METHOD OF MAKING A PIN STEM CATCH OR JOINT

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2 Claims. (Cl. 29—160.6)

This invention relates to a safety catch or joint, and has for one of its objects the provision of a safety catch which will be folded up from sheet stock to provide a pair of ears closely in parallel relationship and with the base which joins the ears enlarged without thickening the stock or increasing the weight of the catch. The present application is a division of copending application, Serial Number 180,726, filed December 29, 1937.

Another object of the invention is to enlarge the base of a sheet metal safety catch by deflecting the walls or ears which extend in a parallel relation so as to provide a recess on their inner surface and a bulge on their outer surface, the bulge having its lower edge in the plane of the base of the catch so as to enlarge the effective contacting area of the base that it may have a larger support to better prevent tipping over and also to provide a better and more secure holding surface for attachment by solder or the like.

Another object of the invention is the provision of a safety catch having a base enlarged sufficiently by reason of deflection of the stock so that the catch or joint may be so soft soldered to an ornament or device to which it is to be attached which was not possible because of the small area of the base heretofore provided.

Another object of the invention is the provision of a method by which the stock may be deflected so as to prevent distortion of the bearing openings for holding the rotor member of the catch.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a side elevation of a safety catch with the rotor member shown in pin stem receiving position;

Fig. 2 is a side elevation of the catch with the rotor member in locking position;

Fig. 3 is a bottom plan view of the catch;

Fig. 4 is an edge view of the catch;

Fig. 5 is a central sectional view on line 5—5 of Fig. 2;

Fig. 6 is a plan view of a strip of stock showing different operations upon the same in forming the catch;

Figs. 7, 8 and 9 are sectional views on line 7—7, 8—8 and 9—9 of Fig. 6;

Fig. 10 is an edge view of the cut out blank shown in Fig. 9 as partially bent to position;

Fig. 11 is an elevation of the rotor portion of the catch;

Fig. 12 is a sectional view on line 12—12 of Fig. 11.

A simple manner of forming a safety catch is to fold up a pre-shaped blank of sheet stock into generally U-shape with bearing openings in the parallel ears for rotatably supporting the locking portion of the catch or for receiving the pin stem trunnions for pivotally mounting the same in position. A catch so formed has a relatively small area base and is thus suitable only for hard soldering. Various arrangements have been utilized for thickening up the stock to increase the base, but I have devised a manner by which the stock of such a simple U-shaped catch may be shaped to increase the base without thickening the stock; and I have accomplished this by deforming the ears prior to bending so as to provide a recess on the inner surfaces or portions of the ears which are toward each other and a bulge or protuberance on the outer surfaces of the ears, the stock being all of the same thickness and the lower portion of these protuberances lying in substantially the plane of the base so as to effectively enlarge or increase its supporting and attaching area; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, 1 designates a ribbon strip of sheet stock which may be passed through a machine having a plunger to deflect the stock substantially perpendicularly to the sheet at a certain desired location to provide recesses 11, 11 in one surface and at the same time form protuberances 12, 12 on the opposite side of the sheet stock, as shown in Fig. 7, by stretching the stock as illustrated in this view without thickening or adding to the thickness of the stock. The next operation is to provide openings 13 in the stock or these might be recesses 40 so as to provide bearings for the rotatable portion to be mounted between the ears of the device. After these openings or recesses are provided the blank is cut out of the sheet stock along the line 14, as shown in Figs. 6 and 9, all ready for the bending operation shown in Fig. 10, which consists in folding the ears 15 into angular relationship at such spaced location as 16 between the deflected portions while a stretching of the stock 17 occurs so as to provide a base 18 having an engaging or lower surface 19. The protuberances 12 have their surface 21 so located that when the bending occurs the lower surface of these protuberances 21 will be in the same plane with the surface 18 between the protuber-
ances so as to provide an increased bottom area 19, 21 for attachment to a suitable support.

When the device is to be used as a safety catch a rotor member such as 22 having a body portion 23, handles 24 and trunnion portions 25 to fit the openings 19 will be mounted in position, as shown in Figs. 1 to 3, by the completion of the bending of ears 15 of Fig. 10, and a slot 26 in the ears and 27 in the rotor will be cut at some suitable or desired location so as to permit the pin stem extending into the opening 28 in the rotor member to be locked by rotation of the rotor to the position shown in Fig. 2.

It will be readily apparent that recesses on the inner surface of the ears instead of openings may be provided as sometimes occurs in devices of this character, or the device may be utilized as a joint for mounting a pin stem in a rotary position instead of being utilized as a catch, the desirable functions of enlarging the base being the same regardless of which of these uses the device is to be put.

The foregoing description is directed towards the method and construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the equivalent changes to which the construction and method are susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. The method of forming a safety catch part or joint for a pin stem comprising displacing the metal of a flat sheet of stock by stretching the same substantially perpendicularly to the sheet at spaced locations to provide recesses on one side and bulges on the other, bending the stock adjacent each of said formations and between them to locate at least a part of the surface of said perpendicularly stretched portions on the same plane with the outer surface of the stock in the space between said stretched portions.

2. The method of forming a safety catch part or joint for a pin stem comprising displacing the metal of a flat sheet of stock by stretching the same substantially perpendicularly to the sheet at spaced locations to provide recesses on one side and bulges on the other, cutting blanks containing said formations from said sheet, and bending the stock adjacent each of said formations and between them to locate at least a part of the surfaces of said perpendicularly stretched portions on the same plane with the outer surface of the stock in the space between said stretched portions.

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