G. L. ROBERTSON.

PNEUMATIC HAMMER.

APPLICATION FILED APR. 9, 1913.

1,068,605. Patented July 29, 1913.

FIG. 1.

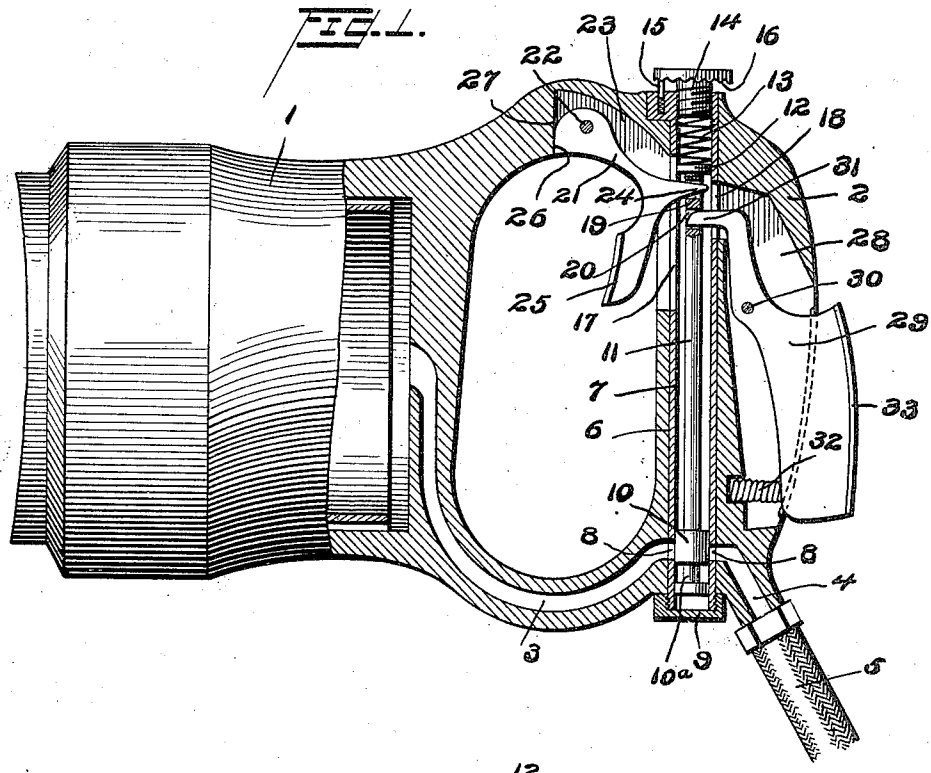
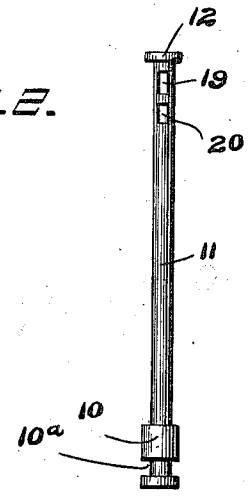


FIG. 2.



Witnesses

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PNEUMATIC HAMMER.

1,068,605. Specification of Letters Patent. Patented July 29, 1913.

Application filed April 9, 1913. Serial No. 759,850.

To all whom it may concern:

Be it known that I, GEORGE LAWSON ROBERTSON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Pneumatic Hammers, of which the following is a specification.

My invention relates to improvements in pneumatic hammers, the object of the invention being to provide improved means controlling the inlet of pressure fluid to the hammer, so that accidental opening of the throttle valve is prevented.

A further object is to provide an improved construction of throttle valve with improved means for operating the same, which can only be moved when a locking device has been previously operated to release the throttle valve.

A further object is to provide in the handle of a pneumatic hammer, a throttle valve which is locked against movement by means of a lever movable by the hand in gripping the handle, and which throttle valve is moved to open position by a second lever operated by the fingers of the hand as the latter grip the handle.

A further object is to provide improvements of this character which may be utilized in connection with any ordinary hammer without adding materially to the cost of the hammer.

With these 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 fragmentary view in longitudinal section illustrating my improvements, and Fig. 2 is a view in elevation of the throttle valve removed.

1 represents a pneumatic hammer having a handle 2 in which a passage 3 is provided for the pressure fluid. The inlet end 4 of this passage 3 is connected by a flexible pipe 5 with the source of fluid supply. Handle 2 is provided with an opening or bore 6 which intersects passage 3, and in this opening or bore 6, a tube 7 is located and is provided with openings 8 in opposite sides communicating with the passage 3, so that the fluid has a flow transversely through the tube. One end of this tube 7 extends beyond the handle and is externally screw-threaded for the reception of a cap 9 effectually closing the tube. A throttle valve 10 snugly fits within the tube 7, and has an annular groove 10^a which when moved to register with the openings 8, permits a flow of fluid through the passage 3. This valve 10 is in the form of a piston, and when closed, cuts off the openings 8. The valve 10 is preferably integral with an elongated stem 11 having a head 12 on its end against which a coiled spring 13 bears. The tension of this coiled spring 13 is regulated by a set screw 14 screwed into the end of tube 7, and held against accidental rotary movement by a spring-pressed pin 15 bearing against the serrated under face 16 of the head of said screw. The tube 7, in opposite sides, is provided with longitudinal slots 17 and 18, and in line with these slots, the stem 11 is provided with openings 19 and 20 respectively. A valve operating lever 21 is pivotally supported on a pin 22 extending across a recess 23 in the handle. This lever 21 has a finger 24 which projects through the slot 17 and into the opening 19, and the free end of said lever 21 is formed with a transversely enlarged finger hold 25 which when moved rearwardly, exerts a longitudinal pull on the stem 11 and valve 10 to move the valve to open position as will be readily understood.

Spring 13 holds the valve in normal closed position and a shoulder 26 on lever 21 engages a shoulder 27 at the end of recess 23 to limit the pivotal movement of the lever 21.

In a recess 28 in handle 2, a locking lever 29 is located and is pivotally supported between its ends on a pin 30. At one end of this lever 29, a finger 31 is provided which projects through slot 18 into the opening 20 and securely holds the stem 11 and valve 10 against longitudinal movement. A coiled spring 32 in the recess 28 exerts a constant pressure on the lever 29 to hold the same in locked position, and said lever at its outer edge is enlarged transversely as shown at 33 to fit the palm of the hand, so that a pressure against the same will swing the lever on its pivot 30 and draw the finger 31 out of the opening 20. In operation, therefore, it

is necessary to first draw the finger 31 out of the opening 20 before the valve 10 can be moved, hence a pressure of the palm of the hand against lever 33 must first be effected before lever 21 is operated by the fingers, to move the valve 10. The finger 31 therefore operates to prevent accidental movement of the throttle valve, and only through design can the valve be opened because it is first necessary to operate the lever 29 by pressure of the hand, and then operate the lever 21 by pressure of the fingers to move the valve.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. In a pneumatic hammer, the combination with a handle having a fluid passage therethrough, of a throttle valve, a stem on the throttle valve, a spring bearing against the end of the stem and normally holding the valve in closed position, a locking lever pivoted between its ends and having one end engaging the stem normally holding the latter against movement, said last-mentioned lever projecting rearwardly beyond the surface of the handle, the other of said levers pivoted at one end and having a finger grip at its free end, said last-mentioned lever between its ends engaging the said rod, substantially as described.

2. In a pneumatic hammer, the combination with a handle having a fluid passage therethrough, a piston throttle valve controlling the flow of fluid through said passage, a stem on said valve having two openings therein, a locking lever pivotally supported between its ends in a recess in the handle, a finger on said lever normally projected into one of the said openings, a valve operating lever pivotally supported in the handle, and a finger on said last-mentioned lever projected into the other of said openings, substantially as described.

3. In a pneumatic hammer, the combination with a handle having a fluid passage therethrough, of a tube secured in the handle and having openings at opposite sides registering with the fluid passage, a cap screwed onto one projecting end of said tube, a grooved throttle valve in said tube, a stem on the valve located in the tube and having two openings therein, a screw plug screwed into the end of said tube, a spring in said tube between the said plug and the stem normally holding the valve in closed position, a locking lever engaging in one of said openings in the stem, and a valve moving lever engaging in the other opening of the stem, substantially as described.

4. In a pneumatic hammer, the combination with a handle having a fluid passage therethrough, of a tube secured in the handle and having openings at opposite sides registering with the fluid passage, a cap screwed onto one projecting end of said tube, a grooved throttle valve in said tube, a stem on the valve located in the tube and having two openings therein, a screw plug screwed into the end of said tube, a spring in said tube between the said plug and the stem normally holding the valve in closed position, a spring-pressed locking lever in the rear portion of the handle, a finger on said locking lever projecting through a slot in the tube and into one of said openings in the stem, a valve operating lever pivotally secured in a recess in the forward portion of the handle, a finger on said valve operating lever projected through a slot in the tube and into the other of said openings in the stem, and transversely enlarged outer portions on both of said levers, substantially as described.

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

GEORGE L. ROBERTSON.

Witnesses:

CHAS. MITCHELL,

CHAS. E. POTTS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."