W. W. VOSPER.

THREAD CUTTING TOOL.

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1,153,981.

Patented Sept. 21, 1915.

Fig. 1.

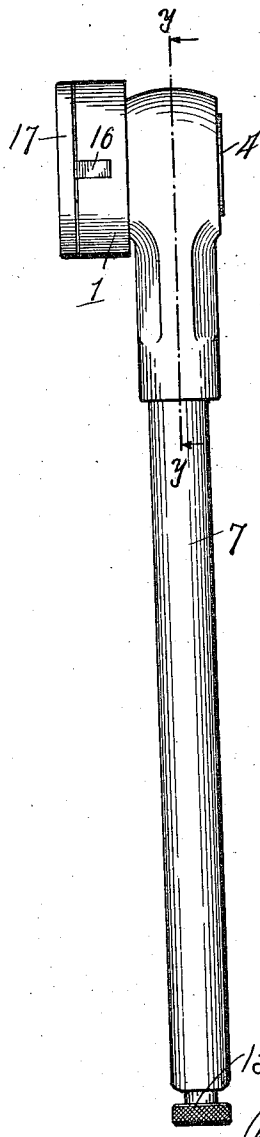


Fig. 2.

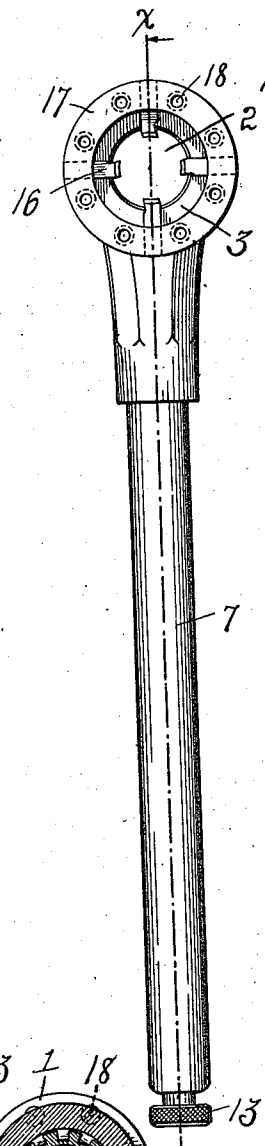


Fig. 3.

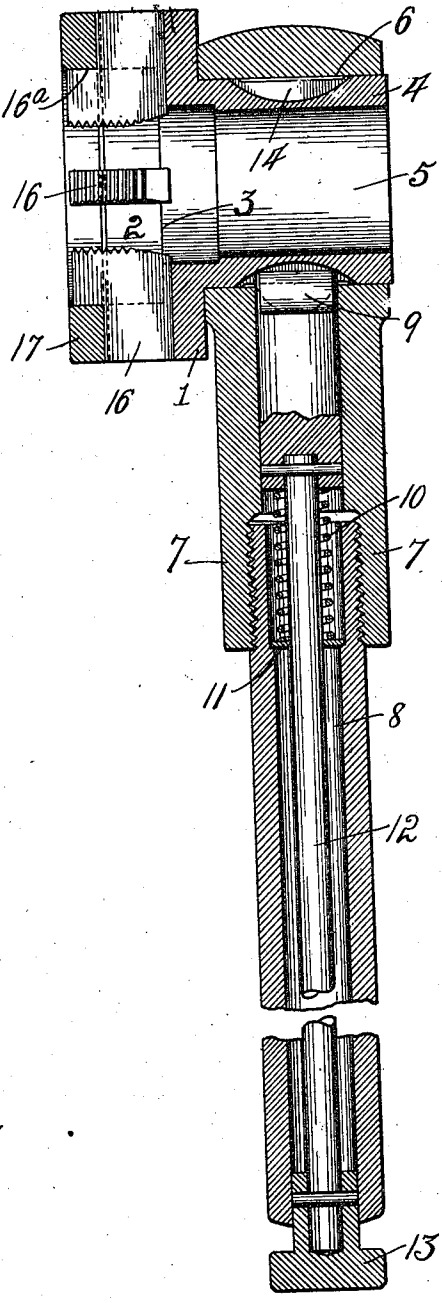
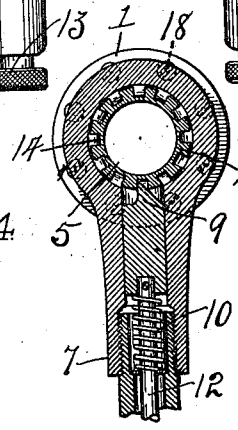


Fig. 4.



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THREAD-CUTTING TOOL.

1,153,981. Specification of Letters Patent. **Patented Sept. 21, 1915.**

Application filed June 21, 1915. Serial No. 35,314.

To all whom it may concern:

Be it known that I, WILLIAM W. VOSPER, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Thread-Cutting Tool; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to apparatus for cutting threads on pipes, rods or the like, and has for its object the provision of an improved tool of this character which is simple, strong, durable and inexpensive in its construction and which is small and compact in form to enable it to be used in corners or restricted spaces where tools of this class now in use cannot be employed.

A further important feature of my invention is the provision of a tool of the character described which is capable of being easily and quickly engaged with or removed from an operating handle of the ratchet type to facilitate the use of thread cutting heads adapted for different sizes of work.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a tool embodying my invention. Fig. 2 is a face view thereof. Fig. 3 is an enlarged central longitudinal section on the line x, x in Fig. 2, and Fig. 4 is a section on the line y, y in Fig. 1.

Referring to the drawings, 1 designates the cutter head or die holder and is preferably of circular form with an axial circular opening 2 therein that is restricted at its inner end to form the internal shoulder 3. The head 1 is provided at its inner end with an integral tubular extension 4, the opening 5 of which axially registers with the head opening 2, but is restricted to an extent relative thereto to adapt it to have a turning fit on work of the size for which the particular tool is intended. The extension 4 is smaller than the head 1 and is intended to rotatably fit into the hub opening 6 of a straight handle 7. This handle has an opening 8 extending axially therethrough outward from the hub opening 6, and mounted in the inner end of this opening is a pawl 9 of the plunger type, the tooth of which is disposed to project within the hub opening 6. The pawl 9 is normally urged inward by a coiled compression spring 10 that is disposed within the handle and confined between the pawl and a stop shoulder or collar 11 within the handle.

A control rod 12 is attached to the pawl 9 and extends outward therefrom through the handle, being provided at its outer end without the handle with a head 13 to facilitate a hand withdrawal of the pawl from within the opening 6. The extension 4 is provided around its periphery in register with the pawl 9 with a series of equidistantly spaced notches 14 with which the pawl 9 may successively engage during an oscillation of the handle, as will be understood. It is evident by reference to Fig. 4 that the tooth of the pawl 9 engages and imparts a turning movement to the extension 4 in only one direction of oscillating movements of the handle 7.

The outer end of the head 1 is provided, in the present instance, with four radially disposed equidistantly spaced recesses 15 in each of which a thread-cutting die 16 is mounted. The outer ends of the dies 16 are preferably flush with the outer side of the head 1 while the inner ends thereof project a distance within the opening 2 which is greater than the amount of restriction of the extension opening 5 relative to said opening 2 and have their inner ends provided with thread cutting teeth, as is well understood in the art. The recesses 15 are of sufficient depth to extend a short distance within the shoulder 3 so that the dies 16, when seated in the recesses, have their inner ends braced against lateral or cutting strains by the walls of the recesses disposed within the shoulder 3. This is found to be quite an essential feature, as a very considerable strain is applied to the inner ends of the dies when a thread is being cut and there would be danger of breaking off the inner portions of the dies if they were not braced against such lateral strain. It will be noted that while the dies are braced in this manner to near

the inner ends thereof such bracing does not in any way interfere with the cutting action, as the cutting takes place within the large portion of the head opening 2.

The dies 16 are secured within the recesses 15 by a collar 17, which conforms in size to the outer end of the head 1 and is secured to such end in holding contact with the outer edges of the dies by screws 18. The dies 16 are of greater depth at their inner ends than the recesses 15 to adapt them to shoulder, as at 16^a, against the inner edge of the ring 17 whereby the outward thrust of the dies is resisted by said collar.

It is evident in the use of my improved tool that the extension 4 rotatably fits the work to be threaded so that the work serves as a shaft about which the tool is turned. It is also evident that the size of the tool opening may be enlarged or restricted to suit the size of the work operated on without changing the external dimensions of the tool, thereby enabling tools adapted for different sizes of work to be used in connection with the same ratchet handle 7, it being only necessary to remove one tool from such handle and to place another of the proper size in engagement therewith. The bore 2 and the opening of the collar 17, which are preferably the same, are considerably larger than the diameter of the work so that plenty of free space is provided around the work at the point of cutting the thread to permit the cuttings to pass freely out of the die carrying head thereby preventing clogging. The dies 16 may be either of the tapered or straight thread cutting type.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, except in so far as such limitations are specified in the claim.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is,—

In a tool of the class described, a compact die head having a central opening which is restricted adjacent to the inner end of the head to form an internal shoulder, said head also having a coaxial tubular extension at its inner end and having its outer end provided with a plurality of radially disposed recesses which extend into said shoulder, said extension being restricted in cross-section relative to the head and having peripheral teeth to form a toothed journal to rotatably carry a ratchet handle, dies mounted in said recesses and braced at their inner ends against lateral strains by the walls of the portions of the recesses disposed in said shoulder, and a collar removably secured to the outer end of the head and coacting with the dies to retain them in the recesses.

In testimony whereof, I have hereunto signed my name to this specification.

WILLIAM W. VOSPER.