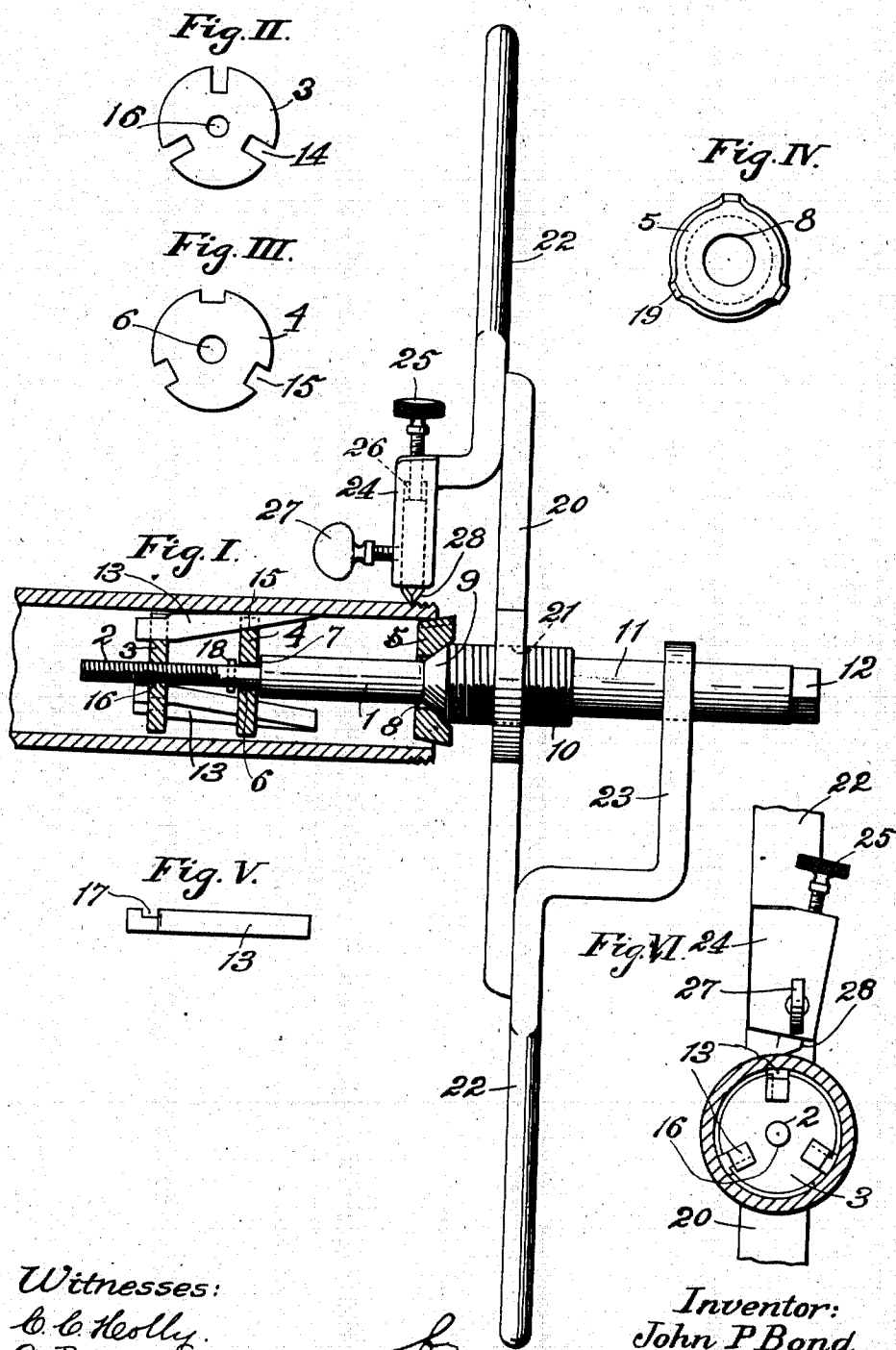


No. 764,341.

PATENTED JULY 5, 1904.

J. P. BOND.
PIPE THREADING HAND LATHE.
APPLICATION FILED MAR. 16, 1903.

NO MODEL.



Witnesses:
C. C. Kelly.
A. P. Knight.

Inventor:
John P. Bond
by Townsend Bro.
his atty

UNITED STATES PATENT OFFICE.

JOHN P. BOND, OF WINONA LAKE, INDIANA, ASSIGNOR OF ONE-HALF TO
CORA GORDON BUCKINGHAM, OF OCEANPARK, CALIFORNIA.

PIPE-THREADING HAND-LATHE.

SPECIFICATION forming part of Letters Patent No. 764,341, dated July 5, 1904.

Application filed March 16, 1903. Serial No. 147,950. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. BOND, a citizen of the United States, residing at Winona Lake, Kosciusko county, and State of Indiana, have invented a certain new and useful Pipe-Threading Hand-Lathe, of which the following is a specification.

The object of my invention is to provide a simple and convenient means for threading the ends of pipe without recourse to machine-lathes or to the usual pipe-threading screw-dies now in use.

Machine-lathes are not generally conveniently accessible to pipe-fitters, particularly when they are engaged on outside work, and the pipe-cutting tools now in general use involve a large outlay on account of the great number of screw-dies required for different sizes of pipe and the expensiveness of such dies.

My invention provides for threading a pipe by the action of a simple cutting-point, as distinguished from a screw-die, the cutting-point being guided in a helical path by suitable means.

The invention comprises centering means adapted to engage within the pipe and to furnish support which is substantially central with regard to the pipe-cutting means rotatably mounted on such support, and a screw-guide, whereby the cutting means is directed or forced in a helical path as it is turned to cut a thread on the outside of the pipe.

Broadly considered, the invention consists in a pipe-threading device comprising a rotatable screw-threaded spindle or mandrel, a thrust-shoulder and a fulcrum portion on the spindle, arms resting on said fulcrum portion, a member screwed on said spindle for moving the arms over the fulcrum portion toward the thrust-shoulder, a cutter, and a cutter-carrier screwing on the spindle. Desirably the thrust-shoulder comprises a taper block mounted on the spindle and held against longitudinal movement thereon in one direction by an enlargement of the spindle. The fulcrum portion is also desirably a separate piece mounted on the spindle and held against longitudinal

movement thereon. Any suitable means may be provided for turning the spindle for moving the arms over the fulcrum portion toward the thrust-shoulder.

The accompanying drawings illustrate the invention.

Figure I is an elevation of the thread-cutting device in place on a pipe, parts being in longitudinal section. Figs. II, III, and IV are detail views of disks or washers acting as centering devices. Fig. V is an edge view of one of the centering wedges used in connection with the washers shown in Figs. II and III. Fig. VI is an inner end view of the device in position in the pipe.

1 designates a central spindle, that serves as the support or mandrel for the cutting-head and is provided with centering means, whereby it is held centrally in the end of the pipe. Such centering means comprise collars, disks, or plates 3 4 5. Disk 3 (see Fig. II) has a central tapped hole 16, whereby it screws on the screw-threaded reduced inner end 2 of spindle 1. Disk 4 is centrally perforated at 6 to fit loosely on such reduced end and bear against a shoulder 7 of the spindle. Disk 5, Fig. IV, has a central bore 8 to pass over the central larger portion of spindle 1 and bear against a shoulder 9 thereon. Said bore 8 and shoulder 9 are preferably conical, at least in part, so as to cause the disk 8 to center exactly on the spindle when it is brought up tight against the shoulder. Outwardly from this shoulder 9 the spindle 1 is provided with a screw-threaded portion 10, and beyond that with an extension 11, that serves as a handle in centering the spindle, this part having a wrench-hold 12 formed thereon.

Wedges 13 fit in seats desirably formed, as radial slots 14 15, in the disks or collars 3 4 and are inclined on their inner sides, so that when the disks 3 4 are drawn together said wedges are forced outwardly by the seats 15 in disk 4 riding on such inclined faces. Said wedges are provided with transverse grooves 17 on one or both sides to engage with the edge of slots 14 in the disk 3 and prevent rela-

tive longitudinal movement of said wedges on disk 3. This engagement of the wedges 13 and disk 3 by grooves 17 and slots 14 enables the wedges to be withdrawn when desired for the purpose of substituting wedges of different size. This engagement is also such as to prevent lateral wobbling or canting of the wedges when the parts are turned. Disk 4 is retained in place by a removable pin 18. Disks 3 4 and wedges 13 form, in connection with the screw-spindle portion 2, an expanding chuck to grip within the pipe and support and center the inner end of the spindle, while the disk 5 serves to support the outer end and constitutes, in connection with the shoulder 9, means limiting the insertion of the spindle into the pipe. Said disk 5 is coned or tapered to enable it to fit the interior of the pipe closely and allow for slight variations in the size of the pipe. Larger variations, as would occur in changing from, say, a one-inch to an inch-and-one-half pipe, would be provided for by a plurality of disks 5 of different size; but as the cost of these disks is slight compared with that of the usual sets of screw-dies the tool is not thereby rendered expensive. The adjustability of the wedges 13 is relatively large, so that two sets of wedges would suffice for all usual sizes of pipe.

To enable the disk 5 to fit and grip centrally within the pipe in spite of slight irregularities in the latter, it is desirable to cut away portions of the conical periphery thereof, so as to leave a plurality of flaring surfaces 19, say three, which touch the pipe only along certain lines of contact. The cutter-head 20 is adapted to be rotated on the spindle 1 and engages by its tapped perforation 21 on the screw portion 10 of the spindle 1 and is provided with one or more handles 22, a steadying or outer bearing 23, turning on the extension 11 of the spindle, and with the cutter-holder bracket or arm 24. On said arm 24 are provided adjustable clamping devices for the tool—for example, a set-screw 25 for adjusting the cutter longitudinally in its seat or socket 26 and a set-screw 27, bearing against the side of the cutter to hold it in place. 28 indicates the cutter or chisel.

In using the device the proper disk 5 having been put in place on the spindle and the disks 3 4 also put on the wedges 13 are slipped into said disks 3 4. Disk 3 must be screwed out far enough to allow the wedges to pass into the pipe, but to touch the inside thereof, and the spindle is then inserted into the pipe to bring the cone-disk 5 into engagement in the end of the pipe. Then by turning the spindle the chuck on the inner end thereof is expanded, rotation of the wedges being prevented by their frictional engagement with the inside of the pipe. This tightening action of the chuck in the pipe is completed by application of a wrench to the outer end of the

spindle, and the spindle is thereby brought into substantially central or concentric relation with respect to the pipe.

Owing to the provision of a plurality of means for centralizing the support 1 at different places longitudinally of the pipe—namely, the collar 5 for centralizing at the outer end and the expanding chuck for centralizing at the inner end—said support is also aligned with respect to the axis of the pipe. The rotary head is then put on the spindle and screwed down on the screw portion 10 thereof and as the cutter or chisel 28 passes onto the outside of the pipe it cuts a groove which, on account of the guiding action of the screw portion 10 of the spindle, is a screw-thread of definite pitch. If the first cut thus made is not of sufficient depth, the cutter may be adjusted in further and additional cuts made until the desired depth is reached.

It will be understood that the cutter 28, while desirably formed as a simple cutting-point, may be formed with any number of points or cutting parts that may be deemed suitable.

Other changes of construction may be made without departing from the spirit of this invention, and I do not limit myself to the exact form shown.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of the spindle having a conical shoulder, a cutter-head rotatably mounted on the spindle, the collar having a conical bore engaging with said shoulder, and an expanding chuck mounted on the spindle.

2. A pipe-threading hand-lathe comprising, in combination, a central spindle provided with a screw portion, a cutter-head rotatable on said spindle and engaging with said screw portion, and a collar on the spindle, said collar having a tapering portion adapted to engage with and extend into the outer end of the pipe to center the outer portion of the spindle, and expansible means on the spindle engaging interiorly of the pipe and holding said spindle in axial relation thereto.

3. A pipe-threading hand-lathe comprising, in combination, a central spindle provided with a screw portion, a cutter-head rotatable on said spindle and engaging said screw portion, a collar on the spindle having a tapering portion adapted to engage the inside of the outer end of the pipe, and an expanding chuck adapted to enter the pipe, said spindle having screw-threads adapted to operate directly upon the chuck to expand it when the spindle is rotated.

4. In a pipe-threading hand-lathe, the combination of the spindle, having a shoulder, a cutter-head rotatably mounted on the spindle, a detachable conical collar engaging said shoulder and adapted to engage with the inside and end of said pipe, and an expanding chuck detachably mounted on said spindle

and also adapted to engage the inside of the pipe.

5 5. The combination with the spindle having two threaded portions of different sizes and shoulders between said portions, of a cutter-head rotatably mounted on the larger threaded portion of the spindle, for feeding the same, a detachable collar on the spindle, said collar adapted to engage between one of said shoulders and an end of the pipe, and an expansive chuck detachably mounted on the smaller threaded portion of the spindle and provided with a part adapted to bear against the other shoulder of the spindle, the expansive means
10 of said chuck adapted to be operated by a portion thereof having threads engaging the threads of the smaller portions of the spindle.

15 6. The combination with the spindle having two threaded portions of different sizes and shoulders between said portions, of a cutter-head rotatably mounted on the larger threaded portion of the spindle, for feeding the same, means limiting the insertion of the spindle into the pipe, and an expansive chuck detach-

ably mounted on the smaller threaded portion 25 of the spindle and provided with a part adapted to bear against the other shoulder, the expansive means of said chuck adapted to be operated by a portion thereof having threads engaging the threads of the smaller portion of 30 the spindle.

7. The combination of the spindle having a conical shoulder, a cutter-head rotatably mounted on the spindle, the collar having a conical bore engaging with said shoulder, and 35 an expansive chuck rotatably mounted on the spindle, and having a screw engagement therewith, and means for expanding the chuck by operation of said screw engagement.

In testimony whereof I have signed my name 40 to this specification, in the presence of two subscribing witnesses, at Winona Lake, in the county of Kosciusko and State of Indiana, this 28th day of February, 1903.

JOHN P. BOND.

Witnesses:

JOHN H. BRUBAKER,
WALTER BRUBAKER.