No. 673,689. Patented May 7, 1901.

J. O. REIL.

CENTER DRILLING APPARATUS.

(Application filed Nov. 1, 1900.)

(No Model.)

Fig. 1.

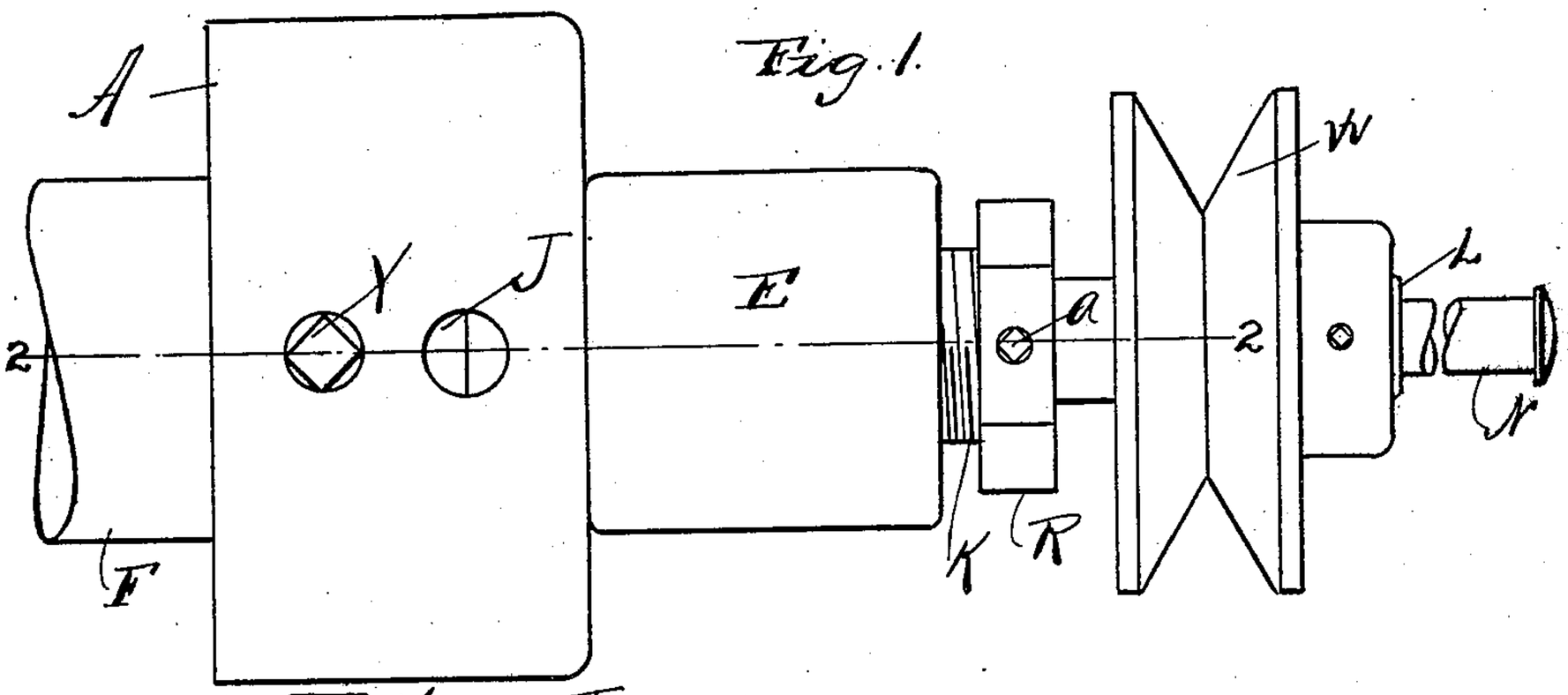


Fig. 2.

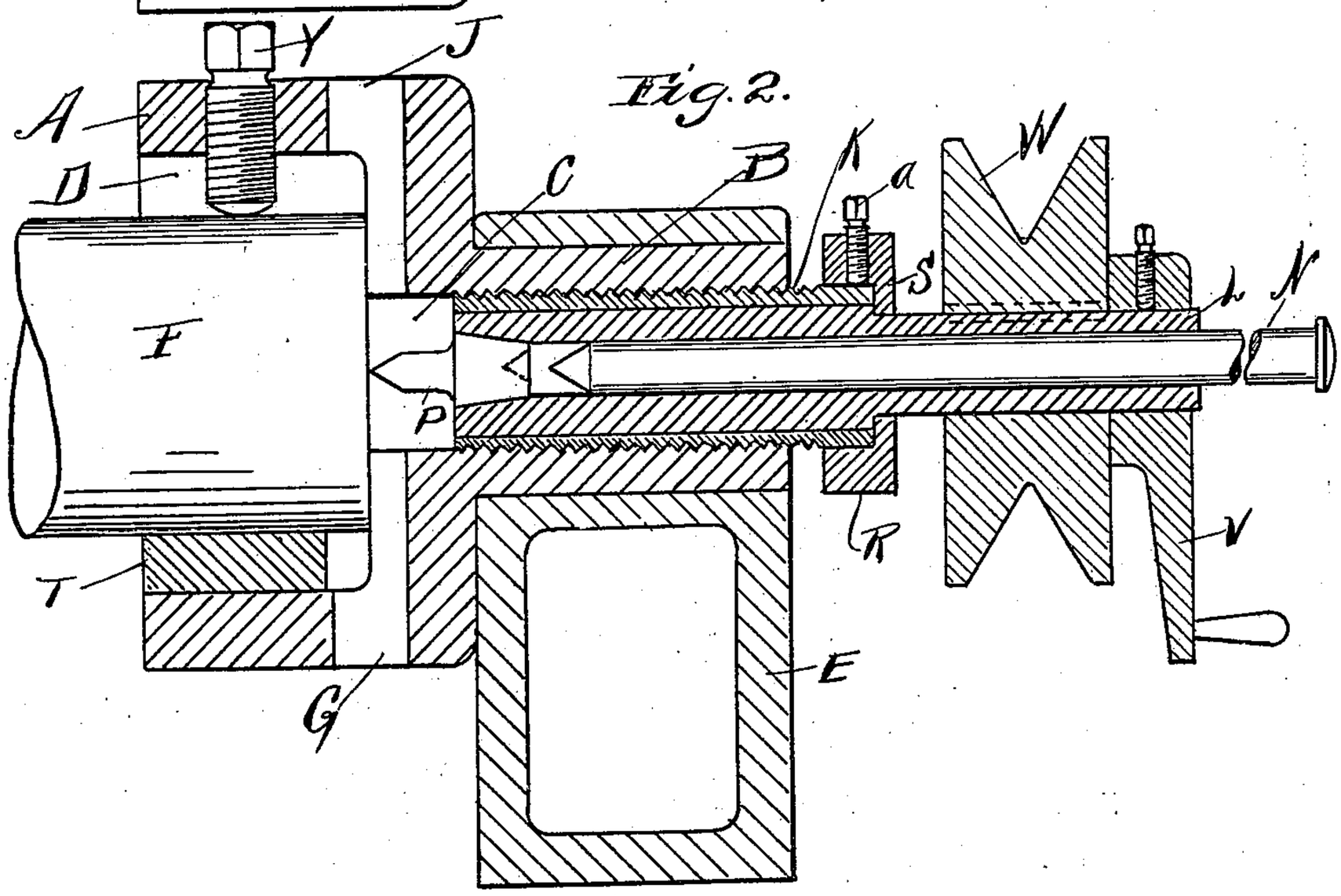
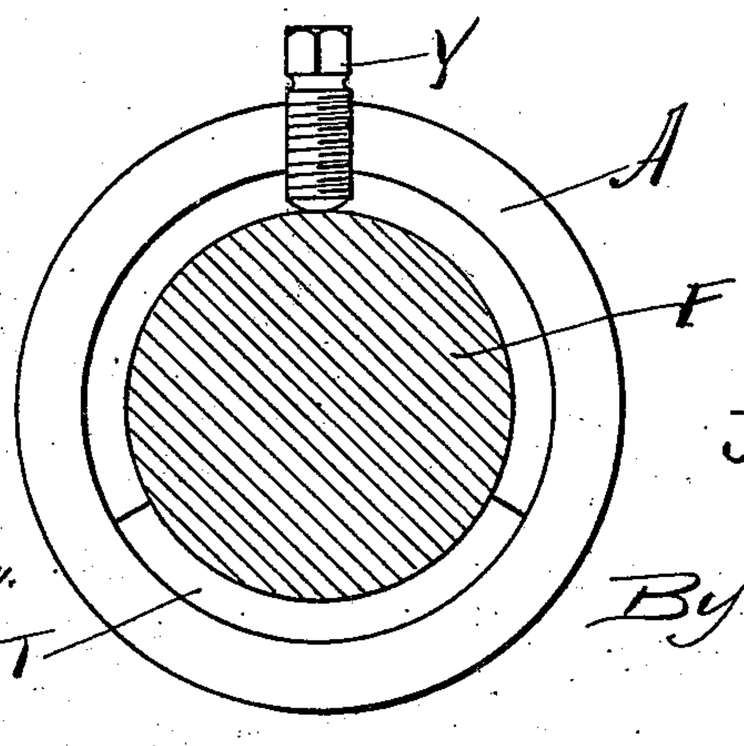


Fig. 3.



Witnesses.

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CENTER-DRILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 673,689, dated May 7, 1901.

Application filed November 1, 1900. Serial No. 35,121. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH OLIVER REIL, a resident of the city of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Center-Drilling Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to those mechanical appliances used to center and drill metal shafts preparatory to putting them in a lathe or in centers on a planer to perform work on them. It is fully explained and illustrated in this specification and the annexed drawings.

Figure 1 represents a top view of the apparatus. Fig. 2 shows a vertical section taken lengthwise on line 2 2 in Fig. 1 with the center parts in elevation. Fig. 3 represents an elevation of the left end in Fig. 1.

The object of my invention is to provide a compact tool that can readily be carried by a workman in his chest and that can be used to mark and drill centers in shafts of different sizes, the cost of which will be so low as to be within his reach.

The construction and operation of my invention are as follows:

A cylindrical block is made having a larger part A and a smaller part B, the smaller portion B having a hole C made through its center, with a screw-thread made in it nearly its whole length, and the larger portion A of the block has a chamber D made in its outer end concentric with the hole C in the smaller part B and opening into it. The chamber D is for the purpose of receiving the end of the shaft F to be centered and has an opening G made from the bottom up into it, partly in the chamber D and partly in the hole C, for the chips made in drilling the center to fall out. A like hole J is made from the top down into the chamber D and hole C to allow the drill to be seen and for the purpose of oiling it. A sleeve K is made with a screw-thread on its outside, fitting into the screw-thread made in the hole C. (See Fig. 2.) A second sleeve L is fitted to slide and turn freely in the sleeve K, and a prick-punch N is fitted to slide easily in the second sleeve L, and the inner end of the hole in the sleeve L is reamed out tapering to receive the back end of a drill P, which is revolved by the sleeve when used. The sleeve L is turned down smaller from its outer end to form a shoulder at S, and a collar R has a hole made in it to receive the smaller part of the sleeve L, and this hole is countersunk large enough on the inner side of the collar to receive the end of the sleeve K. A set-screw *a* is put through the side of the collar R, so as to screw down on the sleeve K and hold it fast. A pulley W and a crank V are made fast on the end of the sleeve L outside of the collar R, so that it can be turned and the drilling accomplished either by power or by hand, as may be preferred. A set-screw Y is put in the top of the part A to screw down on the shaft F and hold it firmly while the center is being pricked and drilled, and blockings, like T in Fig. 3, are provided, differing in thickness to use under the shafts, according to their size, to bring the center of the shaft up opposite the drill P or prick-punch N.

In using the machine the end of the shaft is put into the chamber D and blocking of the proper thickness placed under it to raise the center to agree with the center of the hole in the sleeve L. The drill P having been taken out of its socket in the inner end of the sleeve L, the prick-punch N is pushed in until its point touches the end of the shaft, and it is then struck a smart blow with a hammer on its outer end. The set-screw *a* is then loosened in the collar R, and the collar and the inner sleeve L are drawn out of the sleeve K and the drill P inserted into its socket in the end of the sleeve L, pushing the prick-punch N back a little ways. Then the sleeve and drill are again inserted in the sleeve K and the set-screw *a* tightened to secure the collar R on the end of the sleeve, and all the parts will be in position, as shown in Fig. 2. The collar R is then turned, causing the sleeve K to screw into the hole C and press the socket L and drill against the end of the shaft F by the shoulder S on the inner sleeve L. Then by turning that sleeve by the crank V or by a band on the pulley W the drill P will drill out a center where the point of the center-punch marked it when struck by the hammer.

The machine can be held on a bench or in a lathe by the stand E or in any other convenient way, according to where it is to be used. The collar R may be made six-sided or have a hole in it to turn it by.

Having thus described my improvements, I claim as my invention and desire to secure by Letters Patent—

1 In a center-drill the combination of a hollow main block having a larger part to receive the shaft and a smaller part to hold the drilling mechanism, a center-sleeve to receive a prick-punch, a drill fitted in the inner end of said sleeve, with means for pressing said sleeve into the said block, and means for turning it, substantially as described.

2. In a center-drill the combination of a hollow main block to receive the shaft, having a hole with a screw-thread in it, a sleeve fitted to screw into said hole, a second sleeve fitted to slide and turn in said first sleeve and having a socket at its inner end to receive a drill, a drill, a hole through said second sleeve for a prick-punch, a collar fitted on the second sleeve and chambered out on one side to fit on the outer end of the first sleeve, with means for turning said second sleeve, substantially as described.

3. In a center-drill the combination of a hollow main block with a larger part to receive the shaft, having an opening in its under side to let out the chips, and a set-screw in its top to hold the shaft, and a smaller part to hold the drilling mechanism, a center-sleeve, a hole made through the center-sleeve to receive a prick-punch, a drill fitted in the inner end of said sleeve, with means for pressing said sleeve into the said block, and means for turning the sleeve, substantially as described.

In testimony whereof I have hereunto set my hand this 29th day of October, A. D. 1900.

JOSEPH O. REIL.

In presence of—
BENJ. ARNOLD,
EDGAR S. MARSH.