(No Model.) 2 Sheets—Sheet 1.

X. KERN, Jr., & J. HAMMER.

MINING MACHINE.

No. 291,012. Patented Dec. 25, 1883.

Fig. 1.

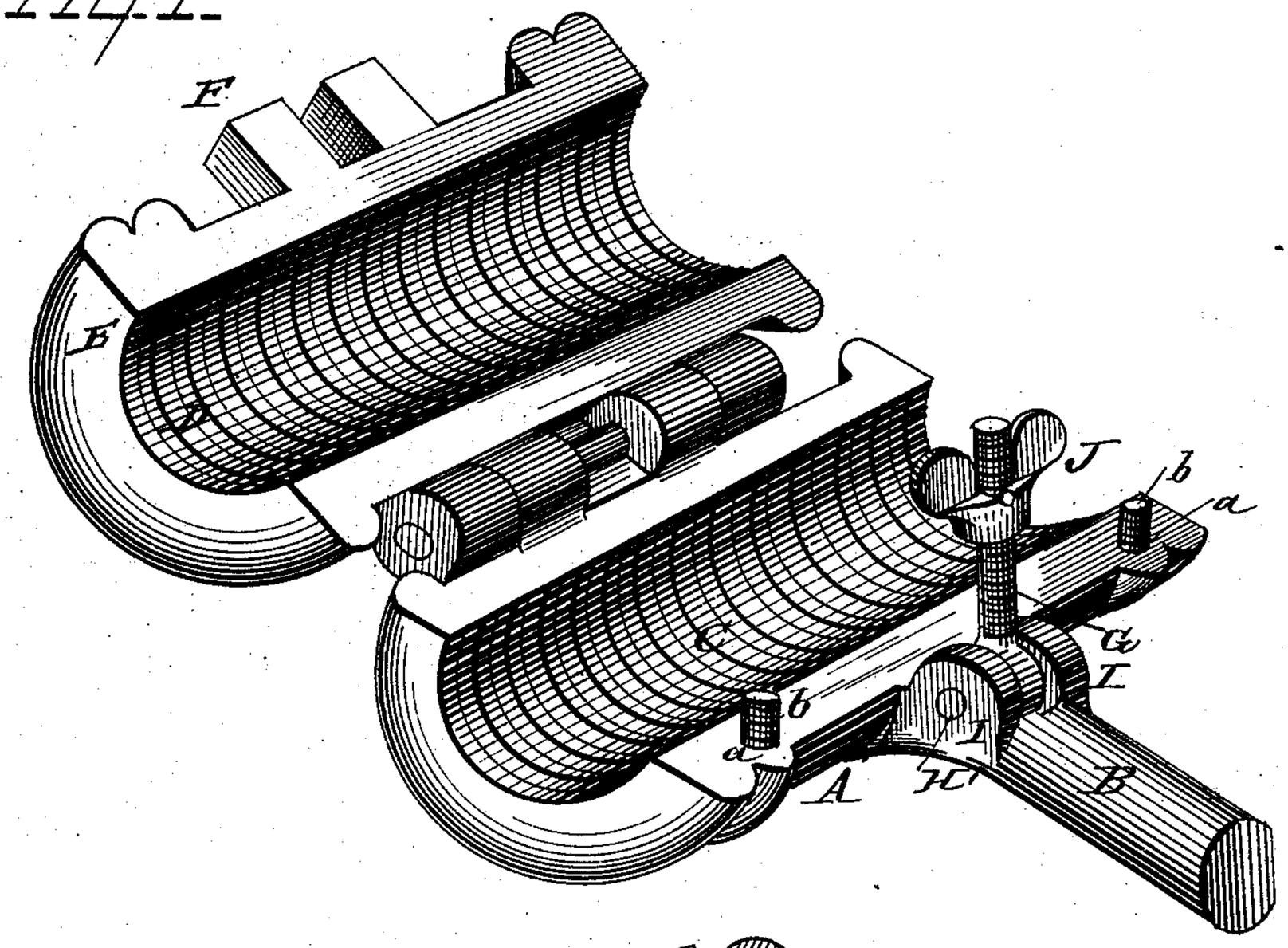

Fig. 2.

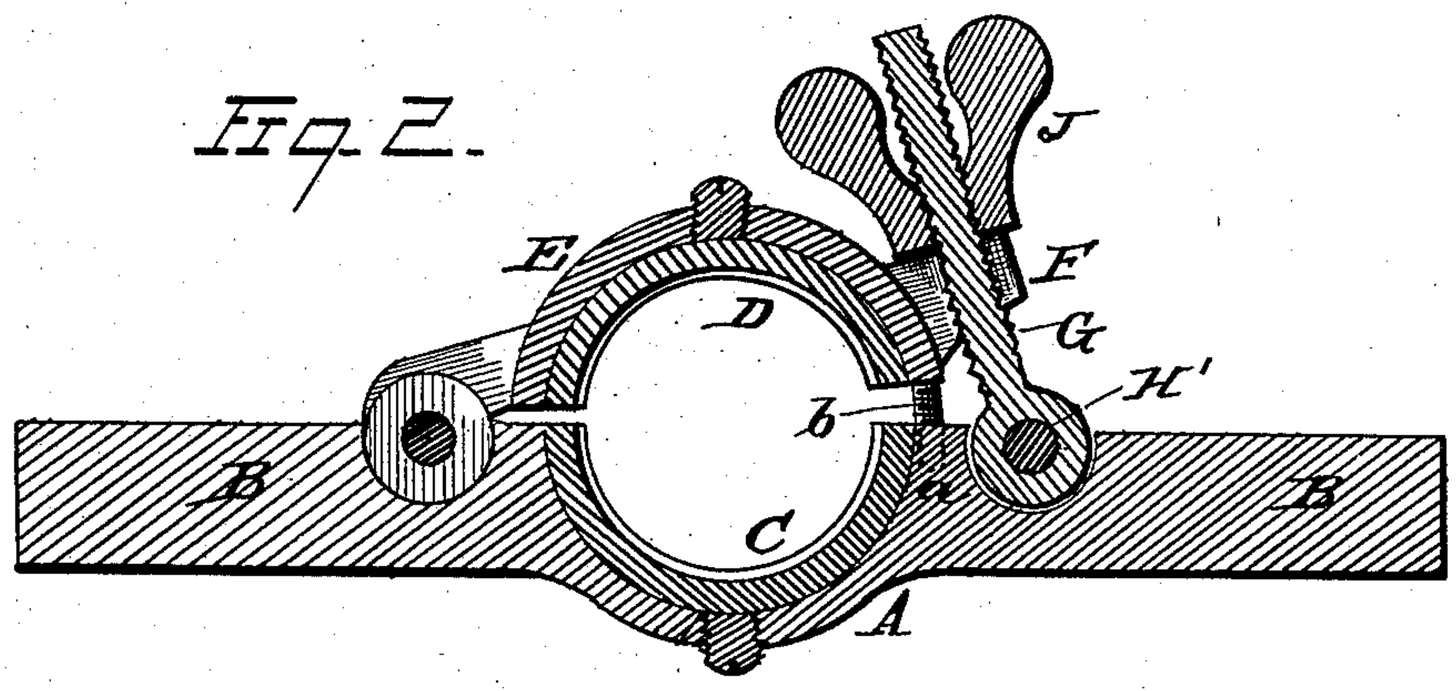

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Fig 3

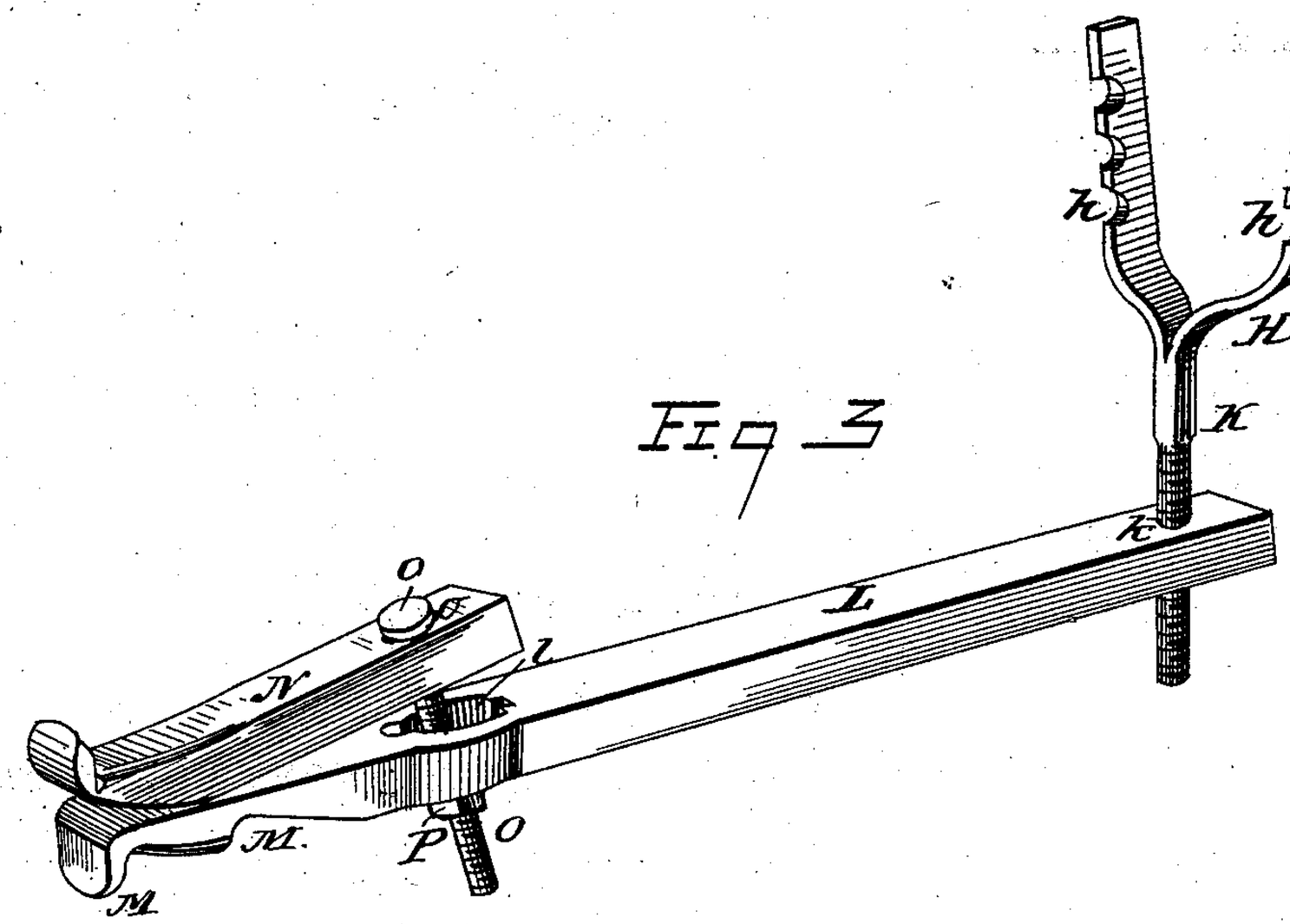
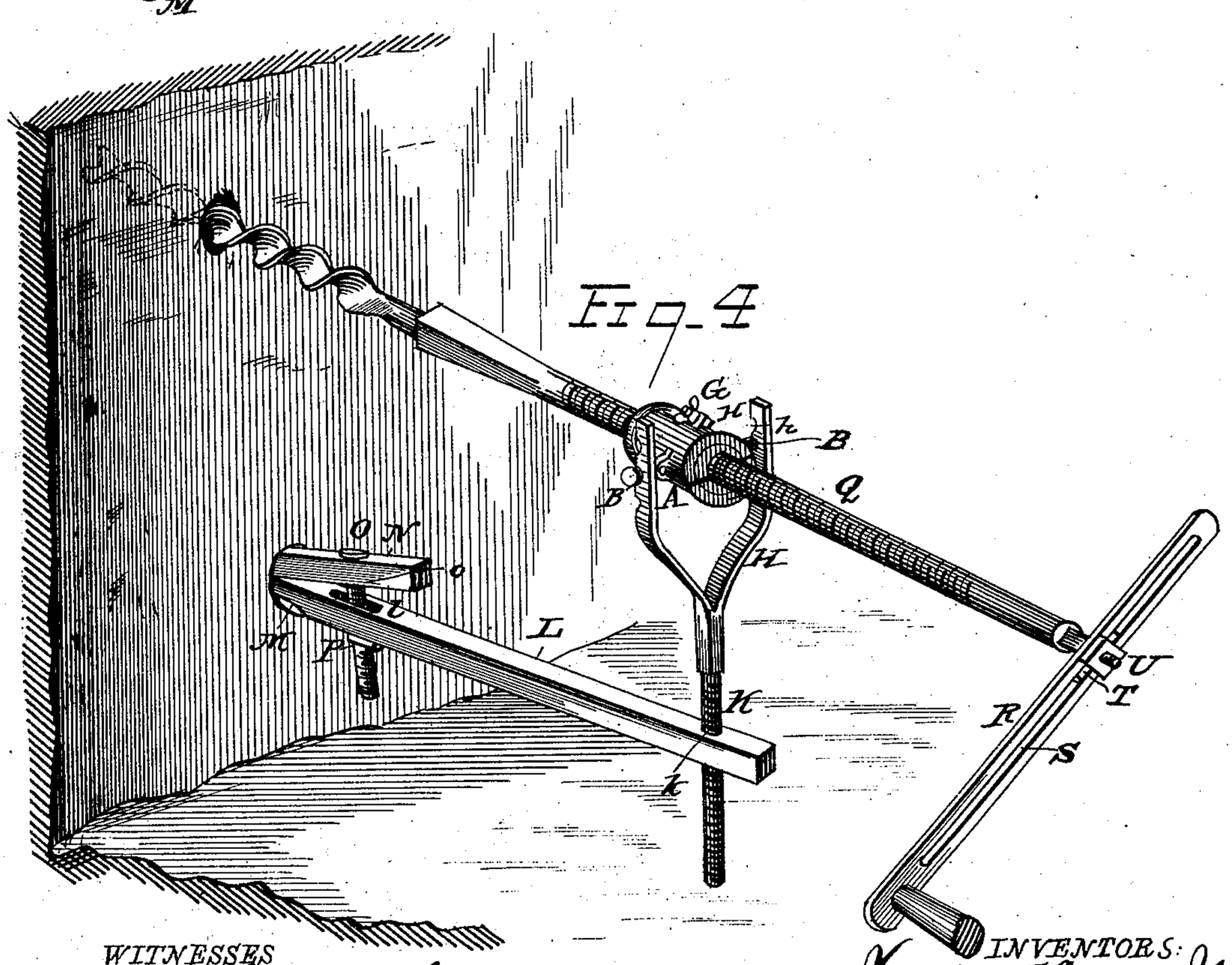


Fig 4



WITNESSES

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UNITED STATES PATENT OFFICE.

XAVIER KERN, JR., AND JOHN HAMMER, OF WEST BROOKFIELD, OHIO.

MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 291,012, dated December 25, 1883.

Application filed April 28, 1883. (No model.)

To all whom it may concern:

Be it known that we XAVIER KERN, Jr., and JOHN HAMMER, of West Brookfield, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Mining-Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of the clamp which forms a part of our invention, showing it in open adjustment for the reception of the screw-threaded drill-shank. Fig. 2 is a sectional view of the clamp through its supporting lugs or trunnions, showing the clamp closed. Fig. 3 is a detail view of the device for supporting the clamp and drill-shank in operating the machine; and Fig. 4 is a perspective view of the complete apparatus, showing the same fixed in position ready for use.

Similar letters of reference indicate corresponding parts in all the figures.

Our invention relates to mining-machines adapted to the mining of coal and other minerals; and it consists in certain improvements upon the mining-machine for which Letters Patent of the United States No. 260,031 were granted to Xavier Kern, Jr., on the 27th day of June, 1882, which said improvements will be hereinafter more fully described and claimed.

In the accompanying drawings, A represents the body of the drill-clamp, which is provided with two laterally-extending arms or trunnions, B, which latter are adapted to rest in the adjustable forked standard H, by fitting into the notches *h* of the same. This body portion A is provided on its inner face with a semi-cylindrical screw-threaded piece, C, which, when combined with the semi-cylindrical screw-threaded piece D in the hinged portion E of the clamp, forms a female-screw-threaded socket, which firmly holds, directs, and feeds the screw-threaded shank of the auger or drill, as the latter is turned by hand or by any other suitable motive power. We prefer to make the parts C and D of brass, and to fasten them removably in their respective sections, A and E, of the clamp, so that when the threads are worn out they may be readily removed and others substituted without injury to the body portion of the clamp. The body portion A is also provided with two holes or sockets, *a*, into which are secured screws or lugs *b*, for the purpose of taking up the wear. When the clamp is first secured to the drill-shank, these screws or lugs *b* are adjusted either in or out, so as to cause the removable threaded clamp-sections C and D to register accurately with the drill-shank, and as the screw-threads in said parts C and D wear away the screws or lugs *b* may be filed off or driven farther into their respective sockets, to take up the wear. The hinged portion E of the clamp is provided with a slotted projection, F, adapted to engage the threaded shank of a screw, G, the lower end of which is hinged upon a bolt, H′, between the lugs or ears I, which are cast upon or in one piece with one of the fixed trunnions B. By swinging the screw G into the slotted projection F and tightening down the thumb-nut J, it will be seen that the two parts A and E may be clamped firmly around the threaded drill-shank, which works in the clamp, while, by loosening the thumb-nut and swinging the screw out of the slotted projection F the clamp may be thrown open and the drill-shank removed in a moment of time. It will also be seen that by having the screw hinged and swinging transversely upon the body of the clamp the nut may bear upon the same place upon the slotted projection when the clamp is opened wider or closed, thus preventing all possibility of the same slipping out of its slots, which is apt to happen with the screw projecting rigidly upward, when the clamp is opened wide.

In operating the apparatus, the trunnions B of the clamp are made to rest in the notches *h* of a forked standard, H, which has a threaded shank, K, screwed into a threaded aperture, *k*, at the outer end of an arm, L, the other end of which is notched to form sharp teeth or projections M. A jaw-piece, N, is fastened to arm L by means of a screw-bolt, O, which is inserted through slots or apertures *o* and *l* in the parts N and L, respectively, and is provided at its lower end with the nut P. In

using the apparatus, the teeth M and jaw N are inserted into the bore or screw-hole last made, as shown in Fig. 4 on Sheet 2 of the drawings, and adjusted by means of the nut P on bolt O, so as to be wedged firmly into the screw-hole, and fix arm L firmly in the same, after which the bifurcated bearing H in the outer end of the arm may be adjusted by screwing it up or down, so as to bring the clamp, which rests in its notches *h*, into the proper position for working the drill-shank, the lateral arms or trunnions B of the clamp permitting the contained drill or auger to be turned or pointed to any inclination or angle at which it is desired to bore in a vertical plane, and the screw-threaded shank, turning in the threaded aperture, allows the drill to be turned in any direction in a horizontal plane.

The drill-shank (shown at Q) is made square at its rear end, to adapt it to be fitted into the slotted crank-arm R, in the slot S of which it may be fixed by means of the sliding block T and clamp-nut U, which latter is screwed upon the threaded extreme end of the shank. By loosening this nut, the slotted crank-arm may be moved up or down upon the end of the drill-shank, so as to adjust the leverage with which it is desired to work the drill, according to the resistance of the material bored into.

Having thus described our invention, we claim and desire to secure by Letters Patent of the United States—

The combination of the arm adapted to be clamped into the former drill-hole, with the bifurcated standard, having notches in the edges of its bifurcated flat upper ends and screw-threaded lower end, fitting and turning in a screw-threaded perforation in the outer end of the clamping-arm, as and for the purpose shown and set forth.

In testimony that we claim the foregoing as our own we have hereunto affixed our signatures in the presence of two witnesses.

XAVIER KERN, JR.
JOHN HAMMER.

Witnesses:
ISAAC ULMAN,
WILL R. ULMAN.