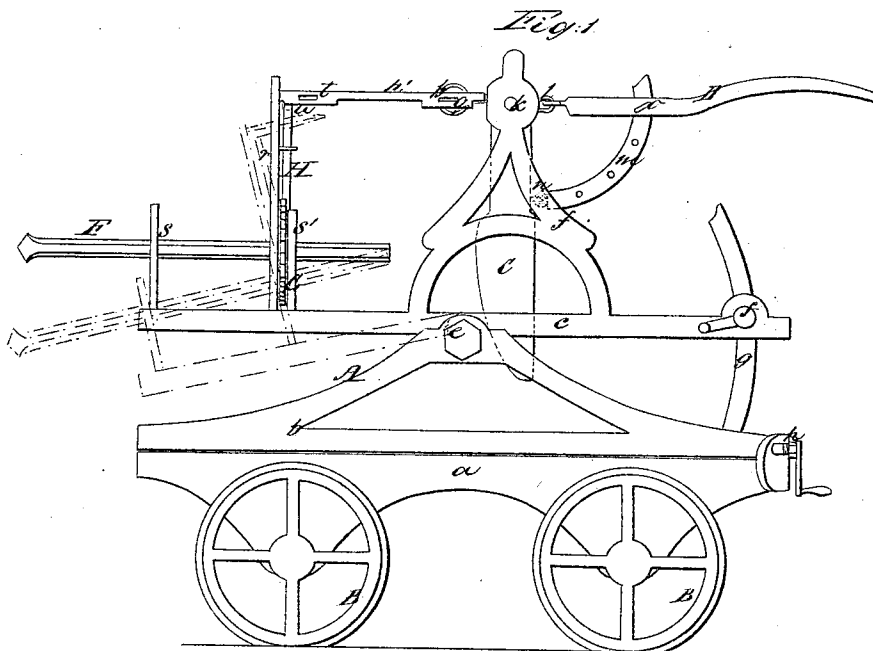
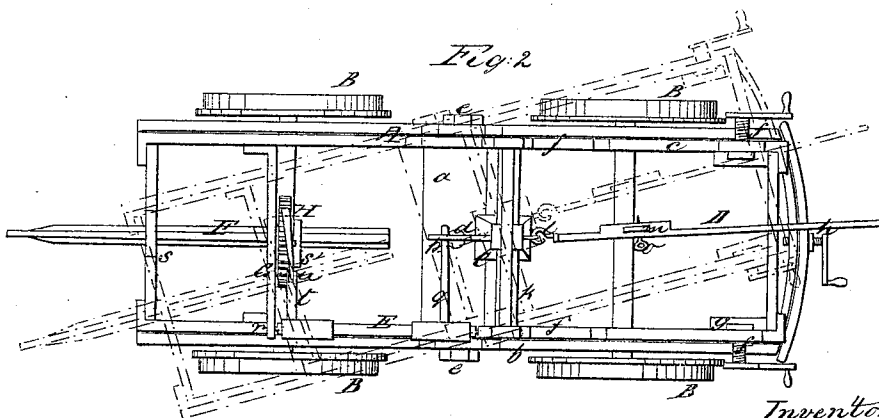


Cushman & French,

Stone Drill.

N^o 28,971.

Patented July 3, 1860.



witnesses
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Inventor
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UNITED STATES PATENT OFFICE.

L. E. CUSHMAN AND J. S. FRENCH, OF NORTH BLOOMFIELD, CALIFORNIA.

ROCK-DRILL.

Specification of Letters Patent No. 28,971, dated July 3, 1860.

To all whom it may concern:

Be it known that we, L. E. CUSHMAN and J. S. FRENCH, both of North Bloomfield, in the county of Nevada and State of California, have invented a new and Improved Rock-Drill; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side view of our invention. Fig. 2 a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in the employment or use of a swinging weight arranged with a drill and automatic turning or rotating device, all being placed on a mounted and adjustable frame, and arranged substantially as hereinafter described, whereby the drill may be made to operate at any desired angle, as the nature of the case may require and the power or strength of the operator, if the machine be operated manually, applied in an advantageous manner to the machine, the latter also being capable of being readily removed from place to place and adjusted to its work as hereinafter fully described.

To enable those skilled in the art to fully understand and construct our invention, we will proceed to describe it.

A represents a frame which is mounted on wheels B, and is formed of three parts *a*, *b*, *c*. The part *a* is rigid, or has the wheels B permanently connected to it, but the part *b* is attached to *a*, by a central pivot *d*, on which it is allowed to turn freely as a center in a lateral or horizontal direction. The part *c* of the frame is secured in the part *b*, by bolts *e*, at each side which serve as centers, and admit of the part *c*, swinging vertically. The adjusting movement of the part *b*, which is also imparted to the part *c*, of the frame is shown in red in Fig. 2, and the adjusting movement of the part *c* is shown in red in Fig. 1. The part *c*, of the frame A, may be retained at any desired angle by means of set screws *f*, which pass through the sides of said part, and bear against segment bars *g*, and the part *b*, may be retained at any desired point, by means of a set screw *h*, which passes through a slot *i*, in a bar at one end of the part *a'* of the frame, and then into a bar at the corresponding end of the part *b*.

At each side of the part *c*, of the frame

A, there is an upright *j*, between the upper parts of which, a rock-shaft *k*, is fitted. This shaft *k*, has a weight C, attached to it, and to the upper part of the weight a handle or lever D, is attached by a joint or a hook and eye connection *l*, as shown clearly in both figures.

To the weight C, at a point about midway between its upper and lower end, a segment bar *m*, is attached by a joint *n*, and the upper part of bar *m* is attached by a set screw *o* to the handle or lever D.

To the upper part of the weight C, there is attached at right angles, an arm *p*. This arm has a loop or eye at its outer end to receive a rod *q*, which is attached to a rock-shaft E, the bearings of which are in one of the uprights *j*, and in a vertical plate *r* on the part *c*.

On the front end of the part *c*, of the frame A, there is a vertical plate *s*, through which, and a similar plate *s'*, and the plate *r*, the drill rod F, passes loosely. The drill rod is of polygonal form, and has a ratchet G fitted on it, the rod being allowed to slide freely through the ratchet, but the latter which has a polygonal opening, through which the drill rod passes, compels the drill rod to turn with it.

To the rock-shaft E, an arm *t*, is attached at right angles, and to the end of this arm, a pendant pawl H, is attached by a pivot *u*.

The operation is as follows: The operator adjusts the parts *b*, *c*, of the frame, as the nature of the work may require. The adjusting of the part *c*, of the frame A, admits of the drill being worked or operated at any desired angle, in a vertical plane, while the adjustment of the part *b*, admits of the drill being worked in a more or less oblique position with the part *a*, in a horizontal plane. When the drill is properly adjusted, the operator grasps the lever D, and moves it up and down, the joint connections *l*, *n*, admitting of the operator moving, if necessary, the handle to the right or left to a certain extent. Each time the end of the handle D is forced down, the weight C, strikes the end of the drill rod F, and each time the end of the lever D is raised, the arm *p*, and rod *q*, actuate the shaft E, and the arm *t*, depresses the pawl H, which turns the ratchet G a short distance, and consequently the drill rod. The drill rod, therefore, it will be seen, is actuated or turned during the backward movement of

the weight C, the weight by being actuated as shown, serving to operate the drill in an effectual manner. Other power than human may be applied to the machine, the lever D, admitting of the direct application of any convenient power.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

10 1. The arrangement of the swinging weight C, drill rod F, ratchet G, and the pawl H, attached to rock-shaft E, in com-

bination with the adjusting frames *a, b, c*, operated substantially as and for the purpose set forth. 15

2. The handle D, when attached to the weight C, by means of the joints and segment bar, to admit of the lateral adjustment of the handle as specified.

L. E. CUSHMAN.
J. S. FRENCH.

Witnesses:

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