(No Model.)

H. B. DIERDORFF.

COAL OR ROCK DRILL SUPPORT.

No. 360,667. Patented Apr. 5, 1887.

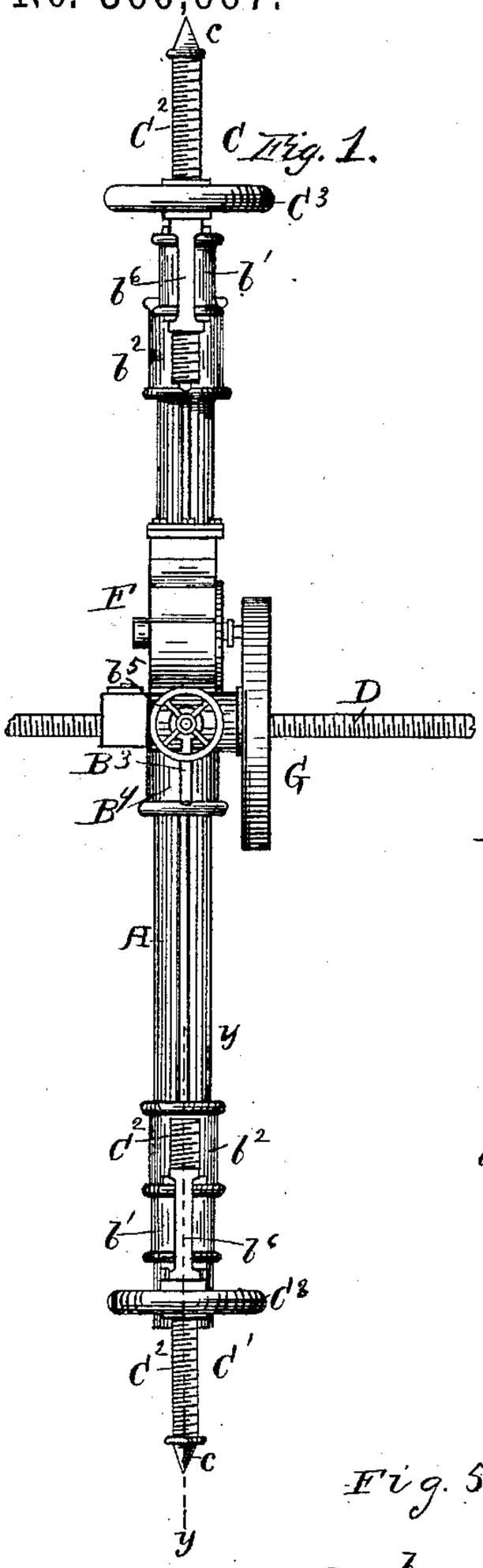


Fig. 1.

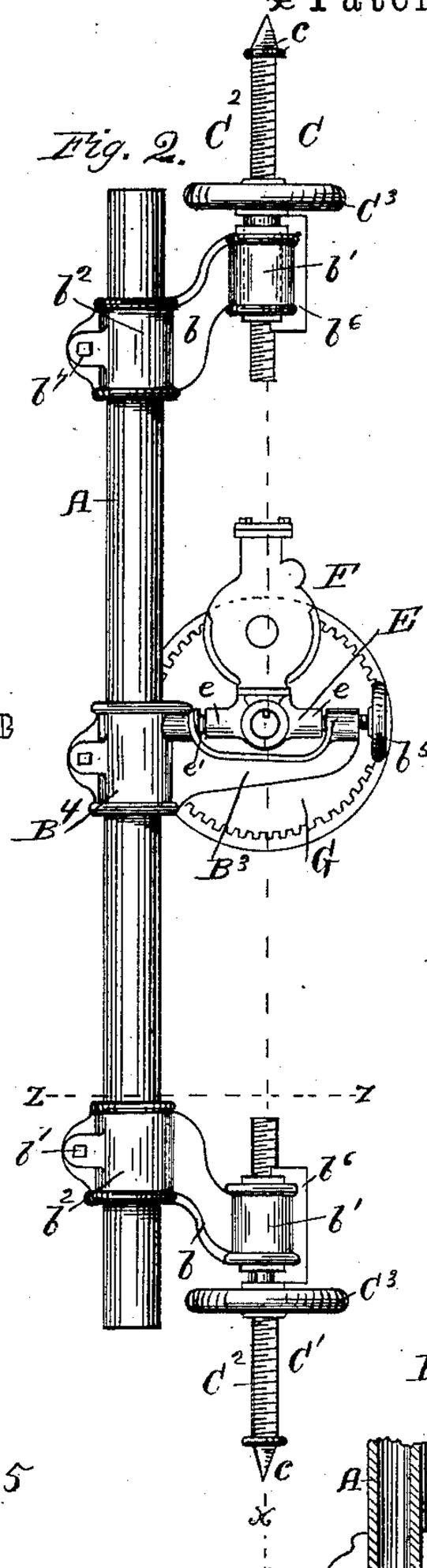


Fig. 2.

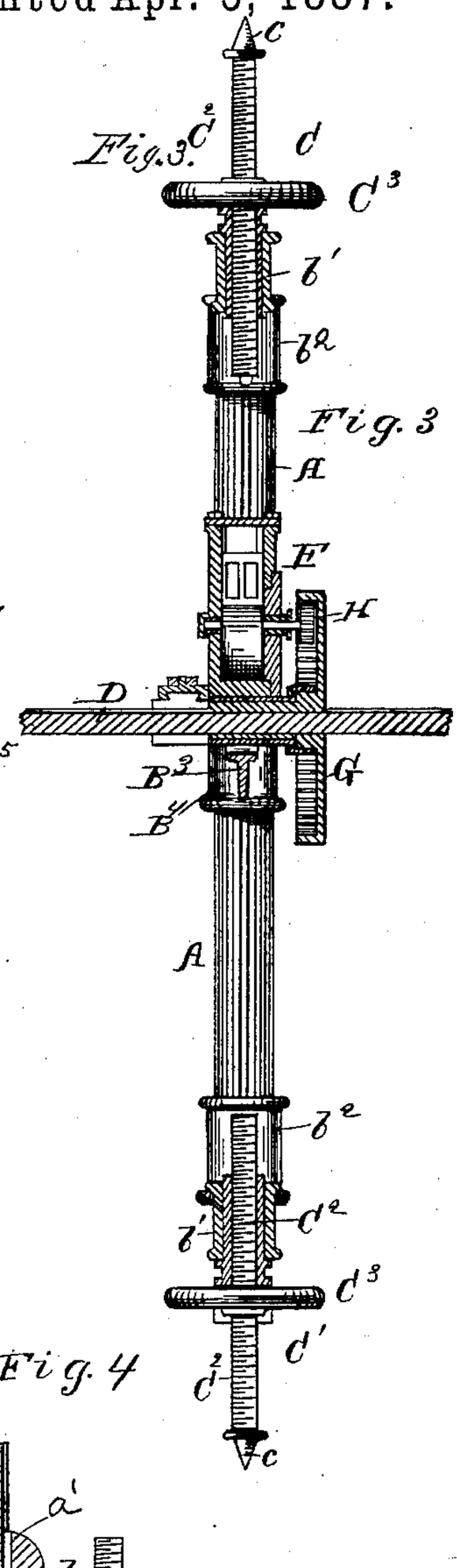


Fig. 3.

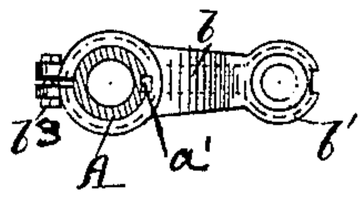
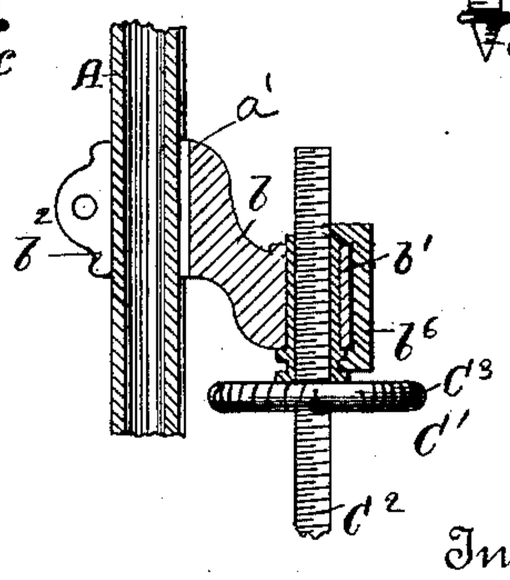


Fig. 5

Fig. 4



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UNITED STATES PATENT OFFICE.

HENRY B. DIERDORFF, OF COLUMBUS, OHIO, ASSIGNOR TO JOSEPH A. JEFFREY, OF SAME PLACE.

COAL OR ROCK DRILL SUPPORT.

SPECIFICATION forming part of Letters Patent No. 360,667, dated April 5, 1887.

Application filed June 28, 1886. Serial No. 206,510. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. DIERDORFF, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Coal or Rock Drill Supports, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a front view of my improved drill. Fig. 2 is a side view. Fig. 3 is a vertical section on line *x x*, Fig. 2. Fig. 4 is a partial vertical section on line *y y*, Fig. 1. Fig. 5 is a cross-section on line *z z*, Fig. 2.

Like letters of reference indicate like parts in all the figures.

This invention relates to that class of drill in which there is employed a single standard or continuous post arranged eccentrically to the points which are adapted to engage with the floor and roof of the mine, and which carries also the drill and supports it against backward thrust, and one part thereof relates to the combination with such post, which may be made in a single integral piece of metal, of brackets which carry at one end a point or spindle to engage with the floor or roof, and at the opposite end with a ring, eye, or socket surrounding the standard and adapted to be adjusted to different heights thereon.

Other parts of the invention will be pointed out in the claims.

A represents a post or standard, consisting of a continuous bar of iron, hollow tube, or other suitable support. This bar has upon one side a groove or key-seat, *a*.

C and C′ represent, generally, what I shall refer to as the "upper" and "lower" clamping devices. In many respects they may be of any of the numerous styles now shown; but I prefer the form shown in the drawings—that is to say, each comprises a screw-threaded spindle, C^2, with a point, *c*, adapted to enter the coal.

B is an internally-threaded tubular nut having at its upper end a hand-wheel, C^3. This nut rotates in a closely-fitting bearing, *b′*, formed for its reception in the outer ends of a bracket-arm, *b*, the other end of the bracket having a split socket, b^2, with a binding-bolt or set-screw, b^3, whereby the bracket can be secured to the standard A at different points, as may be desired. The tubular nut B is expanded between the hand-wheel and its bearing in the bracket, so as to form a shoulder, which rests upon the bearing and thereby supports the nut against the thrust of the spindle. The enlarged part of the nut is grooved, as at *c′*, to receive the forked end c^2 of a stirrup, B′, the opposite arm, c^3, of which engages with the opposite side or end of the bearing *b′*. After the tubular nut has been placed within its seat or bearing *b′*, the stirrup is placed in the position shown in the drawings, to prevent accidental withdrawal or removal of the nut, as will be readily understood from an examination of the drawings, particularly Fig. 4, without further explanation.

In operating this invention the binding screws or bolts b^3 may be loosened, and the drill placed in proper position with the points *c c* thrust into the floor and roof as far as is convenient. The binding-bolts may then be tightened, so as to prevent longitudinal movements of the brackets upon the standard. Then by means of the hand-wheels C^3 the desired tension upon the parts can be produced by thrusting one or both of the spindles C^2 outward. The engagement of the points with the coal will prevent the spindles from turning with the tubular nuts during this operation.

Referring to Figs. 4 and 5, *a′* is a feather or spline permanently affixed to the inner face of the split socket of the bracket and sliding in the key-seat *a*, to prevent rotation of the bracket upon the standard.

I am aware that a drill having a single standard consisting of one member sliding within the other, (thus forming a telescopic joint,) in combination with projecting arms or brackets at either end of the telescopic standard, each arm being rigidly attached to its respective section of the telescopic standard, is old; but my construction possesses many advantages over the one last referred to. For instance, I can slide the brackets toward the center of the standard so far that the points *c c* shall be on lines with the ends of said standard, so that the drill can be advantageously used in any mine which will admit of the standard being introduced in suitable position between the floor and roof or other opposing walls. On the other hand, the drill can be ad-

vantageously used in mines where the distance between the floor and roof is very much greater, while at the same time the supports for the spindles can be moved quite close to the coal or other material by moving the brackets close to the ends of the standard. Thus a great range of adjustment is provided for. Again, the employment of the key-seat *a* and keys or splines *a' a'* are very advantageous, because they support the parts strongly and maintain them firmly in proper working relation, without interfering in the least with the desired adjustments.

I have shown a drill and a rotary engine of the forms which I at present prefer, the latter being similar to that shown in my Patent No. 350,354, October 5, 1886, and the drill mechanism being similar to that in the Patent No. 317,949, May 12, 1885, to B. A. Legg; but drills and engines of other types can be used instead of those shown. As illustrated, the drill D and the engine F are mounted upon an oscillating support, E, power being taken from the engine through pinion H and wheel G to the drill D, which is loosely connected with the hub of the wheel by a feather and slot. The drill-support E has laterally-projecting lugs *e*, which act as trunnions, they engaging, respectively, with a pivot-point at *e'* and the point of a set-screw, b^5.

The parts last referred are supported by a bed or arm, B^3, which is held at one end only by a socket, B^4, similar to the socket-pieces b^2, above described, and, like them, fastened to the connecting-rod A, it having a key or feather which prevents it from rotating, but allows it to be adjusted longitudinally.

The drill D is situated in a common plane with the clamp-points *c c*. The resistance of the drill is therefore directly in the plane of the fastened parts of the drill-holder, and hence there will be no tendency to produce any twisting or torsional strain either upon the operative parts of the drill itself or upon the clamps or the connecting rod or column which unites them.

Wherever in this case I have used the words "single continuous posts" I mean a supporting-post which is not necessarily capable of being lengthened or shortened, in contradistinction to an extensible post, which is made of sections of which the one is adapted to be moved endwise relatively to the other for the purpose of adjusting the distance between the spindles or points which engage with the roof and the floor of the mine—such, for instance, as is shown in the application of Millard F. Smith, Serial No. 197,766.

While I have shown my drill support arranged in substantially vertical position, it is evident that it may be arranged horizontally or at any desired angle, according to the circumstances of each case. I have shown duplicate adjustable brackets and pointed spindles, one at either end of the supporting post or standard; but it is evident that some advantages incident to my invention would be attained even though one bracket and its attached spindle were non-adjustable.

What I claim is—

1. In a coal or rock drill, the combination, with the single continuous post, of the brackets mounted upon and surrounding the posts and adjustable relatively to the portion of the posts which they surround, the spindles, and the drill, the spindles and the drill being in a common plane and eccentric to the post, substantially as set forth.

2. In a coal or rock drill, the combination, with the single continuous post, of the inclined brackets mounted upon and surrounding the posts and adjustable relatively to the portions of the post which they surround, the spindles, and the drill, the spindles and the drill being in a common plane and eccentric to the post.

3. In a coal or rock drill, the combination, with the grooved continuous post, of the adjustable brackets provided with splines seated in the grooves of the posts, the drill, and its supporting arm and socket splined to the post and the binding-screw b^3, substantially as set forth.

4. In a coal or rock drill, the combination, with the grooved supporting-post, the drill, and the spindle, of the split socket b^2, for the brackets, and the binding-screw b^3, substantially as and for the purposes set forth.

5. In a coal or rock drill, the combination, with the drill, of the screw-threaded spindles, the tubular nuts, the brackets and bearings for the nuts, and the stirrups b^6, substantially as set forth.

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

HENRY B. DIERDORFF.

Witnesses:
W. T. McCLURE,
G. W. LIGHTY.