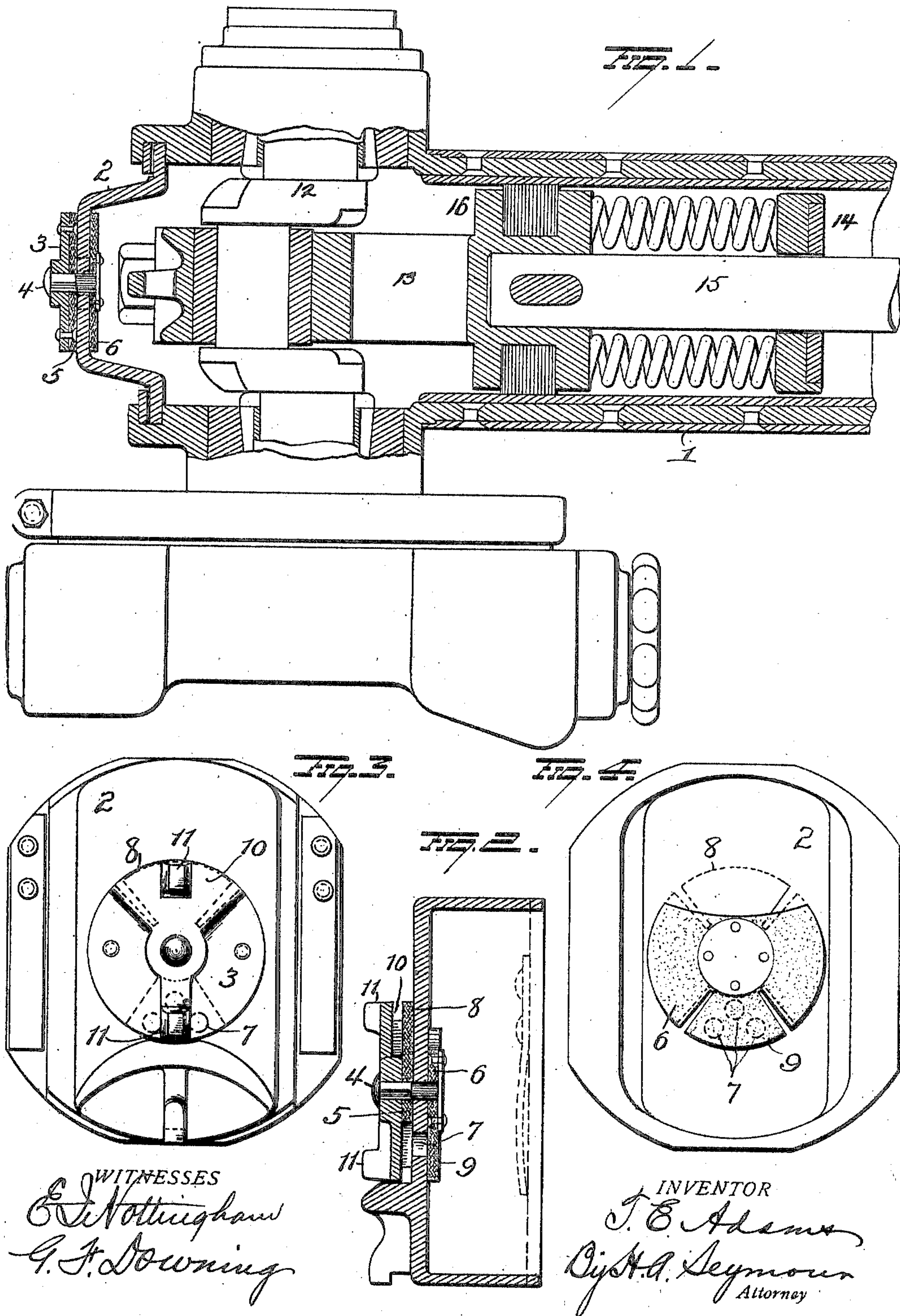


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T. E. ADAMS.
ROCK DRILL.

APPLICATION FILED MAY 27, 1905.



UNITED STATES PATENT OFFICE.

THOMAS EDGAR ADAMS, OF CLEVELAND, OHIO.

ROCK-DRILL.

No. 811,685.

Specification of Letters Patent.

Patented Feb. 6, 1906.

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To all whom it may concern:

Be it known that I, THOMAS EDGAR ADAMS, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Rock-Drills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in rock-drills, and more particularly to improved means for lubricating drills and like devices, the object of the invention being to provide improved mechanism for regulating the direction of a current of air through the drill, which current is induced by the action of the drill itself; and with this and other objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation, partly in section, illustrating my improvements. Fig. 2 is an end view, and Figs. 3 and 4 are views of details of construction.

1 represents the drill-barrel, having a removable section 2 at its rear end, known in the trade as the "back door" of the drill, and to this back door my improved valve is applied, as will be now explained.

A rotary disk 3 is secured by a rivet 4 to the back door 2 and spaced from the door by a leather disk 5, secured to disk 3, and a leather disk 6 is held tightly against the inner face of door 2 and is secured to and turns with the rivet 4 and disks 3 and 5. Door 2 is provided with any number of openings 7, and both of the leather disks 5 and 6 are cut, forming flap-valves 8 and 9, respectively arranged opposite to each other, so that when valve 8 is over the openings 7 the valve 9 will be away from the same and a cut-out portion of the disk 6 be opposite the openings. Disk 5 also has a cut-out portion to give free passage of air through the openings 7 when valve 9 is against the opposite side. The metal disk 3 is made with an offset portion 10 back of valve 8 to permit the valve sufficient movement to properly operate, and finger holds or lugs 11 are provided on the outer face of metal disk 3 to permit the operator to freely turn the same.

A crank-shaft 12 may be mounted in the

rear portion of the drill-barrel and connected by a pitman 13 with a cross-head 14, the latter being adapted to actuate, through yielding connections, a piston-rod 15, carrying a piston 16, operating in the barrel, and the piston-rod actuates the drill-tool. (Not shown.)

While the particular construction of drill is of course immaterial, yet it is to be understood that the reciprocating movement of the drill-rod will (through the medium of piston 16 in the construction shown in the drawings) cause a current of air to pass through the drill from back to front or front to back, according to the position of my improved valves at the rear or back door, and this current of air causes the lubricant to move in the same direction as the air-current to thoroughly lubricate the drill. The construction of the piston 16 is such as to permit fluid to pass it. For instance, when the drill is operating in an upwardly-inclined position the natural tendency of the lubricant is to gravitate rearward and collect at the rear end, leaving the forward upper end dry; but when disk 3 is turned to bring valve 9 over the openings 7 the action of the drill induces an inward suction of air through the openings, and this current will pass up through the drill and discharges at the chuck end of the drill, which current of air causes the lubricant to move upward and forward with it and thoroughly lubricate all parts thereof. When drilling downward, the disk 3 is turned half around to bring outside valve 9 over the openings 7, when the air is drawn into the chuck end of the drill and discharged at the rear end, overcoming the tendency of the lubricant to flow to the chuck end of the drill. By moving the disk 3 either of disks 5 or 6 can be employed to close one or more of the openings 7 if the air-current induced is too strong, and thus secure just the proper current of air to perform the best work or shut off the flow of air entirely.

Other forms of valves might of course be employed, and my improvements might be employed with devices other than drills, and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the character described, the combination with means for inducing an

air-current, of valve mechanism for controlling the direction of said air-current to control the direction of feed of lubricant in the device.

5 2. In a device of the character described, the combination with means for causing an air-current to pass through the device, of valve mechanism constructed to control the direction and volume of the air-current and
10 the direction and volume of lubricant fed through the device.

3. In a device of the character described, the combination of movable parts causing an air-current to pass through the device causing
15 the feed of lubricant therethrough, and valve mechanism at the rear end of the device for regulating the direction of the flow and the quantity thereof.

4. In a drill, the combination of movable
20 parts causing an air-current to pass through the drill-barrel causing the feed of lubricant therethrough to lubricate the part regardless of the inclination of the barrel, and valve mechanism in the rear end of the drill and
25 means for adjusting said valve mechanism to regulate the direction of flow of the air-current according to the position of the drill-barrel.

5. In a drill, the combination with a barrel, and movable parts therein causing an air-current to pass therethrough, of a rotary member on the rear end of the drill-barrel, valves carried by the rotary member, one located inside the barrel and the other outside,
35 and said member constructed to be moved into operative position in front of air-ports in the barrel end to regulate the direction of the flow of air through the barrel to compel the feed of lubricant regardless of the inclination
40 of the barrel.

6. In a drill, the combination with a barrel, and movable parts therein causing an air-

current-therethrough, of a removable back door for the drill-barrel having air-ports therein, a metal disk mounted to turn on the
45 back door, leather disks located on opposite sides of the door, having valves located opposite to each other, and both of said disks secured to turn with the metal disk, said leather disks having cut-out portions opposite to their valves and means on the metal
50 disk to permit the same to be turned to move either of said valves into operative position over the air-ports and govern the flow of air therethrough.

7. In a drill, the combination with a drill-barrel and movable parts therein causing an air-current therethrough, of a removable back door at the rear end of the drill-barrel having air-ports therein, a rotary disk on the
60 back door and check-valves carried by the rotary members at opposite sides of the air-ports and said rotary members constructed to move either of said valves into operative position against the air-ports to control the direction of flow of the air-current and feed of
65 lubricant in the barrel.

8. In a drill, the combination with a drill-barrel and movable parts therein causing an air-current therethrough to distribute lubricant throughout the same, of a removable
70 back door at the rear end of the drill-barrel having air-ports therein, and a rotary reversible valve mechanism on said door adapted to regulate the direction of flow of the air through
75 the air-ports, and also govern the quantity of air passing therethrough.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS EDGAR ADAMS.

Witnesses:

H. L. JENKINS,
F. W. SINRAM.