D. ARMENTI.

COAL DRILLING MACHINE.

APPLICATION FILED SEPT. 4, 1915.

1,189,901.

Patented July 4, 1916.

2 SHEETS—SHEET 1.

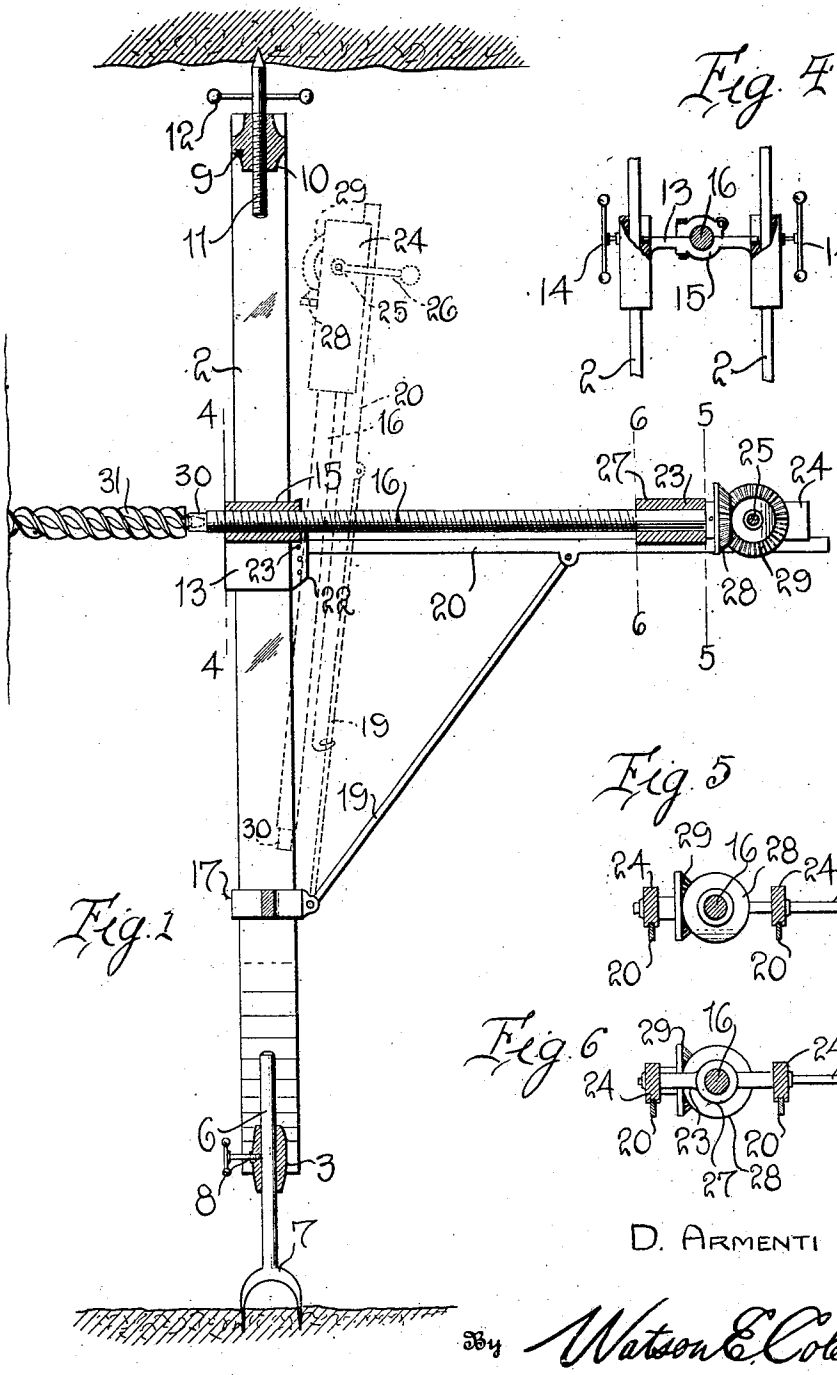


Fig. 1

Fig. 4

Fig. 5

Fig. 6

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2 SHEETS—SHEET 2.

Fig. 2

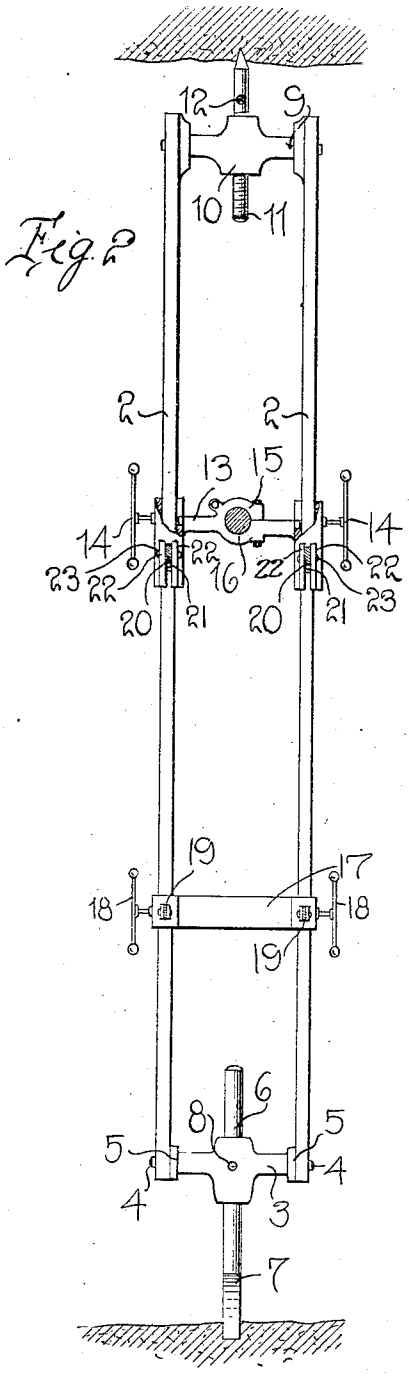


Fig. 7

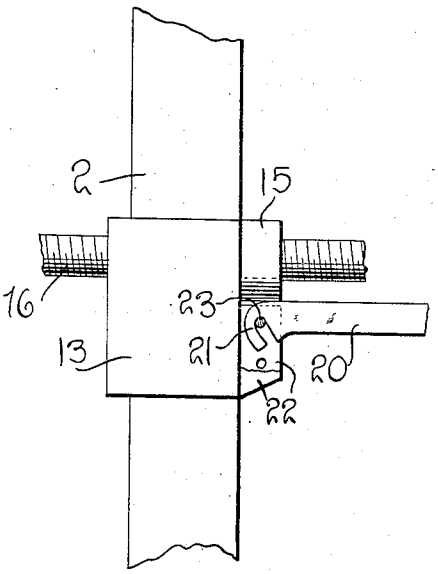
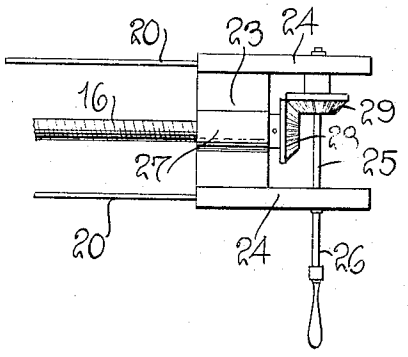


Fig. 3



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UNITED STATES PATENT OFFICE.

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COAL-DRILLING MACHINE.

1,189,901. Specification of Letters Patent. Patented July 4, 1916.

Application filed September 4, 1915. Serial No. 49,048.

To all whom it may concern:

Be it known that I, DAN ARMENTI, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Coal-Drilling Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to drilling apparatus, and particularly to machines for drilling coal prior to putting in a blast to break down the breast of the coal.

The primary object of my invention is the provision of a very simple and yet light and portable machine, which may be folded into relatively small compass so as to be readily carried by a miner, this machine including an auger-engaging means and an auger driving means.

A further object of my invention is to provide a machine of this character which may be firmly engaged with the roof and floor of a shaft, and to provide means whereby the drill or auger supporting framework may be raised or lowered so as to dispose the auger at any desired point on the breast of the coal. And a further object in this connection is to provide means whereby the auger driving shaft and the auger itself may be angularly adjustable.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a vertical section of a drilling machine constructed in accordance with my invention; Fig. 2 is a face view thereof, the shaft 16 and the bars 20 being shown in section; Fig. 3 is a fragmentary plan view of the screw shaft operating mechanism; Fig. 4 is a section on the line 4—4 of Fig. 1; Figs. 5 and 6 are sections on the lines 5—5 and 6—6, respectively, of Fig. 1; Fig. 7 is a fragmentary elevation of the supporting frame, showing the manner in which the feed screw supporting bars are detachably connected therewith.

Referring to these figures it will be seen that the frame of my machine includes the oppositely disposed approximately parallel vertically extending side bars 2 which are spaced from each other a uniform distance. The lower ends of the side bars are connected to each other by means of a casting 3 rigidly connected to the lower ends of the side bars, this casting 3 having a longitudinally extending bore within which is disposed the shank 6 of a supporting claw 7 which is adapted to engage the floor of the shaft and is pronged or sharp pointed so as to be forced into the floor. A set screw or other means 8 is provided for holding this stem or shank 6 in adjusted position relative to the casting 3 through which the shank passes.

At the upper end of the bars 2 there is provided a casting 9 which is rigidly bolted to the bars 2 or otherwise connected thereto and which is formed with a central sleeve 10 interiorly screw threaded for engagement with an exteriorly screw threaded shank 11 the extremity of which is pointed. This shank is rotatable within the screw threaded sleeve by means of the hand lever 12 or like means. This practically forms a jack and by rotating the screw 11 it may be forced upward or moved downward, and if forced upward the pointed end will be forced into the roof of the mine thus supporting the frame firmly in place between the walls and floor and adjacent the breast of the coal.

Slidingly mounted upon the bars 2 is a rectangular collar 13 which embraces the bars 2 and moves slidingly thereon. This collar is held in engagement with the bars by any suitable means, as by means of set screws 14. This collar carries upon it a rotatably mounted yoke of ordinary form extending between the bars 2 and provided with a medially disposed seat 15 for engagement with a screw threaded drill rod 16. Also slidably mounted upon the bars 2 is a collar 17 which is held in adjusted position by means of a set screw 18 and which is engaged by upwardly extending bracing rods 19. The lower ends of these bracing rods are pivoted in eyes formed upon the collar 17. The upper ends of the rods are connected to supporting bars 20. There are two of these supporting bars disposed in spaced relation to each other. The forward ends of each of these bars is hooked, as at 21. The collar 13 is formed with depending side members 22 each provided with a plurality of perforations through any of which perforations passes a pin 23. The hooks 20 are adapted to engage with the pin 23 and thus the bars 20 are supported in operative position.

Slidably mounted upon the supporting bars 20 for longitudinal movement there-

along is a slide 23 approximately U-shaped in plan and having the side plates 24. These side plates are formed to provide bearings for a transverse shaft 25 having a crank 26. The inner end of the member 23 supports a collar 27 which is engaged with the rear end of the screw threaded feed shaft 16. Mounted upon the collar is a gear wheel 28 which meshes with a gear wheel 29 carried upon the shaft 25. It will therefore be obvious that by rotating the shaft 25 rotation will be communicated to the shaft 16. The rotation of the shaft 16 and the screw threaded collar or bearing 15 will cause the shaft to feed forward and the slide 23 will be drawn along the rails or bars 20. The shaft 16 at its forward end carries a socket 30 adapted to receive the rear extremity of the shank of the auger or drill 31.

In use the machine will be mounted as illustrated in Fig. 1. The rotation of the crank 26 will cause the auger to be operated and fed forward at the same time. The collars 13 and 17 may be vertically shifted upon the side bars 2 and held in any adjusted position, thus raising or lowering the auger and adjusting its angular relation. While the frame composed of the side bars 2 is held from rotation by the double prongs on the member 7, yet by releasing the set screw 8 the members 2 may be rotated with relation to the shank 6 and the shank 11 to thus change the angular direction of the auger. When the operator wishes to move or shift the drill he disengages the screw pin 12 from its engagement with the roof, having previously disengaged the hooks 20 from their engagement with the pin 23 and then shifted the parts to the position shown in dotted lines in Fig. 1. This permits the device to be readily transported. It is possible also by shifting the collars 13 and 17 in relation to each other to change the angles of the bars 20 and thus change the angle of the drill or auger.

While I have illustrated a form of my device which I believe to be particularly effective, I do not wish to be limited thereto as it is obvious that many changes might be made without departing from the spirit of the invention.

Having thus described my invention, what I claim is:

1. A drilling machine including oppositely disposed vertical supporting bars, a member slidably mounted upon the bars for vertical adjustment, spaced drill supporting bars detachably engaging with said member and extending rearward therefrom, a member disposed below the first-named slidably adjustable member and slidably engaged with said vertical bars for vertical adjustment, braces pivotally engaging the drill supporting bars and the second-named sliding member, a drill, and means mounted upon the drill supporting bars for rotating and feeding the drill.

2. A drilling machine of the character described including vertical supporting members, collars slidable upon said members, normally spaced supporting bars having detachable engagement at their inner ends with one of said collars, braces pivotally connected to said bars and pivotally connected to the other collar, means for holding said slidable collar in any adjusted position, a drill shaft operatively mounted upon said bars, and means mounted upon the bars for rotating and feeding the shaft.

3. A drilling apparatus of the character described including spaced vertical bars, members connecting the upper and lower ends of the bars, roof and floor engaging members vertically adjustable through said connecting members, a slide mounted upon the supporting members for vertical movement, means for holding the slide in adjusted positions, a yoke mounted upon the slide having a drill shaft bearing, bars detachably connected at their inner ends to said slide, a member slidably mounted upon the bars, a drill shaft supported in said bearing and rotatably supported in said member, means mounted on the bars for rotating the shaft, said means being mounted upon said slidable member, braces pivotally connected to said bars and depending downward therefrom, a slide adjustably mounted upon the said supporting bars and to which the lower ends of said braces are pivotally connected.

4. In a drilling apparatus of the character described, a supporting member having means at its upper and lower ends for engaging respectively the roof and floor of a tunnel, a vertically adjustable collar mounted upon the supporting member and supporting a screw threaded eye, a drill shaft supporting frame including spaced parallel bars having hook-shaped ends, pins projecting from said collar which the hook-shaped ends of the bars are adapted to detachably engage, braces pivotally engaged at their upper ends with said bars and adapted to be operatively engaged with the supporting member for vertical adjustment, a slide mounted upon the bars of the supporting frame, a drill carried at the rear end of said slide and engaging at its forward end with a screw threaded eye, and means mounted upon the slide for rotating the drill.

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

DAN ARMENTI.

Witnesses:
TONY PALERMO,
MIKE DEGIDIO.