

B. BORDEN.
PIPE THREADING TOOL.
APPLICATION FILED SEPT. 23, 1908.

1,056,085.

Patented Mar. 18, 1913.

2 SHEETS-SHEET 1.

Fig. 1.

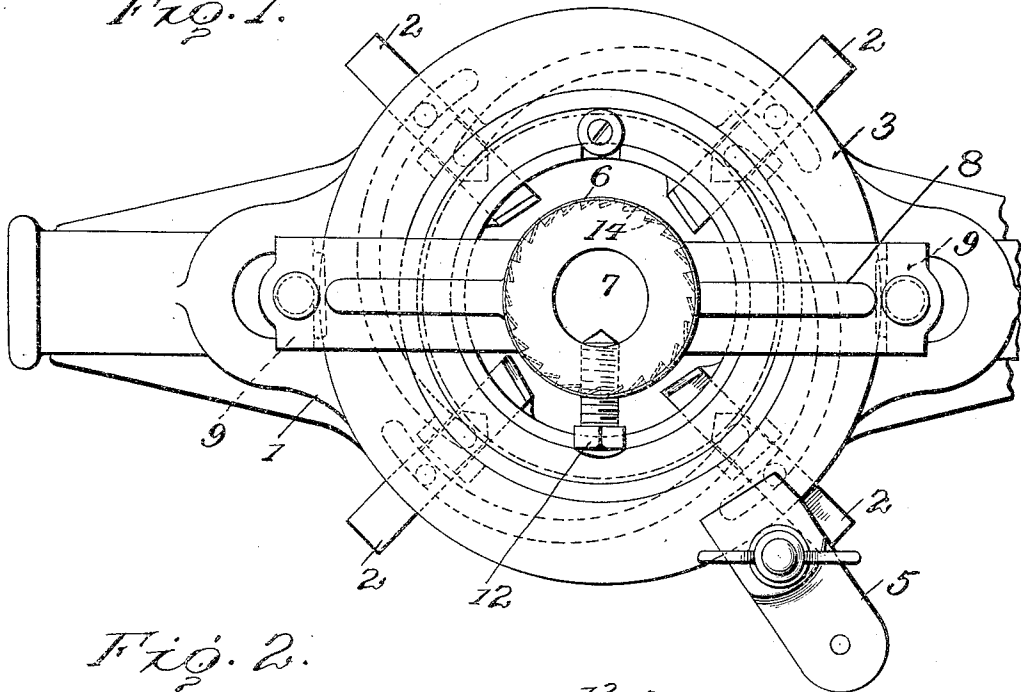
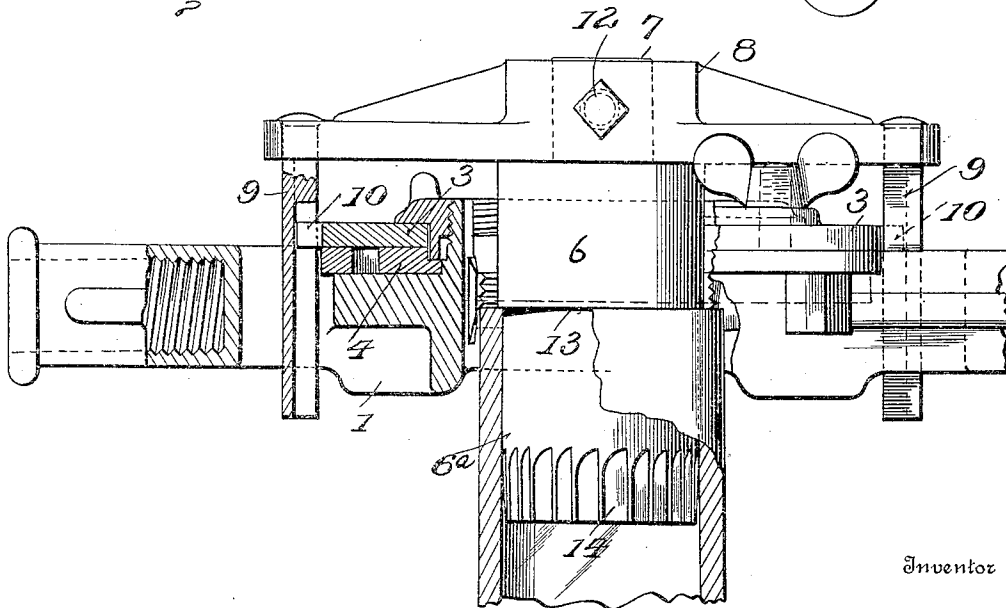


Fig. 2.



Inventor

Bradford Borden

By

[Signature]

Attorney

Witnesses

John A. Murphy.

William W. Chadwick

B. BORDEN.
PIPE THREADING TOOL.
APPLICATION FILED SEPT. 23, 1908.

1,056,085.

Patented Mar. 18, 1913.
2 SHEETS—SHEET 2.

Fig. 3.

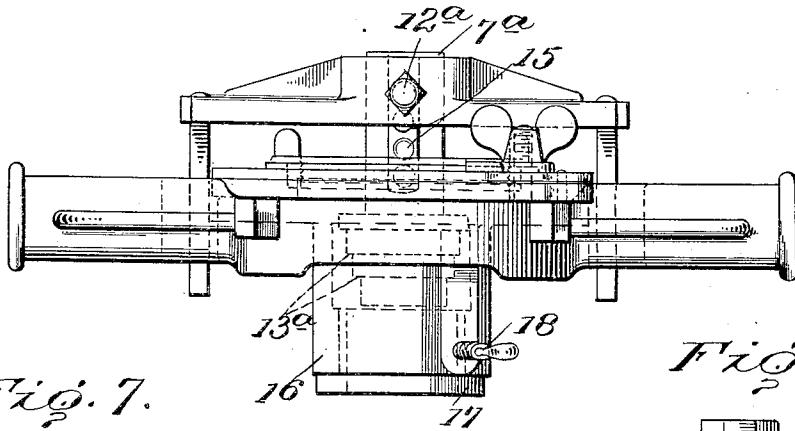


Fig. 7.

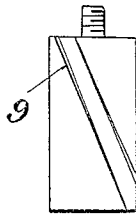


Fig. 4.

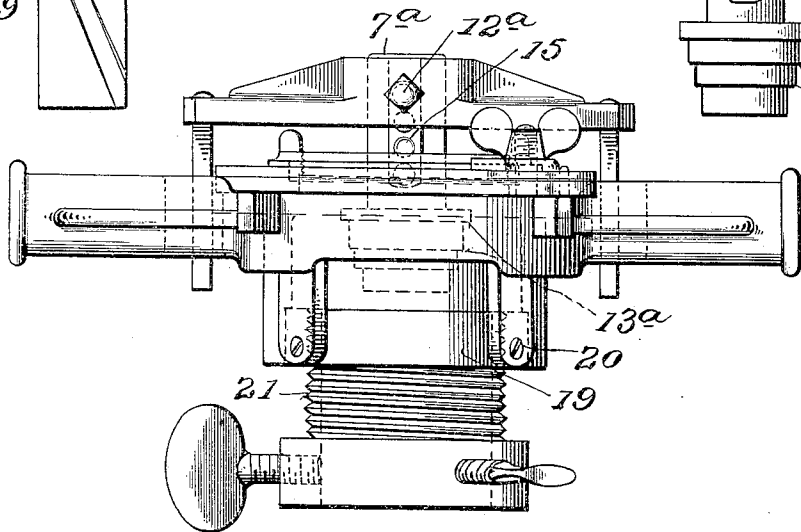


Fig. 6.

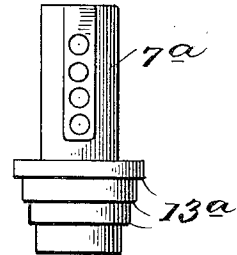
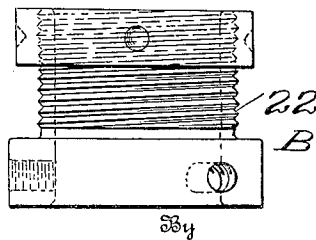


Fig. 5.



Witnesses
John A. Murphy
William W. Chadwick

Inventor
Bradford Borden
John A. Murphy
Attorney

UNITED STATES PATENT OFFICE.

BRADFORD BORDEN, OF WARREN, OHIO, ASSIGNOR TO THE BORDEN COMPANY, OF
WARREN, OHIO, A CORPORATION OF OHIO.

PIPE-THREADING TOOL.

1,056,085.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed September 23, 1908. Serial No. 454,333.

To all whom it may concern:

Be it known that I, BRADFORD BORDEN, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Pipe-Thread-
5 ing Tools; 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 apper-
10 tains to make and use the same.

Heretofore adjustable die stocks or pipe
threading tools, of the kind used by
plumbers and gas and steam fitters for cut-
15 ting tapered threads on pipes, have com-
monly comprised a rotatable and longitudi-
nally-movable housing or chaser-carrier;
an adjuster, in the form of a single element
common to all of the chasers; a post or
20 wedge rotatable with the housing, but not
partaking of the longitudinal travel there-
of, for automatically controlling the move-
ment of the adjuster during the cutting
operation; and a work-holder fixedly mount-
25 ed on the pipe and toward which the chaser
carrier travels during the thread cutting
operation, the carrier and the work-holder
having a threaded engagement, or its equiva-
lent, to draw the former toward the latter.
30 It is upon this work-holder that the post
or wedge has heretofore been mounted in
such manner as to rotate with the chaser-
carrier but not to move longitudinally there-
with. During this latter movement the ad-
35 juster has a movement imparted thereto in-
dependently of its rotation with the hous-
ing, and being in engagement with all the
chasers, simultaneously controls them so as
to secure uniformity in recession. This in-
dependent movement of the adjuster may be
40 at right angles to the axis of the chaser car-
rier, as shown in Letters Patent No. 834,454,
issued to me October 30, 1906, or it may
be concentric to the axis of the carrier as
shown in Letters Patent No. 1,005,147, issued
45 to W. A. Neracher and myself October 10,
1911. In the latter instance the adjuster
or chaser-engaging plate is rotatable with
and independently of the chaser-carrier, and
it is by reason of this independent rotation,
50 and the coöperation of the post or wedge,
that the recession of the chasers is auto-
matically controlled and the cutting of a
tapered thread is effected.

The primary object of my present inven-
55 tion is to dispense wholly with the work-

holders heretofore absolutely necessary in
all hand operated tools, and thus avoid the
care and trouble required in centering such
work-holders on the pipes to be threaded.
It is well known that unless the work-
60 holder is properly centered the resultant
thread will not be in true alinement with
the pipe's axis, the presentation of the cut-
ting threads of the chasers to the end of the
pipe being controlled not by the chasers
65 themselves, but by the position which the
chaser-carrier is caused to assume by the
positioning of the work-holder on the pipe.
To prevent the work-holders from slipping
it has heretofore been necessary to provide
70 special means for firmly impinging the pipe
surface, and this has tended to add to the
trouble and expense. By my present inven-
tion I have produced an adjustable die-stock
or pipe threading tool, of the kind adapted
75 for cutting tapered threads, composed of less
parts than has heretofore been possible, and
hence the tool may be made with less ex-
pense, and its use attended with but little
difficulty. And a further object of my
80 present invention is to effect the removal
of all burs while positioning the tool rela-
tively to the pipe.

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

In the accompanying drawings, Figure
1 is a front end view. Fig. 2 is a side eleva-
tion, partly in section, Fig. 3 is a side eleva-
90 tion of a slight modification. Fig. 4 is a
similar view of a second modification, of
which Fig. 5 is a part. Figs. 6 and 7 are
details.

Referring to the drawings, 1 designates a
rotatable and longitudinally movable hous-
95 ing or chaser-carrier, provided, as custom-
ary, with oppositely arranged sockets to ac-
commodate handles by which the housing
may be manually rotated. Within this
housing or carrier are radially-arranged
100 chasers 2, which, according to known means,
gradually and uniformly recede as the
threading operation progresses; and such
chasers are capable of being adjusted to
pipes of different sizes. The adjuster is
105 substantially the same as that shown in Let-
ters Patent No. 1,005,147, before mentioned,
and comprises a chaser-engaging plate 4
which is shown as detachably locked to a
second plate 3 by a clamp 5, and as having
110

eccentric slots or grooves (see dotted lines Fig. 1) for taking in lugs of the chasers. The chaser-engaging plate 4 not only rotates with the chaser-carrier, but has an independent rotary movement relatively thereto. Hence as the tool is revolved the gradual recession of the chasers will be effected resulting in the cutting of a tapered thread. It is known in the art that under certain circumstances the rotation of the chaser-engaging plate may be effected either wholly by the pressure of the pipe acting longitudinally on the chasers; or by the application of turning power to the chaser-engaging plate. In either event it is necessary to control this independent rotation of the chaser-engaging plate, and heretofore the controlling means has been mounted directly on the work-holder, but according to my present invention the controlling means is connected to a stop which is designed to engage the end of the pipe being threaded, thereby preventing the controlling means from partaking of the longitudinal travel of the chaser-carrier. I have shown the stop or pipe-engaging member in the form of a circular body 6 located centrally of the tool and having a shank 7 which fits in a correspondingly formed opening in a cross bar 8 extending at right angles to the axis of the tool. This cross-bar carries two posts 9 which project through openings in the chaser-carrier. These posts, as pointed out in Patent No. 1,005,147, have diagonal guide-ways for taking in the lugs 10 of plate 3 so as to thereby cause or permit rotation of the chaser-engaging plate 4 during the thread cutting operation. The shank 7 and cross bar 8 are preferably locked together by a screw 12, but in some forms the bar may be loose on the shank.

On about the same plane as the inner edges or threads of the chasers, I form on the exterior of the stop or pipe-engaging member a circumferential shoulder 13 for abutting against the end of the pipe. This engagement of the stop with the pipe prevents the post 9, cross bar 8, and the stop itself from partaking of the longitudinal travel of the chaser-carrier, and by reason of the engagement between the posts and the chaser-engaging plate (or the plate carried thereby) the independent rotation of such chaser-engaging plate is automatically controlled, resulting in a gradual and uniform recession of the chasers. Thus the necessity of employing and carefully mounting a work-holder on the exterior of a pipe is obviated.

For the purpose of centering or guiding the tool in the performance of its work, I provide it with a guiding agency. The stop or pipe engaging member is shown in Fig. 2 as having a reduced portion 6^a for extending into the bore of the pipe and thus form a

centering guide which serves to properly direct the chasers onto the pipe without being attached to the latter as is required in the use of work-holders. I have also shown the end of the reduced or centering portion provided with reaming teeth 14 for removing burs as the tool is being moved into position, but these may be omitted if desired. For pipes of different sizes different stop bodies may be used, and hence by loosening retaining screw 12 one stop may be removed and another inserted. But instead of providing different stops one may serve for pipes of various sizes. For instance, the stop may be formed with a series of step-up shoulders to accommodate pipes of different sizes, and in this event the stop will be adjustably connected to the cross bar so that the shoulder corresponding with the pipe to be threaded may be properly positioned relatively to the chasers. This form is shown in Figs. 3 and 4; the stop has a series of reduced portions forming circumferential shoulders 13^a, and the shank 7^a is elongated and formed with openings 15 to accommodate set screw 12^a, which latter is necessary only when the stop is not in close frictional engagement with the pipe.

For the purpose of affording additional guides or bearings for the threading tool, the housing or chaser-carrier may have a tubular extension 16 to accommodate centering bushings of different thicknesses, one bushing being shown at 17. Fig. 3, and as each bushing is held by a screw 18, the substitution of one for another may be easily accomplished. These bushings are designed to fit on the pipes and form guides for centering the tool. If it be desired to employ leader screws in connection with the threading tool, an internally threaded nut 19 may be held within the tubular extension of the housing by screws 20, such nut being engaged by a leader screw 21. A left-hand leader screw 22 is shown in Fig. 5, with a correspondingly threaded nut thereon, which nut may be substituted for a right-hand nut shown in Fig. 4. But leader screws are objectionable, and they are in no sense necessary to the successful employment of a threading tool embodying my present invention.

The advantages of my present invention will be readily appreciated by those skilled in the art. So far as I am aware I am the first to produce an adjustable die stock or portable pipe threading hand tool capable of cutting tapered threads on pipes of different sizes without the use of a frame or work-holder fixedly mounted on the pipe, and also without employing a leader screw, or its mechanical equivalent, connected to or supported by such frame or work-holder. This is a desideratum long sought but never before obtained in this class of hand tools.

Furthermore, by means of my present invention I am enabled to thread with equal facility pipes which are not even on the end, that is, where the end has not been perfectly cut off, the pipe at one side being of somewhat greater length than on the other side. Under such circumstances the longer portion of the pipe will form the seat for the stop, and the latter will not revolve with the tool. Therefore, by removing or loosening the set screw 12 the cross bar may revolve around the reduced end or shank of the stop. But whether the stop revolve or be fixed so that the cross-bar will revolve on the stop, the result is the same, the cross-bar will ride and revolve on the end of the pipe. The tool in being applied to and while working on a pipe is guided to its work by centering means carried by either the stop or the housing, such centering means engaging with but not secured to the pipe.

I claim as my invention:—

1. A hand tool for cutting tapered threads on pipes comprising, in combination, a rotatable and longitudinally movable chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable with and movable independently of said chaser-carrier, a post for controlling the independent movement of said plate, said post being rotatable with said chaser-carrier but not partaking of its longitudinal travel, means with which the pipe or article being threaded is designed to engage for acting on said post to prevent it from traveling longitudinally with the chaser-carrier, and means carried by the tool for centering it on the pipe without being secured thereto.

2. A hand tool for cutting tapered threads on pipes comprising, in combination, a rotatable and longitudinally movable chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable with and independently of said chaser-carrier, a member for causing or permitting the independent rotation of said plate, said member being rotatable with said chaser-carrier but not partaking of its longitudinal travel, means with which the pipe or article being threaded is designed to engage for preventing said member from traveling longitudinally with the chaser-carrier, and means carried by the tool for centering it on the pipe without being secured thereto.

3. A hand tool for cutting tapered threads on pipes comprising, in combination, a rotatable and longitudinally movable chaser-carrier having a central opening, a series of radially arranged chasers, a chaser-engaging plate rotatable with and independently of said chaser-carrier, a post controlling the independent movement of said plate, said post being rotatable with said chaser-carrier but not partaking of its longitudinal

travel, a guiding agency at the rear of the chaser-carrier, and a cross-bar extending transversely of the chaser-carrier at or near the front thereof and to which the post is connected, said cross-bar having a portion with which the pipe is designed to engage for preventing the cross-bar and the post from traveling longitudinally with the chaser-carrier.

4. A hand tool for cutting tapered threads on pipes comprising, in combination, a rotatable and longitudinally movable chaser-carrier, a series of radially-arranged chasers, a single element common to all the chasers to control the uniform recession thereof, a stop designed to engage with the pipe to be threaded, a cross-bar mounted on said stop, said cross bar being revoluble with the chaser-carrier, a member carried by said cross-bar for controlling said single element, and means carried by the tool for centering it on the pipe without being secured thereto.

5. A hand tool for cutting tapered threads on pipes comprising, in combination, a rotatable and longitudinally movable chaser-carrier, a series of radially-arranged chasers, a single element common to all the chasers to control the uniform recession thereof, means for centering the chaser-carrier on the pipe to be threaded without being secured thereto, a stop designed to engage with the end of the pipe to be threaded, and means rotatable with the chaser-carrier and supported by such stop, said means cooperating with said single element as the chaser-carrier travels over the pipe to control said single element.

6. A hand tool for cutting tapered threads on pipes comprising, in combination, a rotatable and longitudinally movable chaser-carrier, a series of radially-arranged chasers, a single element common to all the chasers to control the uniform recession thereof, a stop located axially of the chaser-carrier and designed to project into and engage with the end of the pipe to be threaded, and means rotatable with the chaser-carrier and supported by such stop, said means cooperating with said single element as the chaser-carrier travels over the pipe to control said single element.

7. A hand tool for cutting tapered threads on pipes, comprising, in combination, a rotatable and longitudinally movable chaser-carrier, a series of radially-arranged chasers, a single element common to all the chasers to control the uniform recession thereof, a centrally arranged body designed to be supported by the pipe to be threaded, said body having a stop on its exterior for engaging the end of the pipe, means rotatable with the chaser-carrier cooperating with said single element as the chaser-carrier travels over the pipe to control said single

element, and a support for such means extending radially from said body at the front of the chaser-carrier.

8. A hand tool for cutting tapered threads
5 on pipes, comprising, in combination, a rotatable and longitudinally movable chaser-carrier, a series of radially-arranged chasers, a single element common to all the chasers to control the uniform recession thereof, a
10 centrally arranged body designed to project into and be supported by the pipe to be threaded, said body having a stop on its exterior for engaging the end of the pipe, means rotatable with the chaser-carrier co-
15 operating with said single element as the chaser-carrier travels over the pipe to control said single element, and a support for such means extending radially from said body at the front of the chaser-carrier.

20 9. A hand tool for cutting tapered threads on pipes, comprising, in combination, a rotatable and longitudinally movable chaser-carrier, a series of radially arranged chasers, a single element common to all the chasers
25 to control the uniform recession thereof, a centrally-arranged body designed to project into and be supported by the pipe to be threaded, means rotatable with the chaser-carrier coöperating with said single element
30 as the chaser-carrier travels over the pipe to control said single element, and a support for such means extending radially from said body at the front of the chaser-carrier, said body having in rear of said chaser-carrier, teeth
35 for reaming the pipe to be threaded.

10. A hand tool for cutting tapered threads on pipes comprising, in combination, a rotatable and longitudinally movable
40 chaser-carrier, a series of radially-arranged chasers, a single element common to all the chasers to control the uniform recession thereof, a centrally arranged body designed to project into and be supported by the pipe to be threaded, said body having a stop for
45 engaging the end of the pipe and also having, in rear of the chaser-carrier, teeth for reaming such pipe, means rotatable with the chaser-carrier for coöperating with said sin-

gle element as the chaser-carrier travels over the pipe to control said single element, and
50 a support for such means extending radially from said body at the front of the chaser-carrier.

11. A hand tool for cutting tapered threads on pipes comprising, in combination, 55 a rotatable and longitudinally movable chaser-carrier, a series of radially-arranged chasers, a single element common to all the chasers to control the uniform recession thereof, means rotatable with the chaser-carrier for coöperating with said single element
60 as the chaser-carrier travels over the pipe to control said single element, and a cross-bar arranged perpendicularly to the axis of said chaser-carrier and revoluble with the latter and to which said last mentioned means is
65 connected, such cross-bar having means for engaging the pipe to be threaded to prevent such cross-bar from partaking of the longitudinal travel of the chaser-carrier. 70

12. A hand tool for cutting tapered threads on pipes comprising, in combination, a rotatable and longitudinally movable
75 chaser-carrier, a series of radially-arranged chasers, a single element common to all the chasers to control the uniform recession thereof, means rotatable with the chaser-carrier but not partaking of its longitudinal travel for coöperating with said single element
80 as the chaser-carrier travels over the pipe to control said single element, a cross-bar arranged perpendicularly to the axis and forward of said chaser-carrier and revoluble with the latter and to which said last mentioned means is connected, such
85 cross-bar being designed to revolve concentrically to the axis of the pipe, and a stop arranged centrally of the cross bar and with which the pipe is designed to engage.

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

BRADFORD BORDEN.

Witnesses:

W. A. WRACHER,
M. H. BECHTEL.