No. 841,019. PATENTED JAN. 8, 1907.

A. D. KENYON.

# FOOT PLATE FOR DRILL COLUMNS.

APPLICATION FILED APR. 16, 1906.

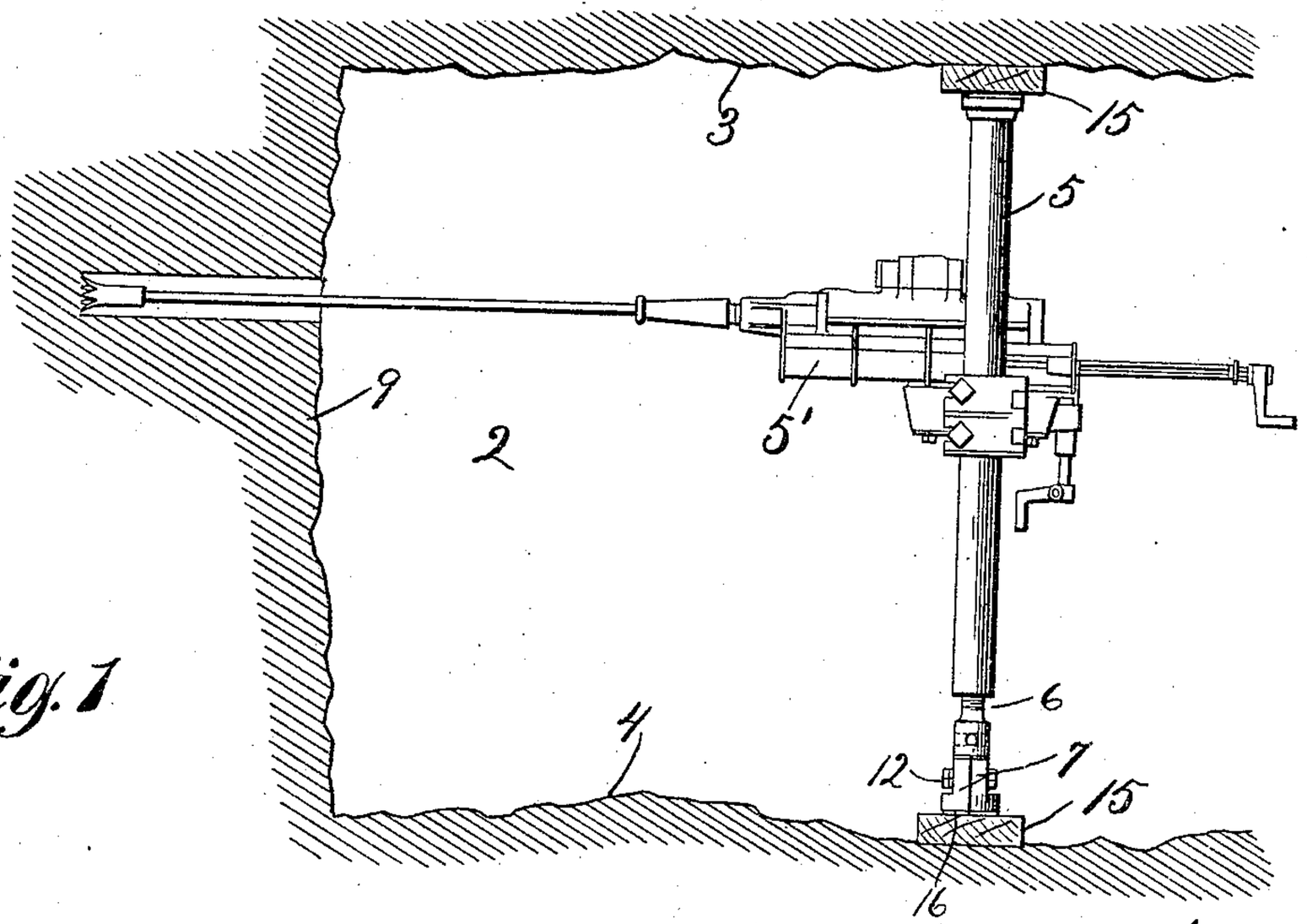


Fig. 1

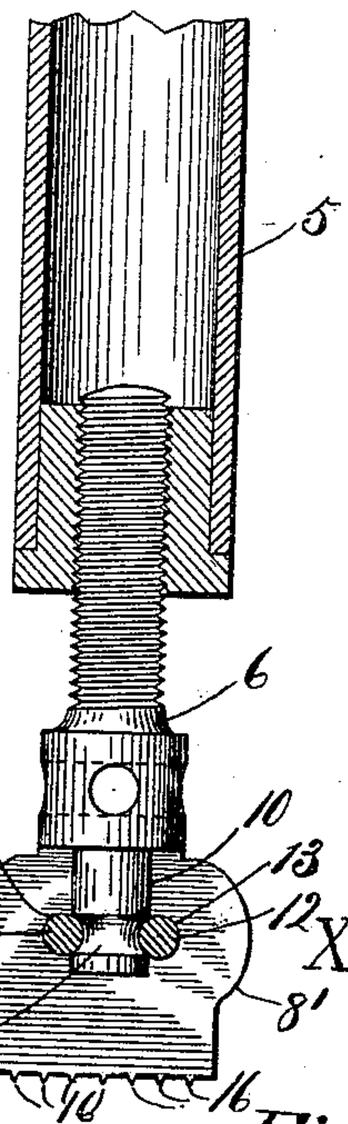


Fig. 2.

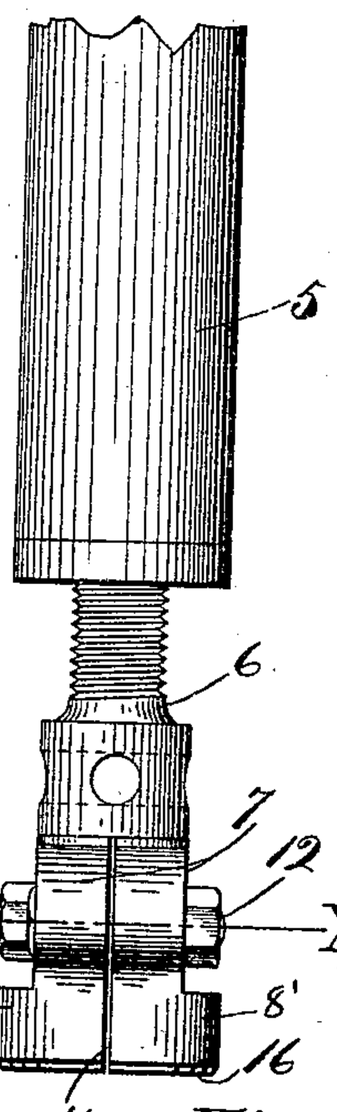


Fig. 3.

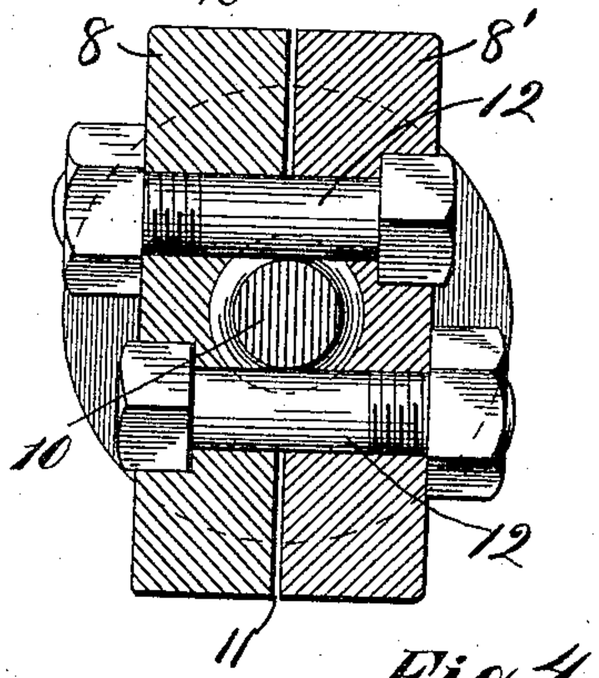


Fig. 4

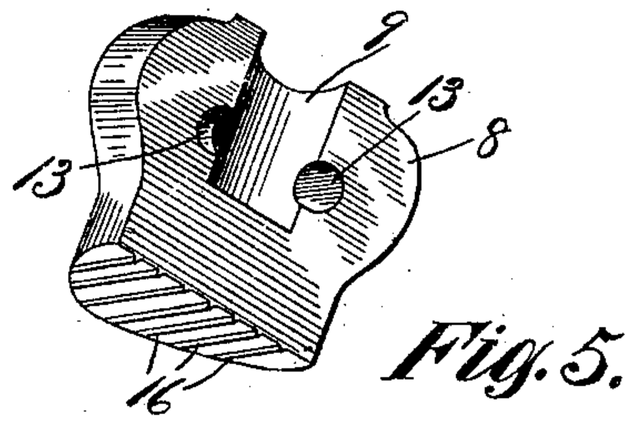


Fig. 5.

Witnesses:
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# UNITED STATES PATENT OFFICE.

ARTHUR DOUGLAS KENYON, OF CRIPPLE CREEK, COLORADO.

## FOOT-PLATE FOR DRILL-COLUMNS.

No. 841,019. Specification of Letters Patent. Patented Jan. 8, 1907.

Application filed April 16, 1906. Serial No. 311,857.

*To all whom it may concern:*

Be it known that I, ARTHUR DOUGLAS KENYON, a citizen of the United States, residing in Cripple Creek, Colorado, have invented certain new and useful Improvements in Foot-Plates for Drill-Columns, of which the following is a specification.

This invention relates to miners' drills, and has particular reference to supports for such drills which are adjustable to engage the opposite walls of a shaft, and thereby form a brace or fixed part adapted to sustain a drill in position.

The particular object of my invention is to provide an improved "foot-plate," as it is technically termed, for the drill column or support. These foot-plates come in contact with the rough walls of a mine shaft or bore and must sustain a great deal of rough usage and strain. The result is that they often break, so often, in fact, that the item of repairs for foot-plates alone is a very important one.

The improvements in my foot-plate consist of, first, making the foot-plate in two parts, so that when a portion of the plate is broken repairs may be made with only half a plate instead of a full plate; second, making provision for fastening the two halves to each other, so that the parts which hold the two halves of the foot-plate together also hold the foot-plate as a whole upon the end of the supporting-column; third, making a foot-plate in two identical parts, so that the latter may be used interchangeably and also so that but one form or mold need be used for both halves of the plate; fourth, making the means which hold the foot-plate to the column or screw and which also hold the sections of the foot-plate itself together a means for supporting the screw or column against turning; fifth, the provision of a foot-plate which serves not only as a bearing for the screw in the usual manner, but which serves as a locking means against rotary movement of the screw after it has once been rotatably tightened upon and against the foot-plate; sixth, the provision of a separable foot-plate so constructed that the parts have a space between them adapted to serve as an oil-groove for the screw; and the invention consists in the novel construction and combination of parts hereinafter described in detail, illustrated in the drawings, and incorporated in the claims.

In the drawings, Figure 1 represents a mine shaft or bore with an air-drill mounted therein, said air-drill being provided with a foot-plate embodying my invention. Fig. 2 is a longitudinal section through a piece of the drill-column, the jack-screw, and my improved foot-plate. Fig. 3 is an outside view of the parts shown in Fig. 2. Fig. 4 is an enlarged section of the foot-plate, taken on the line $x$ $x$ of Fig. 3. Fig. 5 is a perspective view of one of the two identical sections or parts of the foot-plate.

Referring to the details of the several views, 2 represents a mine-shaft, between the walls 3 and 4 of which the well-known form of drill-column 5 is fixed by means of the jack-screw 6, having a foot-plate 7. The column supports the drill 5′, arranged to make a bore in the wall 9, as shown. My invention resides wholly in the part 7 and in its combination with the part 6. The foot-plate 7 is made of two identical parts 8 and 8′, each of which is provided with a groove 9, which forms a little less than a semicircle, so that the two grooves do not quite encompass the bearing end 10 of the jack-screw 6. When the two halves 8 and 8′ are mounted on the part 10, as shown in Fig. 3, and the bolts 12 have been tightened thereupon, a narrow space or opening 11 is left between said halves, and through this opening, slit, or groove the bearing part 10 may be oiled, and the bottom of the socket formed by the two grooves provides a firm thrust-bearing for the end of the screw. The bolts 12 are provided with holes 13 in the parts 8 and 8′. These holes are bored partly through the grooves 9 in the members 8 and 8′, and the part 10 of the jack-screw is provided with an annular groove 14, which said bolts engage to hold the foot-plate on the screw 6 or the part 10 thereof.

The foot-plate, comprising the sections or parts 8 and 8′, is not merely a foot-plate, but a clamp for supporting the jack-screw against rotary or loosening movement after the column has been jacked fast against the opposite walls of the shaft. In operating the drill 5′ the rough usage and vibrations tend to jar loose the screw 6. By making the foot-plate in the form of a clamp I not only provide a foot-plate, but also means for supporting the screw against rotary movement after it has been tightened against the usual wooden blocks 15, which of course cannot turn on the rough surface of the walls 3 and 4. The foot-plate itself, on the other hand,

is provided with ridges, teeth, or the like which engage the wooden blocks and prevent the foot-plate from turning on the blocks. These ridges 16 are usually in the form shown in the several views, though same do not need to be confined to the form shown, nor do they form a part of my invention.

Some device must necessarily be provided to hold the foot-plate on the jack-screw, and in my invention the perhaps simplest form is utilized, first, to hold the two parts 8 and 8′ together; second, to hold the foot-plate as a whole upon the screw, and, third, to force the parts together so that they operate as clamp members. The one feature alone of making the foot-plate in two parts makes the foot-plate about forty per cent. cheaper to construct than the ones regularly used heretofore, so far as I am aware. Foot-plates are usually cast, and in the operation of casting I reduce the cost by obviating corework in connection with the usual bore or opening represented by the grooves 8 and 8′. Obviously where part of a foot-plate breaks and it is possible to make repair by substituting half a foot-plate instead of a whole foot-plate one-half of the material is saved in this one item alone, to say nothing about the lesser cost of the half-casting compared with the whole casting in the matter of casting operation referred to.

I claim as my invention—

1. A foot-plate consisting of two parts of identical form, which may be used interchangeably.

2. The combination with a supporting-column provided with a jack-screw, of a foot-plate for the latter made in two parts of substantially identical form, and means which not only secure said parts together but hold the foot-plate as a whole upon said screw.

3. The combination with the jack-screw of a drill-column, of a foot-plate made in two interchangeable parts, and means for holding said parts and said screw together.

4. The combination, with the jack-screw of a drill-column, of a pair of clamp members constructed and arranged to serve as a thrust-bearing for the end of said jack-screw and as a means for preventing rotation of the screw relatively to the foot-plate, and means adapted to operate said clamp members and support the latter upon said screw.

5. In combination, the column 5, jack-screw 6, the foot-plate 7 comprising the members 8 and 8′ having grooves 9 and bolt-holes 13 therein, said jack-screw having a groove 14 adapted to be engaged by the bolts 12 arranged to clamp said members 8 and 8′ together upon said screw either loosely or rigidly for the purpose set forth, and so as to provide an oil-space 11 communicating with the part 10 of said screw.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ARTHUR DOUGLAS KENYON.

Witnesses:

ALBERT E. FAIR,

E. D. THAYER.