

981,071.

FIG. 1

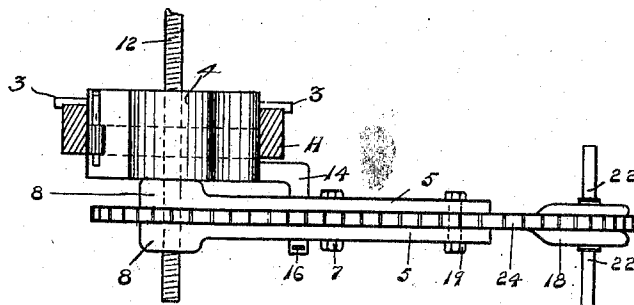


FIG. 5

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THE NORRIS PETERS CO., WASHINGTON, D. C.

981,071.

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2 SHEETS—SHEET 2.

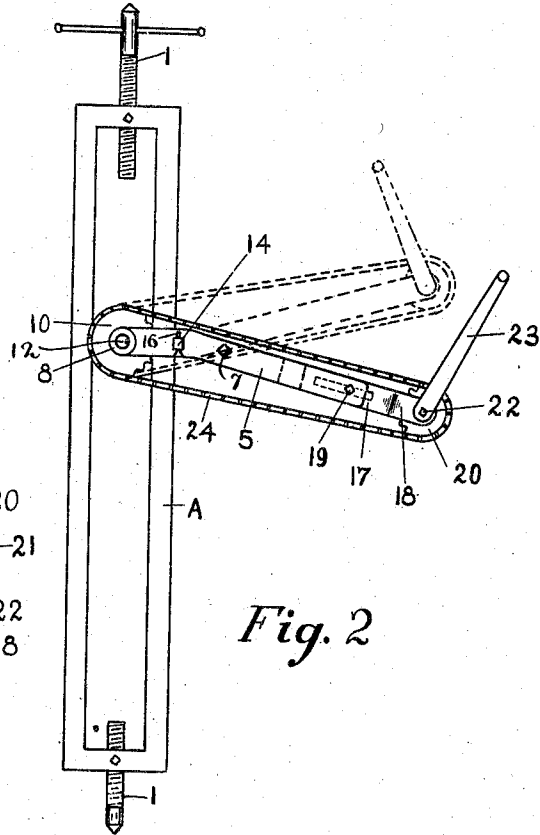


Fig. 2

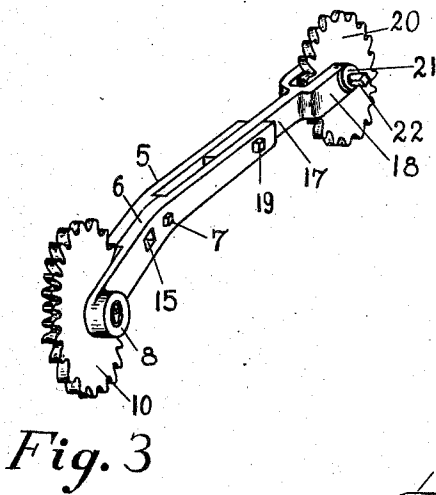


Fig. 3

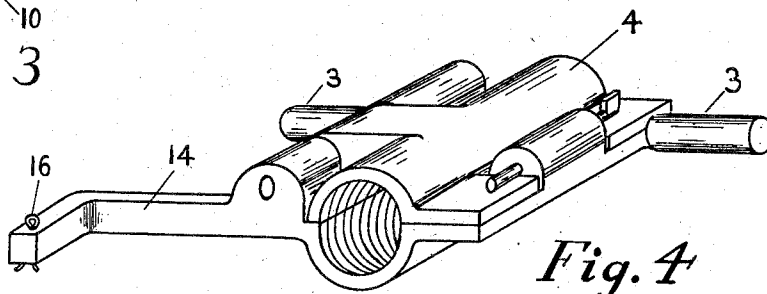


Fig. 4

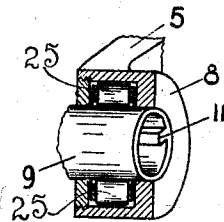


Fig. 5

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THOMAS G. DAVIS, OF BAY CITY, MICHIGAN.

DRILLING-MACHINE.

981,071.

Specification of Letters Patent.

Patented Jan. 10, 1911.

Application filed January 29, 1909. Serial No. 475,019.

To all whom it may concern:

Be it known that I, THOMAS G. DAVIS, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Drilling-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to drilling machines and more particularly to machines used in drilling holes in mining.

One object of my invention is to produce a simple, neat and compact machine which can be easily and quickly set up and removed. This is a great advantage because the miner is usually paid by the number of tons mined and if it required considerable time to assemble and disassemble the drilling mechanism, the amount of coal mined would be reduced.

Another and very important object is the provision of a machine which will drill a hole twice as fast and with but half the number of rests, that a hole can be drilled with the ordinary side gear drills now in use.

This invention is an improvement on my Patent #763,373, granted June 28, 1904, the advantages of this invention over the patented construction being simplicity of construction and ease of operation, assembling and disassembling.

To these and other ends, therefore, my invention consists in certain novel features and combinations of parts such as will be more fully described hereinafter.

In the accompanying drawings, Figure 1 is a view in side elevation, showing my invention assembled, Fig. 2 is a front view, Fig. 3 is a perspective view of the frame, Fig. 4 is a perspective view of the bracket, Fig. 5 is a detail perspective view of one of the hubs, and Fig. 6 is a cross-sectional view taken on line $x-x$ of Fig. 1.

The machine comprises a suitable slotted standard A which is fixed in any suitable position by means of the screws 1, 1. Notches 2 are formed on that face of the standard opposed to the wall in which the hole is to be drilled and are adapted to receive the trunnions 3, 3, projecting laterally from a split, internally threaded, box 4. It is obvious that the box can be set at any point on the standard, either near the top or near the

bottom thereof. As the foregoing mechanism is well known in the art, no further description is necessary.

My invention consists in the provision of a frame comprising an angular arm 5, formed of two corresponding sections, spaced apart from each other by the abutting lugs 6 and bolted or otherwise fastened together as at 7. At one end, this arm is provided with a pair of alined hubs 8, 8, designed to receive the opposite ends of a sleeve 9, carrying a sprocket 10. Anti-friction means as roller or ball bearings 25 may, if desired, be interposed between the sleeve and the hubs, and the sleeve is provided with an internal key 11 received in a slot in the thread bar 12 carrying the drill 13. The thread bar is received in the internally threaded box which is held in alinement with the sleeve by means of an angular finger 14 projecting laterally from the box, the end of which finger is received in a rectangular aperture 15 formed through the arm 5. A cotter pin 16 may be passed, if desired, through the free end of the finger to prevent its accidental disengagement from the arm. The slotted shank 17 of yoke 18 is received between the opposite ends of the arm 5 and is held in adjusted position by means of a bolt 19. A second sprocket 20 is received between the free ends of the yoke, which ends are provided with hollow bosses 21 in which is journaled a double-ended crank shaft 22 designed to receive a crank 23. A chain 24 connects the sprockets 10 and 20. The adjustable connection of the yoke and arm permits the slack and wear in the chain to be taken up and by providing anti-friction bearings in the hubs 8, the friction caused by the pull of the chain on the sprocket 10 is relieved.

It will be observed that my invention consists practically of but three individual parts, the crank, the frame carrying the sprocket wheels and the threaded box.

In operation, the standard having been set up, the thread bar is placed in the split box 4, the end of the bar projecting through the sleeve 9 and the box placed at the desired point on the standard with its trunnions received in the notches in the standard and the end of the drill engaging the wall at the point where the hole is to be drilled. The crank is then placed on the outer end of the crank shaft and the sprockets and thread bar rotated to enter the drill. The back thrust

of the drill maintains the trunnions seated in the notches. When the thread bar has run out, the arm, together with its associated parts, is removed as though it were one piece, the split box opened, the thread bar and drill removed and a longer drill and thread bar substituted. By making the arm 5 angular and by providing a double ended crank shaft, the arm may be reversed to project upward 10 when a hole is being drilled near the bottom of the wall or in a corner, or the arm may project downward when a hole is being bored near the top of the wall, whereby to offset the crank from the wall sufficiently to 15 permit its operation without causing the miner to bruise his hands by contact with the wall. This angular arm, in other words, affords sufficient crank purchase to enable the machine to be operated at any point to which 20 it may be adjusted in the length of the standard.

Having thus fully disclosed my invention, what I claim as new, is:—

1. In a drilling machine, the combination 25 with a standard and a threaded box adjustable relative thereto, of a frame comprising an arm and a yoke adjustably connected thereto, sprockets journaled in the arm and yoke respectively, a chain connecting the 30 sprockets, means for rotating one of the sprockets, a key carried by the sleeve of the remaining sprocket, the arm being apertured, and a finger carried by the box and received in the aperture to maintain the box in aline- 35 ment with the sleeve.

2. In a drilling machine, the combination with a standard and a box adjustable relative to the standard, of a frame carrying sprocket wheels, a chain connecting the 40 sprocket wheels, the frame, chain and sprocket wheels being removable as one piece relative to the box and standard, means for actuating one of the sprocket wheels, and means carried by the box and releasably engaging the 45 frame for maintaining one of the sprocket wheels in alinement with the box.

3. In a drilling machine, the combination with a standard and a box adjustable relative to the standard, of a frame carrying

sprocket wheels, a chain connecting the 50 sprocket wheels, the frame, chain and sprocket wheels being removable as one piece relative to the box and standard, means for actuating one of the sprocket wheels, the 55 frame having an aperture therethrough, and an angular finger projecting from the box and received in the aperture.

4. In a drilling machine, the combination with a standard and a box adjustable relative to the standard, of a frame comprising 60 an arm formed by two corresponding sections, abutments for spacing the sections apart from each other, means for securing the sections together, hubs formed at one end of the arm, a sleeve rotatably received 65 in the hubs, a key located internally of the sleeve, a yoke projecting from and adjustably connected to the opposite end of the arm, a sprocket received between the ends of the yoke, a crank shaft journaled in the ends 70 of the yoke, the sprocket mounted on the crank shaft, means for rotating the crank shaft, a chain connecting the sprockets, and means carried by the box for supporting the frame in position. 75

5. In a drilling machine, the combination with a standard and a box adjustable relative to the standard, of a frame, a pair of sprockets carried by the frame, a chain connecting the sprockets, means for adjusting 80 one of the sprockets relative to the other, one of the sprockets having a sleeve, a key located internally of the sleeve, a slotted thread bar received in the sleeve and in the box, means for actuating one of the sprock- 85 ets, and means carried by the box and cooperating with the thread bar for detachably supporting the frame rigidly in position, the frame, chain and sprockets being removable as one piece relative to the stand- 90 ard and box.

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

THOMAS G. DAVIS.

Witnesses:

MARIE DUROCHER,
JOSEPH BRASHAW.