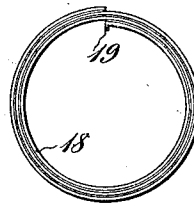
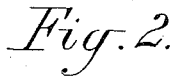


1,023,518.

Fig. 1.



Inventor?
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UNITED STATES PATENT OFFICE.

CHARLES C. HANSEN, OF EASTON, PENNSYLVANIA, ASSIGNOR TO INGERSOLL-RAND COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

ROTATION DEVICE FOR HAMMER-DRILLS.

1,023,518.

Specification of Letters Patent.

Patented Apr. 16, 1912.

Application filed June 30, 1908. Serial No. 441,215.

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 Hammer-Drills, of which the following is a specification.

This invention relates to rotation devices for drills and has for its object to provide a novel spring rotation device arranged to impart an intermittent rotary movement in one direction to the drill steel and hold it against movement in the opposite direction, the said spring rotation device being clutched to and released from the drill steel by the movements of an oscillating member controlled by the movement of the tool piston.

A practical embodiment of my invention is represented in the accompanying drawings, in which the invention is shown in connection with a hammer drill.

Figure 1 represents in longitudinal central section so much of a hammer drill as will give a clear understanding of the construction, location and operation of my improved rotation device, Fig. 2 is a transverse section taken in the plane of the line A—A of Fig. 1, and Fig. 3 is a detail plan view of the coil spring which forms the essential element of my improved rotation device.

The tool piston 1 is fitted to reciprocate in the cylinder 2 and is arranged to strike the anvil block 3. The drill steel 4 is provided with a rotating sleeve 5, the head of which sleeve is denoted by 6. The front head is denoted by 7. An oscillating ring 8 surrounds the head 6 of the rotating sleeve and is spaced therefrom, which ring is provided with abutments 9, 10, engaged by pistons 11, 12, fitted to reciprocate in chambers 13, 14, connected, respectively, to the front and rear ends of the piston chamber 15 through ducts 16, 17. A flat coil spring 18 surrounds the rotating sleeve head 6, the inner end 19 of which spring is locked to said head.

When the oscillating ring 8 is moved in one direction, the expansion of the coil

spring 18 will clutch the ring to the drill steel holding sleeve 5 thus imparting a rotary movement to the drill steel. When the oscillating sleeve is moved in the opposite direction, it will slip upon the spring 18 and thus impart no rotary movement to the drill steel holding sleeve 5. Therefore, it will be seen that the oscillating movements of the ring 8 will impart an intermittent rotary movement in one direction to the drill steel by the clutching and releasing action of the said coil spring 18. It will also be seen that this result is accomplished without the use of a pawl and ratchet rotation device as has heretofore been necessary.

What I claim is:—

1. A rotation device for drills comprising an oscillating member, a drill steel holder and a coil spring having its coils in the same plane, surrounding said holder within the oscillating member and having its inner end locked to said holder and its outer end free, said spring being arranged to clutch the oscillating member to and release it from said holder.

2. A hammer drill comprising a cylinder, its piston, an anvil, a front head, a tool steel, its holding sleeve, an oscillating ring in the front head and a coil spring having its coils in the same plane, surrounding said sleeve within the oscillating ring, said spring being arranged to clutch the oscillating ring to and release it from the said sleeve.

3. A hammer drill comprising a cylinder, its piston, an anvil, a front head, a drill steel, its holding sleeve, an oscillating ring in the front head and a coil spring having its coils in the same plane, surrounding said sleeve within the oscillating ring, said spring having its inner end locked to the sleeve and its outer end free whereby the oscillating ring is clutched to and released from the sleeve by said spring.

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.