Aug. 19, 1924. 1,505,205

D. KILGOUR, JR

PIPE CUTTER

Filed April 25, 1923

Fig-1

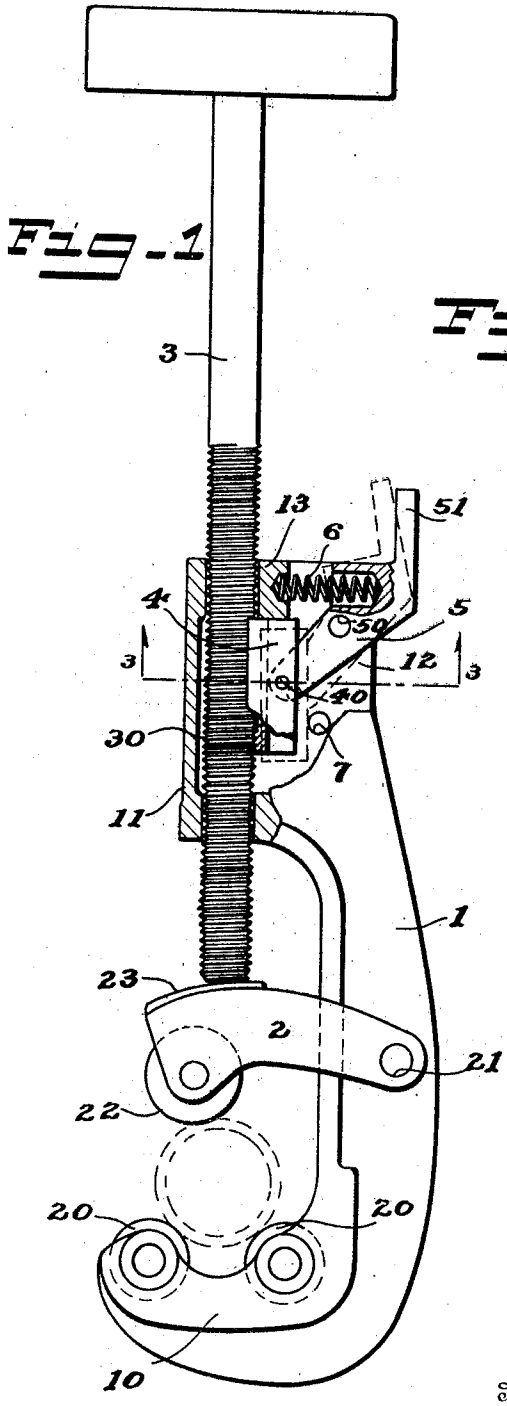
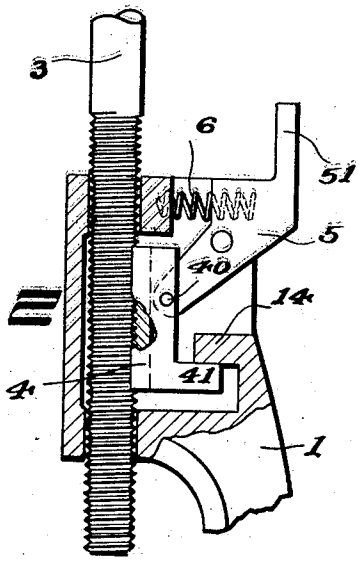


Fig-2



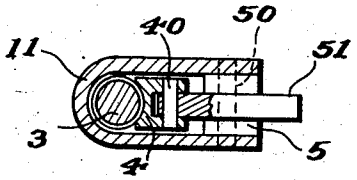


Fig-3

Inventor

DAVID KILGOUR, JR.

By W.L. & C.L. Reynolds

Attorneys

Patented Aug. 19, 1924. 1,505,205

UNITED STATES PATENT OFFICE.

DAVID KILGOUR, JR., OF SEATTLE, WASHINGTON.

PIPE CUTTER.

Application filed April 25, 1923. Serial No. 634,469.

To all whom it may concern:

Be it known that I, DAVID KILGOUR, JR., a subject of the King of England, and resident of the city of Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Pipe Cutters, of which the following is a specification.

My invention relates to pipe cutters and consists of a construction by which the cutter may be moved inwardly by simply pressing inward upon the handle bar, and may be moved outwardly by releasing a dog, and which at the same time is capable of being gradually moved in or out by turning of the handle bar when said dog is in locking position.

The object of my invention is to provide a pipe cutter which is quickly adjustable for different sizes, which is certain and reliable in its action and holding capacity, and which may be operated by a power device to advance the cutter as the pipe is cut.

The features of my invention which I believe to be new and upon which I desire to obtain a patent will be hereafter described and then specifically defined by the claims.

The accompanying drawings show my invention embodied in the type of construction which I now prefer to use.

Figure 1 is a side view of the pipe cutter, having a portion of its body member or frame cut away to show the holding parts and the means by which they are operated and controlled,

Figure 2 is a section of the holding and adjusting parts of slightly modified construction, and

Figure 3 is a section taken upon the line 3—3 of Figure 1.

The main or body member 1 consists of a casting or forging which has its outer end bent laterally to form a hook or arm 10 which passes back of or behind the pipe which is to be cut. This hook 10 carries rollers 20 which engage the back side of the pipe. These are not or at least need not be cutters. They might if desired, be cutting disks.

Pivoted to the body 1 at a point 21 located some little distance from the outer end, is a link or pivoted lever 2. This lever carries a cutting disk 22 pivoted therein and positioned to engage the opposite side of the pipe from that engaged by the rollers 20. The back side of this arm or lever 2 has a surface 23 which forms a sliding and thrust bearing for the handle bar 3. This surface should be of outwardly convex curvature to present a full seating surface for the end of the handle bar 3. This handle bar is mounted to have guiding and reciprocating engagement with the back end of the body 1. The latter is provided with what is, in effect, a bore extending through the length of an offset section 11 which is adapted to receive the handle bar 3. This handle bar is provided with a threaded section 30 of sufficient length to accommodate the maximum range of adjustment possible with the tool.

The body 1 has a recess 12 in its rear end communicating at its inner edge with the bore which receives the handle bar. At the rear end of the body a connecting bar 13 extends between the two sides of the bar formed by the recess 12. Forward of the bar 13, that is, between the said bar and the cutter, is placed a holding block 4. The holding block is threaded on one side complemental to the threading of the handle bar 3. Preferably this threaded side is concaved to fit a segment of the handle bar, as is clearly shown in Figure 3.

The locking block 4 is controlled in its position by means of a lever 5 which is pivoted to the locking block at 40 and to the frame at 50. These pivots should be a snug fit, eliminating any material slackness of connection. The pivotal connection with the locking block is near the middle of the length of the block. The pivotal connection with the controlling lever 5 is at a point located outwardly of and rearwardly of the pivot with the locking block, so that backward thrust upon the locking block 4, that is one which tends to produce a movement thereof away from the cutter and towards the handle bar, will not be able to move the block outwardly and out of engagement with the threads of the handle bar. The angular position of the line connecting the two pivots 40 and 50 has a certain relation to the angles of the threads upon the handle bar 3. Preferably this position should be perpendicular to the outward face of the threads or one which varies therefrom in the direction of perpendicularity to the axis of the handle bar. While the angular position of these pivots with relation to the axis of the handle bar may be somewhat smaller than this, and particularly when the influence of the controlling spring is considered, it would not

ordinarily be preferred to have it less than this amount. With this condition existing the backward thrust of the handle bar 3 tends to crowd the block 4 more firmly against the rod 3, while if an opposite condition existed there would be a tendency to lift the block out of engagement with the handle bar. The lever 5 is normally held in position to produce engagement of the block 4 with the handle bar through the action of a spring 6 which is seated in recesses formed in the inner surface of the lever and the outer surface of the connecting bar 13 of the frame.

A stop, represented in the drawings by the pin 7, should be provided to engage that end of the locking block which is distant from the bar 13. In moving the block outwardly by engagement of the lever 5, there is a tendency for the end which is in engagement with the bar 13, which latter bar forms the thrust, to resist endwise movement of the handle bar, to lag behind the opposite end. When the block 4 is thrown out it is very desirable that it be freed from engagement with the handle bar throughout its length. Therefore, in its outer movement it engages with the stop 7 at the opposite end of the block, thereby positively moving outward so as to be entirely cleared of the handle bar, thereby permitting free endwise movement of the handle within its guides. For convenience in operating, the lever 5 has its outer end 21 projected where it may be easily engaged by the hand of the user.

In Figure 2 a slightly modified construction is shown. This differs in this respect. The block 4 has an ear 41 projected outwardly from its inner end, that is the end toward the cutter. This overlaps and has sliding engagement with an ear or lug as 14 carried by the frame, which latter forms the thrust member to resist the backward movement of the locking block 4. The outer and inward positions of the locking block are shown in Figure 4, respectively in dotted and solid lines. By releasing the locking block through pressure on the lever 5, the handle bar 3 may be moved inward or outward as desired. This permits immediate adjustment for any size within the range of the cutter. For applying pressure during the cutting and to advance the cutter, the turning of the handle may be employed as in the usual cutters.

What I claim as my invention is:

1. A pipe cutter comprising a body having a fixed jaw adapted to act as an abutment to support the pipe, an arm pivoted upon said body, a cutter carried by said arm, a threaded handle bar guided in said body to have a thrust bearing upon said pivoted arm, a locking block threaded complementally to and engageable with the threaded part of the handle bar, a lever pivoted upon the body and to said locking block in an angular position to act as a thrust abutment to hold the block in engagement with the handle bar by the backward thrust of said bar and a spring acting to normally hold said locking block in engagement with the handle bar.

2. A pipe cutter comprising a body carrying a hooked outer end adapted to pass behind the pipe, a cutter movably mounted in position opposed to said hooked end, a handle bar having sliding engagement with said body and serving as a thrust member for said cutter, said handle bar having a threaded section, a block threaded complementally to and engageable with the threaded section of the handle bar, a controlling lever pivoted to the block and to the body outwardly and backwardly of the block pivot and to serve as a thrust bar for said block and a spring acting to normally hold said locking block in engagement with the handle bar.

3. In a pipe cutter a threaded handle bar, a body having guiding seats for said handle bar permitting its endwise movement over said seats, a block threaded complementally to and engageable with the threaded section of said handle bar, a thrust member carried by the body and engaging the said block to resist endwise movement thereof in one direction, a controlling lever pivoted to said block and to the body to swing it toward and from the handle bar and to serve as a thrust bar to prevent the thrust between the handle bar and block from moving the block outwardly from the handle bar, and a spring acting to normally hold the block in engagement with the handle bar.

4. In a pipe cutter a threaded handle bar, a body having guiding seats for said handle bar permitting its endwise movement, a block threaded complementally to and engageable with the threaded section of said handle bar, a thrust member carried by the body and engaging the said block to resist endwise movement thereof in one direction, and a controlling lever pivoted to said block and to the body to swing it toward and from the handle bar and to serve as a thrust bar to prevent the thrust between the handle bar and block from moving the block outwardly from the handle bar, a spring acting to normally hold the block in engagement with the handle bar, and a stop positioned to be engaged by one end of the block in its movement outward from the handle bar to insure outward movement of its other end.

Signed at Seattle, King County, Washington, this 19th day of April 1923.

DAVID KILGOUR, JR.