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J. A. PORTER

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RIVETING PEEN EXTENSION

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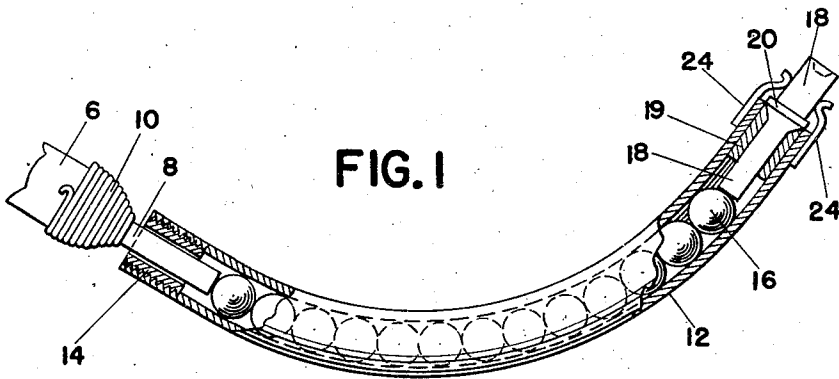


FIG. 1

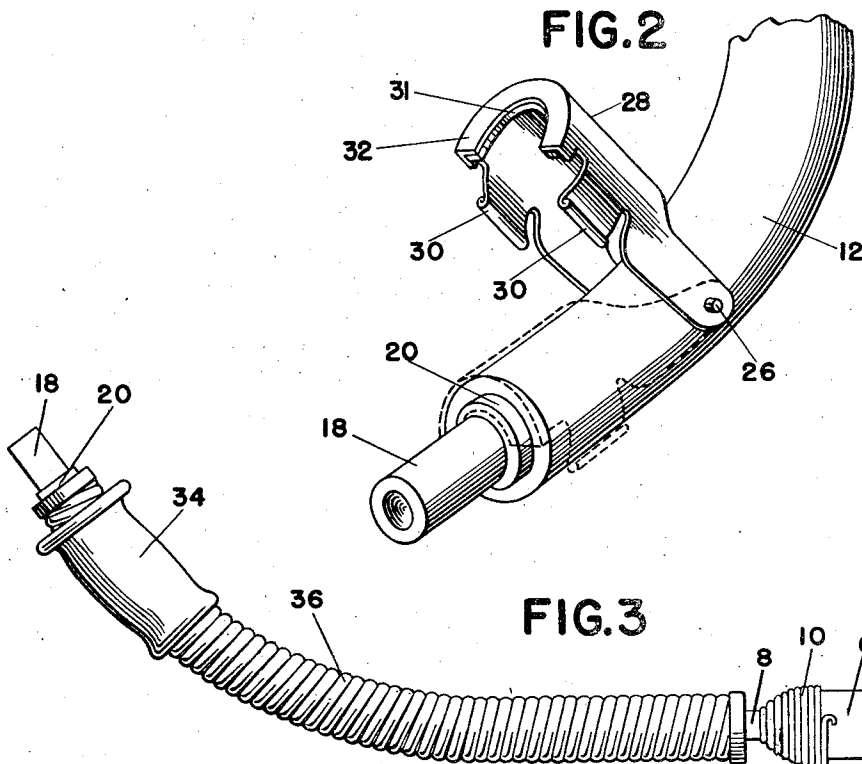


FIG. 2

FIG. 3

INVENTOR.
JAMES ALVIN PORTER
BY *George Douglas Jones*
ATTORNEY

UNITED STATES PATENT OFFICE

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RIVETING PEEN EXTENSION

James A. Porter, Baltimore, Md., assignor to The
Glenn L. Martin Company, Middle River, Md.,
a corporation of Maryland

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1 Claim. (Cl. 78—46)

This invention relates to an impact transmitting peen extension for heading rivets. It is particularly suited for use as an attachment for pneumatic riveting guns.

Heretofore, great difficulty has been experienced in riveting operations when a rivet had to be headed close to, or beneath, a structural member, and there was insufficient space in which to properly line-up the riveting gun with the rivet.

As a general rule, rivets must be squarely hit while being headed or the rivet will fail to shear. When there is insufficient space in which to align the riveting gun with the rivet, it is not possible to head a rivet properly.

Many attempts have been made to build angular riveting guns for driving relatively inaccessible rivets. Attempts have also been made to design attachments for riveting guns wherein the objects of the present invention could be achieved. However, none of these attempts have been successful. Angular attachments for riveting guns have failed because they were not able to transmit efficiently the necessary impact forces in a curved line.

This problem has been solved in the present invention by providing a means whereby the high frequency impacts of a riveting gun can be transmitted around a sharp curve with a minimum loss of force to a rivet set at any angle to the direction of impact of the hammer element of the riveting gun.

Another object of the present invention is to provide an inexpensive, quickly connected and durable attachment for a riveting gun in the nature of a curved extension for the riveting peen that may be used to head rivets that otherwise could not be reached.

Still another object of the invention is to provide an attachment for a riveting gun in the nature of a flexible extension for the riveting peen that may be used to head rivets that otherwise could not be reached because of their inaccessibility to the impacting means of the riveting gun.

Further and other object of the invention will be hereinafter set forth in the accompanying drawing which shows by way of illustration a preferred embodiment and a modification together with the principle thereof, as well as the best mode of which I am now aware for applying that principle.

In the drawing:

Figure 1 is an elevational view, partially in section, showing the impact transmitting peen ex-

ension attachment connected to a riveting gun.

Figure 2 is a perspective view of a modified retaining clip, connected to the impact transmitting peen extension attachment.

Figure 3 is an elevational view of a modified impact transmitting peen extension attachment connected to a riveting gun.

A riveting gun 6, having a peen 8 resiliently secured thereto by a spring 10, is shown in Figures 1 and 3.

Peen 8 is loosely inserted in one end of a tube 12 which is preferably of circular cross section. Tube 12 is formed of any suitable material such as metal, or reinforced plastic and the like. Peen 8 is centered and guided in tube 12 by the bushing 14 which aligns the peen with ball 16. Balls 16 are made of any suitable materials but in the preferred embodiment are of steel. The balls have a diameter substantially equal to the inner diameter of tube 12. They are retained in tube 12 by the bushings 14 and 19 which are inside the tube and at the opposite ends thereof. It will be noted that the balls do not fill the length of tube 12.

Extension peen 18, which is loosely inserted in the opposite end of tube 12 from peen 8, is similar to peen 8. Extension peen 18 is also centered and guided in tube 12 by the bushing 19 so that it is aligned with adjacent ball 16.

Retaining members 24 are secured to tube 12 and are designed to prevent extension peen 18 from falling out of the end of tube 12, in which it has been loosely inserted, when the attachment is in a position where the force of gravity could cause it to drop out. The resilient arms are adapted to ride over the rim portion 20 of the peen 18 and hold it in place. However, members 24 are sufficiently resilient so that they will not interfere with the impact transmitted from peen 8 through balls 16 to extension peen 18 when the attachment is being used to head a rivet. Members 24 likewise are resilient enough to permit the easy withdrawal of extension peen 18 from the end of tube 12.

The modified retaining clip 28, which is pivotally secured at 26 to tube 12 shown in Figure 2, having the resilient arms 30, is likewise adapted to prevent extension peen 18 from falling out of the end of tube 12. However, it is designed for a more positive retention of the extension peen 18 and is provided with a circular flanged head portion 32 for engaging extension peen 18 around rim portion 20. Inside of, and carried by, this head portion 32, is a resilient packing 31 which

cushions the impact of the extension peen 13. The space from the end of tube 12 to the packing member 31, is greater than the axial length of rim portion 20 of peen 13.

Tube 12, shown in Figure 1, is bent. Although a right-angle bend impact transmitting peen extension attachment is shown connected to a riveting gun, the attachment may be formed to any desired curvature.

Figure 3 shows a modified impact transmitting attachment consisting of a reinforced flexible tube 36, adapted to retain balls similar to balls 16 shown in Figure 1:

By means of the flexible reinforced tube shown in the modified form, the curvature of the tube may be varied. In other respects, the construction and operation is similar to the form shown in Figure 1. A suitable hand grip 34 is provided at one end of tube 36.

In operation, the impact of the peen 8 of a riveting gun which has been inserted in one end

of the tube is transmitted through balls 16 in the tube to the extension peen 13, which has been inserted in the opposite end.

It is to be understood that certain changes, alterations, modifications and substitutions can be made without departing from the spirit and scope of the appended claim.

I claim as my invention:

10 An impact transmitting peen extension for riveting guns comprising a tube of constant cross-section, a plurality of balls substantially filling said tube said balls being substantially of the same diameter as the inside diameter of said tube, and a pair of sleeve members secured in
15 opposite ends of said tube, an impact transmitting peen positively retained in one of said sleeve members, the other of said sleeve members having a hole for the reception of the peen of a
20 riveting gun.

JAMES A. PORTER.