C. C. HANSEN.

ROTATION DEVICE FOR ROCK DRILLS.

APPLICATION FILED JUNE 30, 1908.

Patented Apr. 16, 1912.

1,023,517.

Fig. 1.

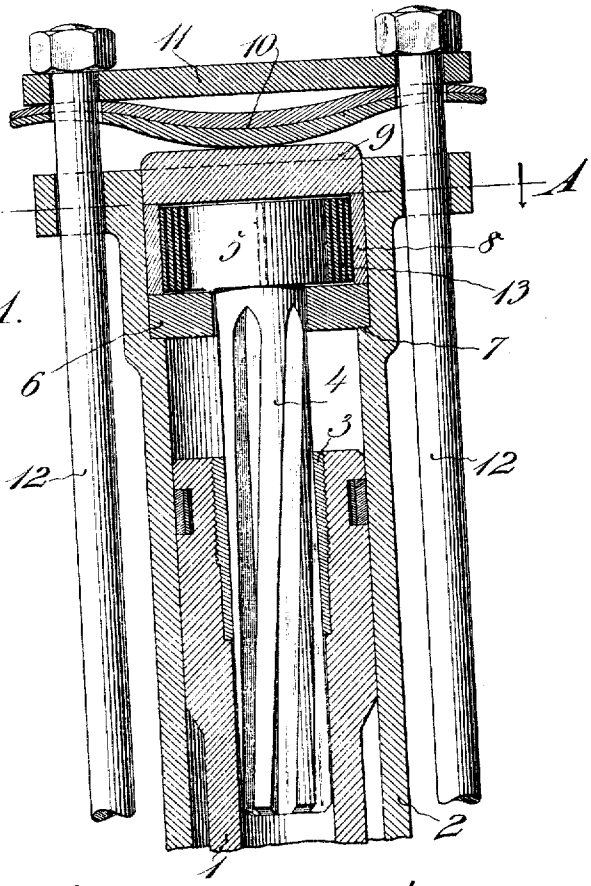


Fig. 2.

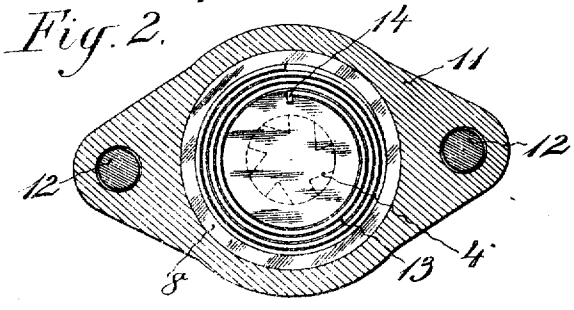
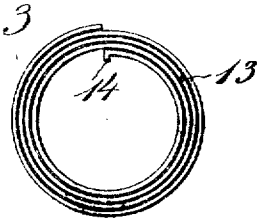


Fig. 3



Witnesses.

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UNITED STATES PATENT OFFICE.

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ROTATION DEVICE FOR ROCK-DRILLS.

1,023,517. Specification of Letters Patent. Patented Apr. 16, 1912.

Application filed June 30, 1908. Serial No. 441,214.

To all whom it may concern:

Be it known that I, CHARLES C. HANSEN, a citizen of the United States, and resident of Easton, in the county of Northampton and State of Pennsylvania, have invented a new and useful Improvement in Rotation Devices for Rock-Drills, of which the following is a specification.

My invention relates to rotation devices for rock drills and has for its object to provide a novel spring rotation device arranged to do away with the use of pawl and ratchet mechanism, said rotation device being arranged to impart an intermittent rotary movement in one direction to the rifle bar of the drill piston.

A practical embodiment of my invention is represented in the accompanying drawings, in which the rotation device is shown in connection with a rock drill having a slip rotation.

Figure 1 is a detail longitudinal central section through so much of a rock drill as will give a clear understanding of the construction, form and arrangement of my improved rotation device, Fig. 2 is a transverse section taken in the plane of the line A—A of Fig. 1, looking in the direction of the arrows, and Fig. 3 is a detail plan view of the spring which forms the essential element of my improved rotation device.

The tool piston 1 is fitted to reciprocate within the cylinder 2, which piston is provided with a nut 3 arranged to engage a rifle bar 4. This rifle bar 4 is provided with a head 5. A washer 6 surrounds the rifle bar 4 and abuts against a shoulder 7 within the cylinder. A slip ring 8 is interposed between the washer 6 and the back head 9, which slip ring surrounds and is spaced from the head 5 of the rifle bar. The washer 6, slip ring 8 and back head 9 are held under pressure by the spring 10, cross bar 11 and through bolts 12. A flat coil spring 13 surrounds the rifle bar head 5 and engages the slip ring 8. The inner end 14 of this spring 13 is locked to the rifle bar head 5.

When force is applied to the rifle bar tending to rotate it in one direction, the spring will expand and clutch the head 5 of the rifle bar to the slip ring 8 against rotary movement. When force is applied to the rifle bar tending to rotate it in the opposite direction, the spring will permit the head of the bar to rotate in said direction. Therefore, as the tool piston 1 is moved in one direction, the piston will not rotate and when moved in the opposite direction it will rotate so that an intermittent rotary movement in one direction is imparted to the tool piston due to its reciprocation, such movement being accomplished without the use of a pawl and ratchet rotation device as has heretofore been necessary.

It is obvious that the slip ring may be eliminated if so desired and the free end of the coil spring in this case caused to abut directly against the wall of the cylinder, the purpose of the slip ring being only to prevent any breakage of the parts owing to undue strain being imparted to the rifle bar when locked to the slip ring against reverse rotary movement.

What I claim is:—

1. A drill comprising a cylinder, its piston and a rotation device therefor including a rifle bar, a coil spring having its coils in the same plane and having its inner end locked at all times to the rifle bar and arranged to clutch the rifle bar to and release it from the cylinder.

2. A drill comprising a cylinder, its piston and a rotation device therefor including a rifle bar, a slip ring and a coil spring having its coils in the same plane, arranged to directly clutch the rifle bar to and release it from the slip ring.

3. A drill comprising a cylinder, its piston, and a rotation device therefor including a rifle bar, a slip ring and a coil spring having its coils in the same plane and having its inner end locked at all times to the rifle bar and arranged to directly clutch the rifle bar to and release it from the slip ring.

4. A drill comprising a cylinder, its piston and a rotation device therefor including a rifle bar, a washer surrounding the rifle bar, a spring pressed back head, a slip ring interposed between the washer and back head and a coiled spring having its coils in the same plane, surrounding the rifle bar head and arranged to directly clutch the rifle bar to and release it from the slip ring.

5. A drill comprising a cylinder, its piston and a rotation device therefor including a rifle bar, a washer surrounding the rifle bar, a spring pressed back head, a slip ring interposed between the washer and back head and a coil spring having its coils in the

same plane, surrounding the rifle bar head having its inner end locked at all times to said head and arranged to directly clutch the rifle bar to and release it from the slip ring.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this twenty fifth day of June 1908.

CHARLES C. HANSEN.

Witnesses:
JOHN MILLER,
CHAS. T. MILLER.