Jan. 20, 1942. J. R. BIGNELL ET AL 2,270,403

FASTENER CONSTRUCTION

Filed Sept. 22, 1941

Fig. 1

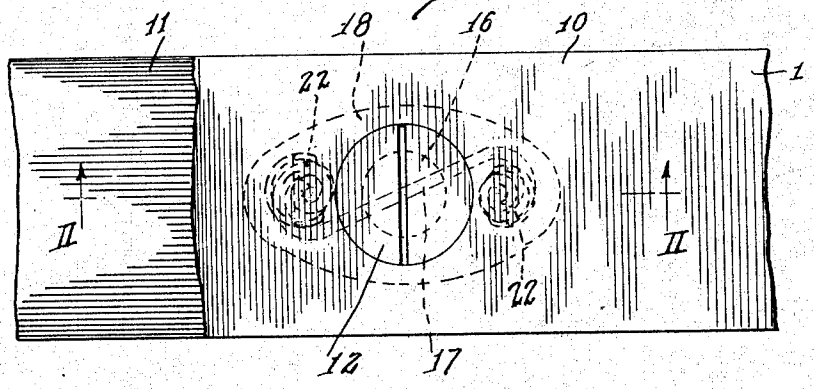


Fig. 2

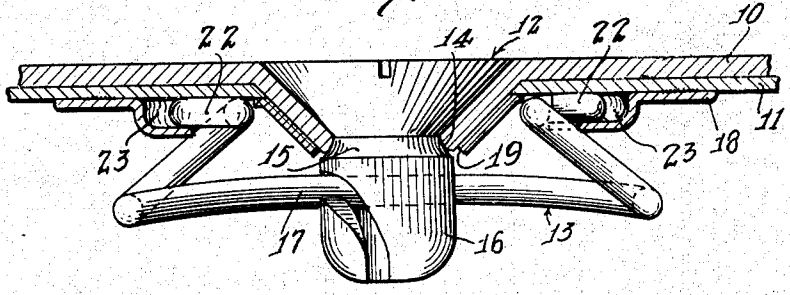
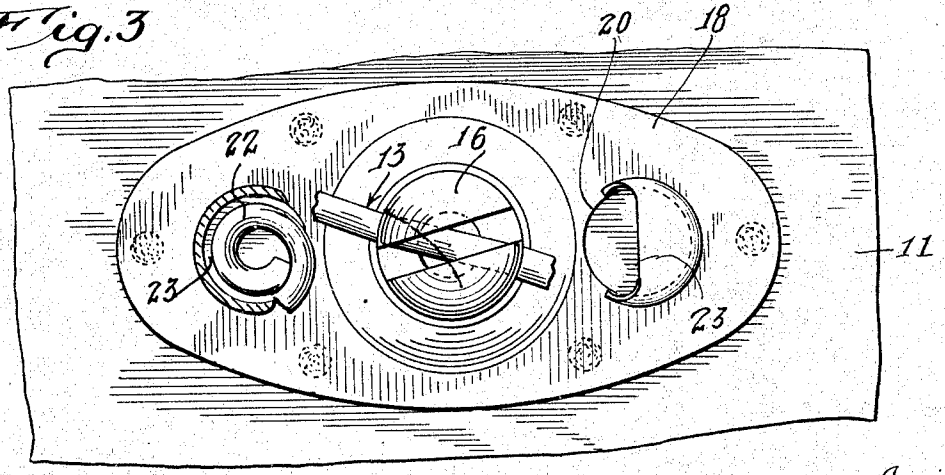


Fig. 3



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FASTENER CONSTRUCTION

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2 Claims. (Cl. 24—221)

This invention relates to detachable fasteners of the "Dzus" type disclosed in United States patent to Dzus, No. 1,955,740, issued April 24, 1934. which are in general use for securing parts, particularly sheet metal parts, together.

An object of the invention is to simplify and reduce the cost of installing and repairing Dzus fasteners.

The manner in which this object is attained will be explained with reference to the drawing, in which

Fig. 1 is a plan view of a pair of sheet metal parts secured together by a Dzus fastener in accordance with the invention;

Fig. 2 is a detail section in the plane II—II of Fig. 1; and

Fig. 3 is a view looking at the underside of Fig. 2. with portions broken away.

Referring to Figs. 1 and 2, there is shown two sheet metal parts 10 and 11, respectively, which are secured together by a Dzus fastener, the essential elements of which include a screw-cam element 12 on sheet 10 and a spring member 13 on the sheet 11.

As shown, the screw-cam element 12 is of the flush type, having a beveled head fitting into a dimple provided therefor in the sheet 10. It is retained in the sheet 10 by the edge 14 of the aperture therein, which extends into an annular groove 15 in the screw-cam element 12 at the junction of the head of the screw-cam element with the shank 16 thereof.

The spring element 13 has a transverse portion 17 extending through an opening provided therefor in the shank 16 of the screw-cam member, the opposite ends of the spring member being secured to the plate 11.

The opening in the shank 16 of the screw-cam member is so shaped as to make interlocking connection with the transverse portion 17 of the spring-element in response to rotation of the screw-cam member through approximately 90°. The particular shape of the opening does not constitute a part of the present invention, and need not be discussed further. Full information relative thereto may be obtained from the catalog of the Dzus Fastener Company, Inc.

Our construction as shown in Figs. 1, 2 and 3, differs from the conventional Dzus fastener only in the manner of attaching the spring member 13 to the plate 11. Heretofore these springs have been riveted or bolted to their associated sheet members. Such construction has the disadvantages that it is very difficult, and in many cases impossible, to replace a broken spring. It has the further disadvantage that the rivet holes must be very accurately aligned with respect to the screw-cam element, which requires expensive punches and other tools for fabrication.

In accordance with the present invention, we support the spring element 13 on the plate 11 without the use of screws, bolts, or rivets, and at the same time support it with limited lateral movement so that it is self-aligning.

Thus we provide on the underside of the sheet member 11, a stamped retaining plate 18 which is secured to the sheet 11, preferably by spot-welding. The stamping 18 has a central aperture 19 adapted to align with the opening in the plate 10 and is dimpled around the opening to fit against the corresponding dimpled portion of the sheet 10. The flat portion of the stamping 18 may be oval in outline, as clearly shown in Fig. 3, and has cut-out portions 20 of approximately semi-circular shape. Immediately beyond each cut-out portion 20 the plate is pressed out to define with the juxtaposed portion of the plate 11, pockets into which the coiled ends 22 of the spring member 13 are received and retained. The coiled portions 22 of the spring member are of slightly smaller diameter than the pockets 23 so that they can move laterally to a limited extent to align themselves with the screw-cam element.

The spring member 13 has sufficient resilience to permit it to be deformed sufficiently to insert the ends in the pockets 23.

Our construction not only has the obvious advantage of permitting ready insertion of the springs, either originally or in service, but it is also very inexpensive and is better adapted to use with thin sheet metal than are rivets, screws, and the like. The stamping 18 functions as a reinforcement which is very useful on thin sheet metal adjacent its point of attachment to another member.

For the purpose of explaining the invention a particular embodiment thereof has been described in substantial detail. However, it will be obvious to those skilled in the art that numerous departures from the exact construction shown can be made without departing from the invention, and the latter is, therefore, to be limited only to the extent set forth in the appended claims.

We claim:

1. In a Dzus fastener for securing two members together and including a screw-cam element adapted to bear against one of said members and a cooperating spring rod element adapted to

bear against the other member, means for securing said spring rod element to said other member, comprising: an auxiliary plate member secured to the face of said other member and forming therewith pockets for receiving the ends of said spring rod element.

2. A device as described in claim 1, in which said spring rod element terminates at the end in flat eyes adapted to rest against said other member and in which said pockets are so dimensioned as to loosely receive the lateral edges of said eyes to permit limited lateral adjusting movement of the spring rod element with respect to the screw-cam element.

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