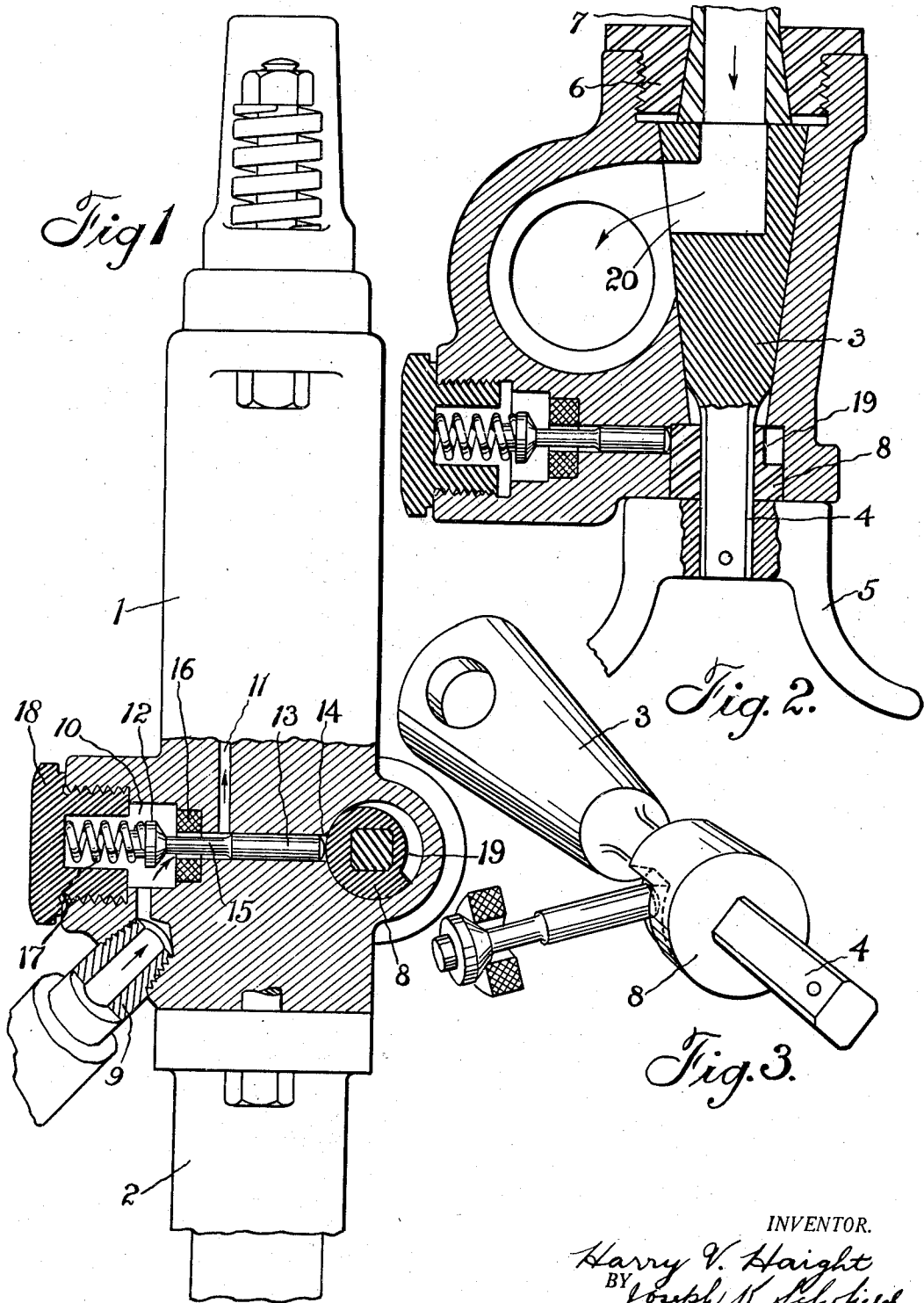


H. V. HAIGHT.
 THROTTLE VALVE FOR PERCUSSIVE TOOLS.
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1,350,407.

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THROTTLE-VALVE FOR PERCUSSIVE TOOLS.

1,350,407.

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To all whom it may concern:

Be it known that I, HARRY V. HAIGHT, a subject of the King of Great Britain, residing at Sherbrooke, in the Province of Quebec, Dominion of Canada, have invented a certain new and useful Improvement in Throttle-Valves for Percussive Tools, of which the following is a specification.

This invention relates to percussive tools and in particular to a construction of throttle valves and means for operating them to admit motive fluid to the tool and also cleansing fluid to the part operated upon.

The objects of the present invention are to provide a simple form of motive fluid throttle valve and convenient means provided thereon to open and close the cleansing fluid valve; to provide a construction whereby rotation or movement of the motive fluid valve to admit motive fluid to the tool will also open the valve to admit cleansing fluid and vice versa. A further object of the invention is to provide a unitary means for operating both valves so that the opening of the cleansing fluid valve will be properly timed in relation to the opening and closing of the motive fluid valve.

With these and other objects in view, my invention consists in the features of construction and operation set forth in the following specification and illustrated in the accompanying drawings, in which

Figure 1 shows a longitudinal view of a percussive tool provided with throttle valves made in accordance with the present invention, parts being shown in section.

Fig. 2, a cross section taken through both throttle valves.

Fig. 3, a perspective view of both throttles.

Referring more particularly to the figures of the drawing, 1 shows the cylinder of a percussive tool provided with the present invention. In the example selected for illustration the tool shown is a rock drill stoper having a feed cylinder 2 directly attached to the cylinder 1. A throttle valve 3 in the form of a tapered plug for the admission of motive fluid is provided of the usual type having a stem 4 extending from one end to which a handle 5 is attached. A plug 6 closes the throttle valve opening in which the throttle valve is located and a fluid supply nipple 7 is provided within the plug 6 through which motive fluid from an outside

source may be supplied to the drill. Mounted on the reduced stem 4 extending from the smaller end of the throttle valve 3 is a cam member 8 for a purpose presently to be described. This member 8 has a squared hole provided through its center so that rotation of the valve 3 serves to rotate the cam member 8 also. The member 8 is preferably as shown in the form of a disk.

At one side of the tool is provided a nipple 9 through which cleansing fluid, which is usually water, may be supplied to the tool. This nipple 9 communicates through a cavity 10 with a passage 11 leading to the front end of the tool or to a water tube provided in the tool extending from the back head to the drill steel chuck. Within the cavity 10 is provided a valve 12 movement of which opens and closes communication between the fluid nipple 9 and the passage 11. The valve 12 which is preferably of the lift or puppet type is provided with an extension 13 reaching from the cavity 10 to the cam 8, the extension sliding within a small hole 14 suitably bored to accommodate it. The valve extension 13 at its end nearest the valve 12 is reduced in diameter as shown at 15 so that with the valve 12 in its open position a free passage is formed surrounding this reduced portion 15 from the cavity 10 to the passage 11. Preferably a valve seat of some soft yieldable material such as rubber, fiber or leather is countersunk within the cavity 10 as shown at 16, and a spring is also preferably provided to press against the valve 12 to force it to its closed position. The spring 17 is retained in position and the cavity 10 is closed by a plug 18 suitably threaded into the cavity 10. The cam 8 which is slidably and rotatively mounted on the throttle valve stem 4 is provided with an eccentric or involute surface 19 extending partway around its circumference and in such a position that the valve extension 13 may come into contact with it. Rotation therefore of the throttle handle 5 will not only open and close communication between the throttle valve 3 and the motive fluid consuming elements of the tool but will also, through the medium of the cam 8 and valve extension 13, open and close the valve 12.

From this construction it will be obvious that the opening and closing of the cleansing fluid supply may be suitably timed in

relation to the motive fluid supply by properly locating the cam surface 19, on the periphery of the cam member 8 in relation to the radial opening 20 provided in the throttle valve 3 for the purpose of supplying motive fluid to the various parts of the tool.

It is to be understood that the present showing and description disclose only one specific embodiment of my invention and that other forms and modifications are included within the spirit and scope of the same, as expressed in the appended claim.

What I claim is:

15 A combined throttle and water valve for controlling the distribution of water and motive fluid, both under pressure, to two separate points, comprising a casing having a tapered aperture and a motive fluid port
20 communicating therewith, a tapered valve

plug in said aperture having a central passage and a communicating radial opening adapted to cooperate with the said motive fluid port in the casing for controlling motive fluid under pressure, said valve plug 25 having a reduced stem extending from the smaller end, a disk removably mounted on said reduced stem and having a cam surface, a water port in the casing having a valve seat of yieldable material, a puppet valve 30 seating on said yieldable seat for controlling said water port in the casing, and having an extension adapted to engage the cam surface of the disk, so that rotation of the tapered plug valve and cam disk will open and close 35 the water valve.

In testimony whereof, I have hereunto set my hand.

HARRY V. HAIGHT.