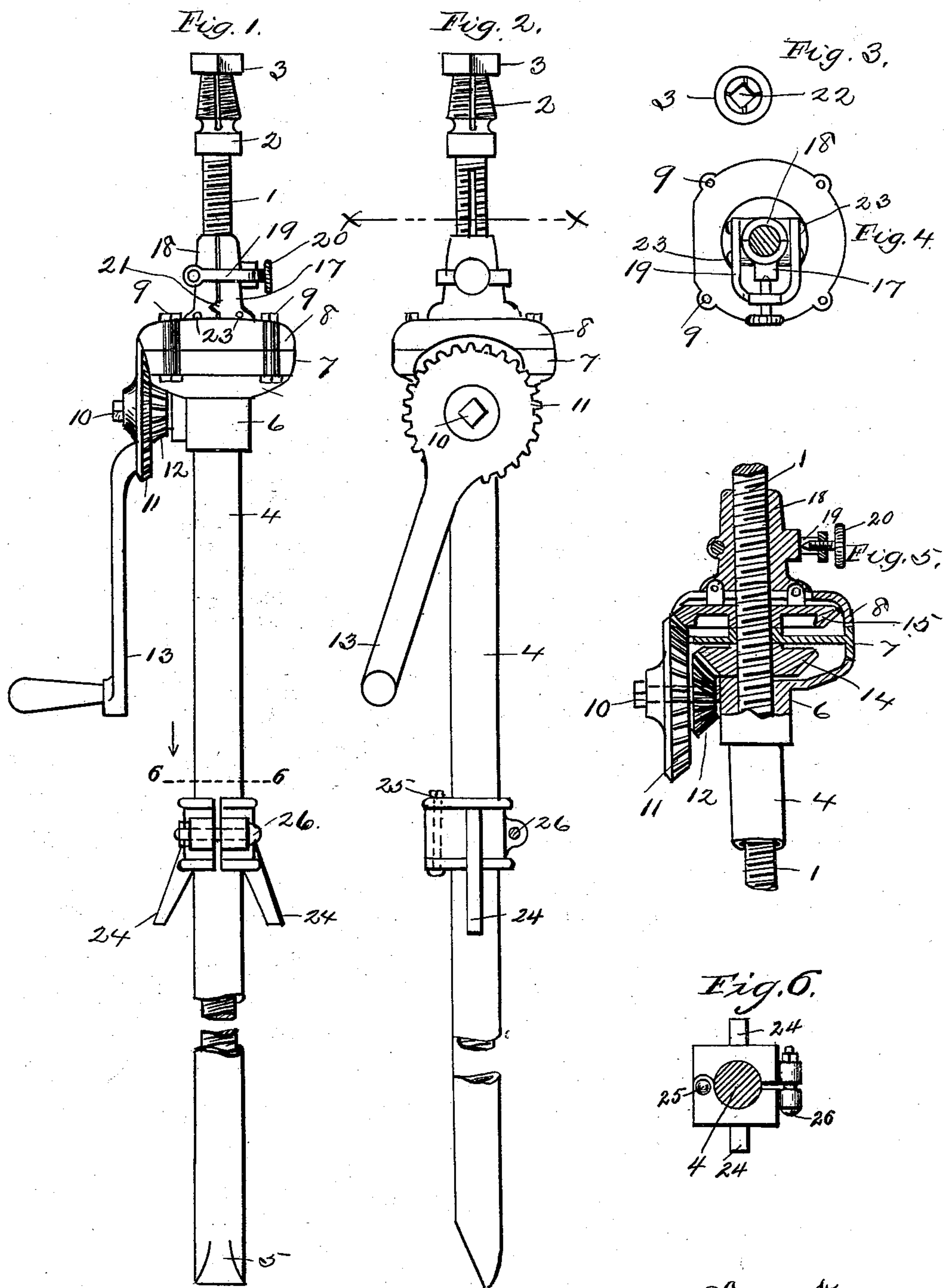


(No Model.)

T. WILLIARD.  
ROCK OR COAL DRILL.

No. 507,091.

Patented Oct. 17, 1893.



Witnesses:

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# UNITED STATES PATENT OFFICE.

THOMAS WILLIARD, OF WOODVILLE, PENNSYLVANIA.

## ROCK OR COAL DRILL.

SPECIFICATION forming part of Letters Patent No. 507,091, dated October 17, 1893.

Application filed November 17, 1892. Serial No. 452,310. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS WILLIARD, a citizen of the United States, residing at Woodville, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Rock or Coal Drills; 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved drill for drilling coal, &c., and consists in certain details of construction, and combination of parts as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a side elevation of my improved drill, which is constructed in accordance with my invention. Fig. 2 is a reverse side view of the same. Fig. 3 is a plan view of the nut or socket for holding the drill. Fig. 4 is a sectional plan view taken on the line  $x-x$ , Fig. 2. Fig. 5 is a sectional side elevation showing the several meshing gear wheels. Fig. 6 is a detail end view of the claw, the section being taken on the line 6-6 of Fig. 1.

To put my invention into practice I provide a long threaded bar 1, and attach to one end of the same a socket consisting of a split tapering threaded portion 2, and a nut 3, whereby a drill of ordinary construction may be attached therein. This threaded shaft 1, is provided with a left hand thread, and a key-way formed in the direction of the length of the same. Arranged over the greater part of this threaded shaft 1, is a tube 4, which acts as a protector to the threads of the said shaft, and also as a lubricator for the screw shaft 1, as the intervening space between the parts is kept constantly filled with oil. Formed at the bottom of the tube 4 is a point 5, for the purpose of engaging with a post or other means of holding the same stationary. This tube 4 is fitted with an adjustable claw 24 formed in two parts, pivotally connected at one side by the bolt 25 and held together at the other side by a clamping bolt 26. This claw may be moved and clamped at any desired position on the tube 4, and is used as a brace to engage with

the sides of the mine or other stationary object. Attached to the top of the tube 4 by means of a screw thread is a casing 6, provided with a stationary spindle 10, on which two integral bevel gear wheels 11, and 12, are mounted. One of these wheels 11, is provided with a hand crank 13, by means of which the said wheels may be given a rapid rotary movement to operate the drill. Operating on the screw shaft 1, and made to revolve therewith is a bevel wheel 14, which meshes with the wheel 12, and thereby gives the drill a rotatable boring movement. This wheel 14, is held in position by a plate 7, bearing on the top of the same, and is prevented from turning on the said screw shaft by the key way formed in the same. Operating on the top of the plate 7, is a bevel gear wheel 15, which is in mesh with the bevel wheel 11 to which the crank 13 is connected, and the said gear 15 serves as a means of feeding the screw shaft forward, by having a threaded nut 18 hinged thereto. This threaded nut consists of two sections 18, one of which is provided with a V shaped projecting portion, 21, which enters a corresponding recess formed in the other section, and serves as a means of bringing the two sections accurately together to meet the threads of the screw shaft 1, and thereby prevent binding of the parts. These sections of the nut 18 are hinged to lugs 16 formed integral with the bevel wheel 15, and are held together by means of a hinged yoke 19 tightened by a thumb screw 20.

In operation the end 5 of the tube 4 is placed against some stationary object, or the claw 24 may be used for the same purpose, and the hand crank 13 revolved, which turns or gives the bit a boring movement, and at the same time feeds the bit forward.

To run the screw shaft back, the thumb screw 20 is released and the yoke dropped down, which will admit of the nut 18 being separated, and the screw moved back.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a device of the class described, the combination, with a screw-shaft provided with a chuck; a gear, 15, rotatably mounted upon said screw-shaft; and means to rotate the said gear and screw-shaft; of a divided feed-nut

having independent sections, respectively, pivoted to the said gear; a V-shaped projection upon one section to engage notches in the other section when the parts of the nut  
5 are closed together; said sections being tapped to engage the screw-shaft; and means to connect the free ends of the nut, substantially as specified.

2. In a device of the class described, the  
10 combination, with a screw-shaft; a casing having a tubular portion, 4; and means for operating said screw-shaft; of a claw attached to

said tubular part and formed in separate parts pivotally connected at one side by a bolt, 25, and provided at the opposite side with a clamp- 15 ing bolt, 26, substantially as specified.

In testimony that I claim the foregoing I hereunto affix my signature this 19th day of September, A. D. 1892.

THOMAS WILLIARD. [L. s.]

In presence of—

ALBERT J. WALKER,  
M. E. HARRISON.