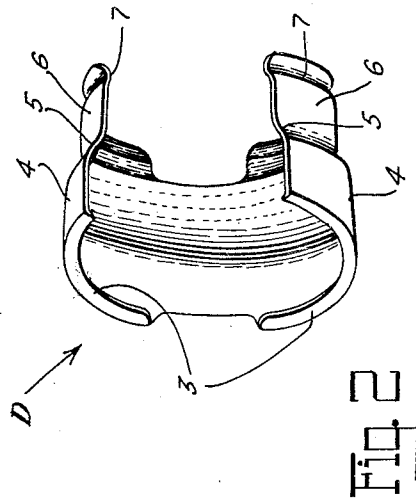


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INVENTOR
Edward W. Stevens
BY Ira L. Nickerson
ATTORNEY

UNITED STATES PATENT OFFICE

EDWARD W. STEVENS, OF DETROIT, MICHIGAN, ASSIGNOR TO CHICAGO PNEUMATIC TOOL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY

RIVET-SET CLIP

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This invention relates to riveting tools and machines of a similar type which carry or support a working tool arranged to have free but limited movement. More specifically it concerns the means by which the working tool is retained upon the operating tool or machine.

One object of the invention is to provide an improved form of rivet set retainer or clip having great strength and rigidity without increased weight. Another object is to cause the clip to grip the operating tool with greater tenacity and to offer increased resistance to dislodgment therefrom. Another object is to hold the working tool more securely in place without interfering with the desired limited movement of the same. Another object is to prevent damage to the clip and interference with operations when the work has to be performed in close quarters. Other objects will be apparent from the detailed description which follows:

In order to illustrate the invention one concrete embodiment thereof is shown in the accompanying drawings, in which:

Fig. 1 is a side elevational view of the outer end of a riveting hammer showing the improved clip in use, the cylinder of the hammer being largely in section; and

Fig. 2 is a perspective view of the clip.

The invention is illustrated in connection with a fluid pressure percussive tool, such as a riveting hammer, the working tool or rivet set A being shown in its operative position with its shank projecting within the end of the hammer cylinder B to receive the blows of the hammer piston C. The hammer cylinder is provided near its outer end with a transverse groove *b* in its exterior and therebeyond the cylinder is tapered, as indicated at *b'*. Rivet set A has an annular retaining flange *a* which cooperates with the end of the hammer cylinder to limit the projection of the set shank within the cylinder and is adapted to be engaged by the rivet set clip to limit the movement of the set relative to the cylinder.

The set clip, indicated generally at D, to which the invention directly relates, is formed of sheet spring metal generally annular in

shape having a wide split, or gap, to permit the application of the clip to the hammer cylinder. One end of the clip is formed with an inturned flange 3 to seat in the groove *b* of the hammer cylinder. The adjacent portion 4 of the clip is frustoconical in shape closely to fit the tapered portion *b'* of the nose of the hammer cylinder. Frustoconical portion 4 terminates in an annular indent 5 which engages the extreme end of the hammer cylinder and from the indent extends a reduced cylindrical portion 6 which encircles that portion of set A which is rearwardly of the outer head of the latter. This cylindrical portion is in substantial parallelism with the portion of the set which it encircles and slidably receives retaining flange *a* of the set. Cylindrical portion 6 adjacent its outer end is indented to provide an inwardly projecting flange 7 to serve as a stop for retaining flange *a* of the set.

From the above it is apparent that the improved clip herein disclosed closely engages both the nose of the operating tool and the working tool as well. In fact, the cylindrical portion 6 which engages rivet set A is, in the embodiment shown, substantially within a projection of the large head of the rivet set. This construction permits use of the device in close quarters without interference with the work and without danger of distorting or displacing the clip. It is further apparent that the inturned flange 3, the frustoconical portion 4 closely fitting the nose portion of the hammer cylinder, and the annular indent 5 which causes the clip to engage the end of the hammer cylinder gives a gripping engagement with the hammer cylinder which makes the clip exceedingly difficult to dislodge besides giving proper support and great rigidity to the projecting cylindrical portion 6, this rigidity being due largely to the fact that the bending moment of the clip is from the annular indent 5 with its bearing directly upon the end of the hammer cylinder rather than from the extreme rearward inturned flange 3 as is the case with prior forms of spring clips.

I claim as my invention:

A rivet set clip for use on a hammer cylinder having a transverse groove and tapered

nose, said clip being split and of sheet material and having an intumed flange to engage said groove, a frustoconical portion to fit the nose of the hammer cylinder, a reduced cylindrical portion for concentrically encircling the rivet set and indented adjacent its extreme end to form a stop flange for the set, said clip being formed with an annular indent between its frustoconical and cylindrical portions which indent engages the end of the nose of the hammer cylinder whereby the clip securely grips the hammer cylinder with its flange, last-named indent and closely fitting frustoconical portion.

Signed by me at Detroit, in the county of Wayne and State of Michigan this 22nd day of September, 1928.

EDWARD W. STEVENS.

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