No. 810,238. PATENTED JAN. 16, 1906.

F. W. WAITE.

TOOL HOLDING AND ADJUSTING DEVICE.

APPLICATION FILED SEPT. 27, 1904.

Fig. 1.

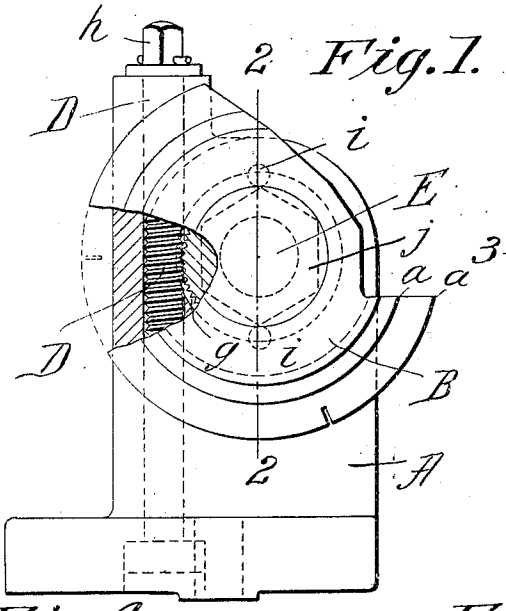


Fig. 2.

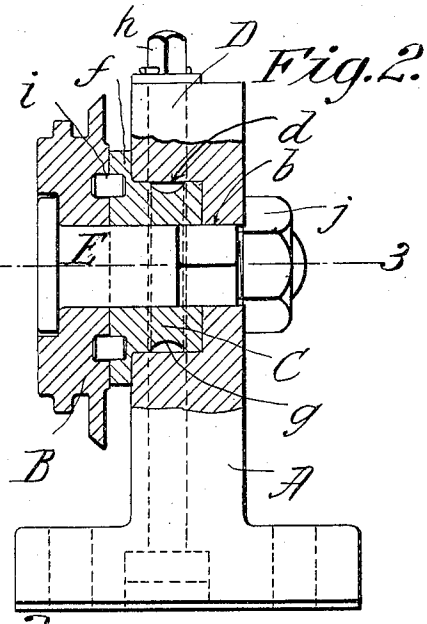


Fig. 4.

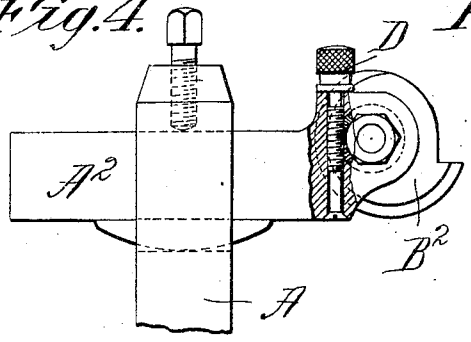


Fig. 3.

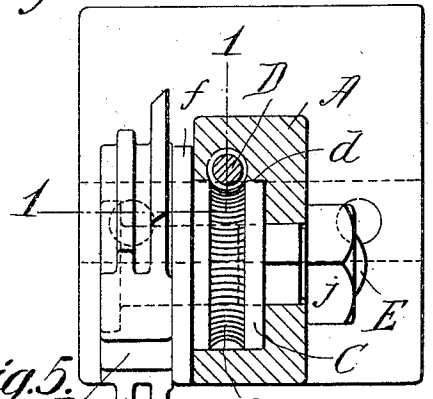
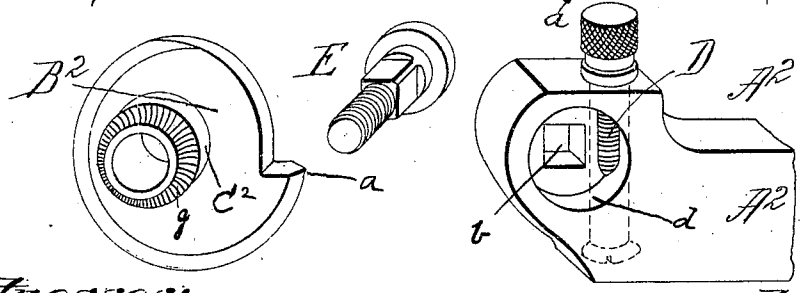


Fig. 5.



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UNITED STATES PATENT OFFICE.

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TOOL HOLDING AND ADJUSTING DEVICE.

No. 810,238. Specification of Letters Patent. Patented Jan. 16, 1906.

Application filed September 27, 1904. Serial No. 226,137.

To all whom it may concern:

Be it known that I, FRANK W. WAITE, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Tool Holding and Adjusting Devices, of which the following is a full, clear, and exact description.

This invention relates to a tool holding and adjusting device applicable especially for use on screw-cutting lathes or analogous machines.

The object of the invention is to provide a support and holder for the tool of such improved construction and operativeness that the tool used for cutting or forming the work chucked in the lathe or machine, and which tool or former is usually mounted on the support or post carried by the cross-feed, may be readily removed for grinding or substitution and as readily replaced and brought to its adjustment, so that its cutting point or edge will be precisely positioned for its performance most efficiently of its required work.

One particular object is to so construct the device that it not only includes for the entire components thereof a very few parts, but has such parts of most simple form and easily and cheaply produced.

Another especial object is to so form and combine the comparatively few parts which constitute the device that the tool is supported and held to its work with the utmost rigidity and without any possibility of yielding or having backlash or lost motion or transverse deflection; and another object is to so arrange and combine the parts that the operating screw-shaft or worm and the worm-wheel, forming fundamental portions of the device of the kind to which this invention relates and which engage one into the teeth of the other, are entirely inclosed within the body of the tool carrier or holder, whereby the entrance of metallic particles, as chips or filings or dirt, into the intermeshing parts is prevented.

The improved device is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a forming-tool mounted on a standard of a cross-fed part and showing the adjusting and confined means comprised therein. Fig. 2 is a vertical sectional view as taken on the line 2 2, Fig. 1. Fig. 3 is a horizontial sectional view as taken on the line 3 3, Fig. 2, portions, however, being shown in plan view. The section-line 1 1 on Fig. 3 indicates the plane on which the portions in section, Fig. 1, are taken. Fig. 4 is an elevation showing the devices combined with a tool-bar and tool-post, Fig. 5 representing in perspective the novel parts as detached one from another.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, referring first more particularly to Figs. 1, 2, and 3, A represents a standard or tool-supporting post, and B represents a forming-tool of which *a a* are the cutting or working edges. This tool has a hole concentrically through it for alinement with the horizontal hole *b* through the upright A. The upright has a sidewise-opening socket or chamber *d* of cylindrical form, receiving therein the centrally circularly apertured section C, having a flange *f* bearing against the face of the upright and having a peripheral serrated groove *g*, in the teeth or serrations of which the worm-threads of the shaft D engage, said shaft being fitted in a bore or socket therefor which transversely penetrates the body of the holder or carrier at right angles to the axis of the chamber *d*, and which hole or bore, as to a portion of its diameter, intersects and is in communication with the side of said chamber or socket *d*, and said worm or screw shaft is capable of being readily turned by having its externally-protruding end *h* squared, as shown, or otherwise adapted to such end, and said worm-shaft is prevented from having any endwise movement by having at one end a head fitted in a countersunk seat therefor and provided at its opposite extremity with a rigidly-affixed shoulder which engages the external wall of the holder. The cutting or forming member B has, as indicated at *i*, a dowel-and-socket engagement with the part C, which latter and the tool are clamped when adjusted in position on the upright by the headed bolt E, having the nut *j*, said bolt closely fitting through the central hole in the tool, the cylindrical chamber *d*, and the hole or continuation *b* thereof.

By taking off the nut and removing the bolt the tool or former B may be removed to be ground or to be replaced by another tool member formed to impart a different shape of cut. When the reground or substituted tool is brought to place and the bolt inserted, the worm or screw D is turned slightly to rotate the part C and the therewith-en-

gaged cutting or forming member B to bring the point or points thereof which initially are designed to work against the piece chucked in the lathe or machine to just the right line or level for its proper action.

In Figs. 4 and 5 substantially the same idea of means is embodied in conjunction with a tool-carrying bar A^2, the member C, which in Figs. 1 to 3 is a section of or appurtenant to the tool, here not being shown separable from the tool or cutter B^2, but such member designated by C^2 is shown as in the form of an integral hub provided to the tool, the end of which is beveled on a curve and cross-notched, serrated, or knurled to receive the engagement directly with the threads of the screw D, the clamping-bolt E being employed in substantially the same manner as indicated in the preceding figures, and by making the toothed or serrated end in the form of a bevel instead of in the form of approximately a semicircular groove the tool and its so formed hub part may be readily taken out from the connection with the part for supporting it without its being obstructed by the screw.

I claim—

The combination with a tool carrier or holder having a cylindrical socket therein, opening to one side of the holder, and having a hole of smaller diameter continued from said socket through to the opposite side of the holder, and having a hole or bore penetrating the body of the holder and intersecting said cylindrical socket at the side thereof, a tool or cutter and a cylindrical hub appurtenant thereto, provided with teeth circumferentially arranged, and fitting and inclosed within said socket, a screw-shaft endwise non-movable, fitted and rotatable in said bore of the carrier, traversing the side of said socket, and screw engaging the teeth of said hub, and a bolt having at one end a head and receiving at the other end a nut, passed axially through the carrier and the tool, and said hub, and operative to bind the adjusted tool non-rotatably to the carrier.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

FRANK W. WAITE.

Witnesses:
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