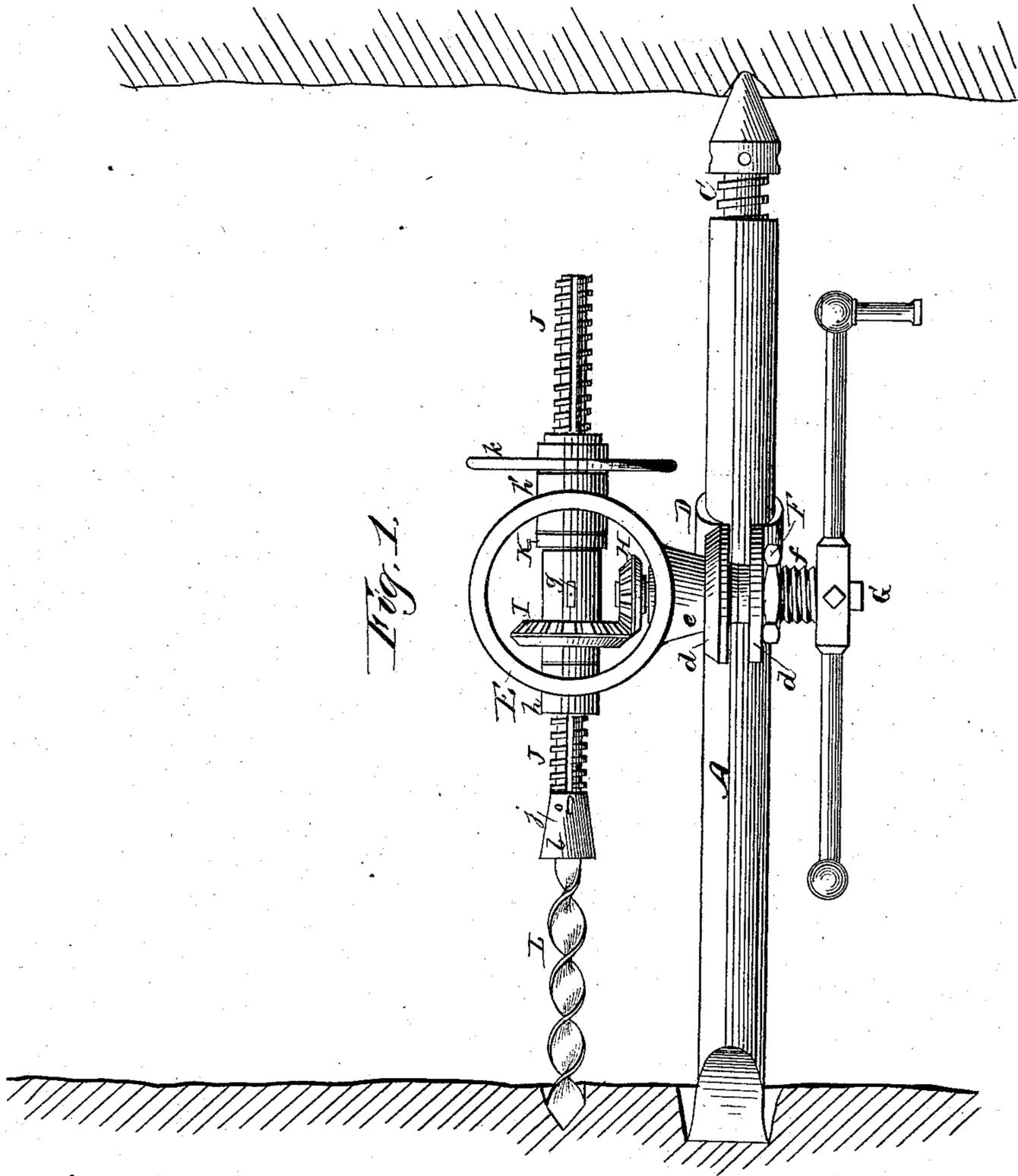


(No Model.)

2 Sheets—Sheet 1.

J. H. FERGUSON.
Rock and Coal Drilling Machine.
No. 239,323. Patented March 29, 1881.



Witnesses:
A. H. Krause

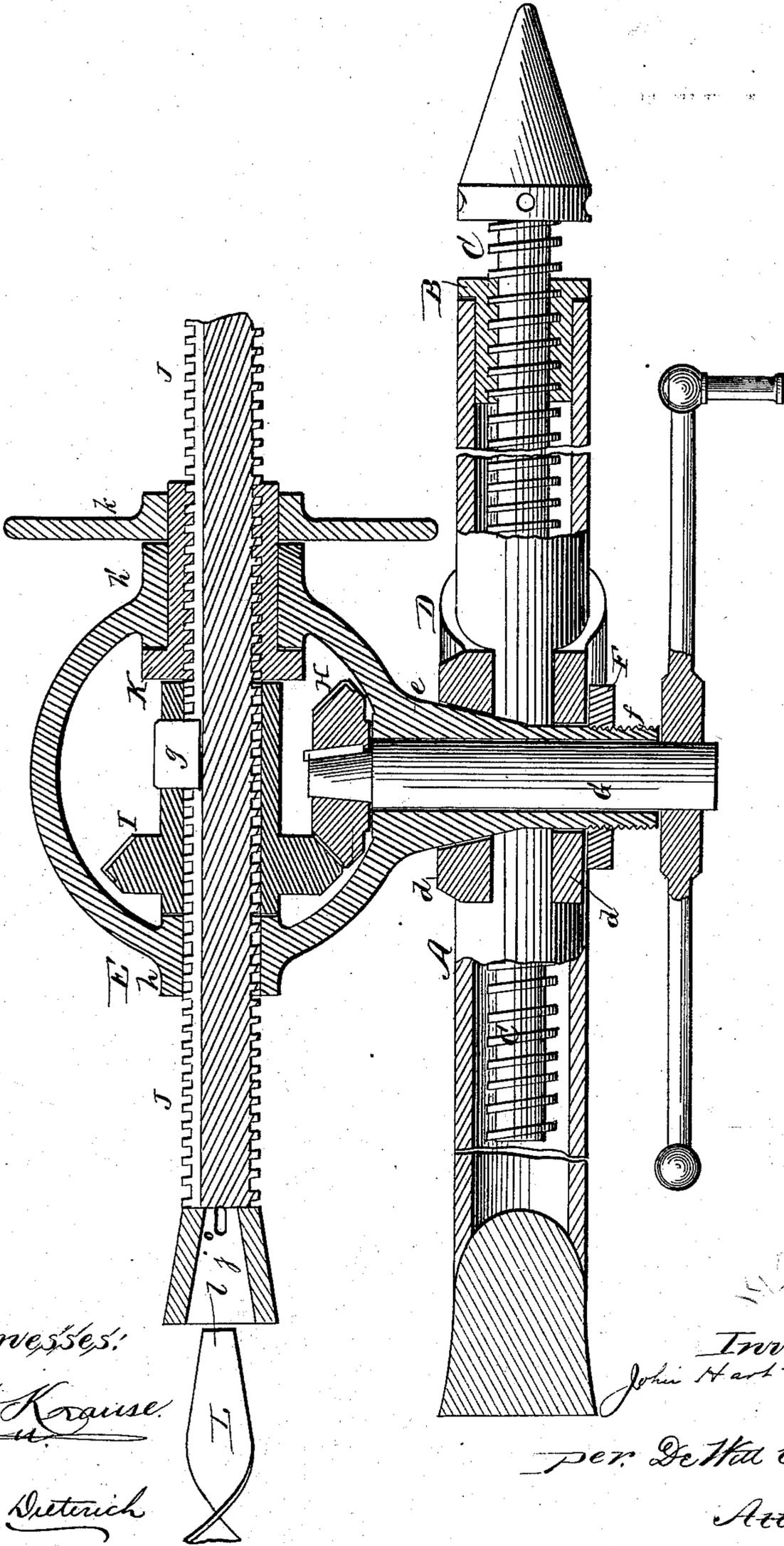
Fred. G. Dutrich

Inventor:
John Hart Ferguson

per. De Witt C. Allen
Attorney.

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Fig. 2.



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A. H. Krause.
Fred. G. Dietrich

Inventor:
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 Attorney.

UNITED STATES PATENT OFFICE.

JOHN H. FERGUSON, OF DAYTON, TENNESSEE.

ROCK AND COAL DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 239,323, dated March 29, 1881.

Application filed February 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. FERGUSON, a citizen of Great Britain, residing at Dayton, in the county of Rhea and State of Tennessee, have invented certain new and useful Improvements in Rock and Coal Drilling Machines; and I do hereby 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, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a side view, and Fig. 2 is a vertical section.

My invention relates to certain new and useful improvements in hand rock and coal drilling machines, having for its object to increase the efficiency and ease of adjustment and operation of such machines in drilling rock, coal, &c.; and to this end the invention consists in novel features of construction and combination of parts, all as will be hereinafter fully described, and specifically pointed out in the claims.

In the drawings, A represents a hollow standard of gas-pipe closed at one end, and having fitted in the other end thereof a brass screw-nut, B, through which passes the standard-screw C, pointed at its outer end. By means of this standard-screw C the standard A can be adjusted to any length desired, according to the height or width of heading.

D represents a wrought-iron clamp passing around the standard A, and having projecting ends *d d*, through which passes the hollow tapering bolt or bearing *e* of the circular bearing plate or ring E carrying the drilling mechanism. This tapering hollow bolt or bearing *e* is provided at its free end with an exterior screw-thread, *f*, for the reception of the screw-nut F, and by means of which the clamp D is adjustably secured upon said standard A. Through the hollow tapering bolt or bearing *e* passes a shaft, G, having a double operating-crank mounted upon the outer end thereof. Upon the inner end of said shaft G is mounted a small bevel-pinion, H, which meshes with a bevel-wheel, I, mounted upon and connected to the drilling screw-shaft J by a key,

g, which works in a groove cut in said shaft. This drilling screw-shaft passes through bearings *h h'* formed in the circular bearing plate or ring E, and said screw-shaft is fed by pressure through the brass screw-nut K, which works loosely in the bearing *h'* of the plate or ring E, and the feed is regulated by a handle or hand-wheel, *k*, connected to or mounted upon said screw-nut K, as may be required, according to the hardness of the rock or shale in which the hole is being drilled. The drilling screw-shaft J is provided with a tapering socket, *j*, in one end, for the reception of the beveled end *l* of the drill L, and which can be easily removed therefrom in case of breakage, by driving a wedge, *m*, through a transverse hole, *o*, in said shaft J at the rear end of the tapering socket *j*, all as clearly shown in Fig. 1. The drill and drilling screw-shaft are made of the best steel, in order to be both strong and durable.

It will be observed that by loosening the nut F the clamp and drilling mechanism may be adjusted to any position lengthwise on the standard A, or to any angle desired around said standard; and likewise the tapering bearing or bolt *e* and frame carrying the drilling mechanism turned to any right angle or opposite angle to the clamp on the standard, thus affording the drilling mechanism adjustments to work in any form desired.

With the standard A stretched across the heading a hole can be drilled level with the roof, or on a level up or down the center of the face of the heading, and likewise with the standard fixed from roof to floor a hole can be drilled parallel with any side, right or left and in any position, and at any angle in the center of the face.

In use, the handle or hand-wheel operates as a brake, and by pressure thereon retards the motion of the drilling screw-shaft to feed forward with greater or less rapidity as said pressure is increased or diminished.

The above-described machine possesses simplicity and durability in its construction, while being easy and effective in operation, and its weight is such that it can be carried, set up for work, and operated by a single man, or, if desired, by two persons, as it has a double operating-crank.

The machine can be operated by any common laborer, and accomplish more and better work, and with far greater facilities than by skilled workmen by hand.

5 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hand drilling-machine, the combination, with an adjustable standard, A, of the
10 clamp D, hollow tapering bolt or bearing *e*, the plate or ring E, carrying the drilling mechanism, and the screw-nut F, substantially as and for the purpose herein shown and described.

2. In a hand drilling-machine, the combination,
15 with the drilling screw-shaft and operating mechanism, of the bearing plate or ring E, having brass screw-nut K, passing loosely through the bearing *h'*, and provided with a
20 handle or hand-wheel, *k*, substantially as and for the purpose herein shown and described.

3. In a hand drilling-machine, the combination of the adjustable standard A B C, clamp D, plate or ring E, having hollow tapering bolt or bearing *e*, screw-nut F, shaft G,
25 passing through said bolt or bearing *e*, and provided with operating-crank and bevel-pinion H, drilling screw-shaft J, provided with bevel-wheel I keyed thereto, and the brass
30 screw-nut K, having a handle or hand-wheel *k*, and loosely fitted in bearing *h'* of the plate or ring E, the several parts constructed and relatively arranged to operate substantially in the manner herein shown and described.

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

JOHN HART FERGUSON.

Witnesses:

Dr. GEO. SCOTT,
W. B. BENSON.