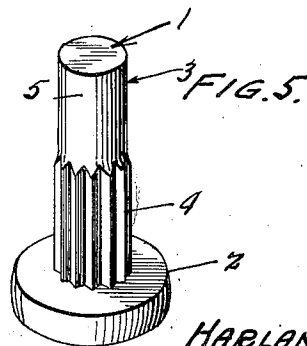
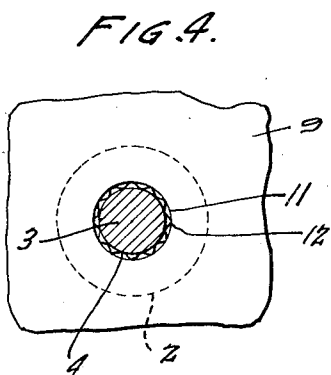
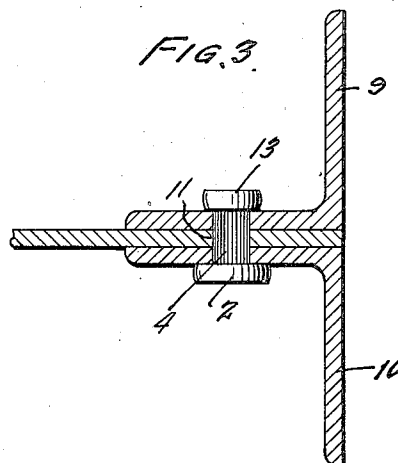
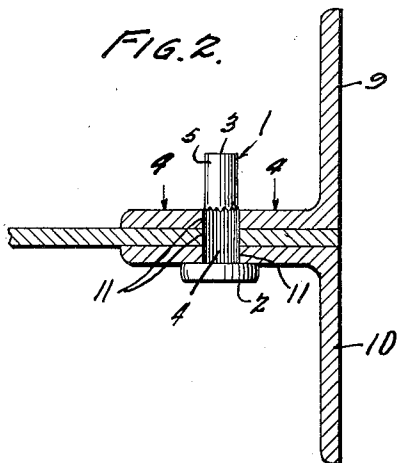
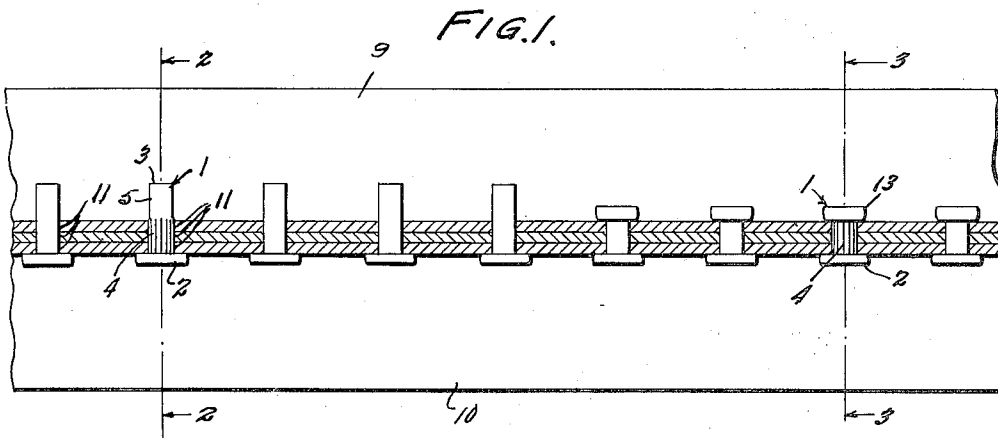


March 26, 1940.

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COMPRESSIBLE RIVET
Filed June 3, 1938

2,194,458



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UNITED STATES PATENT OFFICE

2,194,458

COMPRESSIBLE RIVET

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Application June 3, 1938, Serial No. 211,680

2 Claims. (Cl. 85—37)

This invention relates to a rivet, and more particularly to a method of clamping two component parts of an assembly together by the use of a serrated rivet, the serrations of which are deep enough to make the rivet a drive fit for superimposed holes formed in the assembly.

Previously, when it has been desired to fasten component parts together to form an assembly, it has been necessary to provide means to temporarily hold these parts in position until the riveting has been completed. This is usually accomplished by inserting removable holding devices into a series of selected holes which are sufficiently spaced to insure the parts being held together by the insertion of these devices until rivets have been secured in the remaining holes.

This procedure necessitates the withdrawal of the devices from the spotted holes, after the preliminary riveting has been completed, and the insertion of rivets after these holes have been cleared. Occasionally, various types of clamping devices have also been used to hold the component parts together until the riveting has been completed. These, however, must also be removed.

One of the objects of this invention is to avoid the above-mentioned disadvantages of the prior art.

Another object of this invention is to provide a serrated device which may be used to hold the component parts of a structure together before riveting, and which will also serve as a rivet.

Still another object of my invention is to provide a rivet consisting of a head and a shank, the portion of the shank next to the head being provided with serrations which are deep enough to make the rivet a drive fit in a rivet hole, the remainder of the shank being of the same diameter as the said hole.

A further object of this invention is to provide a method of riveting the component parts of an assembly together, by which the preliminary use of a removable holding device is eliminated.

In the drawing:

Figure 1 is a longitudinal section taken through a fragment of metal fabrication disclosing a row of rivets, a number of which have been squeezed.

Figure 2 is a cross-sectional view taken along line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a view partially in section taken

along line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a fragmentary view taken along line 4—4 of Figure 2 looking in the direction of the arrows.

Figure 5 is a perspective view of the rivet.

As shown in Figure 5, this invention consists of a serrated rivet, generally designated by the numeral 1, which consists of a head 2 and a shank 3. The shank 3 includes a straight knurled portion 4 adjacent the head 2, and a smooth portion 5 located at the lower end of the shank 3.

The knurled portion 4 consists of a plurality of longitudinal serrations which increase the diameter of the shank to such size as to make the rivet a drive fit in a rivet hole. The diameter of the smooth portion 5, on the other hand, is approximately the diameter of the hole into which the rivet is to be driven. The head 2 may be formed in any desired shape.

To illustrate the use of this rivet, two structural members 9 and 10 are shown in Figure 1 which are provided with rivet holes, as shown at 11. In practicing my invention these structural members may be held together by driving serrated rivets into properly spaced holes. Ordinary rivets may then be placed in the remaining holes and all the rivets squeezed in one riveting operation. Of course, if desired, only serrated rivets may be used for the riveting job in place of the ordinary rivets.

In order to temporarily hold the structural members 9 and 10 together, the shank 3 of the serrated rivet 1 is driven into the standard rivet hole 11 by a hammer or other means, as best shown in Figure 2. During this operation the rounded portion 5 passes easily through the hole 11. However, the outer edges of the serrations, being several thousandths of an inch larger than the hole, must be driven in, thereby forming a frictional engagement against the side of the hole, as shown at 12 in Figure 4. This tight fit enables the rivet to hold the component parts together in proper alignment until the ordinary rivets have been inserted. The smooth portion 5 of the shank 3 is adapted to be squeezed to form a head 13 during the riveting operation.

The length of the knurled portion 4 of the shank is adapted to conform with the thickness of the several parts of the members being riveted together. In other words, the shank of the rivet is knurled with the exception of sufficient length to form a head on the inserted end.

From the above description it is believed apparent that, by the use of this serrated rivet,

two methods have been provided by which structural members may be joined. In both methods all the holes in both component parts may be drilled to standard size and are, therefore, adapted for the use of my serrated rivet. However, if desired, my rivet may be used in only a certain number of properly spaced holes and ordinary rivets used in the remaining apertures. After the ordinary rivets have been headed, the serrated rivets which have been driven into the spotted holes may also be mechanically squeezed.

While it is apparent that these serrated rivets may be made of any type of ductile alloys or metals, I have found that serrated rivets made of aluminum alloy are very satisfactory. This is especially true when the serrated rivets are to be used in connection with aircraft construction. Moreover, the shape of the rivet or its length may be varied, or the whole shank may be serrated, without departing from the concept of this invention. I, therefore, wish only to be limited by the extent of the prior art and the scope of the appended claims.

I claim:

1. A rivet made of ductile metal which is designed to hold metallic component parts in fric-

tional engagement by being driven into aligned apertures in the said component parts, comprising a head and an annular shank, the portion adjacent the head being enlarged by longitudinal serrations which are wedge-shaped in cross section, said serrations being adapted to collapse to frictionally engage the walls of the said apertures when the rivet is driven into operative position, and the remainder of the shank being adapted to be formed into a head.

2. A rivet made of ductile metal which is designed to hold metallic component parts in frictional engagement by being driven into aligned apertures in the said component parts, comprising a head and an annular shank, the portion adjacent the head being enlarged by longitudinal serrations which are wedge-shaped in cross section, said serrated portion being approximately the same length as the combined widths of the component parts, and said serrations being adapted to collapse to frictionally engage the walls of the said apertures when the rivet is driven into operative position, the remainder of the shank being adapted to be formed into a head.

HARLAN E. ECKLER.