

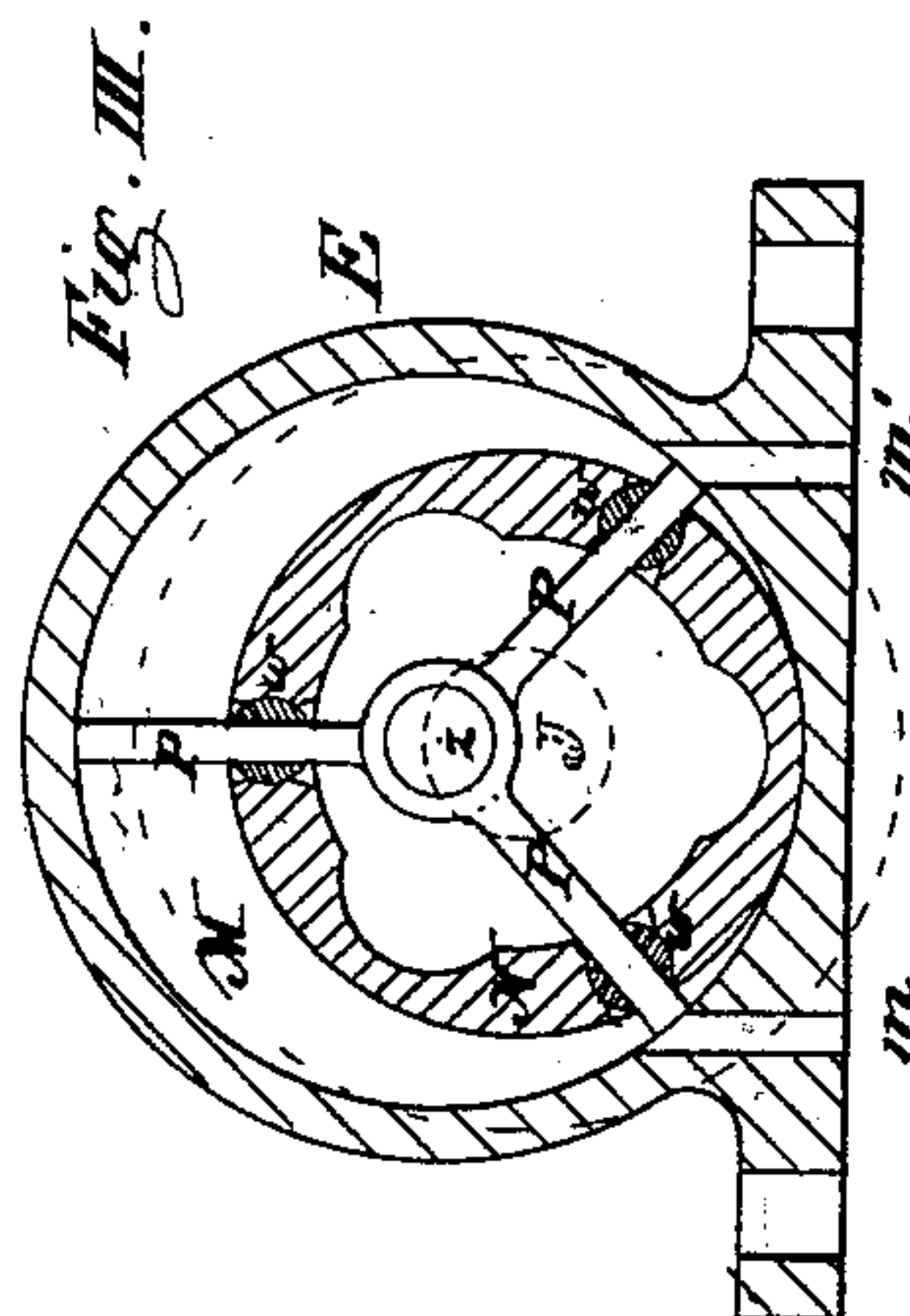
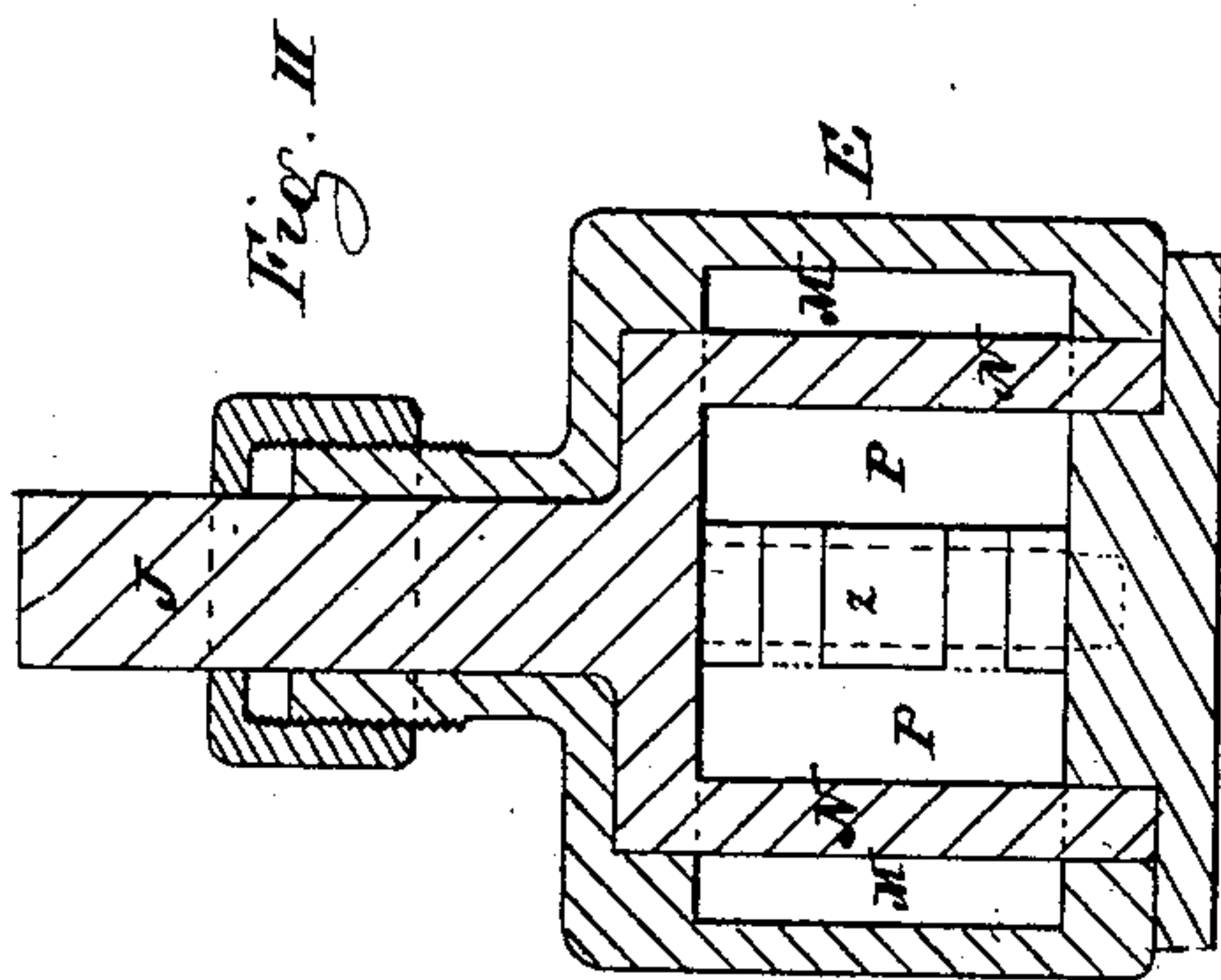
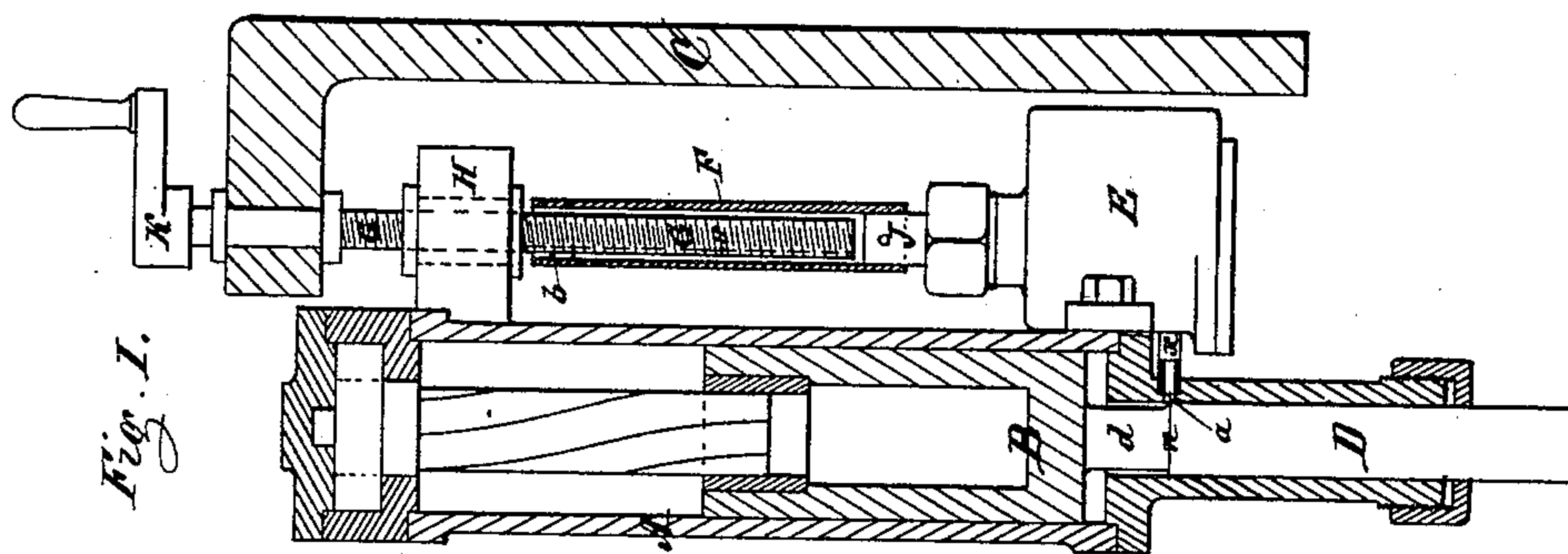
(No Model.)

J. F. ALLEN.

ROCK DRILL.

No. 266,668.

Patented Oct. 31, 1882.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN F. ALLEN, OF BROOKLYN, NEW YORK.

ROCK-DRILL.

SPECIFICATION forming part of Letters Patent No. 266,668, dated October 31, 1882.

Application filed February 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. ALLEN, a citizen of the United States, residing at Brooklyn, Kings county, and State of New York, have
5 invented a new and useful Improvement in Rock-Drills, of which the following is a specification.

The nature of my invention consists in the combination of a rotary engine direct with the
10 feeding-screw of the rock-drill, operated at the required time by the pressure acting upon the piston, for the purpose of turning said feeding-screw when required to move the rock-drill downward.

15 In the accompanying drawings, Figure I represents a rock-drill with my improvement attached. Fig. II is a vertical section, and Fig. III a horizontal section, of a rotary engine adapted for that purpose.

20 Similar letters represent similar parts in all the figures.

A represents a rock-drill; C, the frame, on which the rock-drill is made to move upward or downward; and G, the feeding-screw for
25 moving the rock-drill attached to the frame C, and working in a suitable nut attached to the lug H and the cylinder, arranged and constructed in the usual manner.

E is a rotary engine, attached to the lower
30 end of the rock-drill cylinder A. To the shaft or spindle J of the rotary engine a tube, F, is attached, inclosing the feeding-screw G, and provided with a key or feather, b, at its upper end, working in a corresponding groove or key-
35 way, v, made the whole length in the feeding-screw G. By this connection any motion of the rotary engine will act upon the feeding-screw G direct without any intermediate gearing to turn the same, and thus move the
40 rock-drill in the usual manner. By means of the usual handle, K, the same can be turned by hand in the usual manner. In the lower part of the rock-drill cylinder an opening, a, is provided, connected, through pipe x, with the
45 rotary engine, to admit the pressure from the rock-drill cylinder into the rotary engine to operate the same when required. The upper part of the piston-rod D of the rock-drill is recessed at d, of such proportion and length in
50 relation to the opening a, above mentioned,

that the lower edge, n, of said recess d will uncover this opening a to admit the pressure from the rock-drill cylinder A into the rotary engine E only after the drilling-tool has penetrated the drill-hole the desired depth, and the
55 rock-drill requires to be moved farther downward, while before the drilling-tool has penetrated to that depth the surface of the piston-rod D will cover the opening a, and thus prevent the admission of the pressure into the
60 rotary engine.

It will readily be understood that the rotary engine may be connected with the feeding-screw G by any other mechanical device arranged to turn said screw, and likewise that
65 the rotary engine may be attached to the upper end of the frame C and attached to the upper end of the feeding-screw G. The passage for the admission of the pressure must in that case be connected with the passage a by
70 means of a flexible or expanding pipe, x; but I prefer the arrangement above described.

The rotary engine which I have arranged and intend to apply to the feeding-screw, although I do not claim this construction, as any
75 similar and other rotary engine will answer the purpose, is represented in Figs. II and III, where E is the case of the engine, into which a hollow cylinder, N, is fixed eccentric to form the crescent-shaped chamber M. To the center
80 of the cylinder N the shaft or spindle J is fastened, passing through one end of the case E, and is connected to the feeding-screw G to operate the same, for the purpose described. On a stationary pin, z, concentric with the center
85 of the case E, three disks, P P P, are hinged, fitting tight all around in the cavity M of the case, and passing through the walls of the hollow cylinder N, through circular packing-pieces w. m is the inlet for the pressure, connected
90 through pipe x with the passage a in the rock-drill cylinder A, as above described, and m' is the outlet or escape passage. This outlet-passage m' may be connected with the pipe conducting the pressure to the drilling-
95 cylinder by the arrangement of suitable valves or cocks, and the passage m arranged to be changed in that case for the escape of the pressure, whereby the action of rotary engine
100 will be reversed, and the feeding-screw G op-

erated to move the rock-drill upward by means of this rotary engine, instead of by the hand-wheel K.

What I claim as my invention, and desire to
5 secure by Letters Patent, is—

1. In a rock-drill, the combination of a rotary engine with the feeding-screw, connected without intermediate gearing, substantially in the manner and for the purpose specified.

2. In combination with the feeding-screw G of a rock-drill, a rotary engine, E, in combination with the passage *a* and recess *d*, arranged to operate substantially as described.

JOHN F. ALLEN.

Witnesses:

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