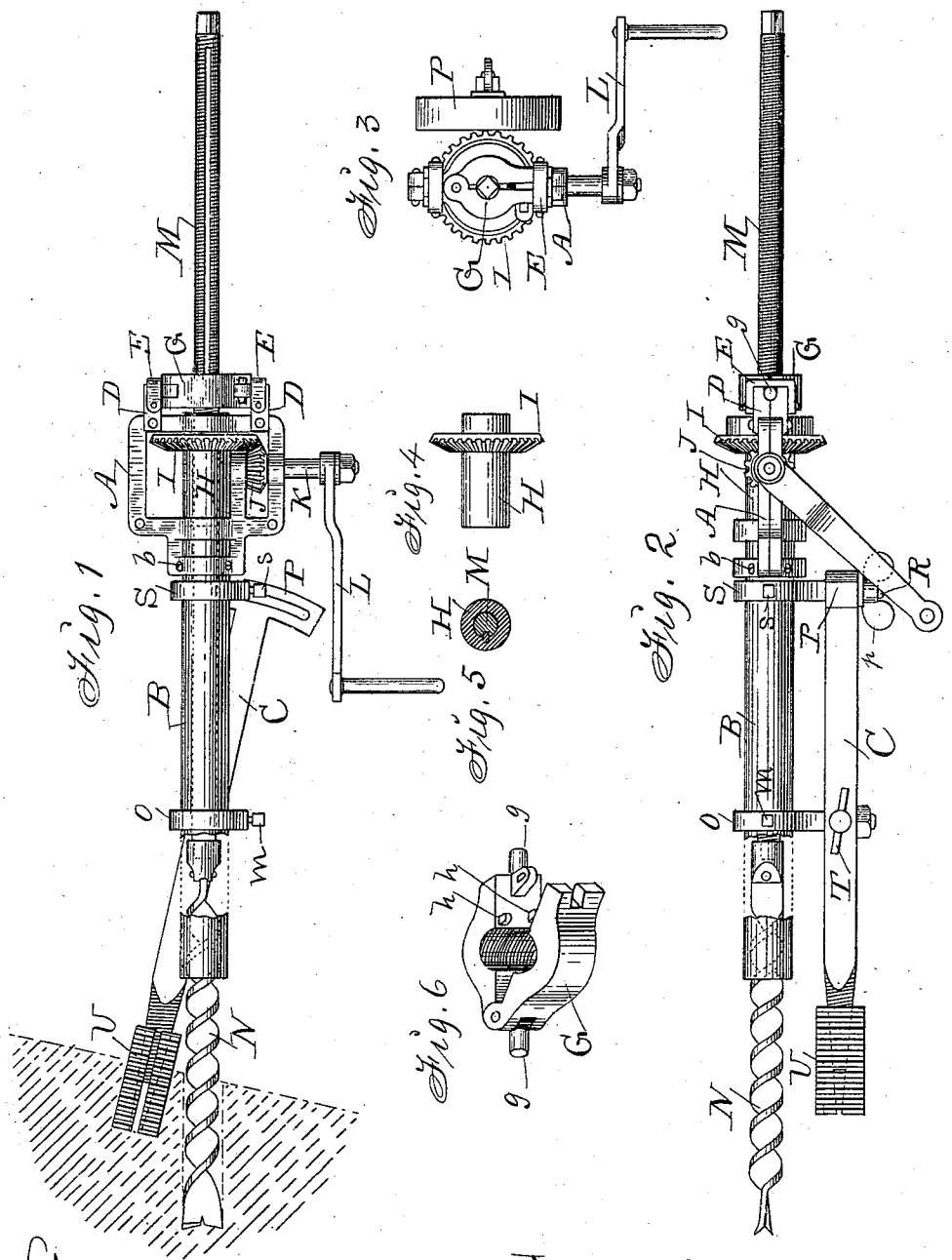
(No Model.)

J. M. GROOMS.

COAL DRILLING MACHINE.

No. 313,204. Patented Mar. 3, 1885.



Witnesses:
M. A. Anderson,
R. H. Orwig.

Inventor:
James M. Grooms,
By Thomas G. Orwig, Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JAMES M. GROOMS, OF AVERY, IOWA, ASSIGNOR OF ONE-HALF TO WILLIAM A. J. THOMPSON, OF SAME PLACE.

COAL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 313,204, dated March 3, 1885.

Application filed October 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. GROOMS, a citizen of the United States, residing at Avery, in the county of Monroe and State of Iowa, have invented a new and useful Coal-Drilling Machine, of which the following is a specification.

The object of my invention is to save time, labor, and expense in mining coal.

It consists in the construction and combination of a portable and adjustable frame, a drill-shaft, a drill-feeding device, and drill-operating mechanism in such a manner that the complete machine can readily be moved about and secured at any desired point in a shaft or drift, and there adjusted to bore a hole in the coal at any desired angle, as hereinafter set forth. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view of the machine; Fig. 2, a side view; Fig. 3, an end view; Fig. 4, a side view of the larger bevel gear-wheel and sleeve to which it is fixed; Fig. 5, a section of the same, and Fig. 6 a perspective view of the feed-nut.

The frame A, the tube B, and standard C constitute the frame-work of the machine. The frame A is made in two parts bolted together, as shown. The tube B is attached by means of screws *b*. At one end of the frame A are extensions D, to which are secured clevises E. The extensions D are cut out at the ends to receive the lugs *g* of the detachable hinged feed-nut G, which is held in place by means of the clevises, as shown.

In the frame A is a revolving sleeve, H, carrying a beveled gear-wheel, I, which engages a smaller bevel-wheel, J, on a shaft, K, having at its end the crank L. The sleeve H is feathered to the screw-threaded drill-shaft M, which is squared at its end to fit the socket on the end of the drill N. This drill-shaft is threaded to engage the feed-nut G. The standard C is pivoted to the collar O. At one of its ends it has a segmental slotted arm P, through which passes a pin, R, attached to the collar S, and threaded at the end to engage the thumb-nut *p*.

T is a thumb-screw, by which the standard C is prevented from turning on its pivot, if desired. The collars O and S are adjustably attached to the tube B by means of set-screws *m* and *s*. At its other end the standard C terminates in a conical screw, which engages a conical screw-seat, U, made in two parts, and corrugated on its outer surface, as shown. The hinged feed-nut G is compensated for wear by means of small projections *h*, which can be filed down as the nut is worn away, thus enabling it to fit the screw as tightly as before. The hinged nut is closed by a key and key-seat, as shown.

In the practical operation of my drilling-machine a small hole is drilled in the surface which it is desired to bore. The two parts of the conical screw-seat U are placed in this hole, and the end of the standard C is inserted and screwed in until the two parts of the screw-seat U are wedged fast in the hole. The tube B is then passed through the collars O and S and secured by the set-screws *m* and *s*. The thumb-screw T and thumb-nut *p* are then loosened, and the drill is moved until it has the desired inclination, when it is clamped fast by the thumb-nut and thumb-screw. As soon as the point of the drill is brought against the coal the feed-nut G is put in place by means of the clevises E and the key and key-seat. By turning the crank L in the proper direction the bevel-wheel J, engaging the bevel-wheel I, causes it to turn, together with the sleeve H, which, being feathered to the screw M, causes it to turn. As the screw-threaded drill-shaft M turns in the feed-nut G it is advanced, and thus turning and advancing it causes the drill fixed to its end to bore into the coal.

I am aware that drill-stocks have been combined with frames so that they could be adjusted to extend at different angles relative to the frame; that hinged nuts have been connected with a screw-threaded drill-stock to advance it as it was rotated; and that conical screws have been used to fasten a complete drilling-machine to the material upon which it was operated; but my manner of constructing a complete adjustable frame and combining and operating a drill therewith, and my manner of constructing a screw-seat in two

parts and combining a tapering screw therewith to fasten the complete machine, is novel and greatly advantageous.

I claim as my invention and desire to secure by Letters Patent—

1. In a drilling-machine, the combination of the frame A with the tube B, secured thereto, and having adjustable collars at its ends, and the standard C, pivoted to one of the collars and secured to the other collar by a segmental slotted arm and screw, and having a tapering screw at its lower end, substantially as and for the purposes shown and described.

2. The improved coal-drilling machine composed of the following elements, to wit: the frame A, (formed in two parts,) the sleeve B, secured thereto, having adjustable collars at its ends, the standards C, pivoted to one collar and secured to the other collar by a segmental slotted arm and screw, and having a tapering screw at its lower end, a feathered and screw-threaded drill-stock, a tubular shaft, H, having a fixed wheel, I, and a shaft, K, having a fixed wheel, J, and a crank, L, substantially as shown and described.

JAMES M. GROOMS.

Witnesses:
LEROY MILLER,
WM. A. J. THOMPSON.