No. 862,876.

PATENTED AUG. 13, 1907.

B. BORDEN & W. A. NERACHER.

THREAD CUTTING TOOL.

APPLICATION FILED NOV. 2, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

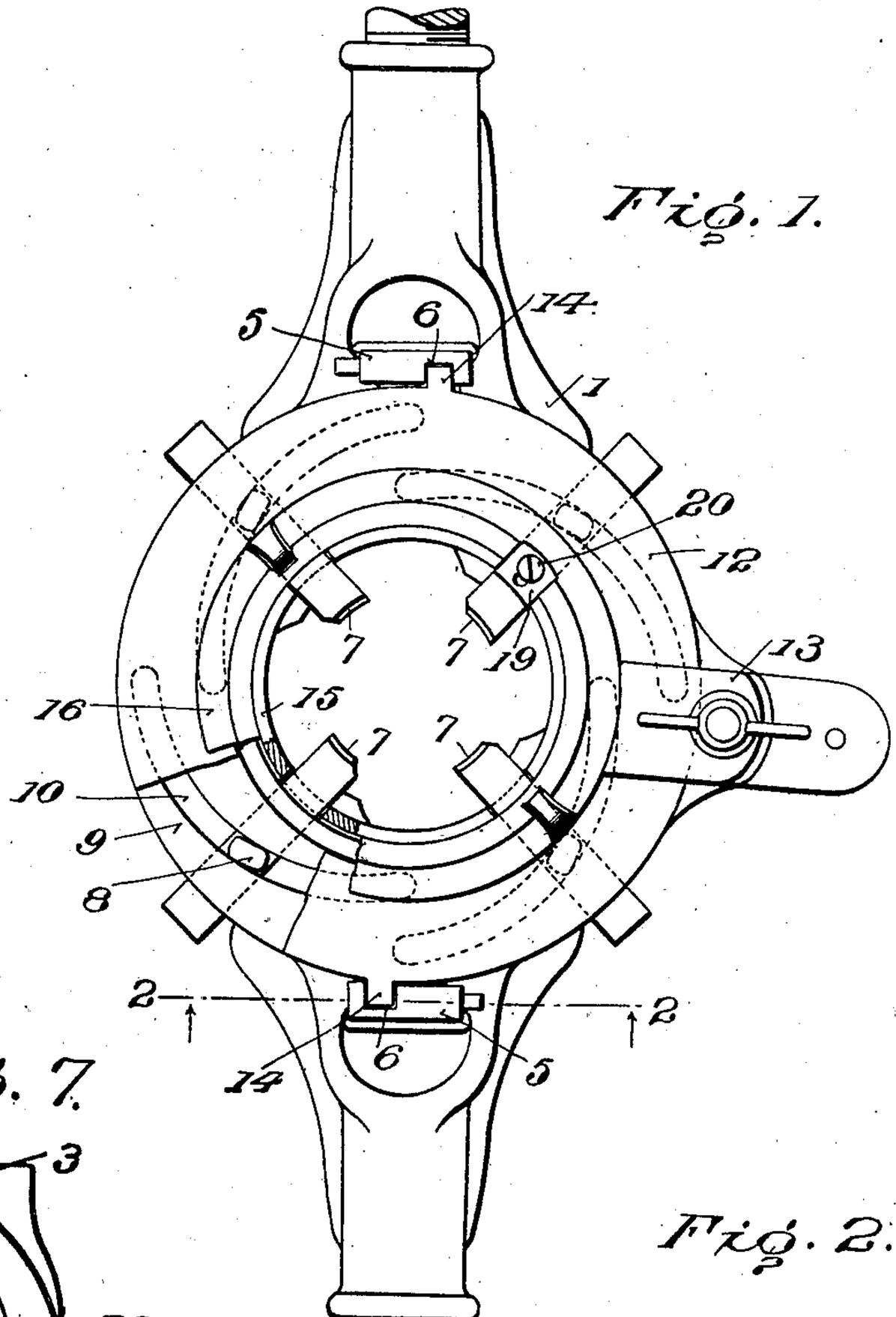

Fig. 7.

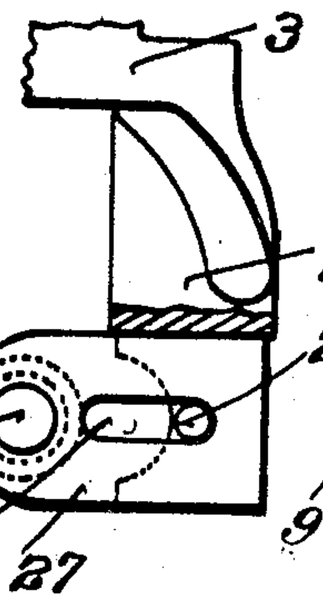

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

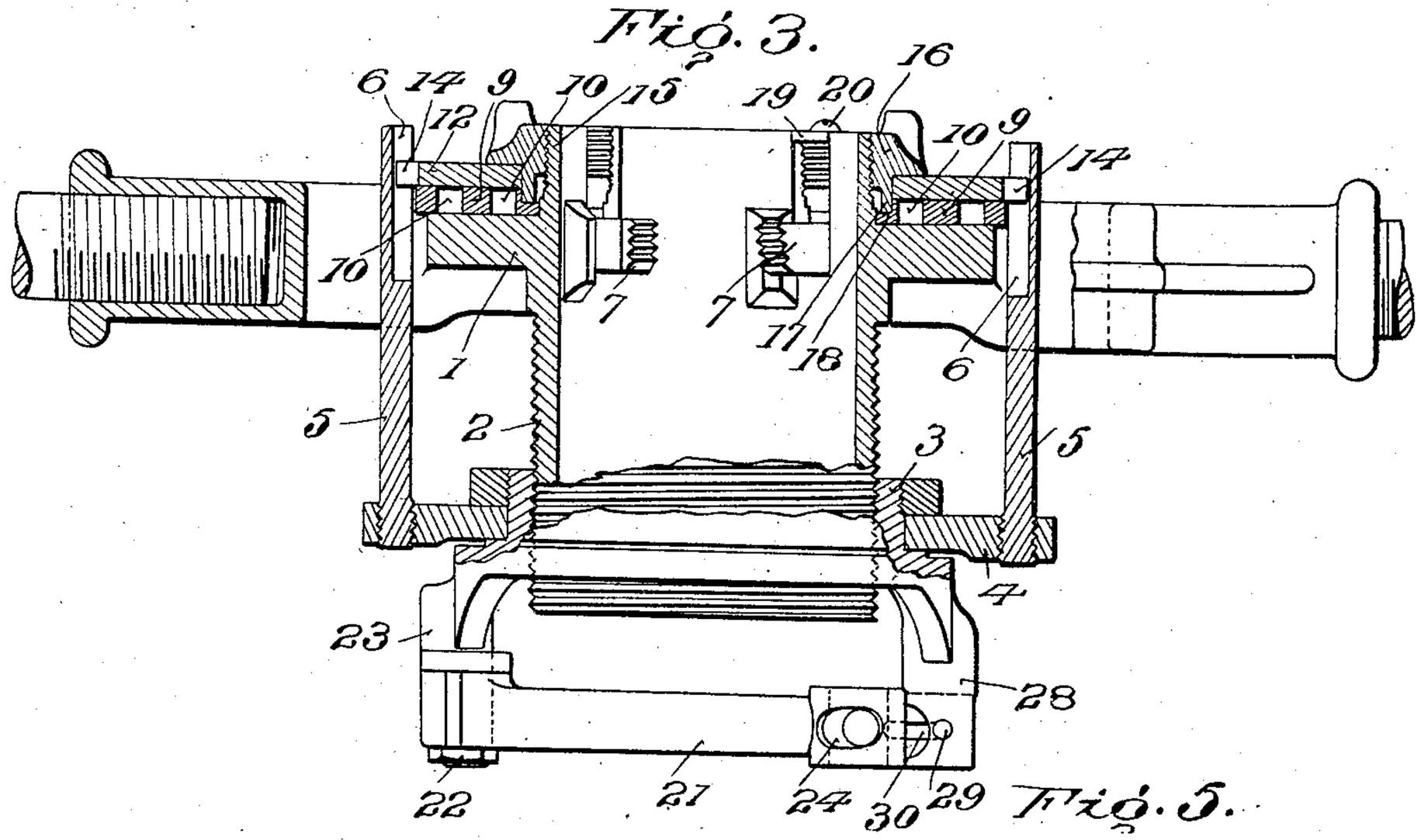
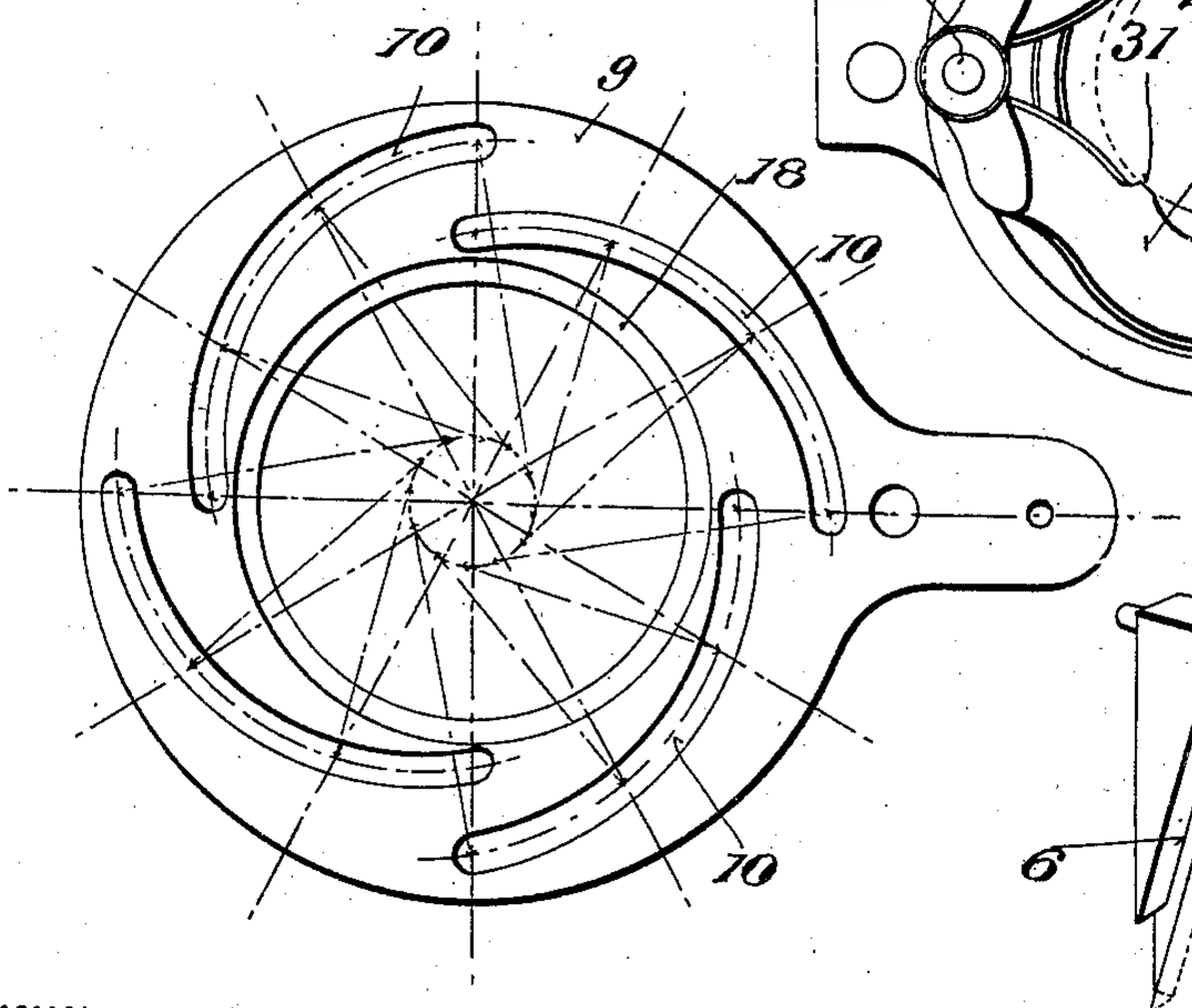


Fig. 5.

Fig. 4.



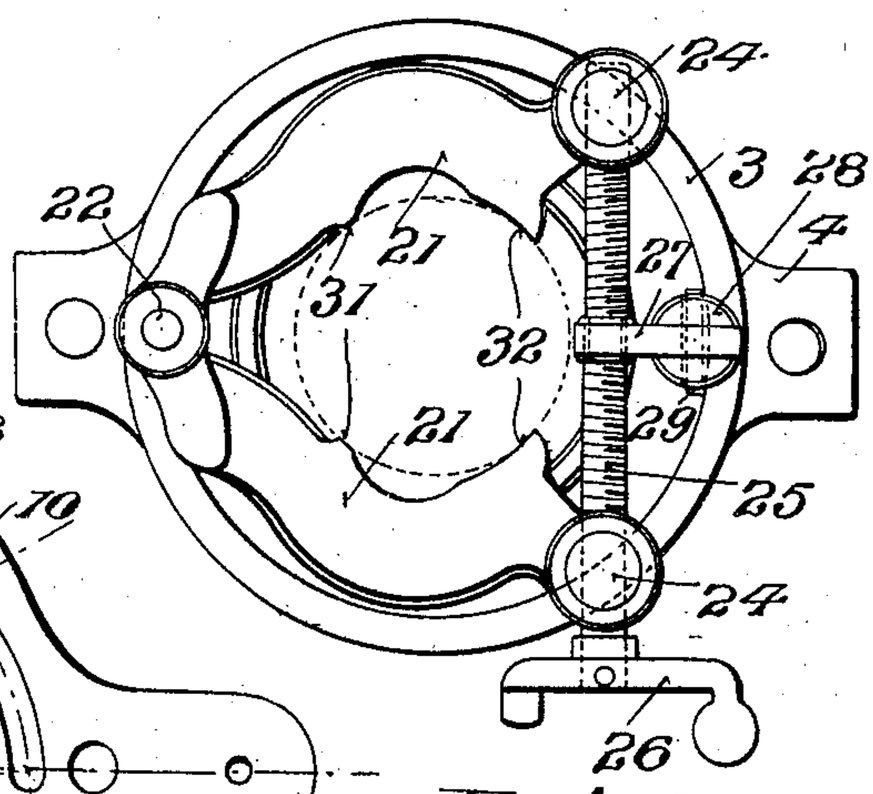
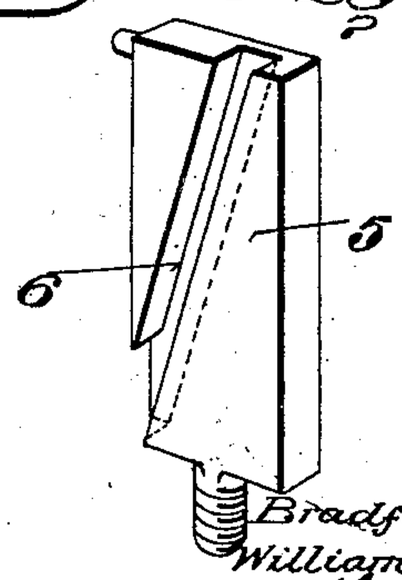


Fig. 6.



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BRADFORD BORDEN AND WILLIAM A. NERACHER, OF WARREN, OHIO, ASSIGNORS TO THE BORDEN COMPANY, OF WARREN, OHIO, A CORPORATION OF OHIO.

THREAD-CUTTING TOOL.

No. 862,876. Specification of Letters Patent. Patented Aug. 13, 1907.

Application filed November 2, 1906. Serial No. 341,763.

To all whom it may concern:

Be it known that we, BRADFORD BORDEN and WILLIAM A. NERACHER, both of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Thread-Cutting Tools; and we 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.

This invention relates to that class of die stocks adapted for cutting taper threads; and its objects are to provide a device of that character which may also be employed for cutting straight threads; to prevent chips from interfering with the working of the tool; and to provide simple and easily operated means for holding and accurately centering pipes of various sizes.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation with parts in dotted lines. Fig. 2 is an elevation, partly in section on line 2—2, Fig. 1. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is a view of the chaser-engaging plate. Fig. 5 is a rear elevation. Fig. 6 is a face view of one of the posts. Fig. 7 is a detail.

Referring to the drawings, 1 designates the die-stock housing having an exteriorly threaded sleeve 2, which works in an interiorly threaded ring 3 of a work holder. Upon the latter is rotatably mounted a collar 4 which carries opposite posts 5 which extend through openings formed in the housing so that as the latter is turned clock-wise the posts and their supporting collar travel with it. In the present instance, we have formed diagonal guideways 6 in the posts by grooving the front faces thereof, the lower ends of said guideways intersecting the side edges of the posts to permit chips that may fall therein to find ready outlets.

As pointed out in our application for patent, Serial No. 337,603, filed October 5, 1906, the chasers 7, which are set in open-end grooves in the outer face of the housing, are adjustable to accommodate pipes of different sizes by the engagement with lugs 8 thereof of a ring-like plate 9 having eccentric slots 10 to accommodate the lugs of the several chasers. This chaser-engaging plate is locked to a second ring-like plate 12 by a clamp 13 and said latter plate has diametrically opposite lugs 14 which enter the diagonal guideways 6 for effecting the gradual outward movement of the chasers for cutting taper threads.

The plates 9 and 12 are held in place on a central tubular extension 15 of the housing by a nut 16, a flange 17 of which extends through the opening of the post-engaging plate 12, which opening is greater than the diameter of said extension, and into a recess 18 in the outer face of the chaser-engaging plate 9, which latter hugs the unthreaded portion of the extension. In this way chips are prevented from getting between the plates and interfering with the adjustment thereof. The nut is locked by a plate 19 and a screw 20 passed through a slot thereof, said plate being designed to extend into one of the cut-outs formed in the tubular extension 15 in line with the chaser-holding grooves.

The eccentric slots 10 in the chaser-engaging plate 9 are each formed on a plurality of radii, as shown in Fig. 4, so that one set of chasers may be employed for cutting pipes of various sizes, and when set for any particular size will be moved outwardly a uniform extent in cutting taper threads. In other words, it is necessary that the automatic axial movements of the two plates 9 and 12, should effect the same relative outward movement of the several chasers for all sizes of pipe. This we accomplish by having each eccentric slot on a plurality of radii, in other words, each slot is composed of a series of communicating segments, each segment being on a different radius.

The lugs 8 of the several chasers are preferably oblong and slightly curved on their opposite faces to substantially conform to the contour of the slots. The engagement between the chasers and their adjusting plate, through the lugs of the former, is such that if clamp 13 is loosened, the axial turning of the post-engaging plate 12, during the threading operation, will not be communicated to the chaser-engaging plate, and the chasers will cut straight threads.

21, 21, designate pipe-engaging jaws of the work holder, which jaws are constructed and operated not only to grip but also to center each piece of pipe, within the range of the machine. As shown in Fig. 5, these jaws, which are of corresponding formation, extend over the rear face of the work-holder ring, and at one end are pivotally united by a bolt 22 which extends into a boss 23 of said ring. The jaws at their free ends are formed with openings to accommodate nuts 24 having threaded openings to correspond, respectively, to the right and left hand threads of a rod 25 having at one end a handle 26. At its center, this rod carries a plate 27 which extends through a slot formed in a second boss 28, also projecting from the work-holder ring, said plate being held in said boss by a pin 29 mounted in the boss and passed through a slot 30 of the plate. As the jaws are drawn toward each other, by turning rod 25, the slotted plate 27 will be moved outwardly through the slot of boss 28, and inwardly as the jaws are released or moved away from each other. The jaws are slightly curved longitudinally and are formed on their inner, opposite edges, near their pivoted ends, with beveled shoulders 31

which form rests or seats for the pipes, while near their free ends they have opposite slightly curved surfaces, 32, which bind against the pipes as the jaws are drawn together. This insures the centering of all pipes, and their firm retention during the cutting operation.

We claim as our invention:

1. A pipe threading device comprising a housing, a series of radially-arranged chasers, provided each with a lug, chaser-engaging means rotatable with, and also relative to, said housing, and having a series of slots eccentric to the axis of the housing to accommodate said lugs, each slot being formed on a plurality of radii.

2. A pipe threading device comprising a housing, a series of radially-arranged chasers, provided each with a lug, a rotatable plate having slots eccentric to its axis to accommodate said lugs, each slot being formed on a plurality of radii.

3. A pipe threading tool comprising a housing, a series of radially-arranged chasers, provided each with a lug, a plate rotatable with, and also relative to, said housing, and having a series of slots to accommodate said lugs, each slot being eccentric to the axis of the housing and formed on a plurality of radii, a second plate, means for detachably binding said plates together, and means rotatable with said housing engaging said second plate for automatically rotating it and said chaser-engaging plate relative to the housing during the cutting operation.

4. The combination with a housing having a threaded tubular extension, of chasers set in the housing and having lugs projecting therefrom, a ring-like plate having slots eccentric to the axis of said housing, said plate being fitted on said extension and having a recess in its outer face, a nut on said tubular extension having a flange extended into the recess of said plate, and means for locking said nut.

5. The combination with a housing having a threaded tubular extension, of chasers set in the housing and having lugs projecting therefrom, a ring-like plate having slots eccentric to the axis of said housing, said plate being fitted on said extension and having a recess in its outer face adjacent to the latter, a nut on said tubular extension having a flange extended into the recess of said plate, and an adjustable plate carried by said nut for engaging said extension and locking the nut thereto.

In testimony whereof, we have signed this specification in the presence of two subscribing witnesses.

BRADFORD BORDEN.
WILLIAM A. NERACHER.

Witnesses.
FRANK S. CHRYST,
JOHN A. LACHMAN.