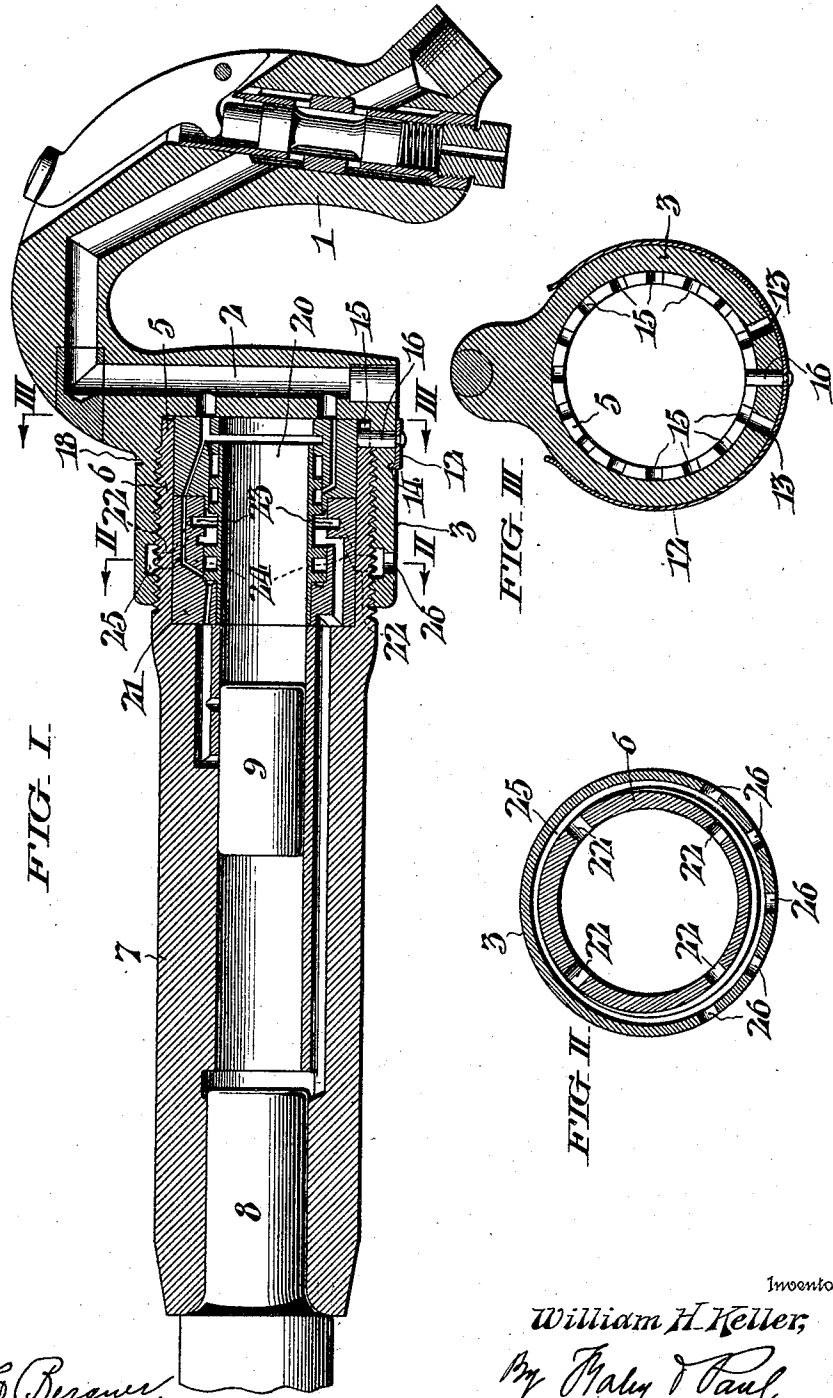


W. H. KELLER.
 PNEUMATIC TOOL.
 APPLICATION FILED JULY 8, 1918.

1,420,318.

Patented June 20, 1922.



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WILLIAM H. KELLER, OF GRAND HAVEN, MICHIGAN.

PNEUMATIC TOOL.

1,420,318.

Specification of Letters Patent. Patented June 20, 1922.

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To all whom it may concern:

Be it known that I, WILLIAM H. KELLER, a citizen of the United States, residing in the city of Grand Haven, in the county of Ottawa and State of Michigan, have invented certain new and useful Improvements in Pneumatic Tools, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to that class of pneumatic tools in which the actuating medium is introduced through the handle of the tool itself, and the features of improvement relate more particularly to the means whereby the casing, or body, of the tool is secured to the handle portion, and also to the construction and arrangement of the exhaust ports, whose ultimate outlet is situated in the region adjacent to the handle.

In the accompanying drawings, Fig. I, represents an axial or longitudinal section through a pneumatic hammer embodying my invention.

Figs. II, and III, represent transverse sections thereof on the respective planes indicated by the lines, II—II, and III—III.

As the general construction of tools of this character, is well understood, I will omit any detailed description of the ordinary features; beyond the statement that the handle 1, is provided with an inlet duct 2, for the supply of actuating medium, said duct being valve-controlled in the usual way.

The forward end portion of the handle is provided with an elongated annular extension 3, in effect a hollow cylinder, whose internal surface is threaded so as to receive and engage with the correspondingly threaded rear portion 6 of the casing 7; said rear portion of the casing 7 being preferably provided with an unthreaded extension 5, at its rear extremity. The piston 9, is shown in an intermediate position within the casing and the shank 8, of a tool is indicated at the front end of the casing.

Referring now to the means of securing the casing within its cylindrical seat 3, upon the handle, the features of improvement will be noted more particularly by reference to Fig. III.

In the unthreaded rear extremity 5, of the casing are formed a plurality of radial slots 15, arranged at symmetrical intervals throughout the periphery, and in this instance sixteen in number. The slots are open at their rear ends, the elongated sides

being parallel and merging into semi-circles of similar diameter at the front ends. In that portion of the casing-seat which immediately surrounds the extremity 5, of the casing, I form circular radial holes 13, corresponding in diameter to the slots 15, but arranged at different circumferential intervals, in this instance three of such holes being provided.

I provide a pin 16, of sufficient length to extend through the holes 13, in the casing-seat and into the slots 15, in the extremity of the casing, said pin fitting snugly in said holes and slots, so that when it is inserted in position there can be substantially no rotative play of one part in relation to the other.

A spring clip 12, is mounted upon the external surface of the casing-seat, so as to embrace about three-quarters of the circumference thereof; said clip being provided with an inwardly projecting flange 14, along one edge, which flange engages in an annular groove 18, formed around the external surface of the casing-seat, and thus prevents accidental displacement of the spring clip, whilst permitting rotative adjustment thereof. This spring clip is adapted to hold the pin 16, against accidental displacement and the pin may conveniently be attached to the interior surface of the spring clip 15, preferably at its longitudinal center, as shown. In order to secure the casing in any given position, it is screwed into the seat until the slots 15, are brought into the general range of the holes 13.

By reason of the relatively large number of slots 15, and the lack of correspondence in their respective circumferential intervals with relation to the intervals between the holes 13, some one of the slots 15, will readily be found to register with one of the holes 13, when the casing is screwed home. The pin 16, can be inserted at the point of such registration, and will be held there, by means of the spring clip, against accidental displacement.

Referring now to the features connected with the exhaust, it is not necessary to describe the details of the valve 20, and valve chamber 21, beyond stating that the exhaust port 23 communicates by means of inclined passages 24, shown in dotted lines in Fig. I, with a plurality of ports 22, which extend radially and preferably in quadrant relation through the rear end portion 6, of the casing.

An annular channel or exhaust passage groove 25, is formed in the casing-seat 3, into which channel said ports 22, lead. The inner wall or boundary of this passage groove 25 is formed, it will be seen, by the threaded exterior of the casing 7.

Outlet ports 26, in this instance 5 in number, are formed through the wall of the casing-seat 3, being comprised within an arc of the circumference thereof, which lies well on the under side of the tool as it is ordinarily held in position by means of the handle 1, so that the ultimate discharge of the exhaust is dispersed through a plurality of openings, and is directed away from the hand, or person, of the operator, under normal conditions of use.

Having thus described my invention, I claim:

1. In a pneumatic tool, the combination of a handle provided with a forwardly projecting extended annular casing-seat, having an internal thread, said seat being provided, at the region adjacent to the handle with a plurality of radial holes; a casing having its rear extremity externally threaded in correspondence with the thread upon the casing-seat, and having, at its inner extremity, a relatively large plurality of slots corresponding substantially in transverse diameter with the holes of the casing-seat, but arranged at angular intervals which differ from those of the latter; a pin adapted to be inserted endwise and extend through any one of said holes and into the slots of the casing; and means embracing said casing seat for retaining said pin in inserted position in any one of said holes.

2. In a pneumatic tool, the combination of a handle provided with a forwardly projecting extended annular casing-seat, having an internal thread, said seat being provided, at the region adjacent to the handle with a plurality of radial holes; a casing having its rear extremity externally threaded in

correspondence with the thread upon the casing-seat, and having, at its inner extremity, a relatively large plurality of slots corresponding substantially in transverse diameter with the holes of the casing-seat, but arranged at angular intervals which differ from those of the latter; a pin adapted to be inserted endwise and extend through any one of said holes and into the slots of the casing; and a spring clip fitting upon the external surface of the casing-seat, adapted to retain said pin in operative position in any one of said holes and so engaged with said casing-seat as to be kept from movement thereon in an axial direction.

3. In a pneumatic tool, the combination of a handle provided with a forwardly projecting extended annular casing-seat, having an internal thread, said seat being provided, at the region adjacent to the handle with a plurality of radial holes; a casing having its rear extremity externally threaded in correspondence with the thread upon the casing-seat, and having, at its inner extremity, a relatively large plurality of slots corresponding substantially in transverse diameter with the holes of the casing seat, but arranged at angular intervals which differ from those of the latter; a spring clip rotatively mounted upon the external surface of the casing-seat at the region surrounding the holes therein, and provided with means for preventing movement in an axial direction upon said seat; and a pin rigidly attached to the said clip, said pin being adapted to be inserted endwise and to extend through any one of said holes and into the slots of the casing.

In testimony whereof, I have hereunto signed my name at Grand Haven, Mich., this 2nd day of July, 1918.

WILLIAM H. KELLER.

Witnesses:

L. HERRMANN,
ELWOOD SAMPSON.