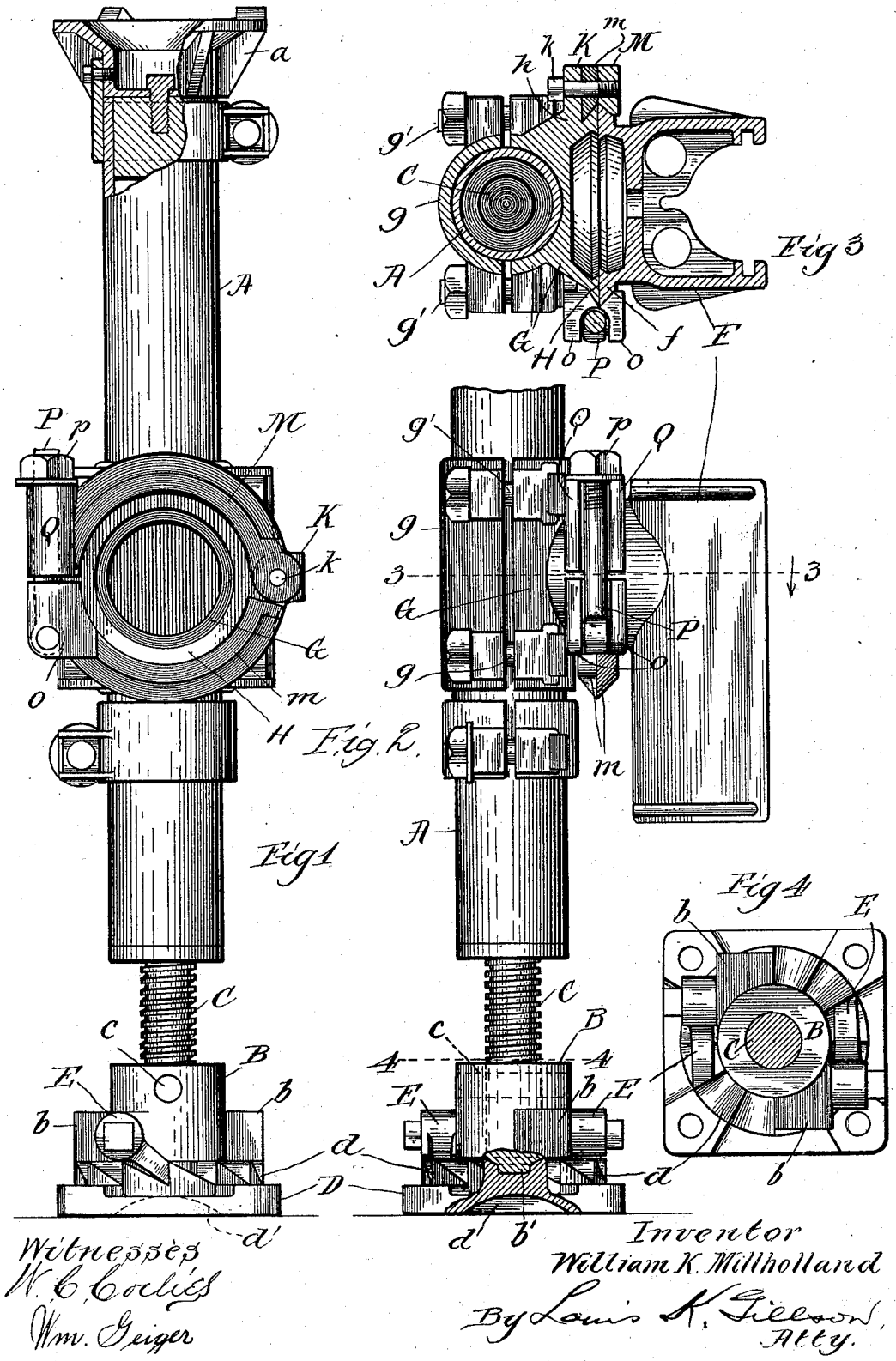
No. 653,307. Patented July 10, 1900.

W. K. MILLHOLLAND.

DRILL SUPPORTING COLUMN AND COLUMN CLAMP.

(Application filed May 18, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WILLIAM K. MILLHOLLAND, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GEORGE D. WHITCOMB COMPANY, OF ILLINOIS.

DRILL-SUPPORTING COLUMN AND COLUMN-CLAMP.

SPECIFICATION forming part of Letters Patent No. 653,307, dated July 10, 1900.

Application filed May 18, 1899. Serial No. 717,272. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM K. MILLHOLLAND, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Drill-Supporting Columns and Column-Clamps, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

This invention relates to that class of columns which are used in mining operations and are adapted to be set between the floor and arch of a mine-passage, each being provided with a jack-screw for adapting it to the situation in which it is to be used.

The objects of the invention are to provide means for securely locking the column when adjusted to its place and to provide for clamping to such a column a drill-carrying frame, so that it may be conveniently adjusted to any angular position and secured in any position to which it may be adjusted. These objects are attained in the construction hereinafter fully described and which is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the column, partly in section, the drill-frame being detached therefrom. Fig. 2 is a similar view from a point ninety degrees removed from the point of view of Fig. 1, the drill-frame being shown as attached to the column. Fig. 3 is a transverse section on the line 3 3 of Fig. 2, and Fig. 4 is a transverse section on the line 4 4 of Fig. 2.

The column A is of ordinary form and is provided with a head a, adapted to bear against the arch of a mine-passage. The foot-block B is connected with column A by means of a threaded rod C entering a suitable socket in the lower end of the column, to which rod it is secured by a pin c'. The rod C is shown as extending entirely through the block B and resting and turning upon a foot-plate D, which is provided with an annular ratchet d, formed upon its upper face and encircling the block B. Gravity-pawls E E, preferably two in number, are pivoted to lugs b b, projecting laterally from the side of the block B, these pawls coöperating with the ratchet d.

The pawls E bear against faces of the lugs b b, which are tangential to the face of the block B. The abrupt faces of the teeth of the ratchet d are radial as to the ratchet, and the free ends of the pawls E are correspondingly beveled. The block B is provided with a suitable aperture c for the reception of a hand-lever, whereby the rod C may be turned to brace the column between the floor and arch of the passage. Lateral movement of the rod C on the plate D is prevented by the engagement of its end with a suitable recess in the upper face of the plate.

The under face of the plate D is concave, as shown at d', so that as pressure is applied by turning the screw C out of the column the earth upon which the plate rests will be crowded and compressed into this cavity, thereby securely anchoring the column against lateral displacement, and by reason of the increased friction due to the compression of the material within the cavity of the plate the tendency of the plate to rotate is checked. The peculiar form of the ratchet d and the peculiar manner of mounting the pawls E also contribute to reduce the tendency of the screw-pressure to rotate the foot-plate, for the reason that the back pressure of the pawls is tangential. The pawls being mounted in the tangential manner shown are thrown entirely out of engagement with the ratchet when turning backwardly.

The frame for carrying the drill is shown at F and is provided with a circular attaching-foot f, having its periphery beveled inwardly. The column-clamp comprises the members G g, which together encircle the column A and are clamped thereto by the draw-bolts g' passing through suitable lugs.

The member G of the column-clamp is provided with a bracket h, having a circular bearing-face H, corresponding in size and form with the foot f and having its periphery beveled inwardly. To a laterally-projecting lug K, formed upon the bracket h, there is pivotally secured, by means of the bolt k, a pair of semicircular clamping members M m, which together encircle the members f H and have their inner faces grooved to receive the beveled edges thereof. Between the pair of lugs o o, formed upon the free end of the member m, there is pivotally secured a draw-bolt P,

which is adapted to enter between a similar pair of lugs Q Q, formed upon the free end of the member M, so that a nut *p* applied to the end of this draw-bolt will bear against the rearward faces of these lugs to draw the members M *m* together, thereby securely clamping the members *f* H, so that while the drill-frame F may be adjusted to any desired angular position by first turning back the nut *p* it may be rigidly secured in any position to which it may be adjusted by turning up this nut. In a column thus formed the tendency of the screw C to gradually turn backwardly, due to the jar of the percussion-drill, is entirely obviated. The column having been once secured remains permanently in place until intentionally removed.

I claim as my invention—

1. In a column for rock-drills and the like, in combination, a shaft, a screw fixed in the block and entering the shaft end, a foot-plate upon which the screw is adapted to rest and turn, an annular ratchet formed on the upper face of the plate, a block fixed to the screw, and a pawl secured to the block and coöperating with the ratchet.

2. In a column for rock-drills and the like, in combination, a shaft, a foot-plate, a screw entering the shaft end, and resting in a recess in the plate, an annular ratchet formed on the upper face of the plate, a block fixed upon the screw and having a face tangential thereto, and a pawl secured to the tangential face of the block and coöperating with the ratchet.

3. In a column for rock-drills and the like, in combination, a shaft, a foot-block, a screw fixed in the block and entering the shaft end, a boss formed on the block and having a face tangential thereto, a foot-plate upon which the screw is adapted to rest and turn, an annular ratchet formed on the upper face of the plate, the abrupt faces of the ratchet-teeth being on planes radial as to the ratchet, and a pawl secured to the tangential face of the boss and coöperating with the ratchet.

4. In a column for rock-drills and the like, in combination, a shaft, a foot-block, a screw fixed in the block and entering the shaft end, a foot-plate upon which the screw is adapted to rest and turn, the lower face of such plate being concave, an annular ratchet formed on the upper face of the plate, and a pawl secured to the block and coöperating with the ratchet.

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