

G. P. SCHAUERER.
Rock-Drill.

No. 227,062.

Patented April 27, 1880.

Fig: 1.

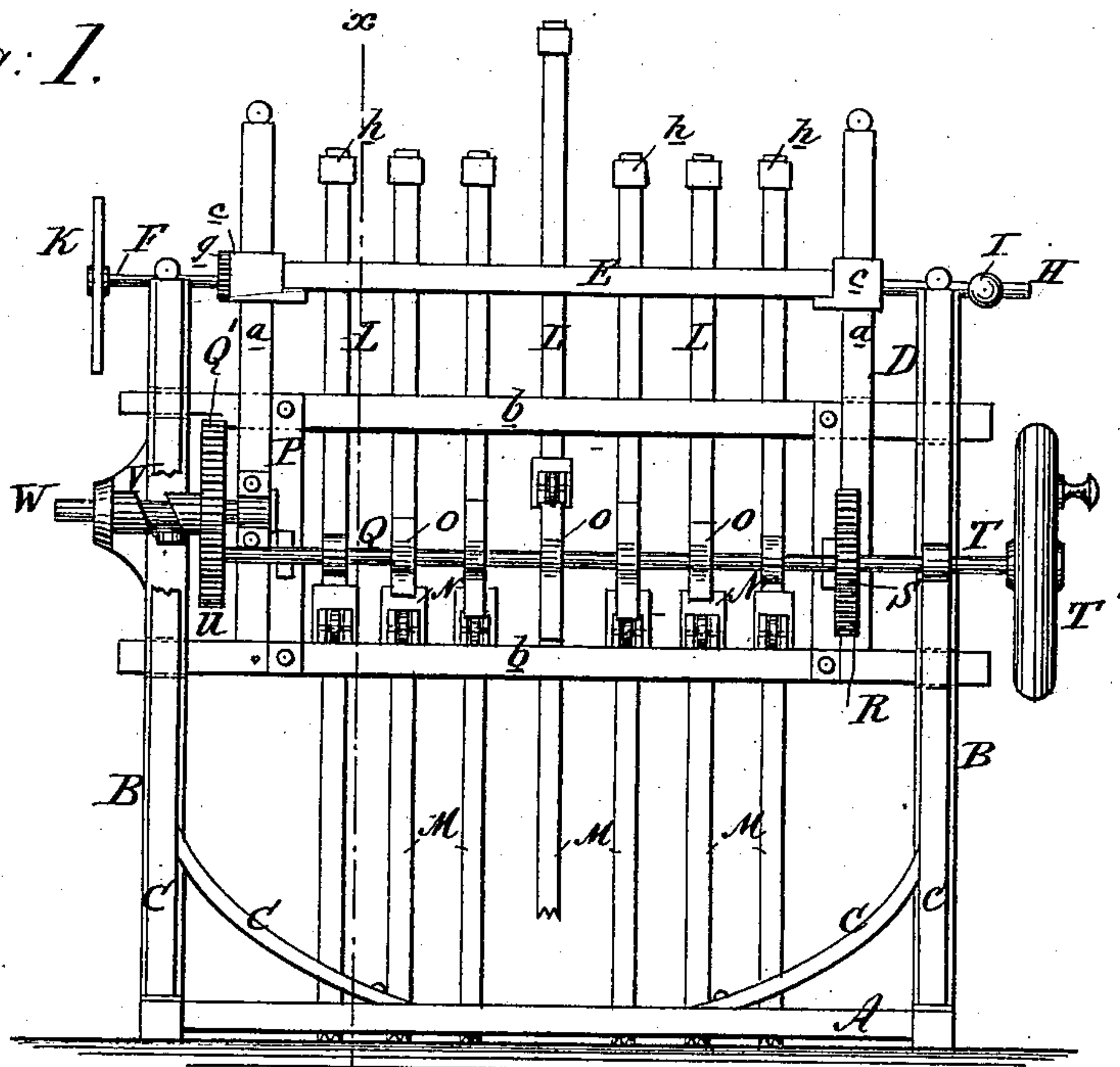


Fig: 3.

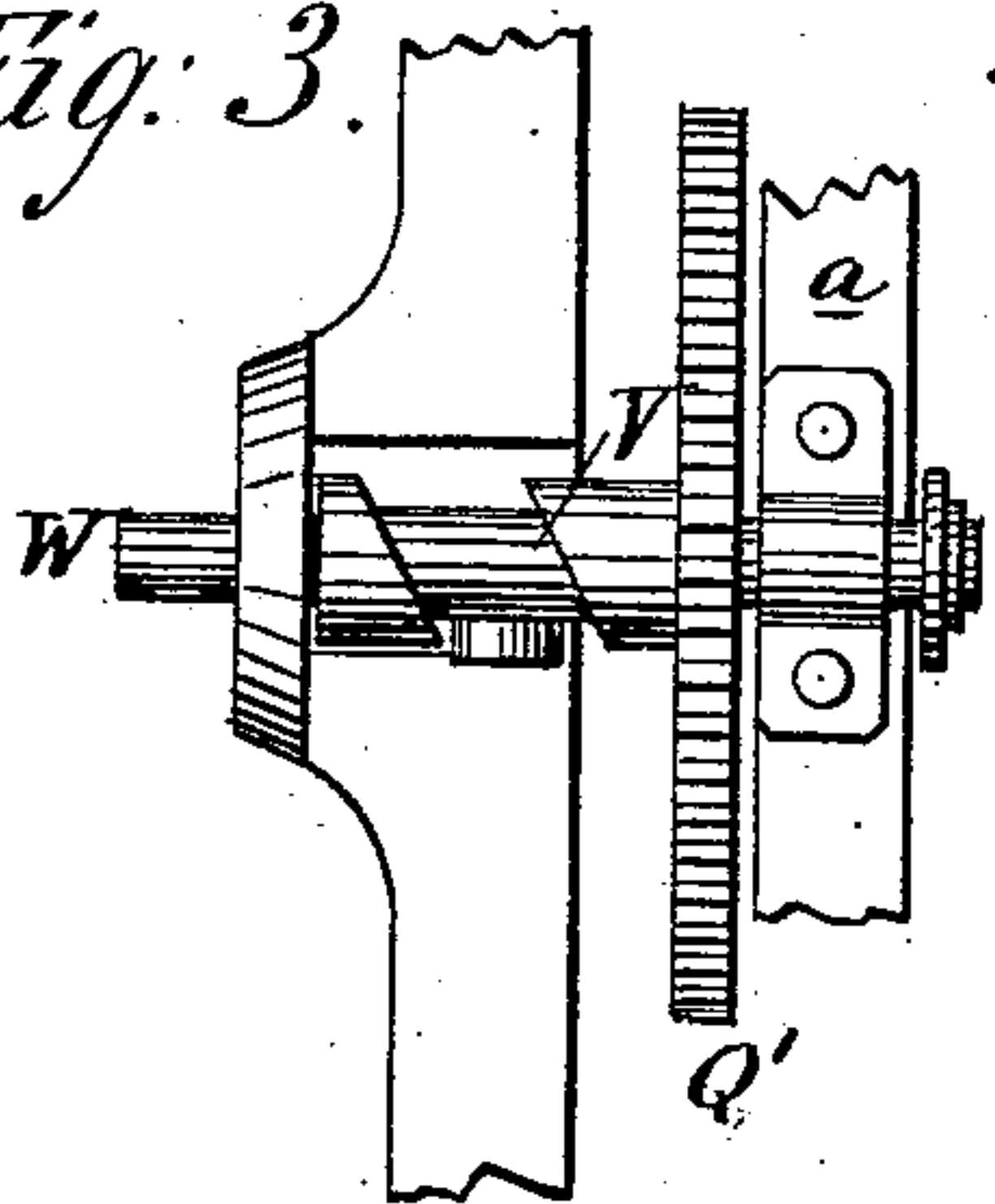


Fig: 2.

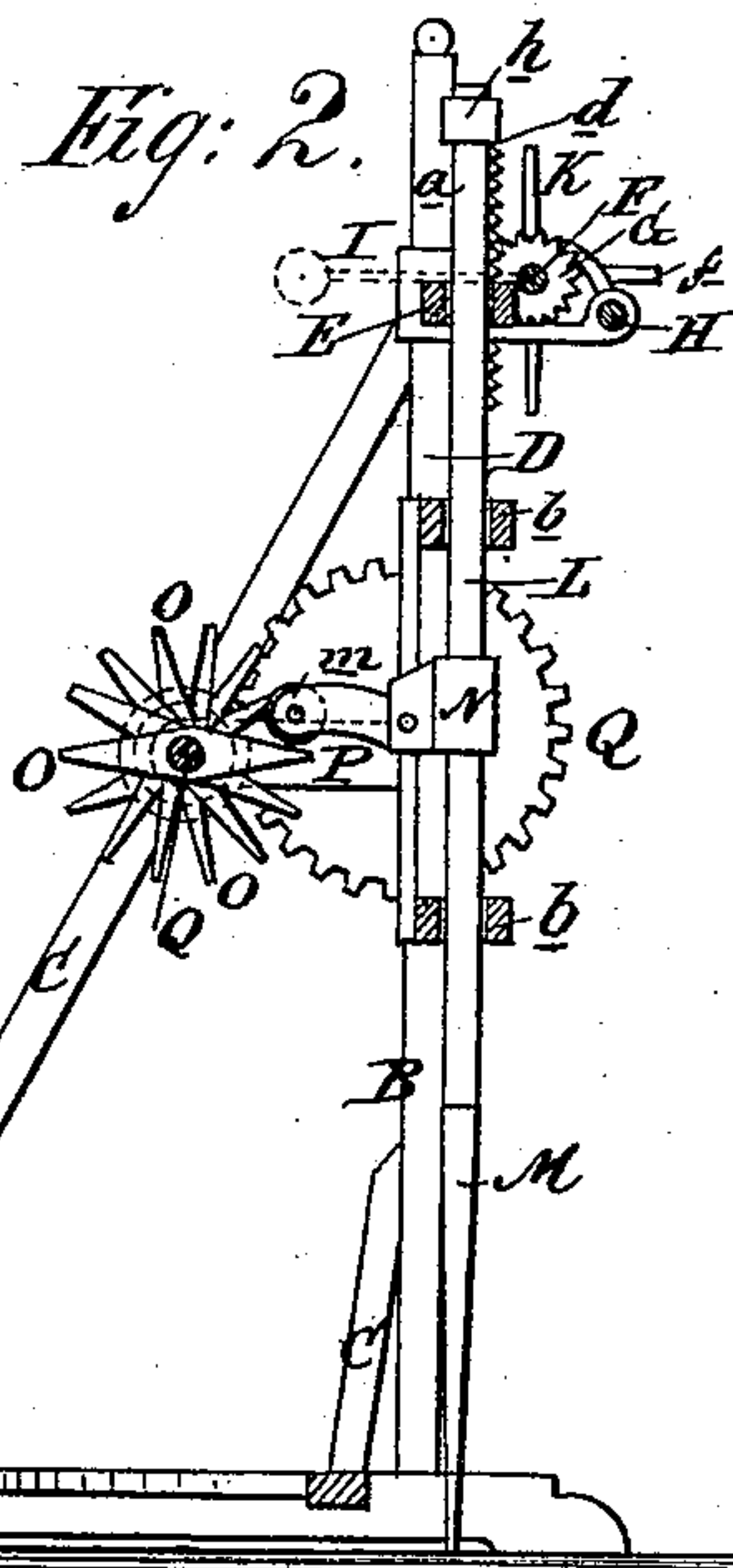


Fig: 4.

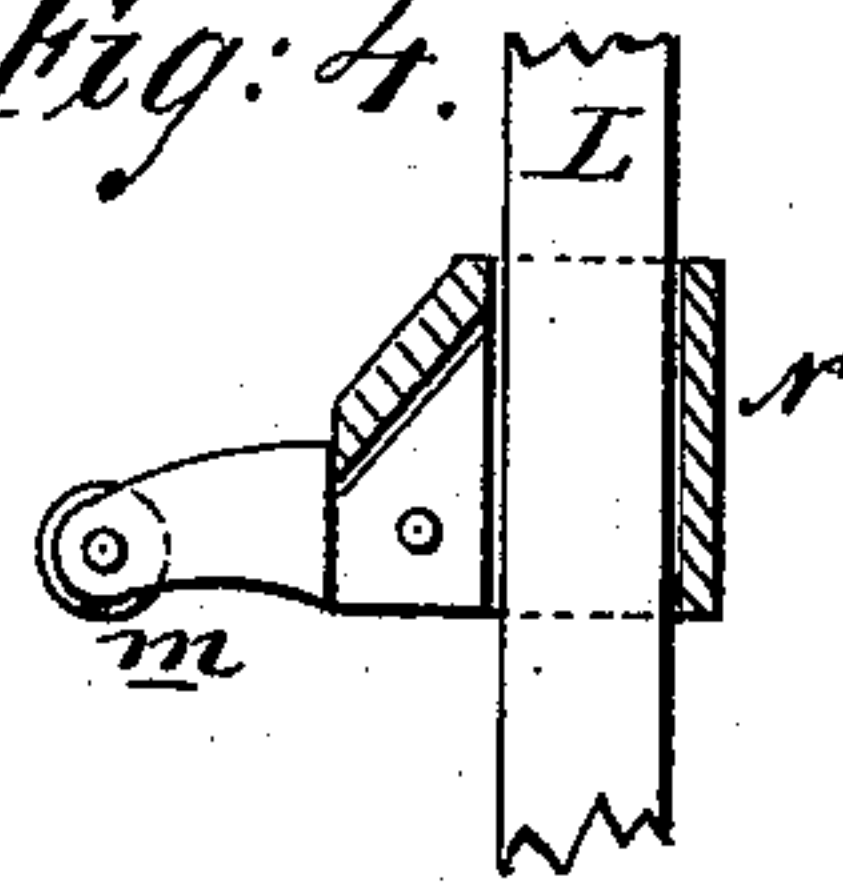
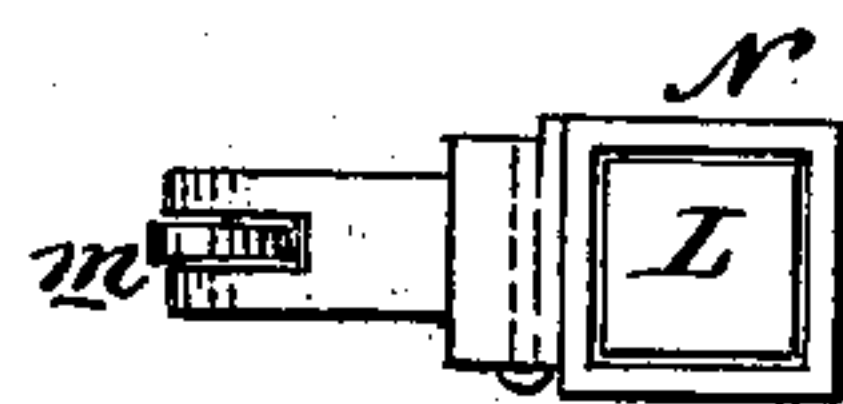


Fig: 5.



WITNESSES:

A. Schuhl.
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INVENTOR:

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UNITED STATES PATENT OFFICE.

GEORGE P. SCHAURER, OF NASHVILLE, TENNESSEE, ASSIGNOR TO HIMSELF AND JOSEPH A. KELLOGG, OF SAME PLACE.

ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 227,062, dated April 27, 1880.

Application filed February 26, 1880.

To all whom it may concern:

Be it known that I, GEORGE P. SCHAURER, of Nashville, in the county of Davidson and State of Tennessee, have invented a new and Improved Rock-Drill, of which the following is a specification.

Figure 1 is a front elevation of the device. Fig. 2 is a sectional side elevation of the same on line *xx*, Fig. 1. Fig. 3 is an enlarged front elevation of a part of the apparatus, showing the device for giving lateral movement to the drills. Fig. 4 is an enlarged sectional side elevation of a tappet attached to a drill-shaft. Fig. 5 is a plan of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide a drill that will cut a perfect channel in the rock and at the same time dress both faces of the said channel.

The invention consists of a combination of wheels and eccentric for moving the drill or drills laterally.

In the drawings, A represents a platform supporting the standards B and braces C, that together support the drill-frame D, which frame D consists of the two vertical side beams, *a a*, and the two horizontal beams *b b*, mortised and tenoned together, as shown, the ends of the beams *b b* being entered into mortises in the standards B and being thereby supported.

E is a horizontal bar placed above the beams *b b* and parallel with them, and having secured to its ends the sleeves *c c*, that are fitted over the upper portions of the beams *a a*. The rearward-projecting lugs of these sleeves *c c* afford bearings to the shaft F, that runs parallel with the bar E, and on said shaft F are fixed (one at either end thereof) the cog-wheels G G, that gear into the racks *d d* on the rear faces of the beams *a a*, so that by revolving the said shaft F the bar E may be raised or lowered, as the case may be. The lugs on the sleeves *c c* also afford bearings for the rod H, which rod H carries two pawls, *f f*, that may be made (one of them) to engage in the teeth of a cog-wheel, G, while the other pawl *f* engages in the ratchet *g*, that is fixed on the shaft F, thereby holding the horizontal bar E in position. A ball and rod, I, fixed at right an-

gles thereto on the end of the rod H, serve, by their weight and leverage, to keep the pawls *f* engaged with their respective cog-wheel and ratchet.

K is a hand-wheel on the end of the rod H, by which said rod H may be turned.

The drill-shafts L L, provided with heads *h h*, pass perpendicularly down through mortises in the bar E and beams *b b*, and carry the drills M M, that are designed to be secured on their ends. Secured on each drill-shaft L L, between the beams *b b*, is a sleeve-tappet, N, in whose forward-projecting arm a roller, *m*, is pivoted, said roller *m* being designed to decrease the friction between the tappets N and cams O when the device is in operation.

Suitable hangers P, secured to the faces of the beams *b b*, support the cam-shaft Q, that carries the cams O. On one end of this cam-shaft Q is a spur-wheel, R, which meshes into a pinion, S, which is keyed on the end of the driving-shaft T, said driving-shaft T having a hand-wheel, T', or other suitable device connected with it to give or transmit power. On the opposite end of the cam-shaft Q is a pinion, U, that meshes into the spur-wheel Q', which is fixed upon and revolves the double eccentric or cam V, that is keyed on the shaft W, which shaft W has one end journaled in a standard, B, and the other supported on a vertical side beam, *a*.

On revolving the driving-shaft T the cam-shaft O is revolved by means of the spur-wheel R and pinion S, causing the cams O in succession to strike the tappets N, and thereby lift the drills M M and their shafts L L, and in turn release them, so that the said drills M M shall fall upon the rock to be drilled, and as the cam-shaft Q revolves the pinion U, engaging in the wheel Q', revolves the double eccentric V, and consequently reciprocates the whole drill-frame D and its drills M M and other attachments laterally back and forth, so that the said drills M M, moving from left to right, and vice versa, shall, when in operation, cut a channel in the rock or stone operated upon.

In a machine of full size fourteen or more drills are ordinarily used together, and the said drills and their shafts are about twelve

feet high and weigh each of them from twenty-five to forty pounds, according to the solidity of the rock being drilled. These drills M have their cutting-edges so fashioned, each with
5 several teeth, *r r*, arranged in a straight line, that they make a smooth cut, and thus dress the channeled faces of the rocks while forming channels in them, so that the blocks thus
10 quarried will require no further dressing on their vertical faces.

I am aware that it is not new to use oblique or straight parallel cutting-edges, or to regulate the stroke by means of rack-bars, pinions, and pawls; but

15 What I do claim is—

1. A rock-drill constructed substantially as

herein shown and described, consisting of frame D, supported on platform A and supporting drills M M, provided with shafts L L and tappets N, adjusting-bar E, with its ad- 20 justing mechanism, cam-shaft Q, with its cams O and its wheel and pinion R U, and eccentric or cam V, as set forth.

2. As a means for giving a reciprocating lateral motion to the drills M M, the cam or 25 eccentric V and spur-wheel Q', in combination with the cam-shaft Q and its pinion U, substantially as herein shown and described.

GEORGE P. SCHAUERER.

Witnesses:

I. B. BROWN,

G. W. GATES.