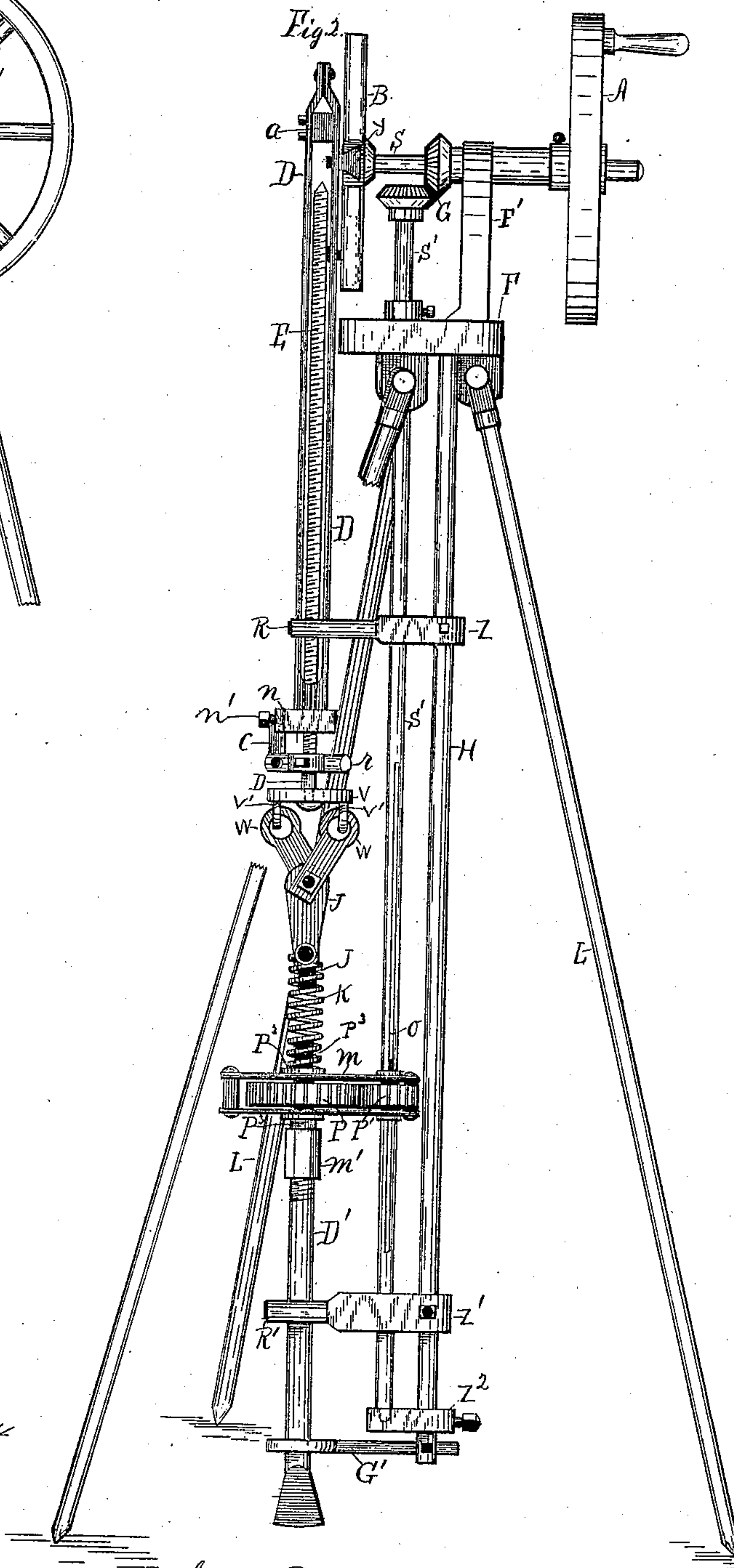
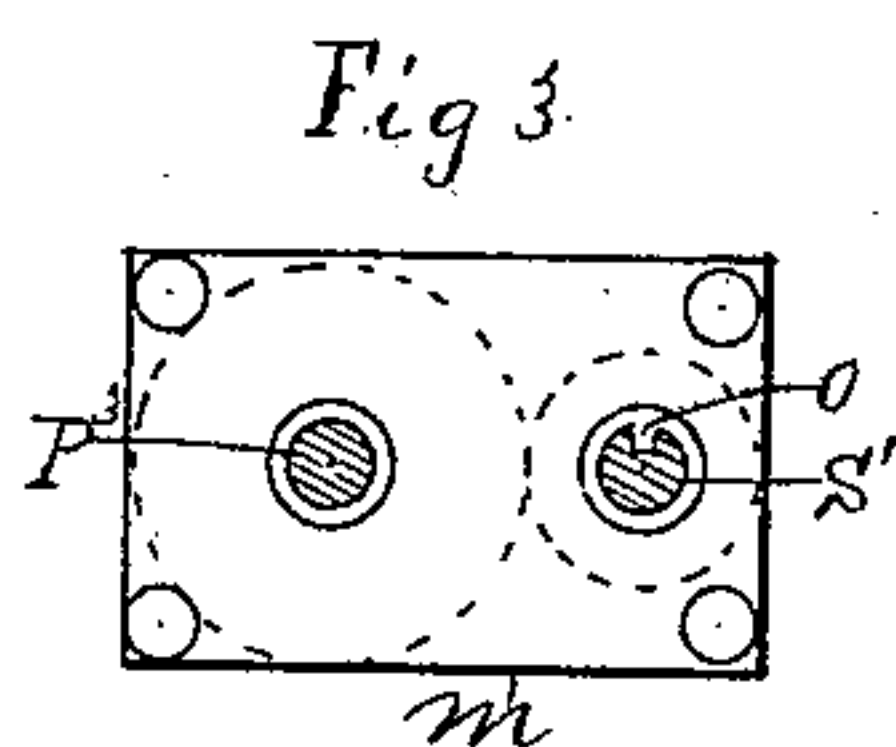
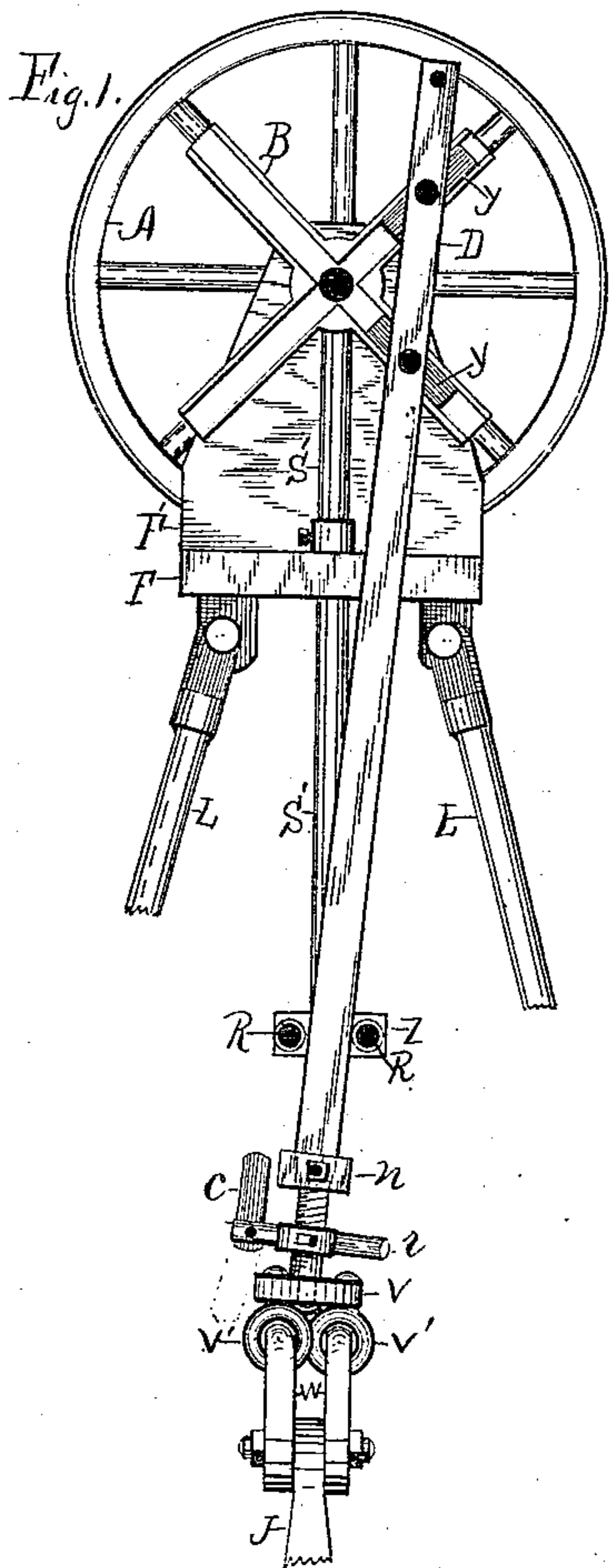


(No Model.)

T. B. KERR.  
ROCK DRILL.

No. 430,292.

Patented June 17, 1890.



Witnesses

Dan L. P. Lemon

Peter Cannon

Inventor

Thomas B. Kerr By  
Thos H. Hutchins his atty



# UNITED STATES PATENT OFFICE.

THOMAS B. KERR, OF KANSAS CITY, KANSAS.

## ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 430,292, dated June 17, 1890.

Application filed May 5, 1890. Serial No. 350,563. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS B. KERR, a citizen of the United States of America, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Rock-Drills, of which the following is a specification, reference being had therein to the accompanying drawings and the letters of reference thereon, forming a part of this specification, in which—

Figure 1 is a front elevation of the upper portion of the drill. Fig. 2 is a side elevation of the drill complete. Fig. 3 is a plan view on the upper side of the frame carrying the pinions for rotating the drill, taken on line 1 of Fig. 2, looking down.

This invention relates to certain improvements in rock-drills of the class that drill by blows, and is intended to be portable and arranged to drill obliquely as well as perpendicularly.

Referring to the drawings, F is a stand supported by the three legs L, hinged to its under side, forming a tripod.

F' is an integral vertical part of stand F, and is provided in its upper part with a box for bearing the horizontal shaft S. The outer end of said shaft has secured to it the crank fly-wheel A, and its inner end has secured to it the trammel B. This trammel has two slots crossing each other at right angles and forming guides for the two sliding blocks *y y*, to which the pitman D is connected. As the trammel is rotated from the crank-wheel A, the said slide-blocks keep in their own grooves or slots, crossing each other's tracks, and the pitman makes two up-and-down strokes at each revolution of the trammel.

H is a rod that has its upper end secured in the stand F and extends downward to near the ground, and has secured to it the arms Z, Z', Z<sup>2</sup>, and G'. The arm Z<sup>2</sup> forms a step for supporting the vertical shaft S', which extends upward through the stand F, in which it is boxed, and connects with shaft S by means of the bevel-gears G, from which it receives its motion. The arm Z has on its outer end a pair of long friction-rollers R, between which the pitman reciprocates and by which it is held in place, as shown more particularly in Fig. 1. Z' is a similar arm, bearing a similar pair of friction-rollers R', between which

the drill-bit D' reciprocates and is held in place.

G' is an arm having an inclosing-loop on its outer end, through which the drill-bit also passes and is guided. The pitman D is constructed in two parts, arranged to be a short distance apart, and secured to each other at the upper end by bolts or rivets and at their lower end by means of the screw-clamp *n*. The ends held together by said clamp are bored out between them, and the said bore is screw-threaded for receiving the screw-threaded feed-rod E, which screws up between the two parts of the pitman nearly to their upper ends, as shown in Fig. 2. The lower end of said screw-threaded feed-rod E is provided with a head for holding a swivel-plate V, which is loose and turns on said rod. A pair of oppositely-arranged eyes V' are secured to the lower side of said swivel-plate V for respectively receiving the upper ends of the links W W, the lower ends of which are pivoted to the upper end of a short stub-shaft J, having its lower end entering a short distance in and secured to the coil-spring K. The lower end of said spring is secured to the upper end of a short shaft P<sup>3</sup>, which enters a short distance into said coil-spring. The lower end of said shaft P<sup>3</sup> is provided with the nut *m'*, into which the drill-bit D' screws.

*m* is a frame composed of two plates secured together at or near their corners by means of posts. The shaft S' passes through this frame and through the pinion P', arranged between and boxed in said plates, and is feathered in the hub of said pinion, so that said pinion and its frame may reciprocate on said shaft, the shaft being provided with the groove O and the pinion being provided with an integral feather for traversing said groove. The short shaft P<sup>3</sup> also passes through the frame *m* and through the pinion P, which is larger than pinion P' and meshes therewith. Said shaft P<sup>3</sup> is secured in said pinion P and is rotated thereby, together with the drill-bit D', attached thereto, and the parts attached to the upper end of said shaft. An arm *r* is secured to the screw-threaded feed-rod E immediately below the clamp *n* and has pivoted to one end the latch C. When said latch is turned up, as shown in the figures, it will engage the side



of clamp *v*, so that when the drill *D'* and its shaft *P<sup>3</sup>* are rotated together with the links *W* and plate *V* the screw-threaded feed-shaft *E* will not be rotated to feed the drill forward; 5 but when the said latch is turned downward, as indicated by the broken lines in Fig. 1, it will engage a notch in the side of swivel-plate *V*, and thus cause said feed-screw to turn down and feed the drill forward continuously as the 10 drill and its shaft is rotated by the pinions *P P'*.

By loosening the set-screw *n'* of the clamp *n* the lower ends of the two parts of the pitman may be separated, so as to release the feed-rod *E*, so that it may be immediately adjusted 15 to any required height to bring the drill to its work or to remove it or insert another. The drill-bits *D'* are intended to be interchangeable for others of different lengths or sizes. 20 The whole forms a very neat, effective, and durable device for drilling rock or any other material.

Having thus described my invention, what I claim as new, and desire to secure by Letters 25 Patent, is as follows, to wit:

1. In the drill shown and described, the combination of shaft *H*, having arms *Z* and *Z'*, respectively provided with the friction-rollers *R R'*, and arm *Z<sup>2</sup>*, forming a step for shaft *S'*, 30 arm *G'*, having a loop on its outer end for inclosing the drill-bit, shaft *S*, trammel *B*, slides

*Y*, pitman *D*, screw feed-shaft *E*, arm *r*, having latch *C*, swivel-plate *V*, having eyes *V'*, links *W*, shafts *J* and *P<sup>3</sup>*, coil-spring *K*, frame *m*, pinion *P*, shaft *S'*, having groove *O*, pinion *P'*, 35 feathered on said shaft, and bevel-gears *G*, all arranged to operate substantially as and for the purpose set forth.

2. In the rock-drill shown and described, the combination, with the tripod *F F' L*, of shaft 40 *H*, arms *Z Z'*, respectively provided with the friction-rollers *R R'*, pitman *D*, trammel *B*, having slides *Y*, shaft *S*, screw feed-shaft *E*, having swivel *V* and arm *r*, provided with latch *C*, drill-shaft *J P<sup>2</sup>*, coil-spring *K*, inter- 45 posed between the two sections of the drill-shaft, gear-wheel *P*, pinion *P'*, shaft *S'*, and bevel-gears *G*, all arranged to operate substantially as and for the purpose set forth.

3. In the rock-drill shown and described, in 50 combination with the drill-shaft formed in two sections *J* and *P<sup>2</sup>*, the coil-spring *K*, interposed between the two sections of the drill-shaft, gear *P*, secured to section *P<sup>2</sup>* of the drill-shaft, pinion *P'*, shaft *S'*, having said pinion 55 feathered thereon, and the means specified for operating said parts, substantially as and for the purpose set forth.

THOMAS B. KERR.

Witnesses:

THOS. H. HUTCHINS,  
PETER BANNON.