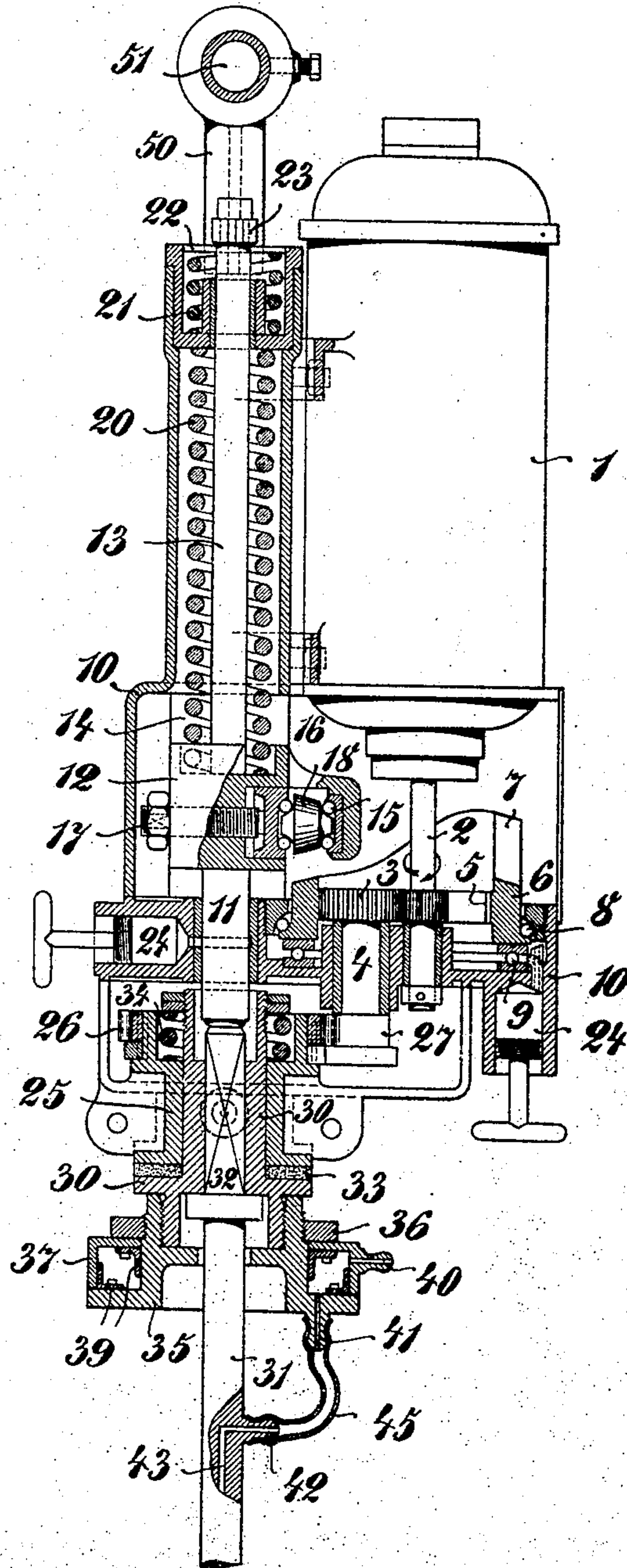


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ROCK DRILLING MACHINE.  
APPLICATION FILED JAN. 28, 1911.

998,910.

Patented July 25, 1911



Witnesses:  
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# UNITED STATES PATENT OFFICE.

PAUL LANGE, OF BRIEG, NEAR BRESLAU, GERMANY.

## ROCK-DRILLING MACHINE.

998,910.

Specification of Letters Patent.

Patented July 25, 1911.

Original application filed February 16, 1909, Serial No. 478,196. Divided and this application filed January 28, 1911. Serial No. 605,275.

*To all whom it may concern:*

Be it known that I, PAUL LANGE, of Brieg, a subject of the King of Prussia, and whose post-office address is Brieg, near Breslau, Prussia, German Empire, have invented new and useful Improvements in or Relating to Rock-Drilling Machines, of which the following is a specification.

My invention relates to improvements in rock-drilling machines and more particularly to a flushing device which permits of supplying the flushing medium such as water or air, to the boring tool without interfering with the independent rotation of this tool, which improvements have been described by me in my application, Serial No. 478,196, filed February 16th, 1909, from which this present application has been divided.

I have illustrated my invention in the accompanying drawing which represents a longitudinal vertical section through a rock drilling machine.

In the casing 1 is arranged a motor which imparts quick rotary motion to the spindle 2. The motor itself can be any desired suitable motor, for instance an electric motor or a compressed air motor. The spindle 2 drives by means of a toothed wheel mounted on an intermediate spindle 4, a cam disk 6 provided with internal teeth 5 and carrying one, two or more cam surfaces 7. The cam disk 6 is mounted at the top and at the bottom in the machine frame 10, by means of ball bearings 8 and 9. In the same machine frame 10 is mounted in a sliding manner the hammer 11 provided with a square block 12 and a guide rod 13. The block 12 is guided in sliding guides 14 and is provided with a roller 18 which is mounted by means of fixed ball bearings 15 and ball bearings 16 which are adjustable by means of screws 17. The roller 18 engages with the cam surfaces 7 of the cam disk 6 during the rotation of the latter and is raised and released by them. A spring 20 presses the hammer 11 downward, and a second spring 21 acts as a buffer spring, elastically supporting the hammer by means of a pin 22 and a ring 23 secured to the hammer rod 13. Lubricating cups 24 are provided for lubricating the movable parts.

Around the hammer 11 is rotatably mounted a sleeve 25 to which is keyed a toothed rim 26. With the latter engages a single

tooth pinion 27 on the intermediate spindle 4. The pinion in question is arranged in such manner relatively to the cam disk 6 that, when the hammer 11 is raised by means of the cam 7 and roller 18, the sleeve 25 is turned to the extent of one tooth of its toothed rim 26, while during the fall of the hammer it remains standing still. In the sleeve 25 is rotatably mounted a holder 30 for the drill or boring chisel 31. The latter is mounted in the holder in a longitudinally adjustable manner by means of a square portion 32. Between the flanges of the sleeve 25 and the holder 30 is inserted a disk 33 of suitable material such as rubber, leather, or the like, and a spring 34 presses the flanges against the disk in such manner that a friction clutch is produced, which prevents any breaking of the gear when the edge of the drill 31 gets jammed. A cap 35 screwed on the sleeve 25, prevents the drill 31 from falling out. A ring 37 of an angle-shaped cross-section is rotatably mounted between the bottom flange of the cap 35 and a lock ring 36, and packing rings 39 close the interior in a tight manner. On the ring 37 is mounted a hose union 40, and a similar hose union 41 is mounted on the flange of the cap 35. Another branch or union 42 is formed on or secured to the drill 31. The drill is provided with a central perforation 43 extending from the branch 42 to its edge, which is not shown. A hose pipe 45 connects the branches 41 and 42 while to the branch 40 is connected the supply pipe for the rinsing medium which may be water under pressure or compressed air. Thus the cap 35 is formed into a rinsing head with a tight joint. The machine frame 10 carries a holder 50, through which can be introduced, a pipe 51 which forms a handle when the machine is to be held by the workman during the drilling, or the machine could be secured by means of the same in well known manner to a suitable frame or the like.

What I claim is:

In a rock drilling machine, the combination with a hammer and an intermittently rotating tool holder adapted to receive the tool and means for causing said hammer to strike against said tool: of an annular chamber at the outer end of said holder adapted to contain flushing water, said chamber being formed by an annular groove in said

holder and by a stationary ring surrounding said groove, the outer end of said holder adapted to rotate within said stationary ring, a hose connection on said stationary ring for supplying flushing water to said chamber, the tool having a central boring adapted to conduct flushing water, and a flexible connection between said annular

chamber and said tool boring communicating with said boring below the point where the tool is attached to the holder.

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Witnesses:

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