

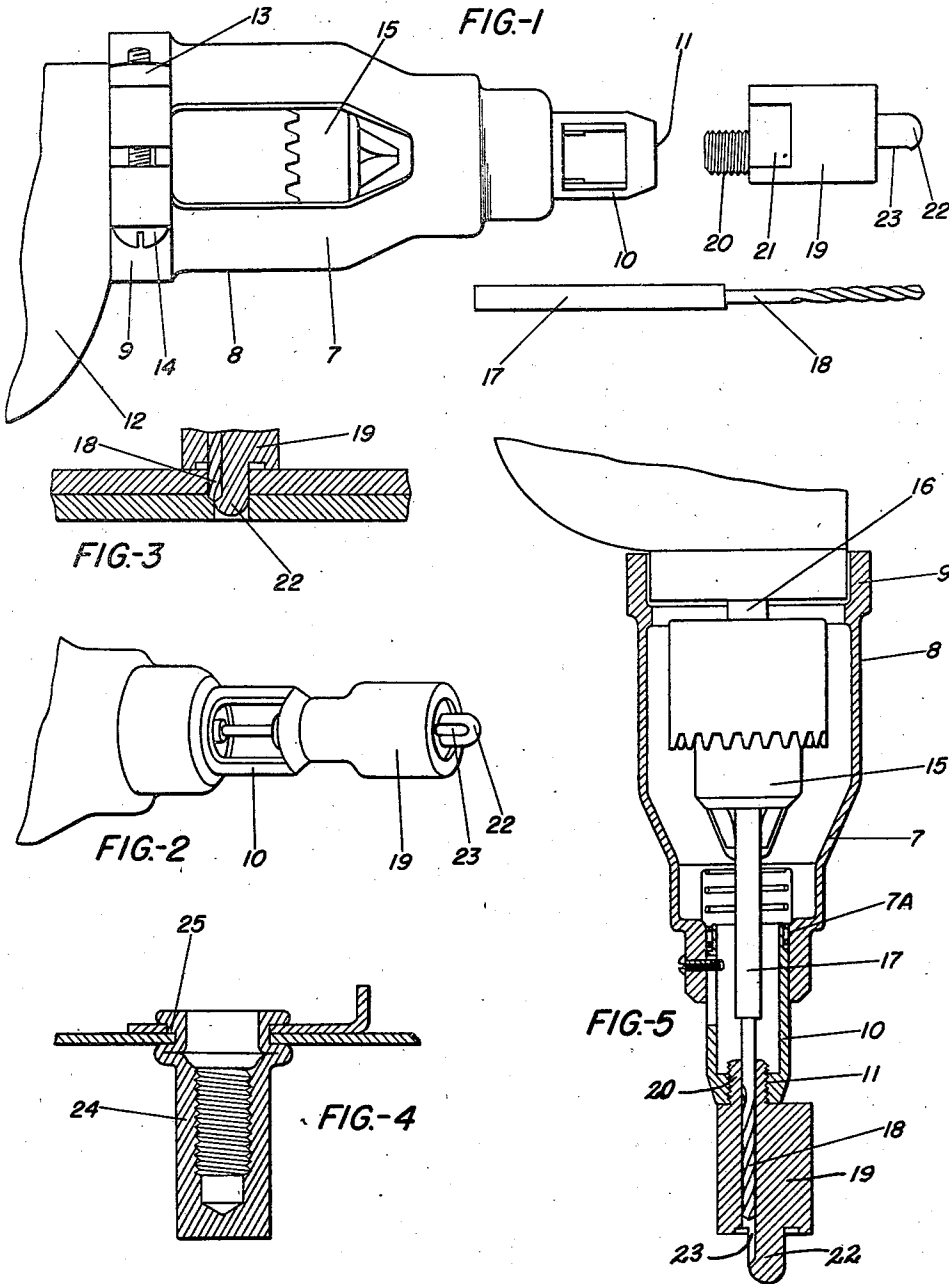
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KEY SEATING TOOL

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KEYSEATING TOOL

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1 Claim. (Cl. 77-55)

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My invention relates to an improved form of seating tool for rivets, and more particularly for rivets of the type having a key at the juncture of the head and shank to prevent rotation of the rivet in use.

There is a wide current use of rivets provided with such a key to prevent rotation, such as that shown in the United States Letters Patent No. 2,188,422 to Waner. To accommodate, or seat, such a key it is necessary to prepare a corresponding notch in the metal adjacent the rivet hole.

The method currently employed in providing the key seat is broaching a groove in the wall of the rivet hole or bore. It is a characteristic of the broaching operation that it extends for the full length of the bore. This operation is time consuming, expensive, and in large part useless since the key extends but a slight distance along the length of the rivet shank.

It is among the objects of my invention to provide a means for forming a key seat for a rivet of the character described in which the key seat extends for less than the axial length of the bore provided for the rivet.

It is a further object of my invention to provide a means for key seating a rivet of the character described in which a seat is drilled eccentrically of the rivet bore axis.

A further object of my invention is to provide for the key seating of rivets of the character described by drilling on an axis parallel to but spaced from the bore axis.

It is another object of my invention to provide a means for key seating rivets of the character described wherein a drill guide extends along the periphery of a pilot member and aligns the drill to cut a cylindrical groove in the bore.

Other and further objects will become apparent from the following description and from the attached drawing, wherein:

Figure 1 is an exploded view of my key seating tool;

Fig. 2 is a perspective view of a portion of my tool;

Fig. 3 shows the pilot and drill of my tool inserted into a rivet bore;

Fig. 4 shows a form of rivet provided with a key inserted in a bore which has been key seated with my tool; and

Fig. 5 is a vertical cross-sectional view of my key seating tool.

A cylindrical holder 7 comprises an enlarged end portion 8 terminating in a clamp 9 and a smaller end portion 10 provided with an inter-

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nally threaded bore 11 and slidably mounted within the bore 7a of the holder 7. The clamp 9 is adapted to fit over a conventional electric drill motor housing 12 and to be secured to the housing by a nut 13 and bolt 14.

A drill chuck 15 is mounted on a shaft 16 rotatably carried by a conventional drill motor within the housing 12 and is adapted to receive and hold the shaft 17 of a drill 18.

A tool body 19 is formed with an off center boss 20 extending from one end, the boss being threaded to engage the threaded bore 11 of the holder 7. The sides of the tool body are flattened at 21 to permit clamping as by a wrench to secure the body tightly to the holder. A drill supporting pilot 22 having a diameter corresponding to that of the rivet hole to be worked extends centrally from the other end of the tool body 19. This drill supporting pilot performs a number of functions. It guides the drill to the proper position so that the key seat will be cut on the periphery of the bore; it extends about the end of the drill to act as a support to prevent deflection or breakage of the drill; and it provides a guide for the end of the drill; all as will presently be described.

A drill bore 23 adapted to receive the drill 18 is formed through the tool body 19, extending through the boss 20, through the body, and along the periphery of the drill supporting pilot 22 to a point adjacent the tip of the pilot. When the tool body 19 is assembled with the holder 7 the drill 18 extends partially through the tool body (Fig. 5).

The operation of my key seating tool is as follows:

The tool is placed over the bore to be key seated to receive and secure the rivet. As the drill supporting pilot 22 is inserted in the rivet bore the rotating drill 18 is positioned directly above the periphery of the bore. As pressure is applied to the holder it moves past the holder end 10, and the drill moves axially of the rivet bore and pilot. The drill then cuts out the key seat. The seat may be made slightly deeper than the key of the rivet to be inserted to insure a tight fit for the rivet but need not be the full length of the rivet bore. During the drilling operation the pilot 22 provides lateral support for the drill, thereby preventing its bending or breaking.

Thus according to my invention, an unskilled worker is enabled to quickly prepare a seat which accommodates the rivet key but which necessitates no more than a minimum of cutting. A rivet 24 formed with a key 25 will fit snugly and securely into the rivet bore (Fig. 4).

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I claim:

A tool for forming a key seat in a bore comprising, in combination, means for mounting said tool on a drill motor housing, a motor driven drill chuck carried within said means, a rotary drill carried by said drill chuck, a tool body having a pilot fixed to said means, said pilot having a diameter corresponding to that of the bore, and

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guide means in said tool and pilot parallel to the axis of the pilot and spaced from said axis whereby the axis of the drill will be aligned with the periphery of said bore, said pilot extending about the end of the drill and guide means to limit the movement of the drill in the guide means and protect and support the end of the drill.

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