

No. 863,508.

PATENTED AUG. 13, 1907.

E. CLARK.
MINER'S DRILL.

APPLICATION FILED SEPT. 18, 1906.

FIG. 1.

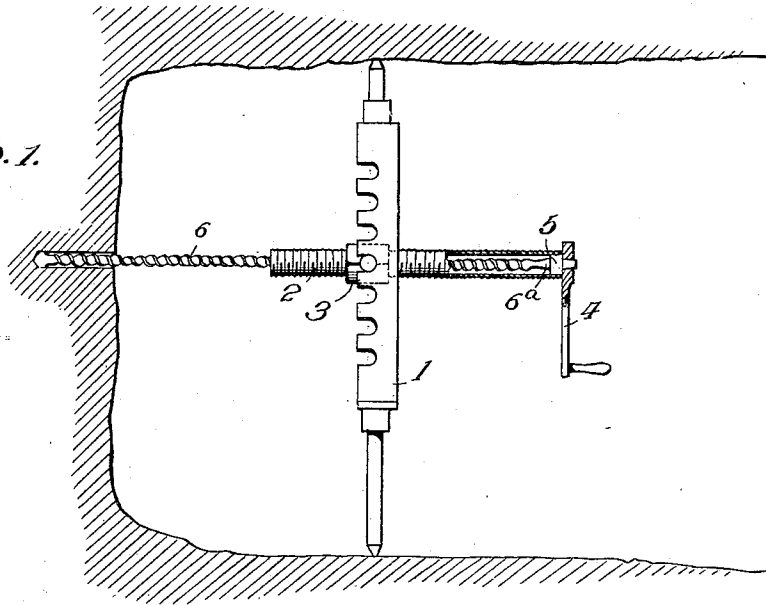


FIG. 2.

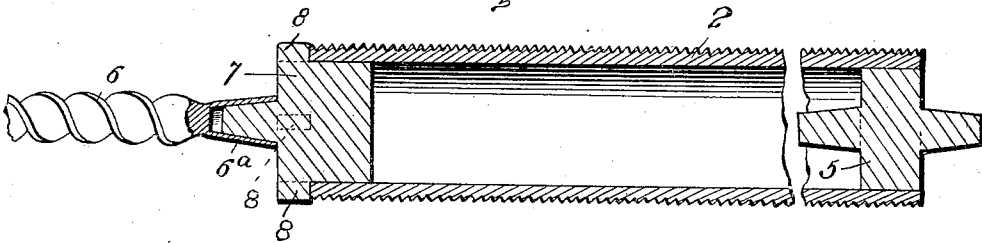
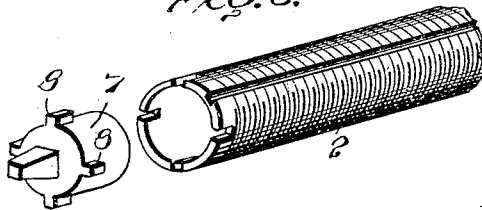


FIG. 3.



Witnesses

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ENOS CLARK, OF MIDLAND, INDIANA, ASSIGNOR OF ONE-HALF TO LEONARD R. LUETS, OF MIDLAND, INDIANA.

MINER'S DRILL.

No. 863,508.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ENOS CLARK, a citizen of the United States, residing at Midland, in the county of Greene and State of Indiana, have invented certain
5 new and useful Improvements in Miners' Drills, of which the following is a specification.

This invention relates to drilling machines of the type commonly designed for drilling operations in mines, or the like.

10 As is well known in the use of the common types of miner's drills, a number of bits of different lengths are customarily employed in order to drill a pocket or opening to receive an explosive charge, a bit of greater
15 length being substituted for one of shorter length as the opening being drilled becomes deeper and deeper. The disadvantages arising from the necessity for using a number of drill bits are obvious to those versed in the art to which this invention appertains and it is therefore the essential feature of the present invention to
20 provide means whereby a single drill bit of maximum length may be employed throughout the operation of drilling an opening, and obviating the necessity of utilization of a number of bits of different lengths.

The invention is very simple and resides in the employment of a peculiar construction of drill rod and peculiar means whereby a single bit of maximum length,
25 such as above mentioned may be adjustably secured to the drill rod at different points to accommodate for the variations in the depth of the opening which is being
30 drilled by the mechanism.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

35 Figure 1 is a side elevation of a drilling machine embodying the invention, with parts shown in section. Fig. 2 is a sectional view of the drill rod, showing the bit thereof adjusted to its outermost position for that assumed thereby in drilling an opening to its final depth.
40 Fig. 3 is a view showing the detachable chuck disconnected from and slightly removed from the end of a fragment of the outer end of the drill rod.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In the drawings a conventional type of drilling machine is illustrated, the same embodying the usual supporting post 1 having means at its upper and lower
50 ends to position the same in the mine, the drill rod 2 being mounted for horizontal movement on the support 1 and operating through a sectional threaded sleeve 3, such as is commonly employed. To the inner end of the drill rod 2 is attachable a crank handle 4 by which

the rod is rotated in the practical operation of the machine. The drill rod 2 is of hollow formation and at the inner extremity of the tubular or hollow portion thereof is formed a holder or extension 5 adapted to be received in the socket 6^a which is provided at one end of the bit 6. The extension 5 is permanently applied to the drill rod 2 and is preferably of square form to fit into the socket 6^a of the bit 6, the latter being also square in cross section. The extension 5 is of square or many sided form and coöperates with the bit 6 when the latter is forced within the drill rod so that the said
60 rod 2 incloses the bit 6 a distance about one-half of the length of said bit. The position of the bit 6 on the drill rod 2, in the initial operation of drilling the opening is illustrated in Fig. 1, the extension 5 being operatively connected with the inner end or socket of the bit 6 so
70 that the latter will rotate with the drill rod on actuation of said rod. When the opening drilled by the bit 6 is of a depth about equal to half the length of the bit, the drill rod 2 will have been advanced to the work to the limit of movement thereof relatively to the sleeve 3.
75 It is then necessary to adjust the parts 2 and 6 in order to increase the depth of the opening being drilled and this adjustment is accomplished by detaching the bit 6 from the holder 5 at the inner end of the drill rod 2 and removing the bit from within the drill rod. The
80 detachment of the parts 5 and 6 is effected by opening the sleeve or boxing 3, and adjusting the drill rod 2, so that the latter is disposed in its original position above described, with the end adjacent to the bit 6 slightly spaced from the socket 6^a. A detachable chuck 7 will
85 then be placed in position at the open end of the drill rod 2 and said chuck will comprise a suitable body, the inner end portion of which is received in the hollow portion of the drill rod and the outer end portion of which is of many sided form so as to enter the socket
90 6^a of the bit 6. In order to establish a connection between the chuck 7 and the rod 2, whereby the two parts will rotate simultaneously, it is preferred that the body of the chuck 7 be formed with offstanding lugs or projections 8 adapted to enter notches in diametrically opposite portions of the outer extremity of the drill rod 2. An interlocking connection will thus be established between the chuck 7 and the drill rod 2. The socket 6^a being disposed so as to receive the outer end of the chuck 7, will connect the bit 6 with the rod
100 2, by adjusting the latter, and the rod 2 may be operated to actuate the bit until the opening drilled by the latter is of the same depth as the bit or of the desired depth.

Having thus described the invention, what is claimed as new is:

1. In a drilling machine, the combination of a drill rod of hollow form, means for actuating said rod, a bit holder carried by said drill rod and located in the hollow portion

thereof, and a chuck or holder applied to the end portion of the drill rod remote from the first mentioned bit holder and detachable from the drill rod to permit of connection of the bit with the interior holder above mentioned.

- 5 2. In a drilling machine, the combination of a drill rod of hollow form, means for rotating the same, said drill rod being provided with a holder or extension at the inner end of its hollow portion, a bit adapted to be partially received in the drill rod and embodying a socket to receive the
10 holder or extension of the latter, and a chuck adapted for

detachable connection with the outer end of the drill rod and to have its outer end received in the socket of the bit when the latter is arranged entirely exterior to the drill rod.

In testimony whereof I affix my signature in presence of 15 two witnesses.

ENOS CLARK. [L. S.]

Witnesses :

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ENOCH JOHNSON.