I. .. WATHEN.

MINING IMPLEMENT.

APPLICATION FILED OCT. 31, 1918.

1,349,641.

Patented Aug. 17, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

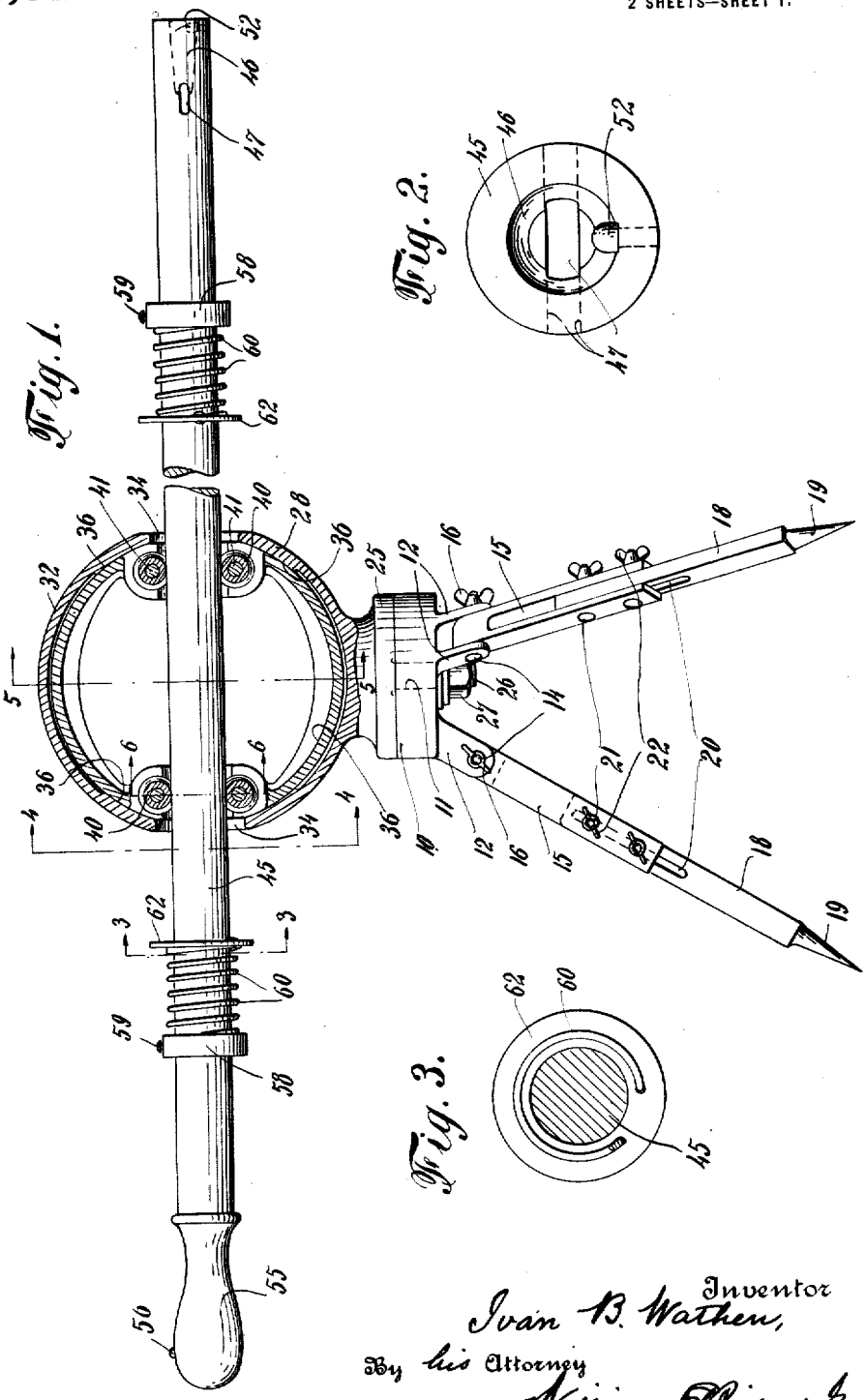


Fig. 2.

Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 4.

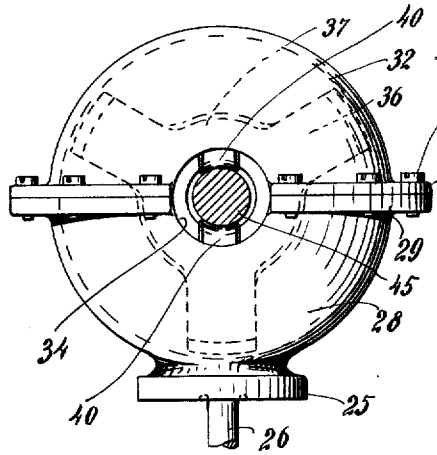


Fig. 5.

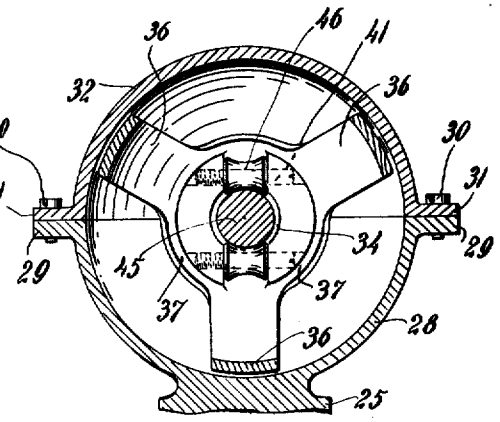


Fig. 7.

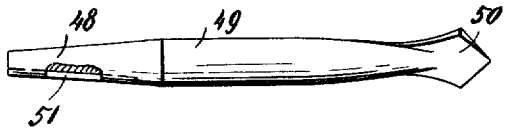


Fig. 6.

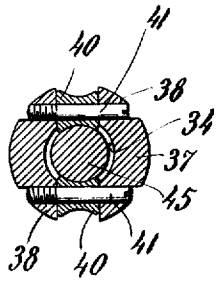
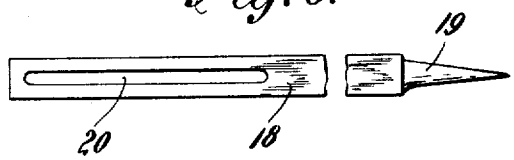


Fig. 8.



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MINING IMPLEMENT.

1,349,641. Specification of Letters Patent. Patented Aug. 17, 1920.

Application filed October 31, 1918. Serial No. 260,511.

To all whom it may concern:

Be it known that I, IVAN B. WATHEN, a citizen of the United States, residing at Strattonville, county of Clarion, and State of Pennsylvania, have invented certain new and useful Improvements in Mining Implements, of which the following is a specification.

This invention relates to improvements in mining implements and particularly to types adapted to be manually operated within a limited space.

The main object of the invention is to produce a portable apparatus, capable of efficient and practical use by miners, without difficulty, in undermining strata or seams of ore or coal, and with less fatigue than by using a pick or bar.

A further object is to produce an apparatus which can be adjustably leveled upon a tripod base, clamped in position, and thereafter, the superstructure rotated on a vertical axis, and to a limited extent on a horizontal axis, so that the cutter bar, carried thereby, may be universally manipulated.

These and other objects, such as simplicity of parts, ease of operation, interchangeability of cutting points and general adaptability, are attained by the novel design construction and combination of parts hereinafter described and shown in the accompanying drawings, forming a material part of this disclosure, and in which:—

Figure 1 is a partial side elevational and partial vertical sectional view of a mining implement made in accordance with the invention.

Fig. 2 is a front view of the cutter bar, drawn on enlarged scale.

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a similar sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is another transverse sectional view, taken on line 5—5 of Fig. 1.

Fig. 6 is a like sectional view taken on line 6—6 of Fig. 1.

Fig. 7 is a side elevational view of one type of cutting point used, and

Fig. 8 is a side elevational view of one of the legs used in the tripod base.

The implement comprises a solid annular base 10, having a central bore 11, and three or more pairs of diagonal downwardly extending lugs 12. Pivoted between the members of each pair of lugs on bolts 14, are the shanks of split sockets 15, adapted to be clamped by the wing nuts 16, while fitted to slide telescopically in the sockets are rectangular bars 18, terminating in hard, sharp-pointed spurs 19, suited to be firmly fixed in the material on which the implement stands.

In order to provide for inequalities in the surface, the bars are adjustable in the sockets, due to the elongated slots 20 formed in their upper portions, the same being receivable of pairs of guide bolts 21, passing through openings appropriately formed in the sockets, and provided with winged clamp nuts 22.

Resting on the upper surface of the base 10, is a disk 25, having a central downwardly extending stem 26, its lower end being screw-threaded and fitted with a nut 27, by which the disk is prevented from rising from the base but permitted to freely rotate thereon.

Formed integrally with the upper part of the disk is hollow hemispherical casing 28 having an outwardly extending annular flange 29, at its upper edge, and secured to it is a corresponding flange 31, held by the screws 30, the latter flange being formed with a reversed hemispherical casing member 32, the two together constituting a hollow globular stand.

Passing through the walls of this stand, on a horizontal axis, are openings 34, and surrounding these openings are thickened curved seats 36, having fitted to them a spherical spider, comprised of three evenly spaced arms joined at their ends by ring-like elements 37, from which project internal lugs 38, spaced and fitted to receive concave-faced rollers 40, rotatably mounted on studs 41, screw-threaded into opposed members of each pair of lugs, as best shown in Fig. 6, the foregoing elements constituting the frame or stand of the implement.

A relatively heavy cylindrical cutter bar 45 passes freely between opposed pairs of rollers 40, so as to be supported and guided, the bar being free to move lengthwise and rotate therein. At the front end the bar may be formed with a tapered axial socket 46, having a keyway 47 at its inner end receptive of a drift or the like by which the cutting point shank 48 may be driven out.

The main body 49 of the cutting point is preferably cylindrical and terminates in a

drill or chisel-shaped end 50, as may be preferred; formed longitudinally in the side of the tapered portion 48 is a slot 51 adapted to be engaged within the socket 46 and held from turning therein by a stud 52 acting as a key; obviously other devices may be used for connecting the cutter point.

Formed at the opposite end of the cutter bar 45 is an operating handle 55 and set therein is a pin or marker 56 indicating the position of the cutting point 50, permitting it to be rotated as the work progresses without actual observation of the drill or cutter point.

Mounted on the bar 45, on each side of the support stand are collars 58, provided with set screws 59 so as to be secured in adjustment, and secured to the adjacent surfaces of these collars are the outer ends of coiled tension springs 60, encircling the bar and having therein inner opposite ends engaged with disks 62 by riveting or the like as shown in Fig. 3, the disks being freely slidably longitudinally on the bar and adapted to make contact with the exterior of the support casing or stand around the openings 34.

In operation the stand being placed in position relative to the seam or drift it is desired to operate upon, the bar 45 is entered through the opposed rollers and the spring cushioning devices or buffers arranged in position; the cutting point is then placed in operative position, the support head rotated and the bar inclined as desired.

The bar is moved back and forth between the rollers by operating the handle 55, and, due to the weight of the bar a blow of great power can be delivered with the expenditure of a moderate amount of energy, while the cutter can be rotated and made to operate as a drill in an obvious manner.

The buffer elements 58—62 provide against shock and cause a rebounding effect, if properly positioned, rendering the use of the implement very easy as compared with present methods for accomplishing similar results.

The foregoing description taken in connection with the drawings, is to be regarded as largely illustrative and explanatory and not as restrictive, as obviously many modifications can be made without departing from the general scope of the invention as indicated by the claims.

Having thus described my invention and set forth the manner of its construction, application and use, what I claim as new and desire to secure by Letters Patent is:—

1. A mining implement comprising a support, a head rotatable on a vertical axis therein, a spider movable on a horizontal axis in said head, a bar revoluble and slidable in said spider.

2. A mining implement comprising a support, a head rotatable on said support, a spider mounted to rotate in said head in a plane at a right angle to the axis about which the head rotates, opposed pairs of rollers carried by said spider, a bar slidable and rotatable between said pairs of rollers.

3. A mining implement comprising a support, a head rotatable thereon, a spider mounted to rotate in said head in a plane at a right angle to the axis about which the head rotates, opposed pairs of rollers carried by said spider, a bar slidable and rotatable between said pairs of rollers, and a spring buffer adjustably engaged on said bar.

4. A mining implement comprising a support, a head rotatable on a vertical axis therein, a spider movable on a horizontal axis in said head, a bar revoluble and slidable in said spider, and a spring buffer adjustably engaged on said bar upon each side of said head.

In testimony whereof, I have signed my name to this specification this 12th day of August, 1918.

IVAN B. WATHEN.