

J. F. TAYLOR.  
Machines for Drilling Coal.

No. 155,122.

Patented Sept. 15, 1874.

Fig 1.

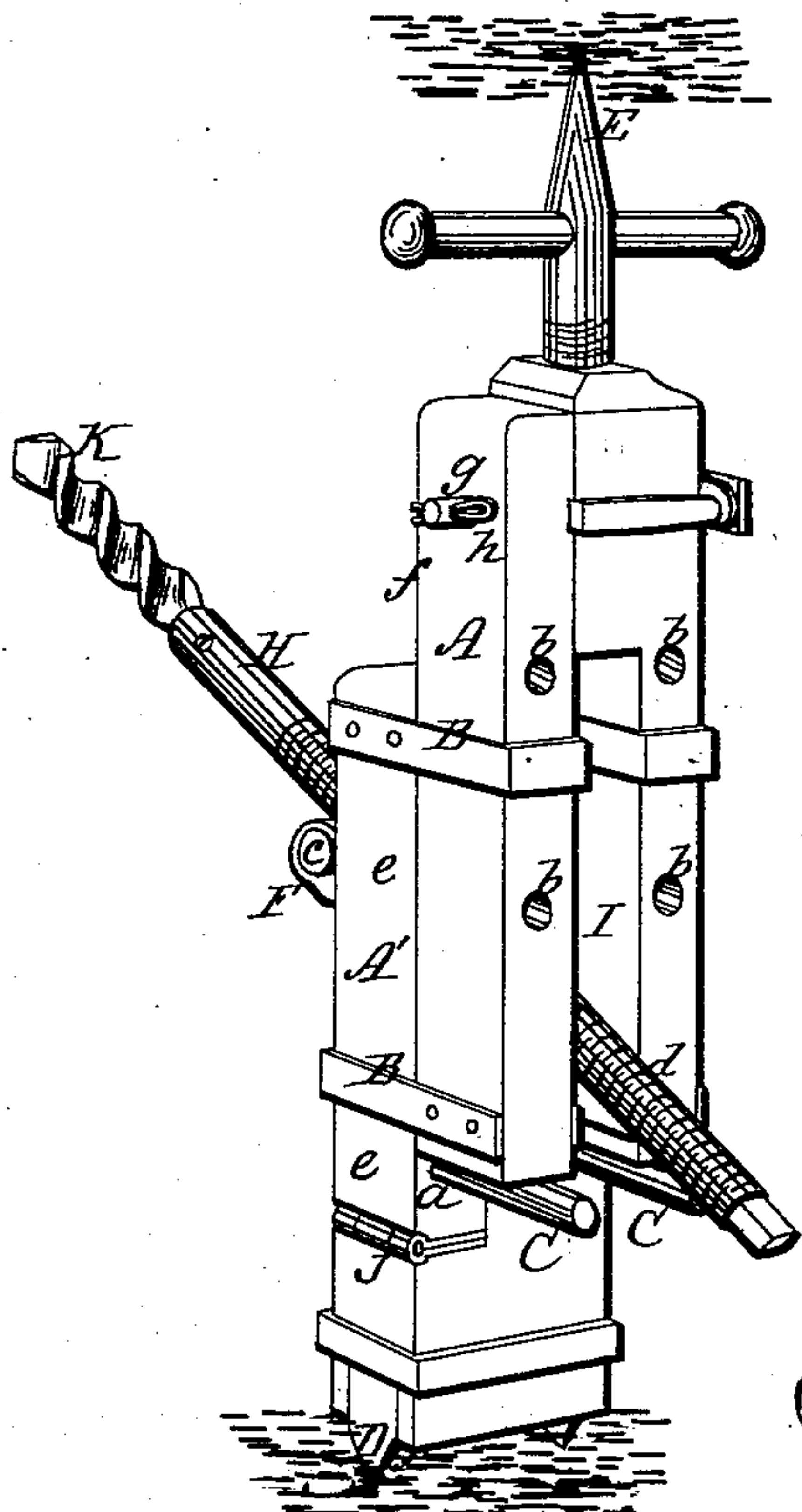


Fig 3.

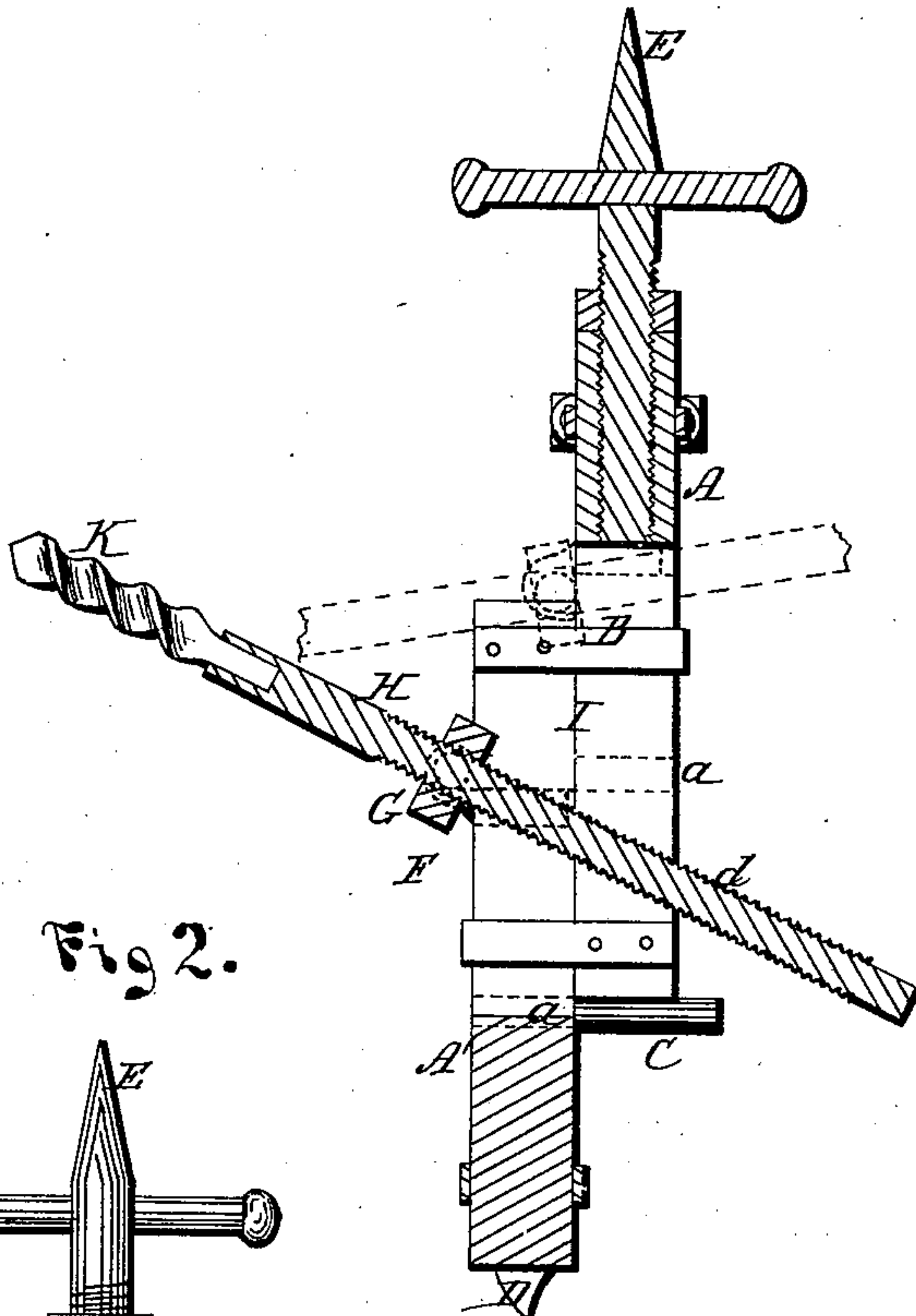
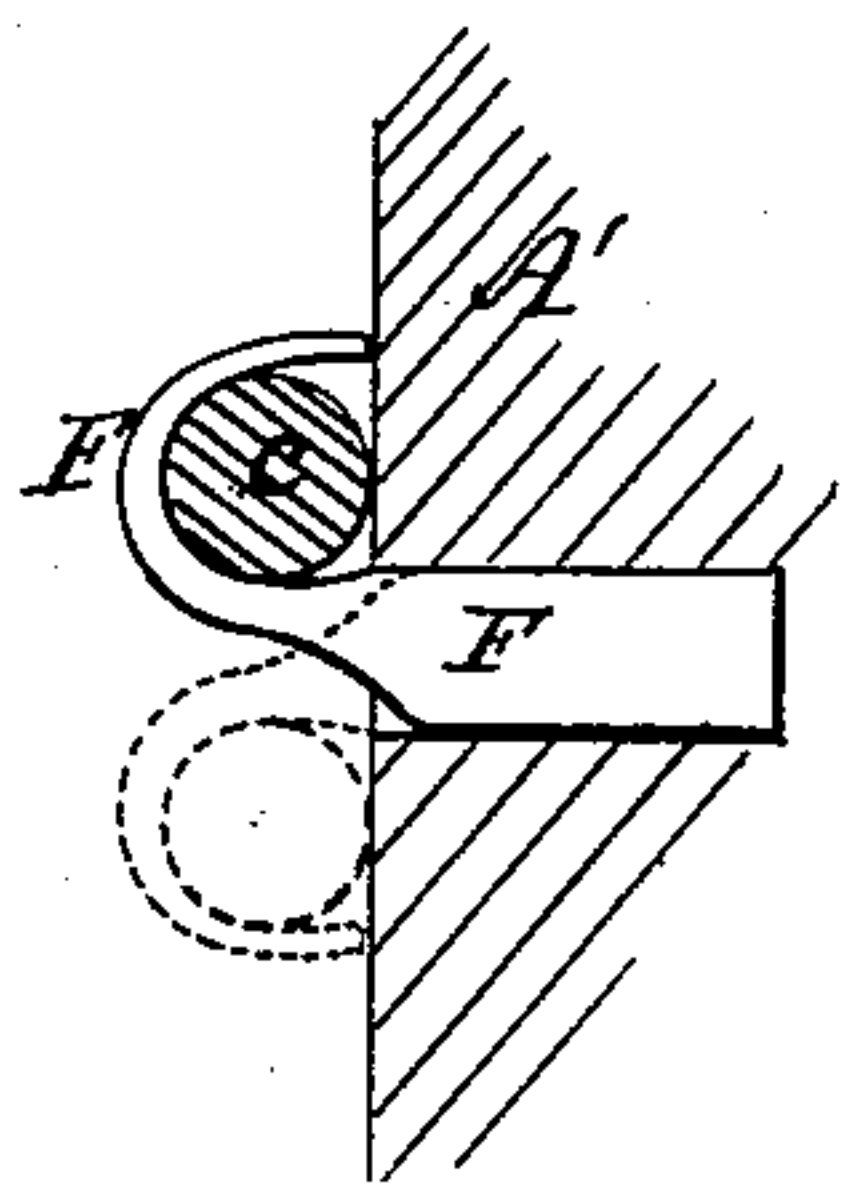
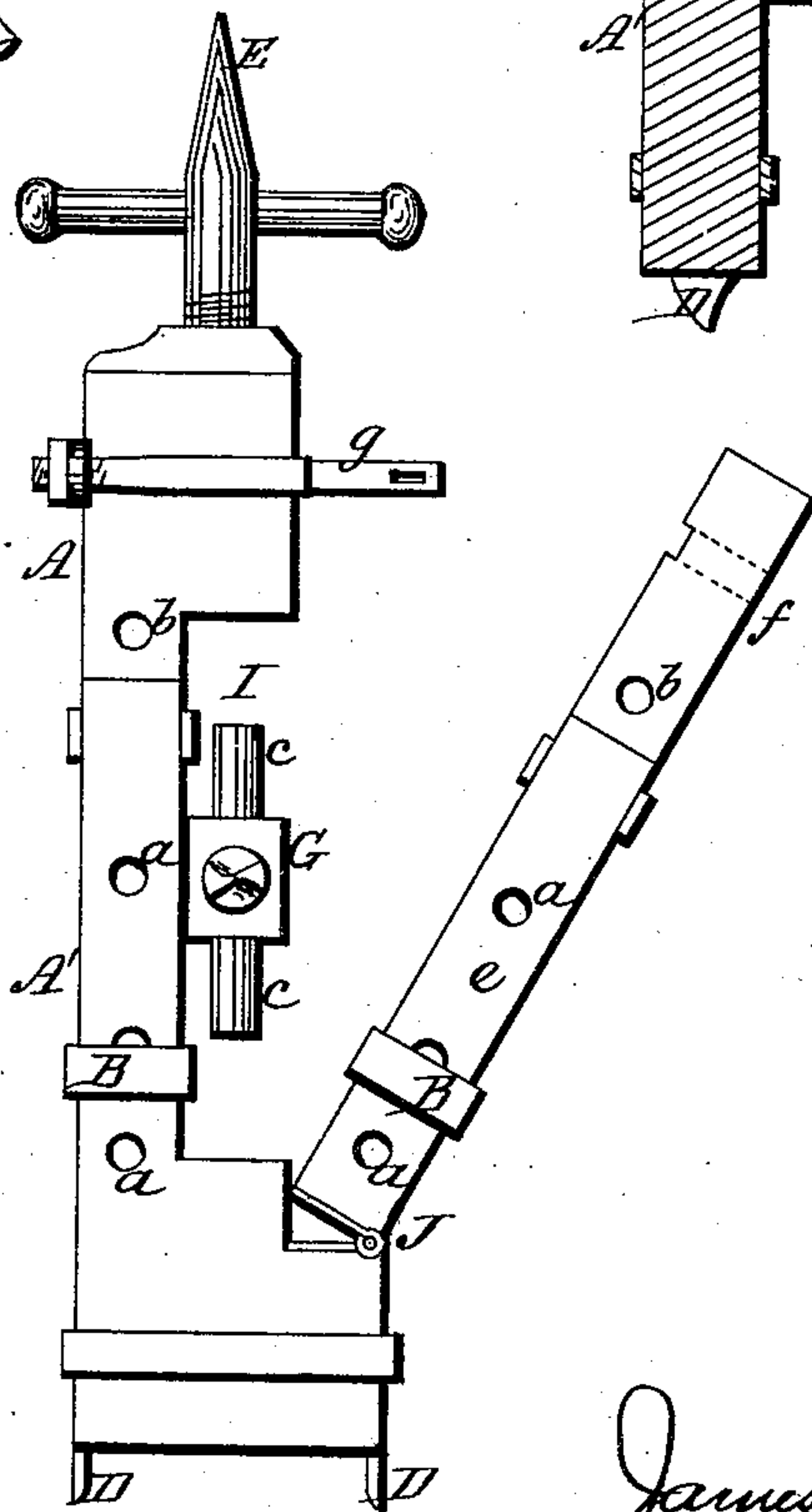


Fig 2.



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# UNITED STATES PATENT OFFICE.

JAMES F. TAYLOR, OF JEDDO, OHIO, ASSIGNOR OF ONE-HALF HIS RIGHT  
TO JOHN LAYTON, OF SAME PLACE.

## IMPROVEMENT IN MACHINES FOR DRILLING COAL.

Specification forming part of Letters Patent No. **155,122**, dated September 15, 1874; application filed  
April 13, 1874.

*To all whom it may concern:*

Be it known that I, JAMES F. TAYLOR, of Jeddo, in the county of Jefferson and State of Ohio, have invented certain new and useful Improvements in Coal and Clay Drilling-Machines, of which the following is a specification:

My invention relates to hand drilling-machines for coal and clay banks, and in which the frame is supported and firmly pinned to the base and arch of the pit; and the special features of my said invention consist of a standard or frame of two lapping sections, in combination with holding embracing-straps and removable supporting-pins, whereby the standard is made extensible and the upper section supported by the pins inserted into holes of the lower section; also, in the combination of removable and reversible bearing-pins with the drill-nut and the drill-screw spindles, whereby the nut-bearing pins may be reversed to sustain the drill-spindle nut at work in an upward or downward inclination to the standard, or removed to allow the nut to be turned in position to draw it out with the drill-spindle when working horizontally without interfering with the pinned position of the supporting-standard; and in the combination of an extensible standard with a hinged section thereof, the drill-spindle, and its feeding-nut, whereby the supporting-standard may be opened, to allow of the removal of the drill spindle and nut when working in such positions as to prevent the turning of the nut to bring its ends vertically within the open space of the standard, so that in any position of the drill-spindle it may be removed to make a new boring, either by withdrawing its bearing-pins or opening one side of the supporting-standard.

In the accompanying drawings, Figure 1 represents a view, in perspective, of a coal-drill machine embracing my invention; Fig. 2, an elevation, with the hinged side of the standard opened to let the drill-spindle be removed when it is working in an oblique position; and Fig. 3, a vertical section.

The frame is a standard of two sections, A and A', with sides lapped, the one with the

other, so as to form extension-branches, which are united and made extensible upon each other by straps B embracing and holding the lapped parts together, so that they may be adjusted to make the standard longer or shorter, to suit different heights of pits, with the lower ends of the upper section supported upon pins C, inserted into holes *a* in the lower section. The foot of the lower section A' is provided with claw-points D, and the head of the upper section A with an adjustable dog or screw-point, E, for entering the bottom and top of the pit, to hold the standard firmly in position. Both sections of the standard are provided with holes *a* and *b*, made horizontally through their lapped branches, and into their holes *a* and *b* of the sections A and A' the bearing-pins F, for the nut G of the drill-spindle H, are inserted from the side next the wall or bank, to hold the drill-spindle higher or lower, while the supporting-pins C for the upper section are inserted from the outer side of the standard. The pin-bearings F for the nut G are inserted into their openings, so that they can be drawn out and removed, and they are hook-shaped, to clasp the journaled ends *c* of the nut G, and hold it in place with the nut ends *c* bearing against the face of the standard, as shown in Fig. 1. These bearing-pins F hold the journaled nut in place, and when the drill-spindle is set to bore obliquely upward these bearing-pins have their hooked or clasped ends turned up, as shown in Fig. 1; but when the boring is being made with the drill-spindle inclining downward, then these bearing-pins must be turned to bring their hook ends downward, the object being to bring the pressure of the nut upon the pins and not upon their hooks, as shown in dotted lines in Fig. 3. The drill-spindle is provided with a screw-thread, *d*, and passing through the central portion of the nut, feeds the drill as the spindle is turned by its crank-handle. By having the drill bearing-pins removable, both the nut and the drill-spindle can be removed and replaced by others. This is done when the drill is working in a horizontal position by drawing out the hook-pins and turning the arms *c* of the nut G so as to



bring them within the vertical opening I, so that the arms of the nut can be drawn out through the opening I between the standard branches. When, however, the drill-spindle is working at an angle either up or down this removal of the nut cannot be effected in this way, because the shoulders or head of the nut would strike against the sides of the standards, as shown in Fig. 3.

To accomplish the removal of the drill-spindle and its nut in this position, I hinge the lower end of one side, *e*, of the lower section, to the foot at J, and connect the upper end of the contiguous separate branch *f* of the upper section to the head by a pin, *g*, passing through the upper end of the branch *f*, and secured by a key, *h*, so that by removing the latter the two sides *e* and *f* of the standard can be opened and turned down upon the foot-hinge J to open the standard, and thus allow the drill-spindle and its nut to be removed and the position of the drill changed higher or lower, as may be desired, to drill the hole. This hinged side may be opened and closed without disturbing the position of the standard when secured, and when so opened the nut-bearing pin-hooks can be changed and inserted either into the holes of the upper or lower standards, to incline the drill either up or down, according to the position it may be desired to drill the hole.

The advantage of the removable bearing-hook pins and the hinged side is, that the screw-spindle may be removed without separating it from the nut or sliding it out upon its screw-threads, which would soon destroy them, by reason of the weight and pressure of the spindle against its threads; but by re-

moving them intact the screw-threads are preserved from injury and the removal of the drill made more readily.

The drill-point K is of a greater diameter than that of the screw-spindle, so that a short drill can be used to bore a deep hole, as the spindle follows it in.

A spindle having eight threads to the inch will bore holes in fire-clay or coal banks from three to six feet deep, and with twelve threads to the inch the hardest rock can be bored.

The dog-screw point E can be entered and removed from its hold in the top by handles, and the standard set and secured in any desired position.

I claim—

1. A coal-boring machine having a standard of two lapping extensible sections, A and A', secured together by embracing strap-irons B, in combination with the holes *a* and the removable supporting-pins C for the upper standard A, substantially as and for the purpose described.

2. The reversible bearing-pins F, in combination with the drill-spindle H and armed nut G, as described.

3. The hinged branches *e f*, in combination with the supporting-standard A A', the armed nut G, and its drill-spindle H, substantially as described, whereby the working parts may be removed from the standard and the bore when operating in oblique positions.

JAMES F. <sup>his</sup> × TAYLOR.  
mark.

Witnesses:

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