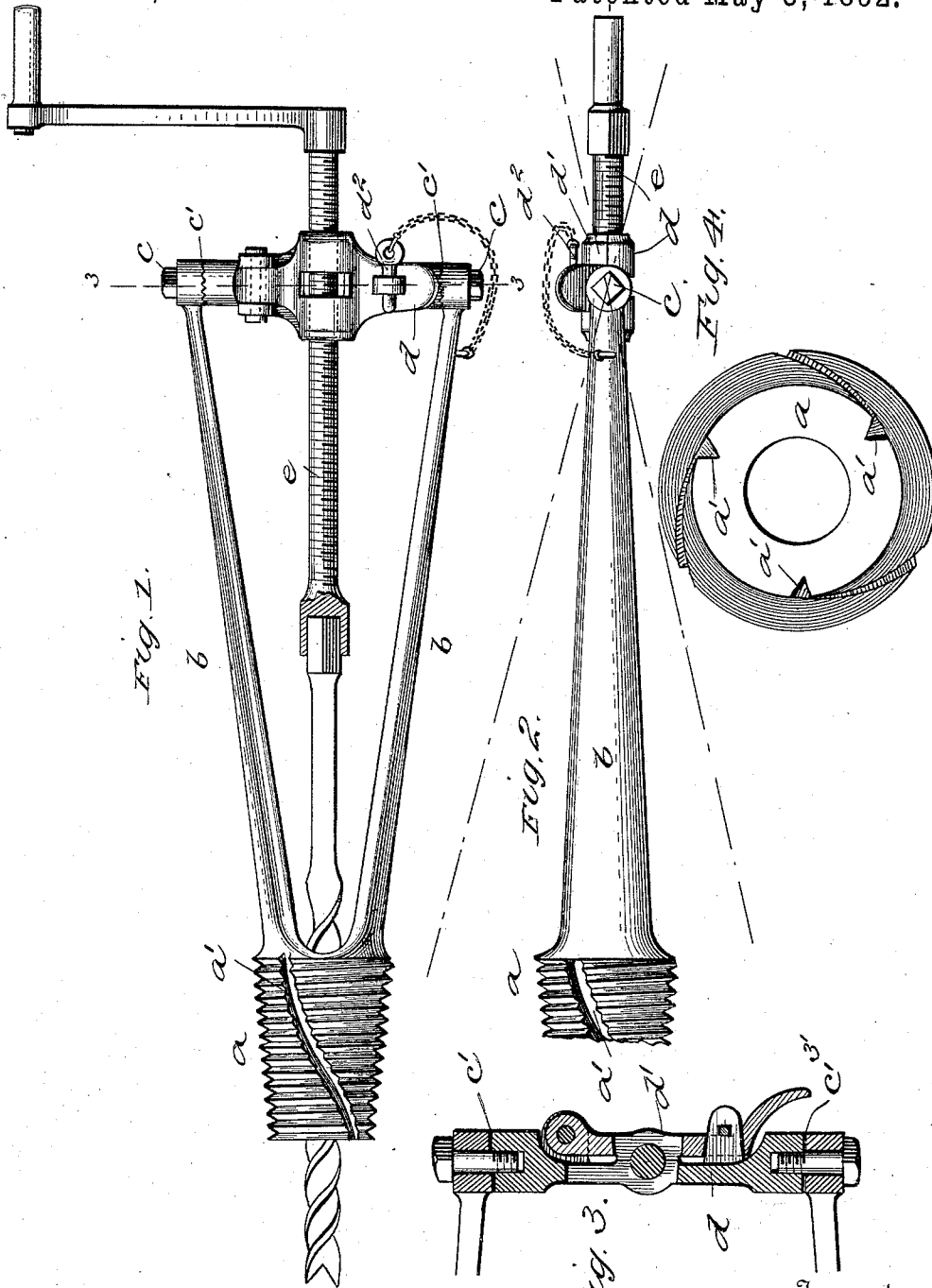


(No Model.)

A. J. WHITE.
MINING MACHINE.

No. 474,110.

Patented May 3, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

AMANDA J. WHITE, OF WILKES-BARRÉ, PENNSYLVANIA.

MINING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 474,110, dated May 3, 1892.

Application filed January 29, 1892. Serial No. 419,683. (No model.)

To all whom it may concern:

Be it known that I, AMANDA J. WHITE, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Coal-Mining Machines, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 represents a plan view of my complete machine; Fig. 2, a side elevation thereof, part of the cone being broken off; Fig. 3, a transverse section through the threaded boxing, and Fig. 4 an end elevation of the conical screw.

This invention has relation to that class of coal-mining machines employed to drill blasting-holes in the coal bed or stratum in which the supporting-frame for the drill is attached to the coal by screwing it in an aperture formed therein; and it has for its object the improvement of the construction of such machines, rendering them stronger and more practical, as will presently appear.

In the drawings, *a* designates the tubular screw, which is made slightly tapering in form in order that it may bind firmly when screwed into the coal-bed. Formed in the surface of this conical screw is a series of external grooves *a'*, which intersect the screw-threads and extend the full length of the cone, these grooves being preferably spirally arranged, running in opposite directions to the screw-threads, so as to intersect them at oblique angles. These spiral grooves assist the threads on the cone in forming the female threads in the coal as the cone is screwed into the same, the series of sharp edges formed by the intersection of the threads serving to cut the coal in the manner of a tap and deposit the loosened material in the grooves out of the way. Serious trouble is sometimes experienced in screwing the cone into the coal, especially when the latter is of the hard variety; but these grooves intersecting the threads on the cone serve to materially avoid the difficulty, as is evident.

Formed on the outer end of the cone is a pair of outwardly-diverging arms *b*, which slightly taper toward their outer ends. Formed transversely through the end of each arm is

a bolt-hole, these holes being in direct axial alignment with each other. Screw-bolts *c* are passed inwardly through these holes and tapped into threaded holes in the adjacent ends of a transverse bar *d*, this bar being pivotally supported directly between the arms by the bolts. This bar is flattened and widened about midway its length, and on its upper face is pivoted a similarly-shaped plate *d'*, the free end of this pivoted plate being detachably attached to the main bar *d* by a staple-and-pin connection *d''*. These two plates *d d'* have threaded circular transverse grooves formed in their adjacent faces, so that when secured face to face they form a divided box or nut for the drill-screw *e*, which works between them and is provided with the usual operating-handle on its outer end and the drill-socket at its other inner end. It will be observed that the axial centers of the screw-cone and drill-screw are in the same axial line and that lines drawn through these centers and through the axial centers of the pivotal screws *c* are perpendicular to each other and intersect in the center of the two-part boxing, this being an essential feature of this invention. After the cone is screwed into the coal in the manner described the operator inserts a drill in the socket on the end of the drill-screw and secures the latter in the boxing. Then by loosening the screws *c* the boxing may be adjusted rotatively thereon and the drill set to work through the cone, as shown, or above or below it, as may be desired. When the drill is adjusted to the desired position, the operator then tightens the screws *c* by means of a wrench and firmly clamps the boxing in the adjusted position. These screws, passing loosely through the holes in the ends of the arms, draw the arms rigidly to the ends of the bar, the arms *b* being sufficiently elastic for this purpose. To insure the clamped bar *d* against accidental turning while the drill is working and to avoid the necessity of screwing the bolts too tightly, the adjacent faces of the arms and the interposed bar may be radially serrated or grooved, as shown in Fig. 1, these serrations interlocking with each other when the bolts are screwed up.

The advantages derived from arranging the

screw-cone and drill-screw concentrically and at right angles to the clamping-screws are obvious. In the first place by this arrangement all lateral and twisting strain is avoided while drilling through the cone, the strain exerted on the arms being a direct outward pull perpendicular to the clamping-screws. It is also advantageous in that it permits the cone to be tightened during the process of drilling the hole through the cone, inasmuch as the partial turning of the screw-cone will not throw the drill obliquely to the unfinished hole, but will keep it in line therewith whether the bar supporting the boxing be in a horizontal, vertical, or oblique position, which is not the case with other machines of this class.

The plates composing the two-part boxing may be provided with openings, as shown in Figs. 1 and 3, in order to lessen their weight and facilitate the oiling of the drill-screw.

Having thus fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

The combination of a hollow threaded cone, a supporting-frame consisting of a pair of elastic arms provided with holes in their outer ends, a bar inserted between the ends of the arms and provided with threaded recesses in its ends, headed screw-bolts *cc*, passed loosely through the holes in the ends of the arms and screwed into the threaded recesses in the ends of the bar, these screws being set at right angles to the drill-screws, a two-part boxing supported by the bar, and a drill-screw clamped between the boxes, said drill-screw and cone being arranged in the same axial line, substantially as described.

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

AMANDA J. WHITE.

Witnesses:

W. E. PRESTON,
FRANCIS DOUGLAS.