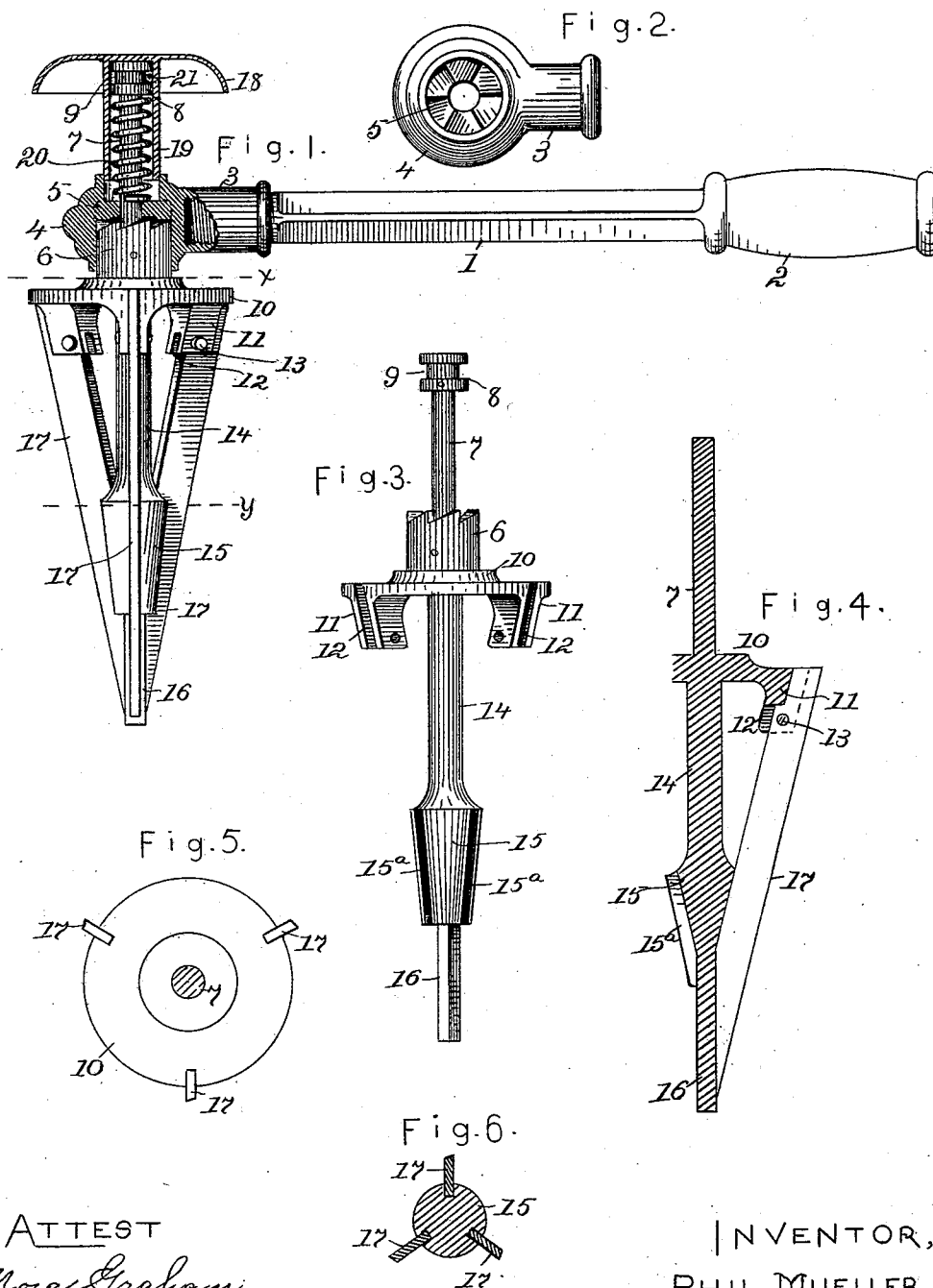


(No Model.)

P. MUELLER.
PIPE REAMER.

No. 605,893.

Patented June 21, 1898.



ATTEST

Nora Graham

Ina Graham.

INVENTOR,

PHIL. MUELLER

by L. P. Graham

His attorney

UNITED STATES PATENT OFFICE.

PHILIP MUELLER, OF DECATUR, ILLINOIS.

PIPE-REAMER.

SPECIFICATION forming part of Letters Patent No. 605,893, dated June 21, 1898.

Application filed January 27, 1898. Serial No. 688,110. (No model.)

To all whom it may concern:

Be it known that I, PHILIP MUELLER, of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Pipe-Reamers, of which the following is a specification.

This invention is designed to provide improved and simplified means for removing the bur from the ends of pipes or for enlarging the bore of such ends. It is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is an elevation of a reamer embodying my invention; parts being broken away to expose working mechanism. Fig. 2 is a representation of the under or inner surface of the ratchet end of the handle. Fig. 3 is a representation of the stock of the reamer. Fig. 4 is a section of a fragment of the device, illustrating the means preferably employed to fasten the reamer-blades into the stock. Fig. 5 is a section on line *x* in Fig. 1. Fig. 6 is a section on line *y* in Fig. 1.

The stock consists of a plate, as 10, a plurality of lugs, as 11, disposed at intervals around the plate and grooved, as shown at 12, a stem 14, extending from the center of the plate, at right angles therewith, an enlargement 15 on the stem 14, such enlargement being grooved at 15^a in alinement with the grooves 12, and a bearing extension 16 beyond the enlargement 15. A shaft 7 extends from the opposite side of plate 10 in line with stem 14. It is provided near the plate with a ratchet-collar 6 and at its end with a collar 8, which is grooved circumferentially, as shown at 9. The entire stock, including the shaft 7, with its collars, is integral when completed, though it may be cast as a whole or be built up in any desired manner. I prefer to cast all except the collars in one piece and to make the collars separate and fasten them onto the shaft.

The lugs 11 extend from the plate toward the enlargement 15. Their grooves preferably form abrupt angles, as shown in Fig. 4, and they are provided with pin-holes at their lower or extended ends. The grooves 12 extend in part lengthwise of the lugs and in part crosswise, with the result that the shoulders suggested in Fig. 4 are formed, and the

pin-holes are so disposed that pins inserted therethrough traverse the crosswise portions of the grooves. The extension 16 is preferably made triangular in cross-section, with each face forming a continuation of the bottom of a groove 15^a.

The cutting-blades 17 are of a size and shape to fit the grooves in the lugs and the enlargement. They are beveled at their lower ends to fit against the extension 16, and they are perforated to receive pins 13. They are preferably formed with internal angles which closely embrace the shoulders formed in the grooves of the lugs, as shown in Fig. 4; but this mechanical feature is susceptible of modification. If the shoulders should be omitted, the pins and the inclined bottom of the grooves would have to sustain the blades against longitudinal thrust, and this would entail no serious difficulty. The upper ends of the blades, as they appear in the drawings, should bear against the lugs, however, as otherwise the points of the blades might swing away from the bearing extension 16 while the device is not in use and cause annoyance at least. When the reamer is in use, the pressure on the blades tends to hold them firmly in the stock, and this peculiarity makes the mode of fastening somewhat immaterial.

The means employed to operate the stock consists of a head 4, which fits loosely over the collar 6 and around the shaft 7, a ratchet-collar 5 in the head adapted to engage the ratchet-collar 6, and a handle attached to the head. The head is preferably provided with a bored and threaded extension 3, into which an end of handle-bar 1 is screwed, and a handle 2 is formed on the outer end of the handle-bar.

A guide-boss 18 is made with a sleeve 19, adapted to fit over the end of shaft 7. It is fastened onto the shaft by means of a pin 21, which extends through the groove 9 in collar 8, and its lower end extends into a recess in the upper surface of head 4. The end of the shaft bears against the boss and takes the thrust therefrom, while the pin 21 simply prevents the boss from becoming detached from the shaft.

A spiral compression-spring 20 fits on the shaft 7 between the collar 8 and the head 4, and it tends to hold the ratchet-teeth of the

head in engagement with the teeth of the collar 6.

In operating the device the cutting-blades are inserted into a pipe, the reamer is directed by one hand applied to the boss 18; and it is operated by the other hand applied to handle 2. The handle-bar 1 is rocked back and forth, driving the reamer forward by motion in one direction and riding inoperatively over the ratchet-teeth of the stock in the opposite movement. This causes the reamer to rotate intermittently in one direction and cut the pipe in close approximation to a true circle.

What I claim is—

1. In a pipe-reamer the combination of a plate, a stem extended from the center of the plate at right angles therewith, and cutting-blades secured to the plate and resting against the stem, substantially as set forth.

2. In a pipe-reamer, the combination of a plate grooved in its periphery, a stem extended from the center of the plate at right angles therewith and grooved near its extended end in directions coinciding with the grooves of the plate, and cutter-blades fastened in the grooves of the plate and resting in the grooves of the stem, substantially as set forth.

3. In a pipe-reamer, the combination of a plate grooved in its periphery, a stem extended from the center of the plate at right angles therewith, a grooved enlargement of the stem near the termination thereof, a dimin-

ished extension of the stem beyond the enlargement thereof and cutter-blades fastened in the grooves and bearing against the diminished extension, substantially as set forth.

4. In a pipe-reamer, the combination of a plate, grooved lugs on the periphery of the plate, a stem extended from the center of the plate at right angles therewith, a grooved enlargement on the stem near the end thereof, a diminished extension of the stem beyond the enlarged portion and cutter-blades fastened in the grooved lugs and resting in the grooves of the enlargement of the stem, substantially as set forth.

5. In a pipe-reamer, the combination with a stock having cutter-blades, of shaft 7 forming an axial extension of the stock, ratchet-collar 6 on the shaft near the stock, handle-head 4 fitting around the shaft and over the collar 6, ratchet-teeth in the head adapted to engage the teeth of the collar, boss 18 having a sleeve 19 fitting over the end of the shaft, grooved collar 8 on the end of the shaft, pin 21 extending through the sleeve and into the groove of the collar 8 and spring 20 around the shaft between collar 8 and head 4, substantially as set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

PHILIP MUELLER.

Witnesses:

MINNIE P. HOIT,
ADOLPH MUELLER.