J. A. BEAMISDARFER.

Rock Drilling-Machine.

No. 161,197. Patented March 23, 1875.

Fig. 1

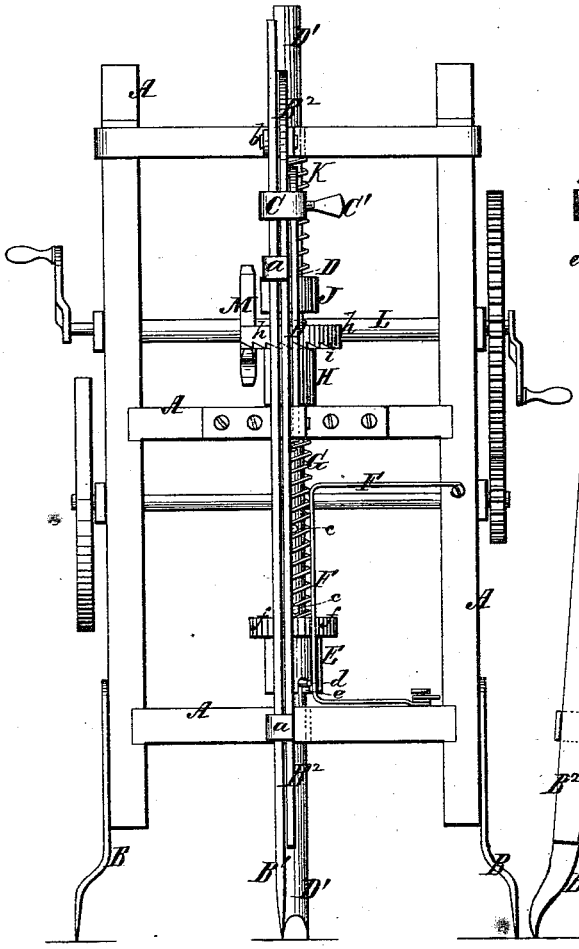


Fig. 2

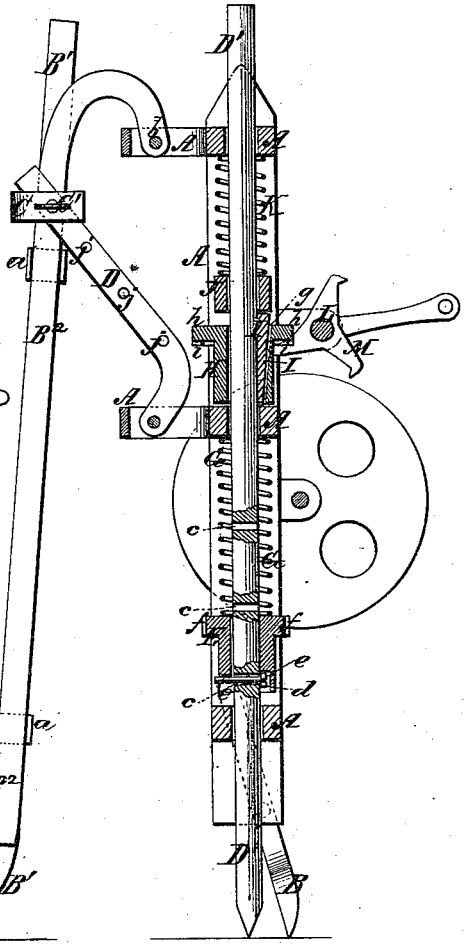
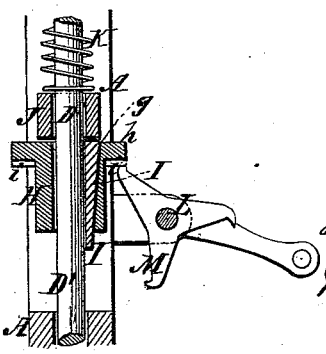


Fig. 3



Witnesses.

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UNITED STATES PATENT OFFICE.

JOSEPH A. BEAMISDARFER, OF CAMPBELLTOWN, PENNSYLVANIA.

IMPROVEMENT IN ROCK-DRILLING MACHINES.

Specification forming part of Letters Patent No. **161,197**, dated March 23, 1875; application filed February 25, 1875.

To all whom it may concern:

Be it known that I, JOSEPH A. BEAMISDARFER, of Campbelltown, county of Lebanon and State of Pennsylvania, have invented a new and useful Improvement in Rock-Drilling Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a rear elevation. Fig. 2 is a vertical central section across the shafts of my improved rock-drilling machine. The parts are in the position they occupy after the drill has descended. Fig. 3 is a detail section of a portion of the lifting and turning mechanism, and the drill and rod in the position they occupy when the drill-rod has been raised for another descent.

The nature of my invention consists in certain constructions and combinations of parts as hereinafter described, and specifically claimed.

A is a rock-drill frame of any proper form and construction. B B^1 are feet or anchors for holding the machine in any desired position, either upright or inclined. The foot B^1 has its leg connected by loops *a a* to a curved bar, B^2, which is hinged at *b* to the rear of the frame A. The leg of the foot slides in or out upon the bar B^2 in the loops *a a* for the purpose of supporting the machine at different inclinations, or in an upright position. C is a U-shaped clasp, with a screw, C′, and D is a brace hinged to the rear of the frame A. This clasp is fitted upon the leg of the foot B^1, and the free end of the brace, and clamped in place by the screw C′ so as to bind the leg and bar and brace firmly together. The screw is enabled to do this from the fact that the bar is provided with sockets *j*, and the clasp with a screw-threaded passage in one of its arms; the effect of which construction is, that the screw draws the imperforated arm of the clasp against the leg of the foot and forces the brace against the bar B^2. D′ is the drill-rod perforated with holes *c* for the reception of a pin, *d*, which pin is set in the lowest hole at the commencement of the operation of drilling, and adjusted to the hole or holes above it as the drilling operation progresses. This drill-rod is arranged to have perfect freedom to descend when set free from its turning and lifting mechanism. E is a collar fitted loosely around the rod and interlocking with it by means of the pin *d*. This collar has a notch, *e*, in its lower edge, which admits the pin *d* into it. It also has a ratchet-wheel, *f*, fastened to its upper end. F is a spring stop-bar fastened to the frame A for locking and preventing the drill and collar E turning while the drill is descending. This bar and ratchet-wheel do not interfere with the drill and collar being turned while it is rising. G is a spiral spring placed between the collar E and the middle cross-beam of the frame A, for giving power to the drill when it is set free from its lifting and turning mechanism. H is another collar fitted around the drill, above the middle beam of the frame A. This collar is formed with a wedge-shaped groove, *g*, in its inner periphery, and with a horizontal circular flange, *h*, on the under side of which (latter) a circle of ratchet-teeth, *i*, are formed. I is a long wedge, loosely inserted in the groove *g*, between the drill-rod and the collar. J is a circular sliding stop fitted around the drill-rod above the wedge I and collar H, as shown. K is a spiral spring placed around the drill-rod between the stop J and the top beam of the frame. This spring allows the stop to slide as the collar, wedge, and drill are lifted together, and it serves to keep the wedge binding against the drill-rod with sufficient friction to insure its rising with the collar when the machine is in operation, and it also aids the spring G in forcing the drill down. L is a revolving shaft having a lifter, M, with three arms, fastened upon it. The lifter is placed a little to one side of the drill, and its arms, in revolving, strike successively against the under side of the flange *h* of the collar H, and by means of hooking-toes on their extremities, take hold of the ratchet-teeth *i* and pull the collar around with the drill, while the circular movement of the drill carries the collar E around the distance of one ratchet-tooth, when the bar F locks the drill-rod for a descending movement. It will be understood that the upward pressure of the arms against the collar causes the wedge to bite upon the drill-rod, and therefore the col-

lar and drill-rod are lifted together. As soon as an arm of the lifter clears the flange of the collar the two springs act upon the two collars, and in turn upon the drill-rod through the pin *d*, and cause the drill to descend with great force.

It is a very important improvement to have the lifting-collar turn the drill-rod, and at the same time to have the drill-rod capable of sliding to any desired extent free of the stop and lifting-collars, and in connection therewith to have a means whereby the drill-rod will be locked and prevented from turning while making a downward movement, and all without a ratchet and pawl.

Wedges, for locking and releasing in mechanics, may be very old, but a wedge applied and operating in the manner and under the conditions as herein described, I believe to be new.

What I claim as new is—

1. The combination, with the turning and lifting-collar H of rock-drills, of the wedge I for fastening and releasing said collar, substantially as herein described.

2. The combination of the revolving collar H, the revolving drill-rod D′, the sliding wedge I, the spring-stop J, and the lifter M, substantially as and for the purpose described.

3. The combination of the revolving ratchet *f*, having a notched collar, E, the stop-bar F, revolving drill-rod D′, having an adjustable pin, *d*, the springs G and K, the revolving, turning, and lifting collar H and wedge I, substantially as described.

4. The sectional extension-bar B^1 and B^2, hinged to the drill-frame, in combination with the bracing-support D, hinged to the machine, and the screw-clamp C and C′, substantially as described.

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Witnesses:

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