

No. 892,904.

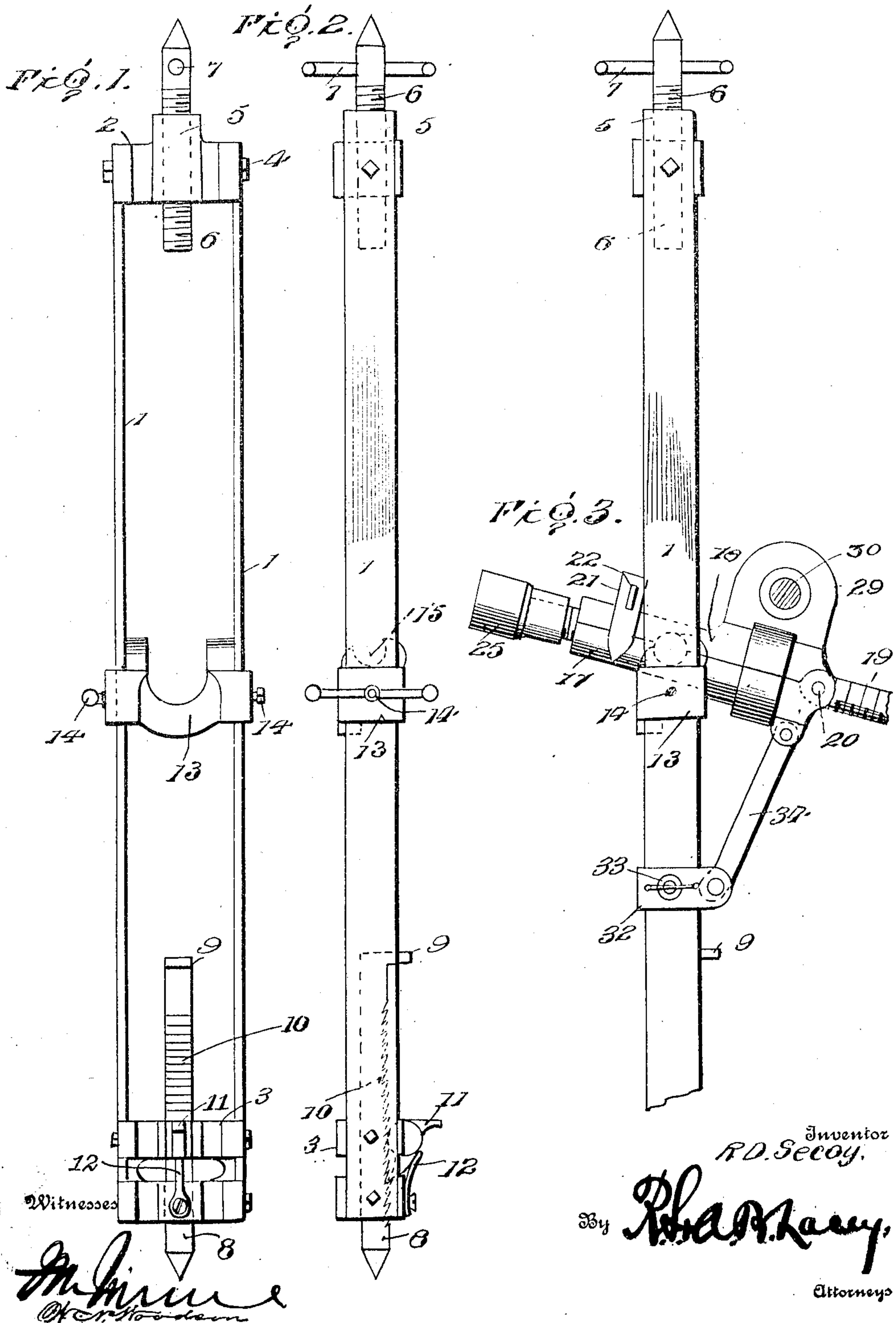
PATENTED JULY 7, 1908.

R. D. SECOY.

MINING MACHINE.

APPLICATION FILED MAR. 29, 1907.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

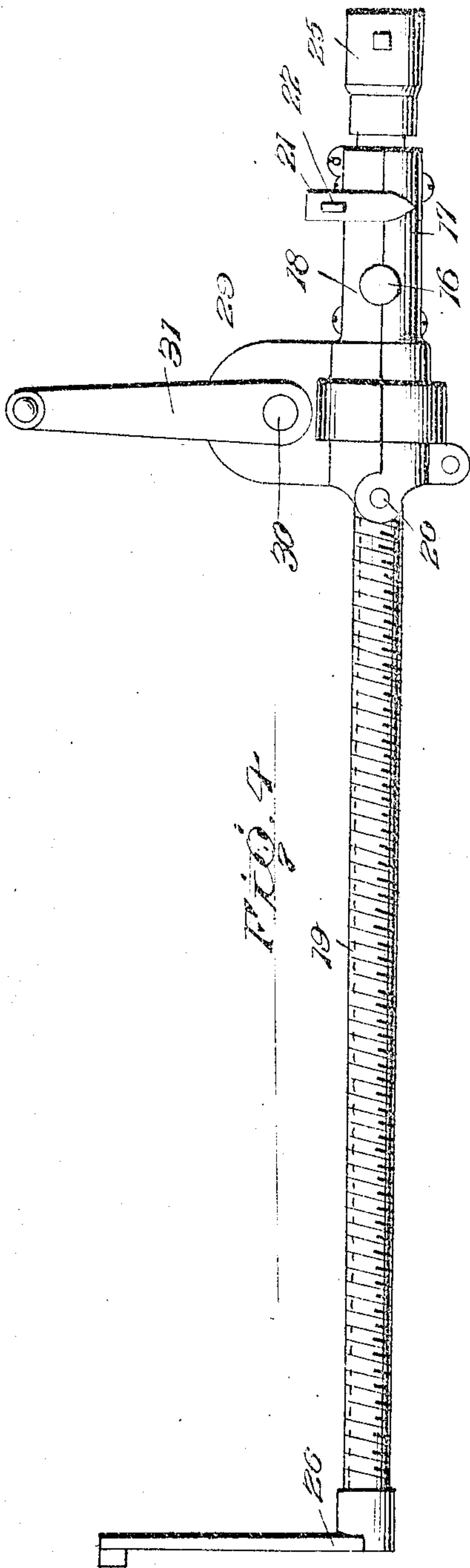


FIG. 4

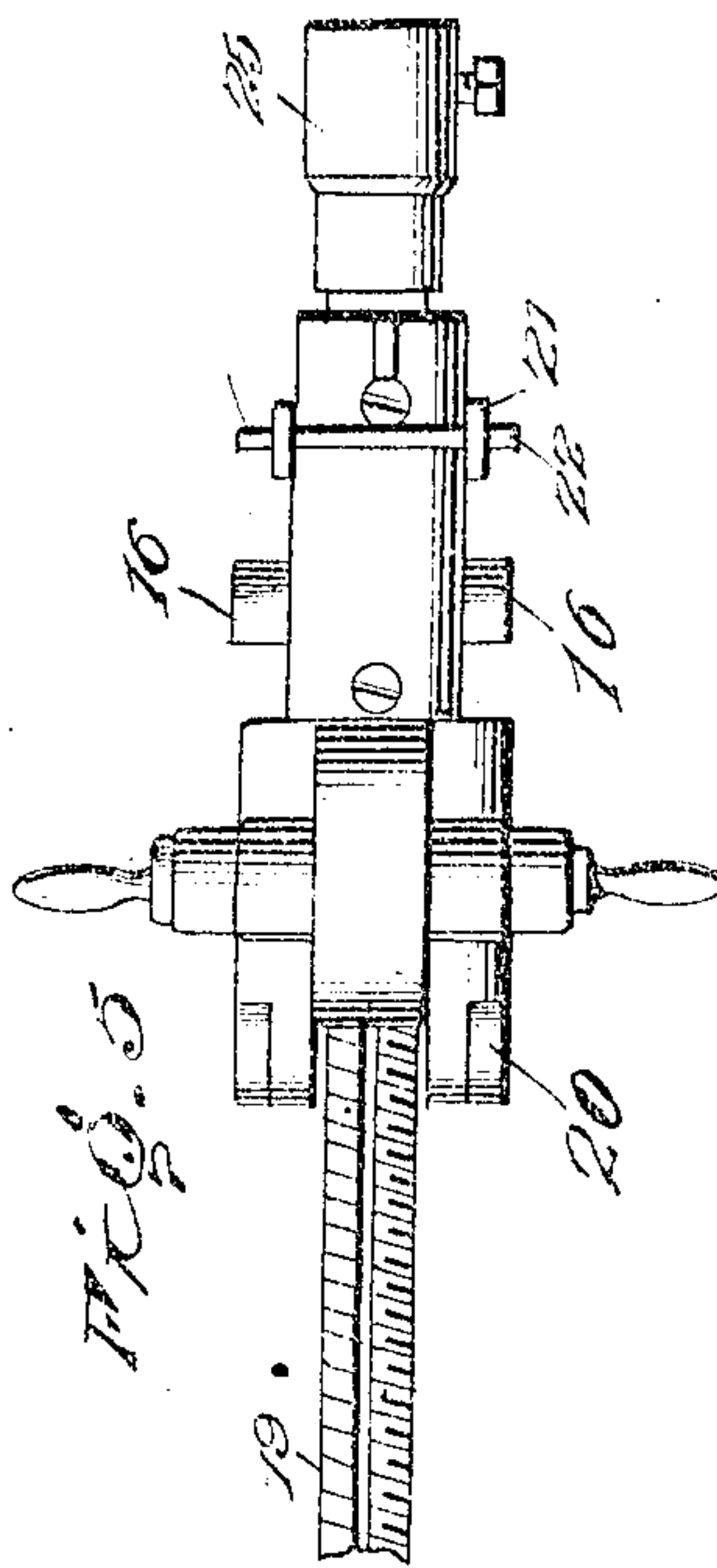


FIG. 5

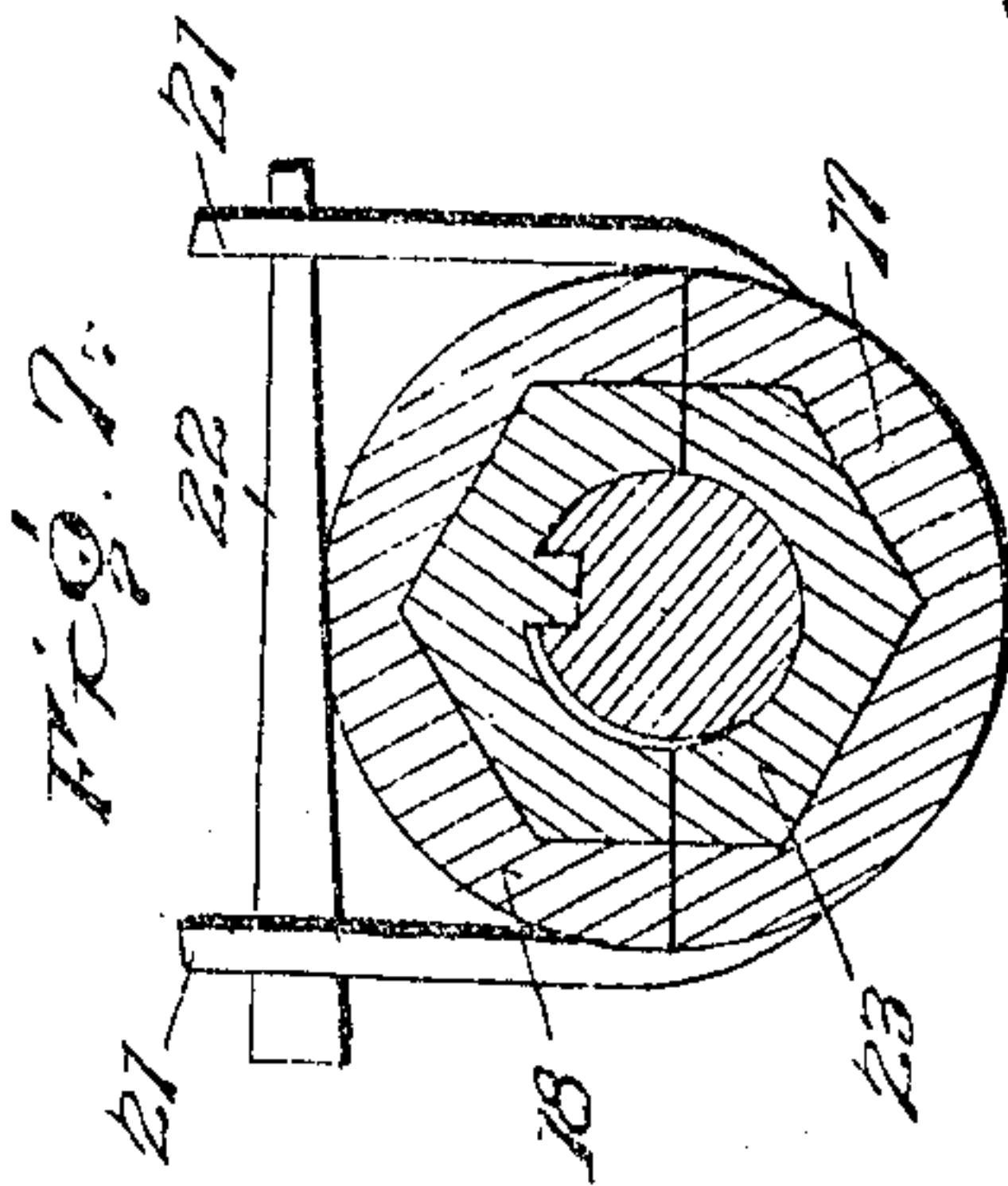


FIG. 7

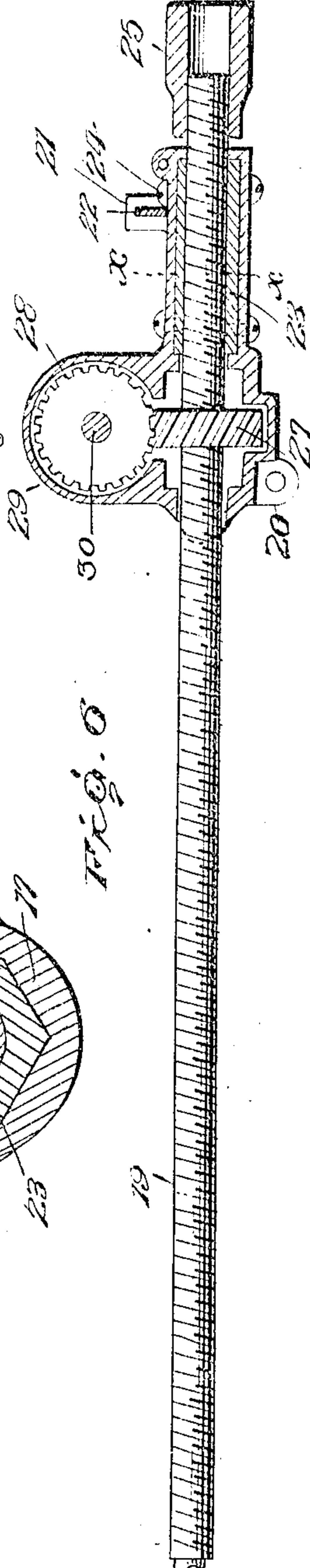


FIG. 8

Witnesses

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UNITED STATES PATENT OFFICE

RUFUS D. SECOY, OF ATHENS, OHIO.

MINING-MACHINE.

No. 892,904.

Specification of Letters Patent.

Patented July 7, 1908.

Application filed March 29, 1907. Serial No. 365,319.

To all whom it may concern:

Be it known that I, RUFUS D. SECOY, citizen of the United States, residing at Athens, in the county of Athens and State of Ohio, have invented certain new and useful Improvements in Mining-Machines, of which the following is a specification.

This invention relates to apparatus designed most especially for mining coal although it may be used in connection with drilling rock or for mining operations generally in which the machines embody a support, an adjustable frame, a drill and operating mechanism for actuating the drill.

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

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which.

Figure 1 is a front view of the support for the drilling mechanism. Fig. 2 is a side view of the support. Fig. 3 is a side view of the support having the drilling mechanism in position, the lower portion of the support being broken away. Fig. 4 is a side view of the drilling mechanism. Fig. 5 is a top plan view of the drilling mechanism, an end portion of the drill shaft being broken away. Fig. 6 is a central longitudinal section of the drill frame showing the drill shaft and gearing in full. Fig. 7 is a transverse section on the line $x-x$ of Fig. 6 showing the parts on a larger scale.

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.

The support comprises parallel bars 1 and connecting pieces 2 and 3. The parts 2 and 3 are recessed in their ends to form seats in which the bars 1 are fitted, the latter being secured to the connecting pieces by means of machine screws 4, thereby admitting of the parts being readily separated when required for any purpose. The end piece 2 is provided at a central point with an internally threaded opening 5 in which is fitted a screw 6, the latter having its up-

per end pointed so as to penetrate a side of the passage or opening in which the machine may be located. The screw 6 may be turned in any manner, preferably by means of a bar 7 passed transversely through an opening formed therein. The connecting piece 3 is provided at a central point with an opening in which is slidably mounted a bar 8 which is pointed at its lower end and provided at its upper end with an extension 9 to receive the pressure or force applied for driving the point of the bar 8 into the wall or side of the passage or opening of the mine in which the machine may be placed. A series of teeth 10 are provided along one edge of the bar 8 and are adapted to be engaged by a dog 11 to hold the bar when projected. A spring 12 normally exerts a pressure upon the dog 11 to hold it in engagement with the teeth 10. The dog 11 and spring 12 are secured to the connecting piece 3. A rest 13 is adjustable on the support and is of approximately "U" form, its end portions having openings to receive the bars 1, said rest being secured to the bars by means of set screws 14 threaded into openings in the ends of the rest and adapted to bear at their inner ends against the bars 1. The side members of the U-shaped rest 13 extend upward along the inner sides of the bars 1 and are provided in their upper ends with notches 15 forming bearings to receive the trunnions 16 of the drill frame. Upon loosening the set screws 14, the rest may be moved up or down upon the bars 1 of the support according to the required elevation of the drill, the position of the parts being fixed by retightening said set screws. The drill frame comprises two parts 17 and 18 which are separable horizontally upon a plane passed through the axis of the shaft 19 provided with the drill or other boring tool. The parts 17 and 18 are pivotally connected at 20 and are adapted to be secured in any substantial way. Lugs 21 project from opposite sides of one of the parts or sections as 17 and embrace opposite sides of the other part or section and project beyond the same and are transversely apertured to receive a key 22 which engages with the part 18 and prevents separation of said parts 17 and 18 when closed. The parts 17 and 18 are chambered to receive the drill shaft 19, feed nut and operating gearing. The trunnions 16 are formed upon

one of the parts, as 17. The feed nut 23 is composed of similar longitudinal sections which are arranged within the respective parts 17 and 18 of the drill frame and which are secured to said parts by machine screws 24 or like fastenings. The drill shaft 19 is exteriorly threaded and passes through the feed nut 23 and is provided at one end with a socket 25 for receiving the drill or other boring tool, and is adapted to have a crank 26 fitted to its opposite end. An oblique toothed spur gear 27 receives the drill shaft 19 which passes loosely therethrough, the two being connected by a feather and spline to cause them to rotate together, while at the same time admitting of the drill shaft moving longitudinally through the said gear. A second oblique toothed spur gear 28 meshes with the gear 27 and is located in an extension 29 of the drill frame and is housed thereby. A shaft 30 is keyed to the oblique toothed spur gear 28 and is mounted in bearings at opposite sides of the extension 29 of said drill frame, the projecting ends of the shaft 30 receiving cranks 31 by means of which the gear 28 is rotated and the drill shaft 19 operated through the intervening oblique toothed spur gear 27. The drill frame is of such construction as to completely house the feed nut and gearing, thereby protecting the same and reducing the chances for grit and dust reaching the wearing parts.

A slide 32 is adjustable upon the support and is held in the required position by means of a set screw 33. A link 34 connects the slide 32 with an end portion of the drill frame, hence the drill may be moved to any inclination and secured by clamping the slide 32 to the support.

When the apparatus is in position, the support is fixed by having the points of the screw 6 and bar 8 forced into opposite sides of the passage or drift in which the mining operations are conducted. The drill frame when placed in position has its trunnions 16 fitted in the notches or bearings 15 of the rest 13, the elevation of the drill being fixed by moving the rest 13 to the required point upon the support and securing it to the latter. The drill frame may be inclined or is

held in a horizontal position by securing the slide 32 to the support in the required position. Rotary motion may be imparted to the drill shaft either by fitting a crank to the end thereof and applying power thereto or by operating the cranks 31. As the drill shaft is rotated, it is at the same time fed forward by the thread thereof cooperating with the thread of the feed nut 23. The drill shaft may be quickly moved either forward or backward by removing the key 22 and separating the parts 17 and 18 of the drill frame, thereby parting the feed nut 23 after which the shaft 19 may be moved freely through the oblique toothed spur gear 27 to the required point, after which the parts 17 and 18 of the drill frame are closed and secured by replacing the key 22.

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

1. In a mining machine, the combination of a support, a rest carried by the support, a drill frame mounted upon the rest and comprising longitudinally separable members hinged at one of their longitudinal ends, lugs projecting from opposite longitudinal sides of one of the members and embracing the opposite member, a key cooperating with the lugs to lock the members together, a sectional feed nut arranged within the longitudinal separable members, a drill shaft threaded within the feed nut, and means for turning the drill shaft.

2. In a mining machine, a drill frame comprising longitudinally separable parts hinged at one of their longitudinal ends, means for locking the longitudinally separable parts together, a drill shaft journaled within the drill frame, an oblique toothed spur gear mounted upon the drill shaft, and a second oblique toothed spur gear cooperating with the first mentioned oblique toothed spur gear to rotate the shaft, the said gearing being housed within the drill frame.

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

RUFUS D. SECOY. [L. s.]

Witnesses:

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