March 16, 1943. A. E. PETERS 2,314,016

PIPE NIPPLE TOOL

Filed July 24, 1940 3 Sheets-Sheet 1

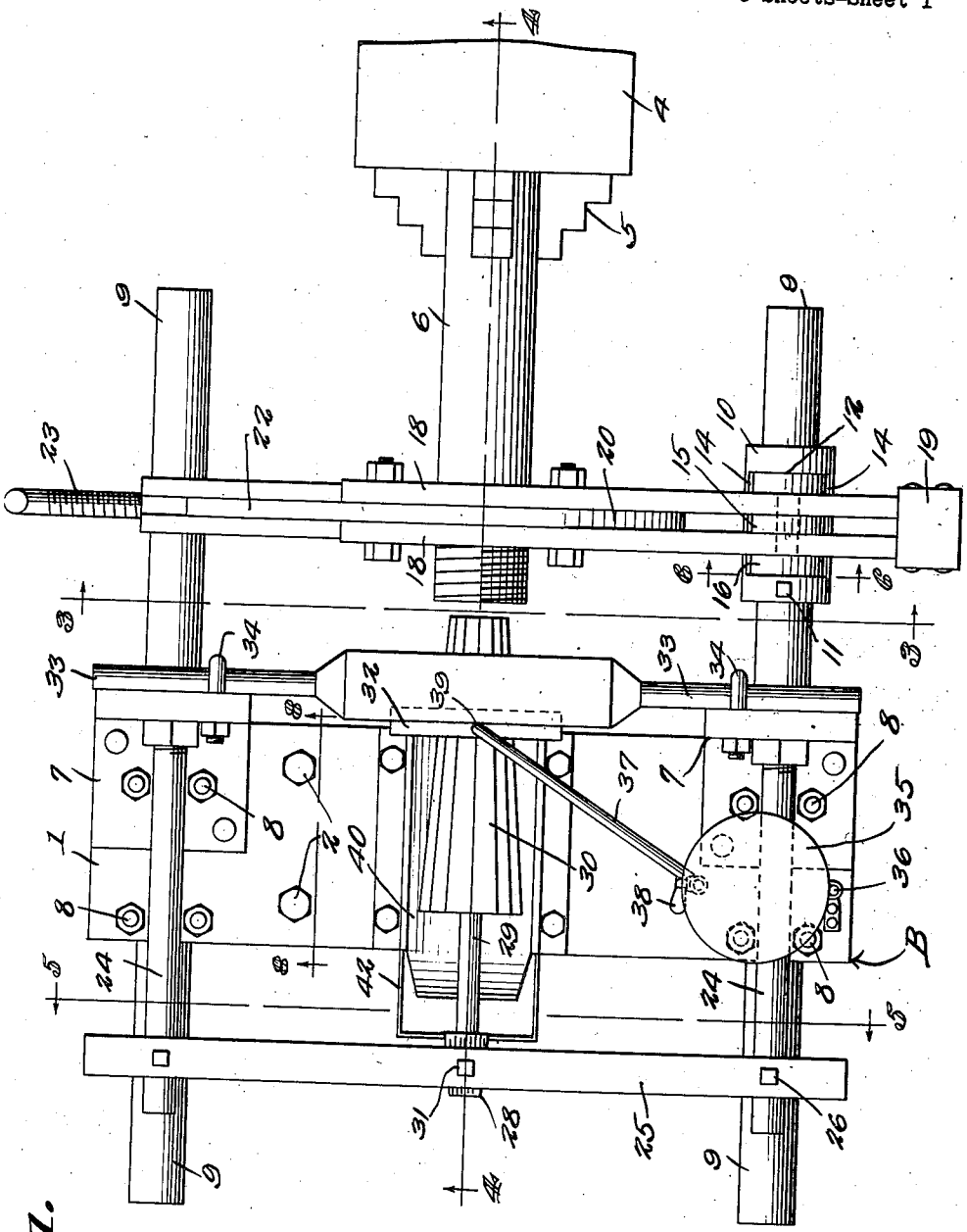


Fig. 1.

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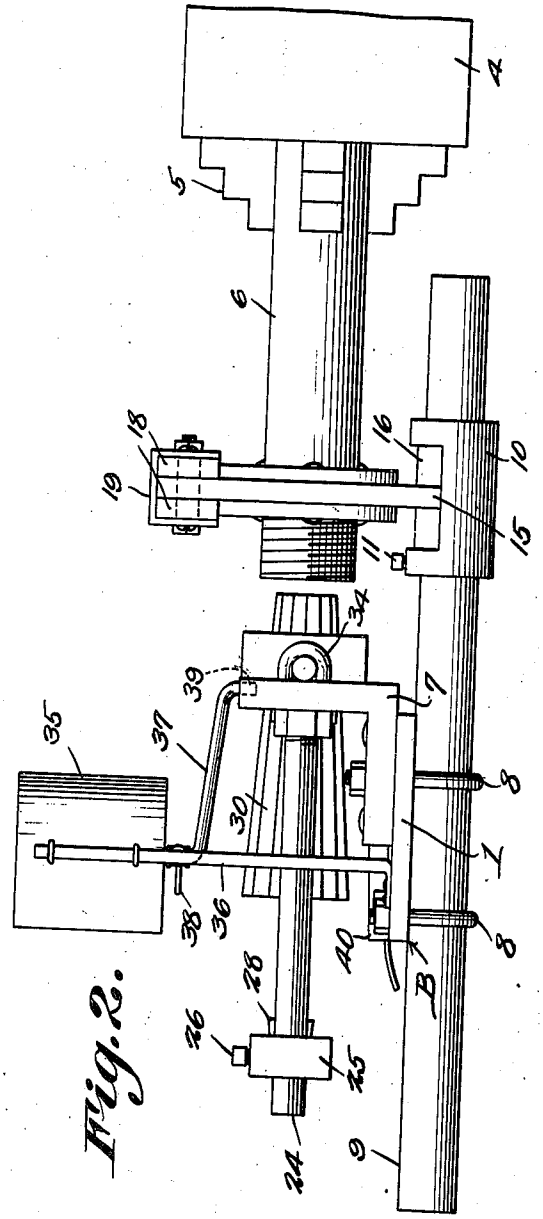


Fig. 2.

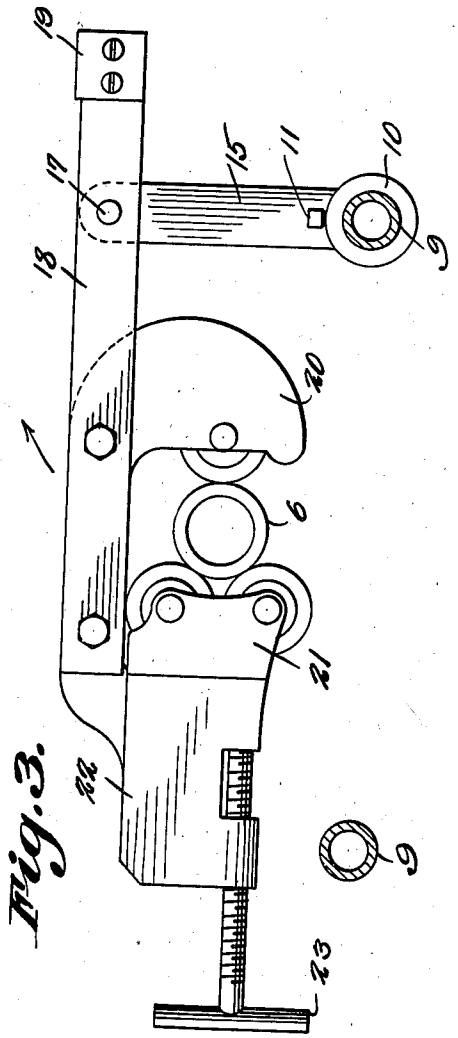


Fig. 3.

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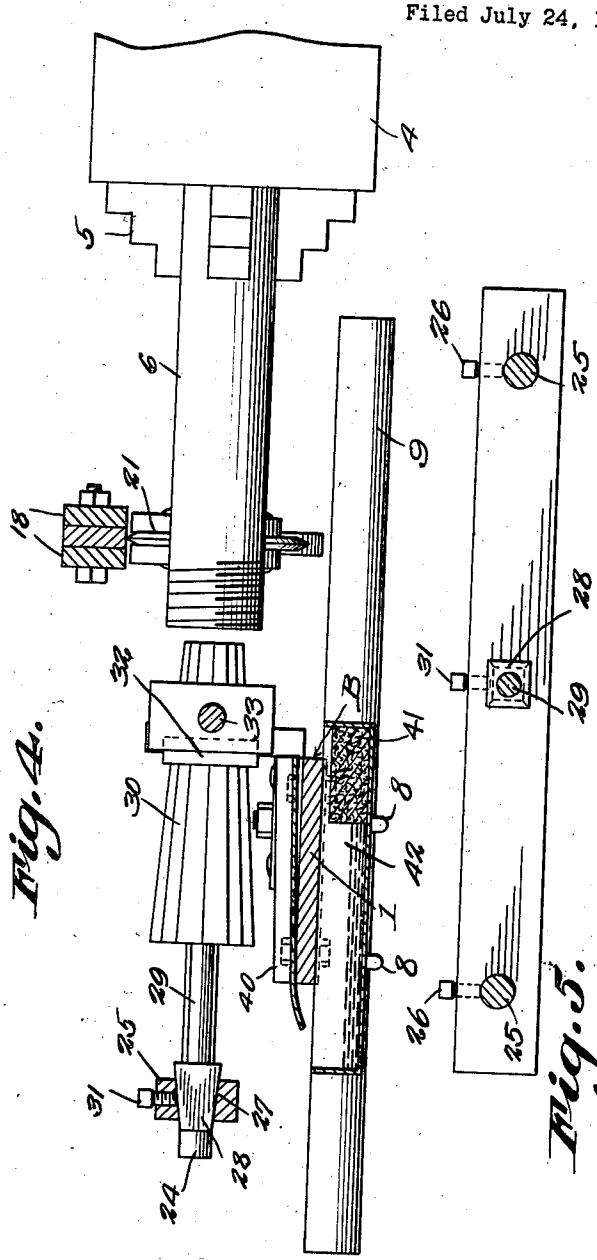


Fig. 4.

Fig. 5.

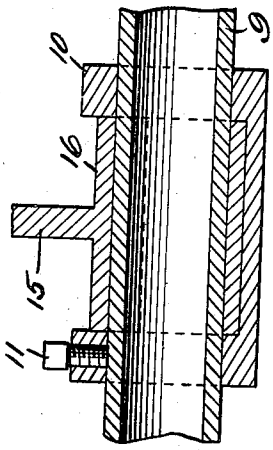


Fig. 7.

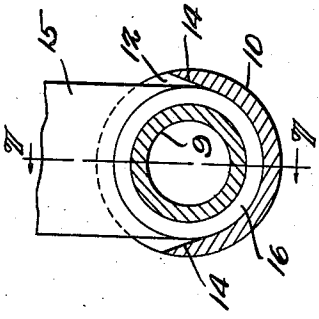


Fig. 6.

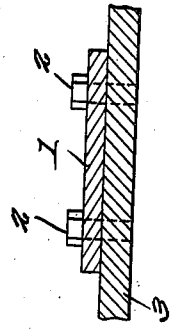


Fig. 8.

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Patented Mar. 16, 1943 2,314,016

UNITED STATES PATENT OFFICE

2,314,016

PIPE NIPPLE TOOL

Alva Eugene Peters, Olney, Ill.

Application July 24, 1940, Serial No. 347,329

1 Claim. (Cl. 10—87)

This invention aims to provide a simple mechanism for reaming and threading a piece of pipe, and to provide novel means for cutting off a pipe, novel means being supplied whereby the instrumentalities above referred to may be combined in a single machine. The invention aims, further, to provide novel means for lubricating the reaming member, and to supply novel means for carrying away the surplus oil or drip.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:

Fig. 1 shows, in top plan, a machine constructed in accordance with the invention;

Fig. 2 is a side elevation;

Figs. 3, 4, 5 and 6 are sections taken, respectively, on the line 3—3, 4—4, 5—5, and 6—6 of Fig. 1;

Fig. 7 is a section on the line 7—7 of Fig. 6;

Fig. 8 is a section on the line 8—8 of Fig. 1.

In carrying out the invention, there is provided a base B, including an elongated rectangular plate 1, held by securing elements 2 to the adjustable tool rest 3 (Fig. 8) of a lathe including a rotatable arbor 4, provided with a chuck 5, adapted to hold the piece 6 of pipe which is to be reamed or cut off.

Angle brackets 7 are mounted on the plate 1, at the ends of the plate and at the forward edge of the plate. U-bolts 8, passing through the plate 1 and the angle brackets 7, hold tubular parallel supports 9 on the bottom of the plate 1. The supports 9 carry a pipe cutting mechanism next to be described.

A tubular slide 10 is mounted on one of the supports 9, for adjustment longitudinally of the said support but ordinarily is held fixed by a set screw 11 threaded into the slide and adapted to engage the said support 9. The slide 10 is provided with an upper opening 12, defining oppositely disposed lateral shoulders 14. The numeral 15 designates an upright standard, provided at its lower end with a tubular foot 16, mounted to rock on the said support 9, within the slide 10, the foot 16 being prevented from having longitudinal movement independently of the slide, by contact with end portions of the slide, as Fig. 7 of the drawings shows. The standard 15 projects upwardly through the opening 12 in the slide 10, and the standard 15 can have a limited swinging movement, transversely of the said support 9, between the shoulders 14 of the slide. At its upper end, the standard 15 carries a pivot element 17.

A two part arm 18 is mounted for swinging movement transversely of the supports 9, on the pivot element 17. A U-shaped connector and stop 19 is mounted on the outer end of the arm 18.

A depending fixed pipe cutting member 20 is secured to the intermediate portion of the arm 18. The fixed pipe cutting member 20 cooperates with an adjustable pipe cutting member 21, mounted in a bracket 22 on the end of the arm 18 and adapted to be advanced toward the pipe cutting member 20 by a feed mechanism 23 of common and well known construction.

When the pipe cutting mechanism is properly adjusted with respect to the pipe 6, and when the pipe is rotated by the lathe arbor shown at 4, the pipe will be severed in a way well understood by those skilled in the art. The arm 18 may be turned back in the direction of the arrow shown in Fig. 3, to dispose the pipe cutting mechanism in an inoperative position. When that is done, the stop 19 engages the standard 15, to prevent the arm 18 and associated parts from swinging too far outwardly.

By shifting the slide 10 along the specified support 9, the cut off may be made at the proper place, or at the desired distance from the free end of the pipe 6.

The play that the standard 15 has, between the shoulders 14 of the slide 10, as indicated in Fig. 6, enables the cutter mechanism 20—21 to operate properly, even though the pipe may not be exactly true throughout its length, relatively to a longitudinal axis. Moreover, the play referred to enables the standard 15 to be swung outwardly to a position such that, when the arm 18 is raised and swung outwardly, as indicated by the arrow in Fig. 3, the arm and the cutting mechanism will not be likely to topple over accidentally, toward the center of the machine.

As to the pipe reaming mechanism, a pair of parallel guides 24 have their forward ends secured in the vertical flanges of the angle brackets 7, and on the guides 24, a transverse carriage

bar 25 is mounted for forward and backward adjustment, the carriage bar being held in adjusted positions by set screws 26, threaded into the carriage bar and adapted to engage the guides. Intermediate its ends, the carriage bar 25 is supplied with a polygonal socket hole 27, receiving against rotation, a foot 28 on the shank 29 of a reamer 30 disposed in coaxial relation with respect to the lathe chuck 5 and the pipe 6 to be reamed.

The base B and parts carried by it are moved forwardly as the tool rest 3 is advanced, and, thus, a reaming of the pipe 6 is brought about, the foot 28 of the reamer being held in the carriage bar 25 not only by the tapered shape of the socket hole 27, but, also, by a set screw 31, threaded into the carriage bar 25 and adapted to engage the reamer foot 28.

The numeral 32 designates a pair of thread chasers, disposed transversely of the machine, the chasers including shanks 33, adjustably held on the upright flanges of the angle bracket 7, by U-bolts 34. The construction is such that the pipe 6 may be threaded and reamed at the same time.

For the lubrication of the chasers 32, and for the lubrication of the reamer 30, there is provided a reservoir 35, mounted on a vertical post 36 secured to one end portion of the bed plate 1. An oil pipe 37 leads inwardly from the reservoir 35 and carries a hand valve 38, for the governance of the flow of oil through the pipe 37. The oil pipe 37 has a depending end 39 discharging, as shown in Fig. 2, on the forward surfaces of the chasers 32, the end 39 of the pipe being so placed as to lubricate the reamer 30, as Fig. 1 will show.

An oil trough 40 is mounted on the plate 1, underneath the reamer 30 and underneath the discharge end 39 of the oil pipe 37. The bottom of the oil trough 40 has a backward slant, and discharges into an oil reservoir 42 attached to the bottom of the plate 1. A filter or screen 41, located in the front end of the oil reservoir receives the oil drip and cuttings from the chasers. It will be obvious that the oil drip, therefore, will be filtered when collected, and will not drop downwardly to foul the lathe on which the device is used.

The operation of the device is simple and has been explained step by step hereinbefore. A brief résumé, therefore, will suffice at this point.

The slide 10 may be shifted along the support 9 on which it is mounted, to position the cutting mechanism of Figure 3 properly with respect to the pipe 6 which is to be severed. The tool rest indicated at 3 in Fig. 8 constitutes means for advancing the base B and parts carried by it, the reamer 30 being caused to exercise its function in the end of the pipe 6. The chasers 32 effect a threading of the pipe in so simple a manner that a description of operation as to them is not necessary. Adequate lubrication is provided by the tank or reservoir 35 and the conducting pipe 37.

The tool may be placed on the tool rest of any make of screw cutting lathe, and may be employed to ream and thread pipe at the same time, it being possible to carry out a cutting operation at the will of an operator.

The machine is simple in construction, it may be operated conveniently, and it affords an effective means whereby several different mechanical operations may be carried out in a unitary structure.

Having thus described the invention, what is claimed is:

Mechanism whereby a pipe may be threaded and reamed simultaneously on a turning lathe, said mechanism comprising, in combination with the movable tool rest and the rotatable arbor of the lathe, the arbor having means for holding a pipe for rotation with the arbor: a base extended across the axis of rotation of the arbor, means for attaching the base to the tool rest, upstanding supports mounted on the base, on opposite sides of the axis of rotation of the arbor, rearwardly-extended guides disposed parallel to the axis of rotation of the arbor and having their forward ends mounted on the respective supports, the rear ends of the guides being free, a carriage mounted on the guides, for adjustment toward and away from the arbor, means for holding the carriage in adjusted positions, a reamer mounted on the carriage and disposed between the guides, in axial alinement with the arbor, the base being of such length as to space the supports and the guides far enough from the reamer so that the carriage will have no practical effect in bending the guides when a piece of pipe is rotated on the reamer, and a thread chasing means carried by the supports, the reamer projecting into the field of operation of the thread-chasing means.

ALVA EUGENE PETERS.