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ROCK DRILL.

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ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 269,619, dated December 26, 1882.

Application filed June 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BARBER, of Covington, in the county of Fountain and State of Indiana, have invented a new and Improved Rock-Drill, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved rock-drill which is compact, rigid, and durable, and can be operated very easily.

The invention, which is an improvement on the rock-drill for which United States Letters Patent No. 255,237 were issued to me on the 21st day of March, 1882, consists in the peculiar construction and arrangement of parts, as herein-after described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of my improved drill. Fig. 2 is a detail longitudinal sectional elevation of the middle part of the drill. Fig. 3 is a sectional plan view of the externally longitudinally grooved stock. Fig. 4 is an enlarged sectional view, showing the manner of holding the bit to the drill-rod.

A supporting rod or standard, A, is supported by a tripod or like support, the legs B of the tripod being formed of two sections, B¹ B², sliding on each other and surrounded by a collar or band, C, provided with a binding-screw, a, by means of which the sections B¹ B² can be locked in the desired position after adjustment. A tubular casing, D, having its upper end externally screw-threaded, is attached at its lower end to the upper end of the standard A, and on the upper end of this tubular casing D a long cylindrical cap, E, is screwed, which is provided in its upper closed end with an aperture through which the screw-threaded drill-rod F can pass, this drill-rod passing longitudinally through the casing D. A spiral spring, G, surrounding the drill-rod F, is contained in the casing D, and its upper end rests against the inner side of the top of the cap E, and its lower end rests on a stock, H, screwed on the drill-rod, and provided with a pintle or stud, H', projecting through a longitudinal slot, D', in the casing D, on the outer end of which pintle an anti-friction wheel or

roller, I, is mounted. A rubber cushion, J, surrounds the drill-rod F below the stock H, and this cushion or bumper J rests upon a plate, K, which is secured to the standard A, as shown in Fig. 2, and has an aperture through which the drill-rod F can pass freely.

Directly below the plate K a stock, L, which has longitudinal straight or slightly-inclined or spiral grooves in its outer surface, surrounds the drill-rod F, and rests on a plate, M, provided on its upper surface with an annular projection fitting into an annular recess in the under side of the externally-grooved stock L for the purpose of holding this stock L in the proper position.

The plate M is provided with an aperture through which the drill-rod F can pass freely, and is attached to the standard A, as shown in Fig. 2. The externally-grooved stock L is provided with an internal tooth or key, N, passing into a longitudinal groove, O, in the drill-rod F. A pivot, P, projects from the plate M, and on this pivot a cam-wheel, Q, is mounted, which is provided with a handle, R, and with a tooth, S, on each cam, adapted to pass in between the grooves in the stock L. Rings or baskets T, provided with angular shanks t, are pivoted at the inner ends of the shanks to the legs of the tripod, and are adapted to receive weights—for instance, stones to hold the tripod or other base-frame firmly on the ground. If the base-frame is not to be weighted, these rings T can be folded up against the legs, so as to be out of the way.

The drill-rod F is provided at its lower end with a pivoted spring-catch, W', provided with a tooth, w', which catches in a recess, v', in the upper end of the drill V and holds the drill in the lower end of the drill rod.

The operation is as follows: As the drill-rod F is externally threaded, it can be screwed in the stock H so as to project a greater or less distance from the lower end of the casing D, as circumstances may require. The tension of the spring G in the casing D may be adjusted as circumstances may require by screwing down the cap E more or less—that is, the spring G will be compressed more or less. A long or short drill V may be attached to the drill-clamp or socket W, or to rod F, as in Fig. 4, and the tripod-legs can be lengthened or short-

ened as the circumstances may require. By turning the cam-wheel Q in the direction of the arrow *a'* the stock H and the drill-rod F will be raised and the spring G will be compressed. When the cams of the cam-wheel slide from under the roller I the spring G forces the stock H and the drill-rod F downward, and this operation is repeated every time a cam of the wheel Q raises the stock H. Every time the stock is raised one of the teeth S enters between the grooves of the stock L and turns the same and the drill-rod F a short distance. As the drill-hole increases in depth the drill-rod F is gradually screwed down lower.

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

1. In a rock-drill, the combination, with the screw-threaded drill-rod F, the spring G, and the stock H, through which the drill-rod screws, of the casing D, having its upper end externally screw-threaded, and the cylindrical and internally-screw-threaded cap E, substantially as and for the purpose set forth.

2. In a rock-drill, the combination, with the slotted casing D, the cylindrical cap E, the drill-rod F, and the spring G, of the stock H, secured to the drill-rod and provided with the pintle H', the roller I, and the cam-wheel Q, substantially as and for the purpose set forth.

3. In a rock-drill, the combination, with the drill-rod F, provided with a longitudinal groove, O, of the socket H, provided with a pintle, H', the stock L, externally grooved and provided with a tooth or key, N, projecting into the groove O, and of the cam-wheel Q, provided with one or more teeth, S, substantially as herein shown and described, and for the purpose set forth.

4. In a drill-rod, the combination, with the slotted casing D, the cap E, the threaded drill-rod F, provided with the groove and the spring G, and the internally-threaded stock H, provided with the roller I, of the stock L, externally grooved and provided with the key N, and the cam-wheel Q, provided with teeth S, substantially as and for the purpose set forth.

5. In a rock-drill, the combination, with the legs B, of the wings or baskets T, provided with the angular shanks *d*, pivoted to said legs and adapted to receive weights, substantially as and for the purpose set forth.

WILLIAM JAY BARBER.

Witnesses:

CHAS. BERGDALL,
JOE C. NELSON.