F. J. BROWN.

PERCUSSIVE HAMMER.

APPLICATION FILED APR. 22, 1913.

1,074,044. Patented Sept. 23, 1913.

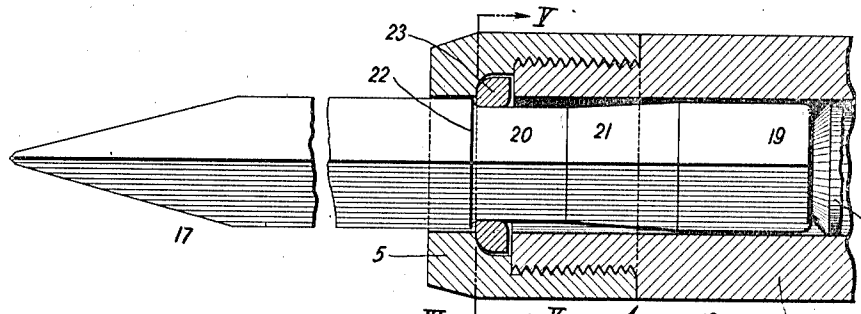



FIG. 3

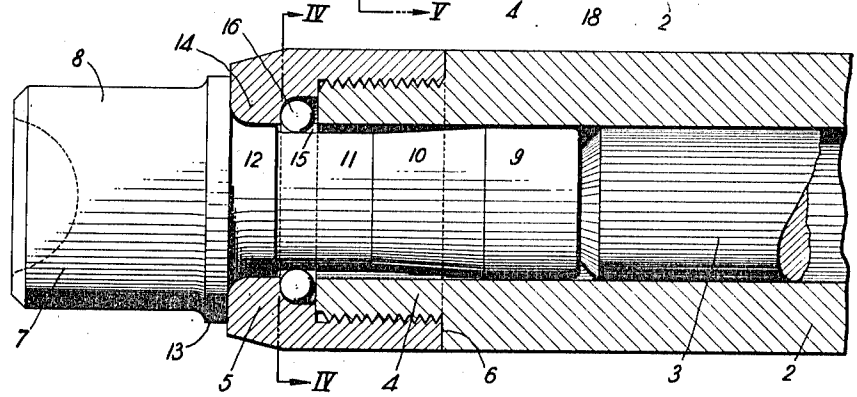



FIG. 2

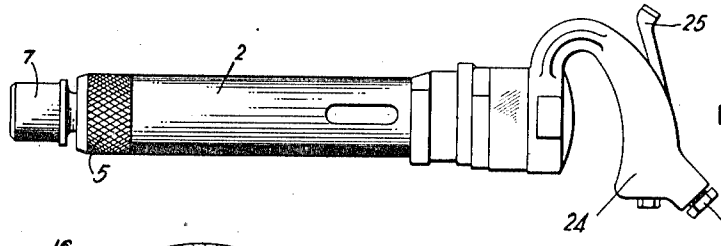



FIG. 1

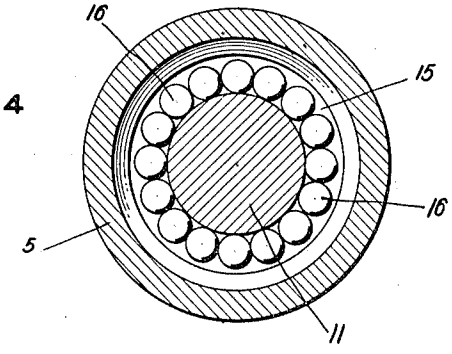



FIG. 4

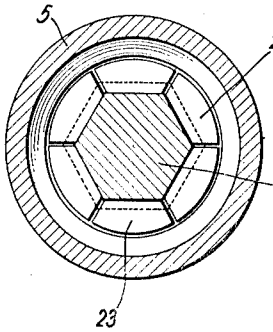



FIG. 5

WITNESSES

Chas. Fosterman

R. D. Little

INVENTOR

Frank J. Brown

by Lothrop, Bell & Fuller

his Attorneys

# UNITED STATES PATENT OFFICE.

FRANK J. BROWN, OF SCOTTDALE, PENNSYLVANIA.

## PERCUSSIVE HAMMER.

1,074,044. Specification of Letters Patent. Patented Sept. 23, 1913.

Application filed April 22, 1913. Serial No. 762,834.

*To all whom it may concern:*

Be it known that I, FRANK J. BROWN, a citizen of the United States, residing at Scottdale, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Percussive Hammers, of which the following is a specification.

My invention relates to the construction of percussive hammers, and more particularly relates to the construction and arrangement of novel means whereby the tools detachably mounted on the end of the hammer body are secured and held against accidental removal thereof from the hammer body when the hammers are in use.

With such percussive hammers as constructed heretofore the tool mounted therein is loosely held so as to reciprocate in the tool socket of the hammer body, and should the workmen become careless in using such hammers and the tool is not held in engagement with or closely adjacent to the object being operated upon by the tool, the drill, chisel, rivet snap or other tool being used has been projected for some distance and with considerable force out of the tool socket, and the flying tool is liable to strike and injure anyone in its path. Of the various means proposed heretofore to prevent such occurrence none has been entirely satisfactory and projecting portions of such mechanisms have been found to take up room and hamper the workmen in operating the hammers, especially in close quarters.

One object of my invention is to provide a percussive hammer having novel means whereby the detachable tools used with such hammers are fastened and held in position on the hammer.

Another object of my invention is to provide a percussive hammer having a simple and compact tool retainer in which the use of projecting parts is avoided and overcome.

Still further objects of the invention will become apparent as the invention is more fully disclosed hereinafter.

Referring to the accompanying drawings forming part of this specification, Figure 1 is a plan showing a percussive hammer constructed and arranged in accordance with my invention. Fig. 2 is a sectional detail, on an enlarged scale, showing the improved means whereby the tools are secured in position on the hammer in accordance with my invention. Fig. 3 is a similar detail section showing a modification in the construction of a hammer embodying my invention. Fig. 4 is a transverse section, on the line IV—IV of Fig. 2, showing my improved tool retaining device as constructed and operatively mounted on the end of the hammer body in accordance with my invention. Fig. 5 is a transverse section similar to Fig. 4, taken on the line V—V of Fig. 3.

In the accompanying drawings the numeral 2 designates a hollow hammer body having a piston 3 operatively mounted therein and arranged to be actuated by means of compressed air or other suitable power means. The end of the drill body 2 has a reduced portion 4 which is screw-threaded, and secured on the reduced portion 4 of the body 2 is an internally-threaded collar 5 having an end 6 arranged to engage the shoulder formed at the junction of the reduced portion with the body 2.

Mounted in the socket or hollow end of the hammer body 2 is the shank 7 of a removable tool 8, which, in Figs. 1 and 2, is shown as a rivet snap. The tool shank 7 has a cylindrical portion 9 and a taper portion 10 which connects the cylindrical portion 9 with a smaller cylindrical portion 11 which is joined to a larger cylindrical portion 12, integrally connected to the flange 13 on the tool 8. The collar 5 is provided at one end with an inwardly extending flange 14 which coacts with the end of the reduced portion 4 to form a recess 15 in which the tool securing device is secured, as shown in Figs. 2 and 4 this device comprising a ball or series of balls 16.

In the modified construction shown in Fig. 3 the fool body 2 is provided with a piston 3 and, at its outer end, with a reduced portion 4 on which a collar 5 is secured in the same manner as has been described. In this construction, however, the detachable tool 17, which is shown as a drill, is of polygonal cross section, and is mounted in the hammer socket. The drill 17 has a polygonal shank 18 which is formed of portions 19 and 20 of polygonal cross section joined by an intermediate tapering portion 21 also of polygonal cross section, the reduced portion 20 being joined to and forming a shoulder 22 at the end of the drill 17. In this construction, as will be seen by Figs. 3 and 5, a series of segments 23 are shown which are po-

sitioned in the recess formed by the collar 5 and the end of the hammer body and are constructed so as to engage with the sides of the shank 18.

The hammer is provided with the usual handle 24 and operating lever 25 and with a connection 26 by which the hammer is connected, through a hose or other flexible tubular connection, with an air pump or other source of fluid pressure.

In the operation of my improved hammer the tool is engaged by the end of the reciprocating piston 3 within the hammer body 2, when the piston is actuated by compressed air or other impelling force. When the piston 3 strikes the end of the tool shank the tool is caused to move lengthwise in the hammer socket. The forcible ejection of the tool, however, is prevented by the engagement of the ball or balls 16 of the equivalent segmental members 23 used with tools having sockets of polygonal cross section, so that by engagement with the tapering portions 10 or 21 of these sockets, removal of the tool therefrom by the impact of the piston 3 is prevented. In removing a tool from the hammer body, the collar 5 is unscrewed for a sufficient distance between the shoulder at the end of the reduced portion of the hammer body 2 and the opposite inwardly extending flange 6 on the interior of the collar 5 so as to form a gap or recess therebetween which will permit the balls 16 or segments 23 to be retracted by engagement with the shank of the tool being removed. A new tool is then inserted in place and the collar 5 is screwed upon the hammer body 2 until the parts are in the relative position shown in the drawing.

The advantages of my invention will be apparent to those skilled in the art.

The apparatus is simple and is easily and quickly repaired and maintained in operative condition.

Modifications in the construction and arrangement of the parts may be made without departing from my invention as defined in the claims.

I claim:

1. In a percussive hammer, a hollow hammer body having a reciprocating piston, a tool socket in the end of the hammer body, a tool having a taper shank positioned within the socket, a removable member engaging with the taper shank of the tool, to hold while permitting lengthwise movement of the tool in the tool socket, and a collar detachably secured on the hammer body and having a counterbore forming a recess to receive the tool retaining member.

2. In a percussive hammer, a hollow hammer body having a reciprocating piston, a tool socket in the end of the hammer body, a tool having a taper shank positioned within the socket to be engaged by said piston, a removable member engaging with the taper shank of the tool, to hold while permitting lengthwise movement of the tool in the tool socket, and a collar screw threaded on the hammer body and having a counterbore forming a recess to receive the tool retaining member.

In testimony whereof, I have hereunto set my hand.

FRANK J. BROWN.

Witnesses:
J. T. KEITHLEY,
W. S. WILEY.