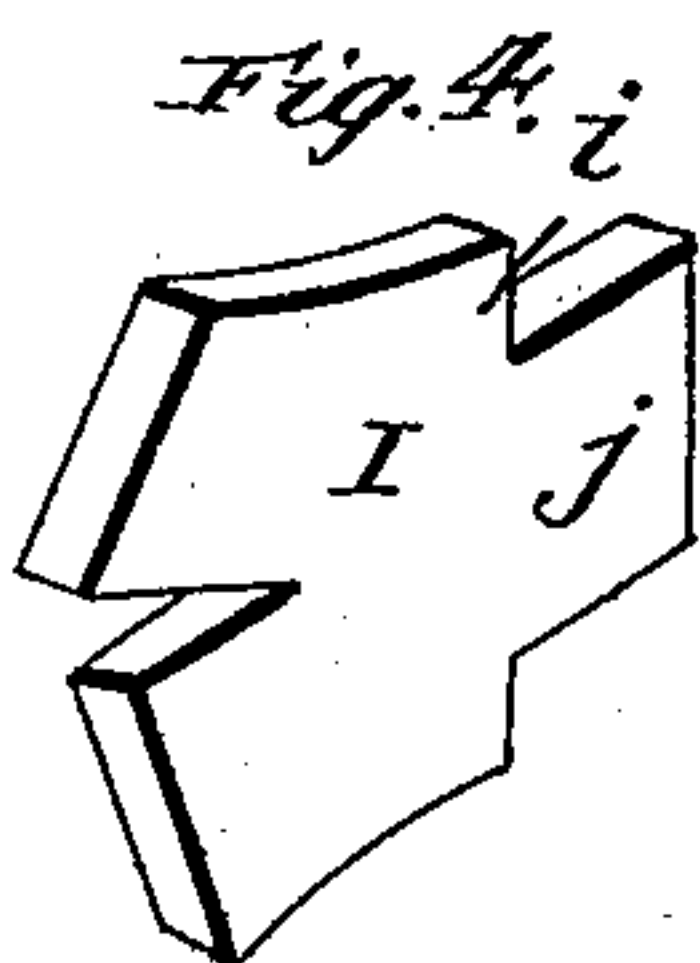
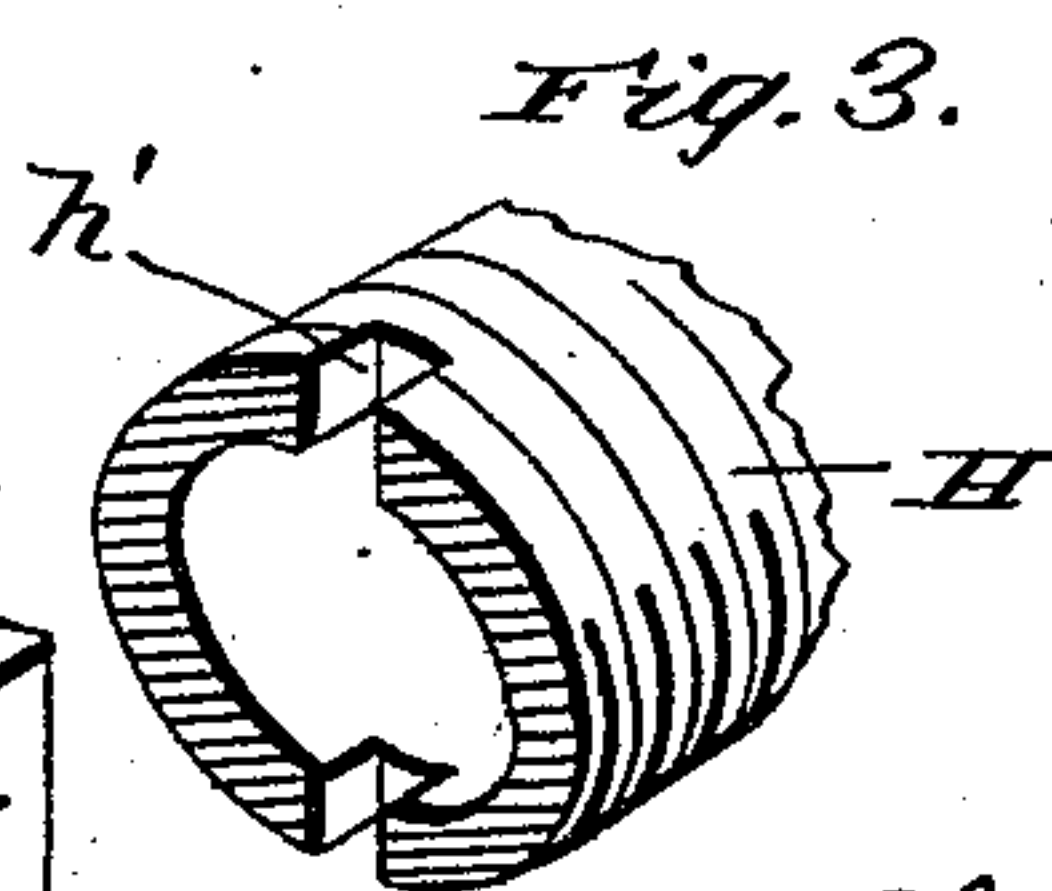
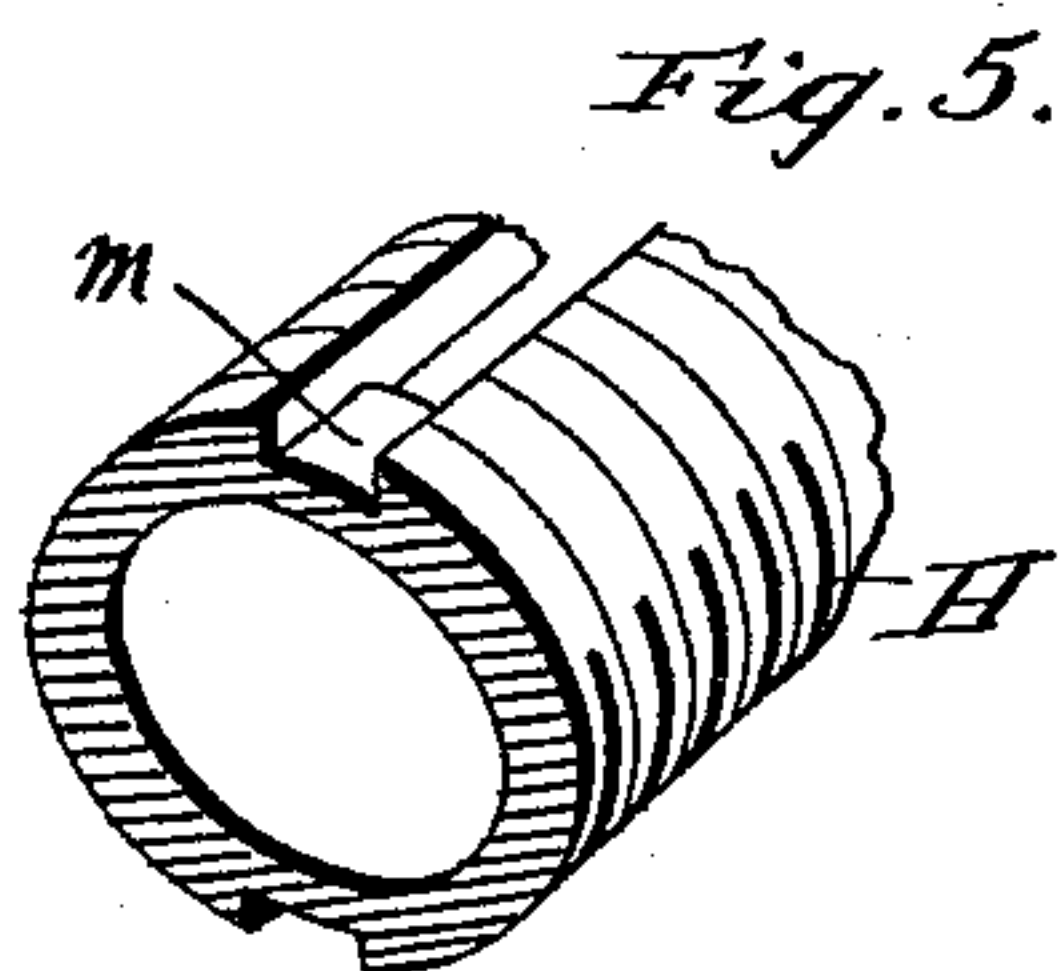
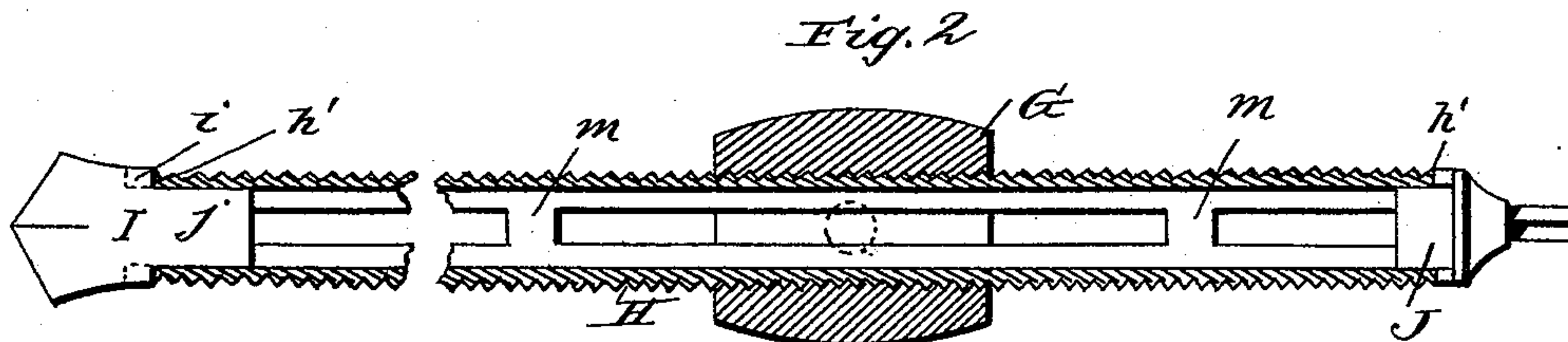
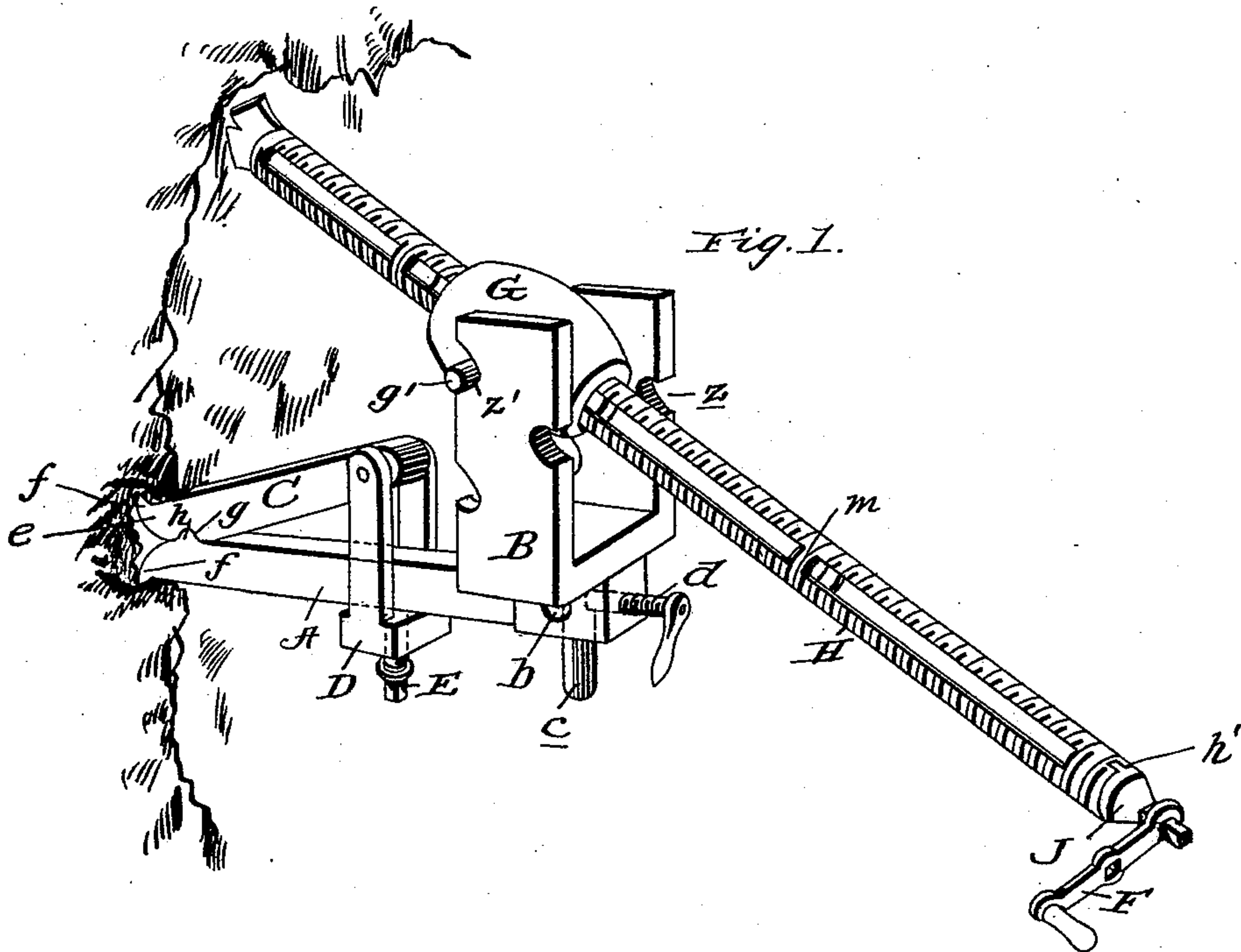


(No Model.)

P. SAUER.
COAL DRILL.

No. 527,814.

Patented Oct. 23, 1894.



Witnesses:
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N. H. Matthews.

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UNITED STATES PATENT OFFICE.

PHILIP SAUER, OF POMEROY, OHIO.

COAL-DRILL.

SPECIFICATION forming part of Letters Patent No. 527,814, dated October 23, 1894.

Application filed March 7, 1894. Serial No. 502,741. (No model.)

To all whom it may concern:

Be it known that I, PHILIP SAUER, a citizen of the United States, residing at Pomeroy, in the county of Meigs and State of Ohio, have invented certain new and useful Improvements in Coal-Drills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in coal drills; and it has for one of its objects to provide a drill embodying such a construction that it may be readily fixed in a bed of soft coal or in a bed of coal, the surface of which is shattered.

Another object of the invention is to provide a drill embodying a feed bar of an exceedingly cheap, light, and efficient construction, and still another object is to so connect the bit to the feed bar that it may be readily disconnected when desired, without the employment of skilled labor or tools.

Other objects and advantages of the invention will appear from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1, is a perspective view of my improved drill in an operative position. Fig. 2, is a detail longitudinal section of the feed bar and boxing. Fig. 3, is a detail perspective view of one end of the feed bar. Fig. 4, is a perspective view of the bit removed from the feed bar, and Fig. 5, is a perspective, sectional view illustrating a modified form of feed bar.

Referring by letter to said drawings and more particularly to Figs. 1, 2, 3, and 4, thereof:—A, indicates the main or body bar of the drill support which is provided adjacent to its outer end with oppositely disposed holes *b*, to receive the shank *c*, of the boxing bearing B, and with a set screw *d*, to fix said shank; and C, indicates the adjustable bar which serves to fix the body bar in a bed of coal. The adjustable bar C, and the main bar A, have their inner sides beveled or rounded at their outer ends as shown at *e*, and have lugs as *f*, upon their outer sides at their outer ends; and the said bar C, is provided in its inner side at about the point shown with a groove *g*, to receive a rib *h*, upon the bar A, where-

by it will be seen that when the main and adjustable bars are placed in an opening in a bed of coal as shown, and the inner end of the bar C, which is fulcrumed upon the rib *h*, of the main bar is drawn in toward the main bar, the outer end of the bar C, will engage one wall of the opening, adjacent to the inner end thereof, and will force the outer end of the main bar against the opposite wall so as to securely fix the same in position. In this manner it will be seen that the bar A, may be securely fixed in a bed of soft coal or in a bed the surface of which is shattered, since the ends of the main and adjustable bars engage the wall of the opening at a distance from the surface.

In order that the inner end of the bar C, may be conveniently adjusted and adjustably fixed with respect to the main bar A, I provide the yoke D, which is pivotally connected at its ends to the adjustable bar and embraces the main bar, and the adjusting screw E, which takes through the cross bar of the yoke and bears against the main bar, as shown. This screw E, may, if desired be provided with a thumb piece so that it may be turned by hand, but I prefer in practice to square its outer end as illustrated, so that the crank F, of the feed bar, may be utilized to turn it in one direction to fix the main and adjustable bars in the bed of coal and in the opposite direction to release said main and adjustable bars.

G, indicates an interiorly threaded boxing which is provided with lateral trunnions *g'*, designed to be seated in the notches of the bearing B; and H, indicates the tubular and exteriorly threaded feed bar which for the sake of cheapness may be formed from pipe. This feed bar H, is slotted longitudinally in order to enable it to receive and conduct the drillings out of the hole and thereby prevent the same from packing around it, and interfering with its operation and it has said slot bridged at intervals in its length so as to prevent splitting; and it is provided at its opposite ends at diametrically opposite points with notches *h'*, designed to receive the body of the bit I; the shank *j*, of which takes loosely into the feed bar as shown.

The plug J, upon which the crank F, is designed to be mounted is provided with lugs

to engage the notches h' , of the feed bar and the said plug, being removable, it will be seen that the bit I, may be placed in either end of the feed bar. It will also be seen that by reason of the bit I, being removable, it may be carried alone to the smith to be sharpened, and may also be removed when it is desired to turn the boxing G, on the end of the bar in which it is placed.

The construction of feed bar illustrated in Fig. 1, is designed for use when the power is applied directly to the feed bar through the medium of the crank, as illustrated. When the power is to be applied to drill from the side through the medium of a keyed master wheel and side gear, the bridges m , of the slot should be grooved as shown in Fig. 5, so as to pass the feather of the master wheel, or two grooves should be provided on opposite sides of the slot to receive a corresponding number of feathers on the master wheel, or the slot should be left unobstructed throughout its length. This latter construction is not however desirable, since the slot, when it is not bridged, tends to weaken the feed bar.

In the practical operation of my invention, after the hole has been dug in the bed of coal, the main bar A, and the adjustable bar C, are placed in said hole, as shown. The screw E, is then turned so as to draw the outer end of the bar C, toward the bar A, when said bar A, will be securely fixed in position and the machine may be operated in the ordinary manner.

When the drill is operated in the position shown in Fig. 1, it will be seen that the strain or pressure is downward and outward, which tends to hold the lugs of the bars A, C, securely in engagement with the walls of the hole in the bed of coal.

In order that the feed bar may be worked in a position below the bars A, and C, I provide the boxing bearing B, in one side with notches z , which are disposed oppositely to the notches z' , in the other side, so that when the boxing bearing is hung from the bar a , and the feed bar is worked in the position stated, said feed bar will be disposed in an upwardly inclined position to the wall of coal.

When it is necessary to work the feed bar at the side of the main bar A, the shank of the boxing bearing B, is inserted in the horizontally disposed apertures b , of the bar A.

The set screw d , which engages the shank of the boxing bearing B, is only necessary when it is desired to support said bearing in

a raised position in order to enable the operator to work the feed bar loose when it binds in a hole, or when the boxing bearing is hung from the bar A.

It will be seen from the foregoing description taken in conjunction with the drawings that my improvements are very simple and may therefore be produced at a slight cost. It will also be perceived that all of the parts are strong and durable and are consequently not liable to get out of order.

Although I have specifically described the construction and relative arrangement of the several parts of my improved drill in order to impart a full and clear understanding of the same, I do not desire to be understood as confining myself to such construction and arrangement as such changes or modifications may be made in practice as fairly fall within the scope of my invention.

Having described my invention, what I claim is—

1. In a coal drill, the combination with the main or body bar A, having its inner side beveled or rounded at one end and also having the transverse rib h , upon its inner side adjacent to its beveled or rounded end, of the adjustable bar C, having its inner side beveled or rounded at one end and also having the transverse groove g , in its inner side adjacent to its beveled or rounded end to receive the transverse rib of the bar A, and a suitable means for drawing the outer end of the adjustable bar C, toward the main bar and holding it in such position, substantially as and for the purpose set forth.

2. In a coal drill, a tubular and exteriorly threaded feed bar having a longitudinal slot and also having bridges crossing the said slot at intervals in the length thereof; the said bridges being provided with grooves, substantially as and for the purpose set forth.

3. In a coal drill the combination with an exteriorly-threaded and tubular feed bar having notches in its end at diametrically opposite points; of a bit comprising a shank adapted to take into the bore of the feed bar and a body adapted to be seated in the notches of said bar, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

PHILIP SAUER.

Witnesses:

JACOB SCHAEFER,
JOHN ZIER.