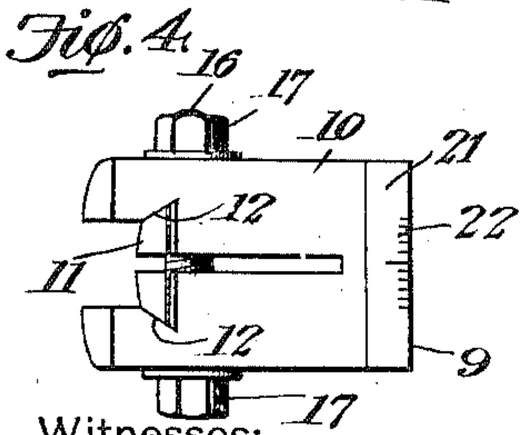


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

OLIVER G. SIMMONS, OF WASHINGTON, DISTRICT OF COLUMBIA.

THREAD-CUTTING TOOL FOR LATHES.

No. 817,451. Specification of Letters Patent. Patented April 10, 1906.

Application filed March 14, 1905. Serial No. 250,103.

To all whom it may concern:

Be it known that I, OLIVER G. SIMMONS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Thread-Cutting Tool for Lathes, of which the following is a specification.

This invention relates to thread-cutting tools for lathes.

The objects of the invention are in a ready, simple, thoroughly feasible, and practical manner to insure absolute steadiness of movement of the work, thereby to produce a smooth and perfect thread, to obviate chattering of the work and digging thereinto of the cutter, to facilitate the sharpening of the cutter without destroying or changing the angles of its cutting edges, to render unnecessary any adjustment or resetting of the cutter when replaced after a removal for any purpose, to adapt the tool for cutting threads either right or left hand of any desired lead with the same cutter, and generally to improve the construction of such tools and render their operation more effective and general in character.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a thread-cutting tool for lathes, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, Figure 1 is a view in perspective of a complete tool constructed in accordance with the present invention. Fig. 2 is a vertical longitudinal section, on an enlarged scale, taken through the center of the tool. Fig. 3 is a view in end elevation of the cutter, showing more particularly its contour in cross-section. Fig. 4 is a top plan view of a portion of the tool.

The invention embodies a cutter-support, designated generally 1, and a cutter-holder, designated generally 2, these parts being made of any material suited to the purpose.

The cutter-support embodies a shank 3, which is rectangular in cross-section and is adapted to engage and be clamped in the slide-rest of a lathe in the same manner as an ordinary cutter. Combined with the shank is a head 4, carrying a graduated sector 5, the shank, head, and sector being formed integral in order to secure the requisite rigidity to render the tool thoroughly effective for the purposes designed. The head is provided with a smooth longitudinal bore 6, in which fits the stem 7 of the cutter-holder, the stem being of a length to project beyond the head and having the extended portion threaded to be engaged by a locking-nut 8, which operates to secure the cutter-holder at any desired adjustment relatively to the cutter-support.

The cutter-holder embodies the stem 7, a scale-arm 9, provided with a vernier-scale and commensurate in height with the sector 5, and a cutter-clamp consisting of two spaced arms 10, all these parts being integral. The opposed faces of the arms 10 are cut away to form a cutter-rest 11, and the wall of each rest is provided with an angular rabbet or channel 12 to receive the base 13 of the cutter 14, the cutting end 15 of which is herein shown as triangular in cross-section. The walls of the rest 11 are disposed on an outward-diverging angle of about ten degrees to the perpendicular face of the sector, thereby insuring the proper engagement between the point of the cutter and the work. The arms 10 are caused to impinge the cutter by a clamping-bolt 16, which extends transversely through the cutter-clamp and carries at each end a nut 17, as clearly shown in Fig. 4.

The face 18 is of sufficient extent to receive thirty graduation-marks 19 on each side of the perpendicular, (indicated by an extended graduated mark 20.) The sides of the scale-arm, as shown, are parallel with each other, and its face 21 bears nine division-marks 22 evenly spaced, three hundred to a circle, and by the employment of the two different sets of graduation-marks the cutter may be set at any angle and also at any degree plus twelve, twenty-four, thirty-six, or forty-eight minutes to the right and left or the perpendicular of the sector within the limits of the graduation-marks, thus permitting a right or left hand thread of any lead not greater than the diameter of the screw to be cut with the same cutter and holder.

It will be seen from the foregoing description that the tool of the present invention combines in a ready and practical manner all of the essentials requisite for the production of a thoroughly effective and accurate implement, and, further, that by the manner in which the parts are constructed and combined danger of derangement or breakage in use is reduced to a minimum.

In using the tool the work is driven backward instead of forward, as usual, the cutting therefore taking place at the lower instead of at the upper edge of the cutter.

By the employment of the cutter shown, which is of exactly the same contour throughout its entire length, it may readily be removed and sharpened without destroying or changing its cutting-angle, and inasmuch as the cutter-clamp has only an angular movement the cutter may be repositioned without requiring any resetting or adjustment, such as would be necessary with the ordinary form of cutter-holder.

Having thus described the invention, what is claimed is—

1. A tool of the class described comprising a cutter-support embodying a shank, a head, and a graduated sector disposed at right angles to the shank, and a cutter-holder embodying a stem rotatably secured in the head, a graduated scale-arm coacting with the sector, and a cutter-clamp.

2. A cutter-holder comprising a shank, a tool-clamping device mounted in the shank and angularly adjustable thereon on an axis parallel with the shank, and provided with means for holding a bit or cutter transversely of the axis, a graduated sector at right angles to the shank, and an arm on the tool-clamping device having a vernier thereon.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

OLIVER G. SIMMONS.

Witnesses:
G. B. POWERS,
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