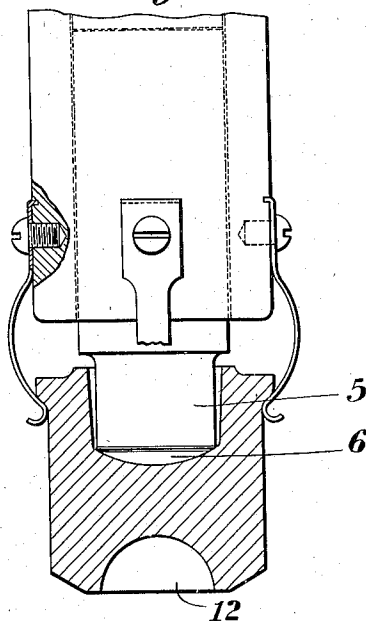


A. J. McQUAIDE.  
 BUTTON SET FOR PNEUMATIC HAMMERS.  
 APPLICATION FILED NOV. 27, 1908.

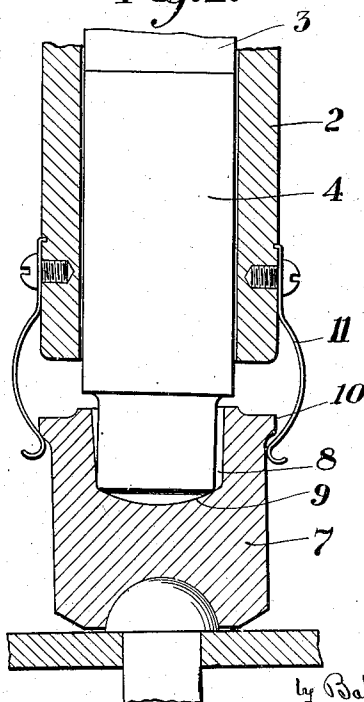
919,924.

Patented Apr. 27, 1909.

*Fig. 1.*



*Fig. 2.*



WITNESSES

*R. A. Balderson*  
*G. L. Winters*

INVENTOR

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# UNITED STATES PATENT OFFICE.

ARTHUR J. McQUAIDE, OF CANTON, OHIO.

## BUTTON-SET FOR PNEUMATIC HAMMERS.

No. 919,924.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed November 27, 1908. Serial No. 464,727.

*To all whom it may concern:*

Be it known that I, ARTHUR J. McQUAIDE, of Canton, Stark county, Ohio, have invented a new and useful Button-Set for Pneumatic Hammers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the lower portion of a pneumatic hammer, showing one embodiment of my improved button set partially in section; attached thereto; Fig. 2 is a similar view showing the end of the pneumatic hammer in section and slightly inclined.

My invention has relation to a two piece button set, and is designed to provide a simple, cheap, durable and efficient set, which can be properly tempered to meet the requirements of a tool of this character.

The precise nature of my invention will be best understood by reference to the accompanying drawings, which will now be described, it being premised, however, that changes may be made in the details of construction, and general form, without departing from my invention as described in the specification, and illustrated in the drawings.

In the drawings, the numeral 2 designates the lower portion of the cylinder of a pneumatic or any fluid actuated hammer, 3 is the end of the piston or an intermediate striking piece interposed between the piston and the tool to be struck. Inserted into the end of the cylinder 2 and capable of movement therein is a stem 4 the lower end of which is reduced in diameter as shown at 5 and is provided with the convex end 6, this stem forming one portion of my improved button set the other portion being formed by the member 7 having an orifice 8 with a concaved bottom 9 of substantially the same radius as the radius of the convex end of the stem 4. As will be seen by reference to the drawings the diameter of the orifice 8 is greater than the diameter of the end 5 of the stem 4 in order to incline the hammer and the stem 4 and still retain the proper contact between the members 4 and 7. The member 7 is also provided with an annular boss or shoulder 10 at the upper end thereof, and secured to the walls of the cylinder 2 by means of screws are the leaf springs 11 the lower ends of which project beyond and engage the shoulder 10 on the member 7, to prevent the said members 4 and 7 from dropping

from the hammer when raised from the work. The lower end of the member 7 is provided with a concavity 12 of the proper size and shape to form the rivet head.

The advantages of my invention result from a two piece button set or tool, in which each member can be tempered to meet the requirements of the work to which it is subjected. In the one piece button set the shank and the riveting end must be tempered to the proper degree of hardness to meet the requirements for riveting, which temper is too hard for the shank or striking end of the tool which would spall under the continuous blows of the hammer. This is overcome by first tempering the tool to the required hardness and then drawing the temper from the shank which is very unsatisfactory as it requires great skill to sufficiently reduce the hardness of the shank without drawing the temper from the working end of the tool. Another objection to the one piece set is the danger of cracking at the junction of the shank and the head of the tool which is caused by the unequal strain set up by the unequal bodies of metal when plunged into the cooling bath. Also the cost of the tool, if made of a high grade of steel due to the amount of material required for each tool. With my two piece set all of these objections are overcome by making the shank of a lower grade of steel and tempering it to meet its requirements and making the head of a high grade of steel and giving it its required temper. The difference in the diameter of the end of the shank and the opening in the head insures a proper contact between the end of the shank and the button set, and it also allows a canting of the hammer and shank with relation to the set without destroying their contact. The retaining springs in combination with the looseness between the shank and the head provide a means for readily applying a new button set to the hammer, and it also materially reduces the cost as the shank can be used for any number of button sets or tools to be operated by a fluid actuated hammer.

I claim:

1. A tool for fluid actuated hammers comprising a tool end having an opening with a concaved bottom, and a shank of less area than the opening and having a convexed head to seat in said bottom of the opening; substantially as described.

2. A tool for fluid actuated hammers com-

prising a tool end having a circular opening, with a concaved bottom, and a shank of smaller diameter than the opening and having a convexed head to seat in said bottom  
5 of the opening; substantially as described.

3. A tool for fluid actuated hammers comprising a tool end having an opening with a concaved bottom, a shank of less area than the opening and having a convexed head to  
10 seat in said bottom of the opening and means to retain the tool on the end of the hammer; substantially as described.

4. A button or rivet set for fluid actuated hammers, formed in two pieces a stem or

shank, and a set proper, the two pieces being differently tempered; substantially as described.

5. A button or rivet set for fluid actuated hammers, formed in two pieces, a stem or shank, and a set proper and loosely fitting  
20 each other; substantially as described.

In testimony whereof, I have hereunto set my hand.

ARTHUR J. McQUAIDE.

Witnesses:

C. L. SMITH,

E. E. MITCHELL.