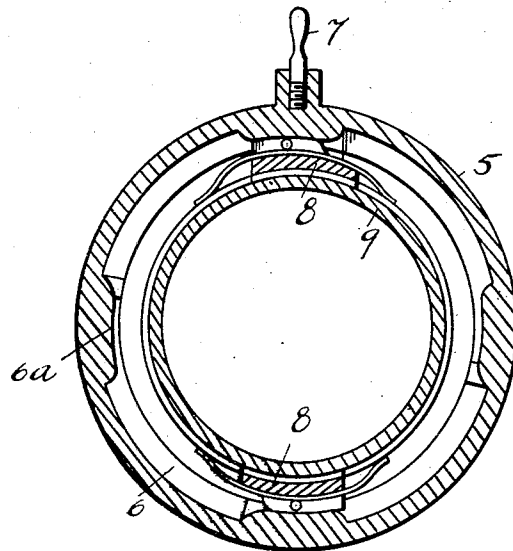
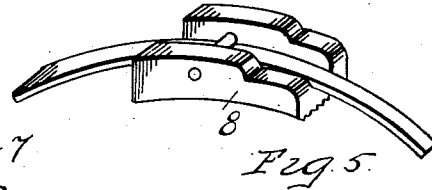
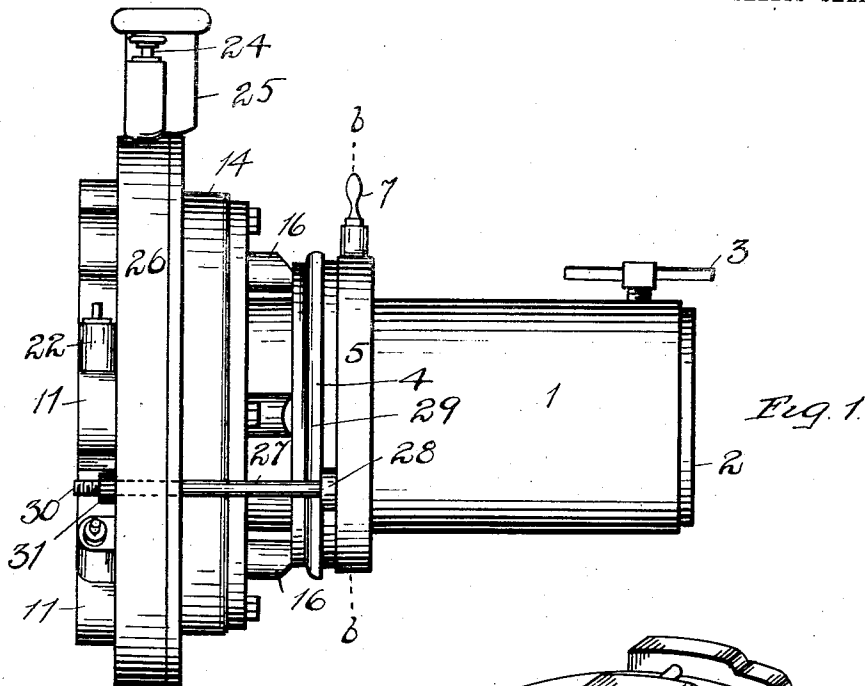


W. MURCHEY.
 THREAD CUTTING TOOL.
 APPLICATION FILED JUNE 12, 1908.

939,735.

Patented Nov. 9, 1909.
 2 SHEETS—SHEET 1.



Witnesses

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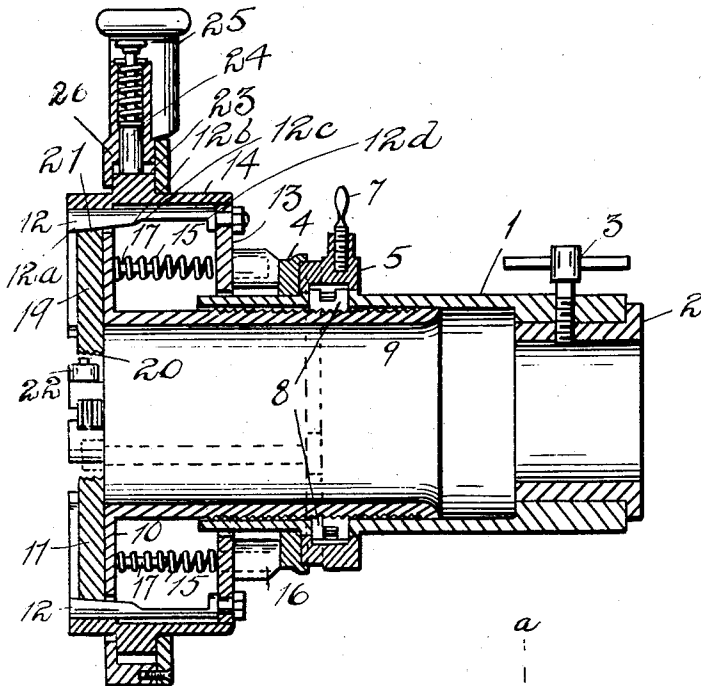


Fig. 2

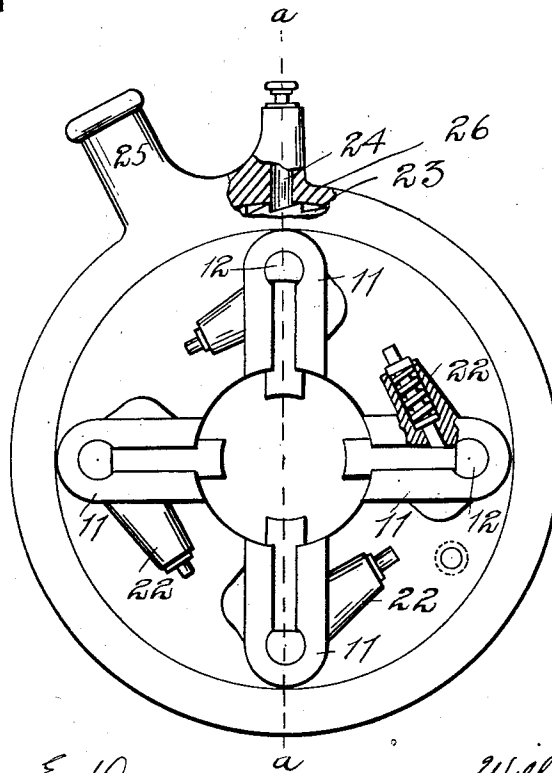


Fig. 3

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UNITED STATES PATENT OFFICE.

WILLIAM MURCHEY, OF DETROIT, MICHIGAN.

THREAD-CUTTING TOOL.

939,735.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed June 12, 1908. Serial No. 438,052.

To all whom it may concern:

Be it known that I, WILLIAM MURCHEY, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Thread-Cutting Tools, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to thread cutting dies.

It has for its object an improved die-head adapted to cut a taper thread on the end of the pipe or rod, and to disengage the cutting chasers from the thread after a definite predetermined length of thread has been cut, after which the pipe or rod can be removed from the head quickly and without backing off the cutting tool, and retracing the entire course of the thread cut by the chasers.

The die is a complete instrument in itself, of which one part is adapted to engage the end of the tube or rod, and the other part of which is rotary with respect to the first part, carries the cutting chasers, and has attachments by means of which power can be applied to it.

In the drawings:—Figure 1, is a side elevation. Fig. 2, is a longitudinal section at line *a—b* Fig. 3. Fig. 3, is a front elevation. Fig. 4, is a cross section at line *b—b* of Fig. 1. Fig. 5, is a detail of the feed mechanism.

1 indicates the tubular or barrel part of the machine, adapted to engage over the end of the rod or tube to be threaded.

2 indicates a bushing removable from the barrel 1, and of a size to engage closely around the rod or pipe to be treated; it has an external diameter to engage closely within the barrel 1.

3 indicates a set-screw engaging through the walls of the barrel 1, and through the bushing 2 against the end of the engaged rod or tube.

The barrel 1 supports an abutment ring 4 fixed to the barrel, and in close engagement of the abutment ring is a feed controlling ring 5, rotatably mounted on the barrel; this is provided with an internal groove 6 with cam-like projections 6^a extending into the groove making the depth of the groove at places deeper than it is at other places. The ring

5 may be rotated on the barrel 1 by the hand lever 7. Through the walls of the barrel are slots in which are inserted thread sections 8 of a sectional nut. These thread sections engage through the slots in the barrel 1 with the thread exterior of a sliding inner tube 9, which is adapted to travel along the interior of the barrel 1. The threaded tube 9 has secured to its forward end a head consisting of flange 10 on the end of the tube, on which are mounted housings 11, guides in said housings provided with slots extending radially from the center of the tube 9. At the radially outer end of each housing is an opening through which engages a pin 12 that is secured to a ring 13, which engages within the circular ring 14 that forms part of the head, and extends back from the flange 10. The flange 10 supports springs 15, which are interposed between the flange 10 and the ring 13. One end of each spring 15 is received in a socket 16 made as a part of the ring 13, and the other end of the spring is held in place by a pin 17 that projects to the rear from the rear face of the flange 10. The outer faces of the sockets 16 bear against the abutment ring 4. There is thus interposed between the abutment ring 4 on the tube 1 and the screw threaded tube 9 a pin carrying ring, which is in sliding engagement with the ring 14, and in rotative engagement with the abutment ring 4, and is held to rotate with the head 14. The pins 12 are provided on those faces which lie toward the center of the threaded ring with slabbled-off and inclined faces. The slabbled-off portion between the extreme inner front line 12^a and an intermediate point 12^b being on a regular incline corresponding to the cone formation that is to be given to the thread that is to be cut. At the rear of the point 12^b, and between the point 12^b and the ring 13, there is first a sharp incline from 12^b to 12^c, and from 12^c to 12^d a slabbled-off portion that is parallel to the axis of the threaded tube 9. Against the inner face of each pin 12 engages the rear or outer end of a chaser 19 provided on its radially inner end 20 with chaser cutting teeth, and on its outer end 21 with a face that is inclined to correspond to the first incline of the pin 12. The chaser is held in the housing 11, and is pressed to the radially outer part of that housing by a spring that is inserted in a holding bracket 22, and presses obliquely against

the side of the chaser, tending to press it outward radially, and to hold it in constant engagement with the inclined pin 12.

In use the tube or rod under treatment will produce the same result and the use of the spring 22 is rather to hold the chaser in its place at times when not in operation, than for active use during the cutting operation of the tool. External to the head is a toothed ring 23 made as a part of the ring 14, around this engages a strap ring 26, which carries a pawl 24, and a handle bracket 25. The strap ring 26 rotates freely around the head in one direction, but carries the head with it when it is itself rotated in the opposite direction.

A tube or rod inserted through the bushing 2 with its end brought into position between the chasing cutters, is easily threaded by forcibly rotating the head around the tube which is held in the bushing, and is driven forward by the interaction of the screw threaded portions of the tube 9 and the tube 1. When the chasers have advanced along the rod or tube until the chaser passes off from the inclined surface from 12^a to 12^b, the chasers suddenly expand into the cavity made by the more deeply slabbed off portions from 12^c to 12^d, and the cutting head is projected beyond the end of the tube by the recovered force of the spring 15, which has been compressed during the cutting action, this action taking place as soon as the sectional nut has been expanded by turning the ring 5 by means of the handle 7. As will be understood, the sectional nut is not expanded to disconnect the feed screw connection until after the rod or other similar work has been removed from the work engaging part, so that the work can be removed from the head without backing off the cutting tool and retracing the entire course of the thread cut by the chasers. The extent to which the thread cutting operation is carried may be regulated by means of the regulating pin 27; this is a pin which extends through the flange 10, and is provided with a head 28 that engages behind a collar 29 on the abutment ring 4. The end which projects through the flange 10 is threaded and provided externally with a knurled nut 31, and by means of the bolt and nut thus held and thus engaging the movable parts of the tool, the initial location of the flange 10 and of the chaser cutters carried by it may be regulated, with respect to the final throw-off position, and the extent of the run of the thread produced may be thus predetermined by the user of the tool.

The inner end of the chaser carrying member 9 beyond the threaded portion is finished with a cylindrical portion 9^a, that engages closely within the tube 1, and prevents the chips and dirt from the work from fouling

the feed screw or the sectional nut, and the feed screw is kept clean and its life period greatly increased.

What I claim is:—

1. In a thread cutting tool, the combination of a work engaging part, a head engaging said part with a feed screw connection, means for connecting and disconnecting the feed screw connection, chasers carried by the head, a ring on the work engaging part provided with pins to engage the chasers, said pins having inclined faces and recesses to permit the chasers to withdraw to clear the work, and springs engaging the head and said ring to return the chaser carrying head to its initial position upon the disconnection of the feed screw connection.

2. In a thread cutting tool, the combination of a work engaging part, a head engaging said part with a feed screw connection, means for connecting and disconnecting the feed screw connection, chasers carried by the head, means carried by the work engaging part to engage and adjust the chasers, said means being constructed and arranged to permit said chasers to withdraw clear of the work, and said chaser carrying member being movable longitudinally relative to said means, and means to return the chaser carrying head to its initial position upon disconnection of the feed screw connection.

3. In a thread cutting tool, the combination with a work engaging part, a head, chasers mounted in said head for radially sliding movement, pins to engage the chasers, said pins being provided with inclined faces and with recesses at the rear of said inclined faces to permit the chasers to withdraw radially to clear the work, said chaser carrying member being movable longitudinally relative to said pins, means to retain the chasers in their position when withdrawn clear of the work, and means to return the head to its initial position.

4. In a thread cutting tool, the combination of a work engaging part, a head engaging said part with a feed screw connection, means for connecting and disconnecting the feed screw connection, chasers carried by the head, means carried by the work engaging part to engage and adjust the chasers, said means being constructed and arranged to permit said chasers to automatically withdraw clear of the work, and means to return the chaser carrying head to its initial position upon the disconnection of the feed screw connection.

In testimony whereof, I sign this specification in the presence of two witnesses.

WILLIAM MURCHEY.

Witnesses:

CHARLES F. BURTON,
WILLIAM M. SWAN.