Sept. 22, 1953 W. ENGEL 2,652,885

SPRING SUPPORTING CLIP

Filed June 29, 1948

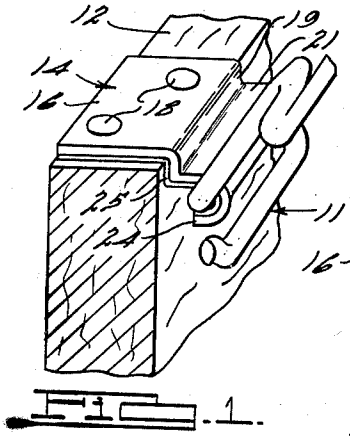


Fig. 1.

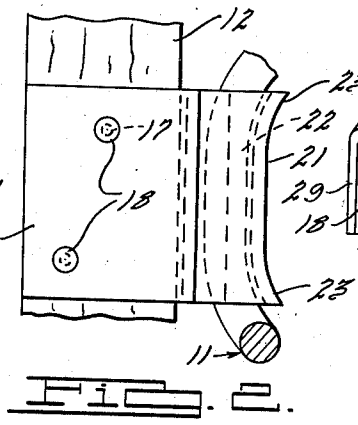


Fig. 2.

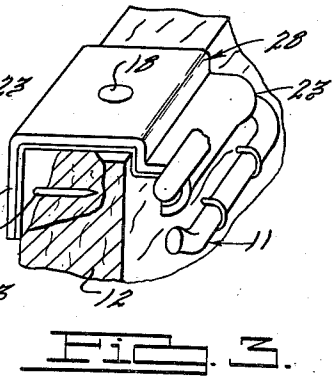


Fig. 3.

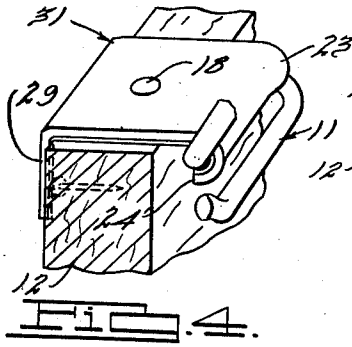


Fig. 4.

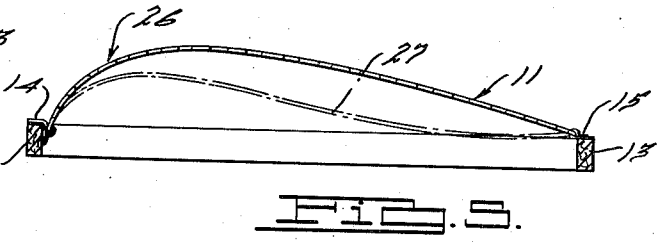


Fig. 5.

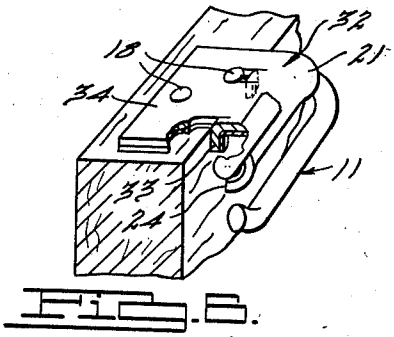


Fig. 6.

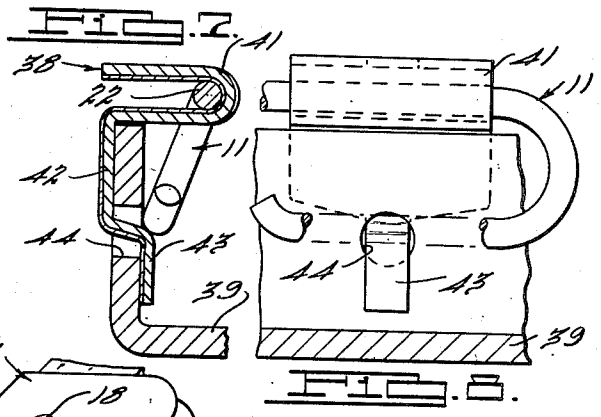


Fig. 7.

Fig. 8.

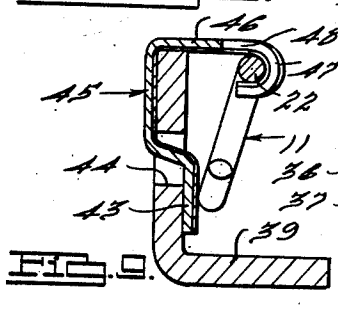


Fig. 9.

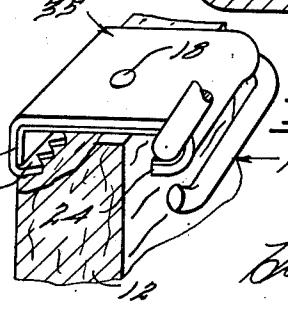


Fig. 10.

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SPRING SUPPORTING CLIP

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8 Claims. (Cl. 155—179)

1

This invention relates to supporting clips for springs, and particularly to a supporting clip attachable to a frame element in a manner to support the spring strip under a predetermined tension to provide a desired form thereto.

It has been the practice heretofore in the art to secure a sinuous type of spring, that is to say, a spring made of wire bent back and forth to provide open oppositely directed loops jointed by straight portions, by clips secured to the ends thereof. The spring strip will assume the shape of a uniform arc between the supporting ends and normally would deflect under a load in a manner which would not provide a predetermined desirable contour to the seating area.

The present clip is attachable to the frame of a seat, couch, davenport and the like in a conventional manner. The clip has a U-shaped spring engaging end, spaced when in use a predetermined distance from the face of the frame element. The surface of the U-shaped portion is covered by a sound deadening material which may be cloth, paper, metal and the like, which is adhered thereto. A straight portion of the spring inwardly of the endmost straight portion is received by the U-shaped portion of the clip so that the end portion of the strip will engage the frame element and thereby prevent the portion within the clip from rotating and at the same time provide a tension and a predetermined form to the adjacent portion of the strip when the opposite end is secured to the frame. The opposite end may be mounted in a similar clip, although it is more desirable to provide a clip in which said opposite end of the spring strip may pivot.

Accordingly, the main objects of the invention are: to provide a clip having a U-shaped spring receiving portion which is spaced a predetermined distance from the face of the frame element; to provide a clip having a U-shaped portion for supporting the edge of the spring against lateral tilting movement while preventing it from pivoting so as to provide a predetermined tension and form to the adjacent portion of the strip when both ends are secured; to provide mounting means for a spring strip which produces a predetermined shape to the strip when secured between front and rear frame members of a seating element in a manner to prevent the spring from tilting and to cause it to assume a predetermined contour when loaded; and, in general, to provide a spring strip which is simple in construction and economical of manufacture.

2

Other objects and features of novelty of the invention will be specifically pointed out or will become apparent when referring, for a better understanding of the invention, to the following description, taken in conjunction with the accompanying drawing, wherein:

Figure 1 is perspective view of a clip for supporting a spring strip embodying features of this invention;

Fig. 2 is an enlarged plan view of the structure illustrated in Fig. 1;

Fig. 3 is a view of structure, similar to that illustrated in Fig. 1, showing a further form of the invention;

Fig. 4 is a view of structure, similar to that illustrated in Fig. 3, showing a still further form of the invention;

Fig. 5 is a sectional view of a frame having a spring strip mounted therein by a clip of the present invention;

Fig. 6 is a view of structure, similar to that illustrated in Fig. 4, showing a different form thereof;

Fig. 7 is a sectional view of a frame and clip embodying features of the present invention;

Fig. 8 is a side view of the structure illustrated in Fig. 7;

Fig. 9 is a view of structure, similar to that illustrated in Fig. 7, showing a further form thereof, and

Fig. 10 is a view of structure, similar to that illustrated in Fig. 3, showing a still further form of the invention.

Springs 11, made of wire bent back and forth to have oppositely disposed adjacent loops joined by straight portions, have been formed on an arc of small radius so that when the ends were extended and secured to a frame, resistance was provided against downward deflection. The springs, however, assumed a uniform arcuate shape across the frame and a desirable seating contour was not always obtained when the seat was occupied. The present invention pertains to a clip for supporting one or both ends of the spring in a manner to further stress the ends so that a desirable contour results when the seat is occupied.

In Fig. 5 the spring strip 11 is illustrated as being secured to frame elements 12 and 13 by a clip 14 of the present invention at the forward end and a standard clip 15 at the rearward end. The clip 14, as illustrated in Figs. 1 and 2, is made from a strip of metal having a main web portion 16 provided with apertures 17 by which the clip is secured to the frame element 12 by

suitable means, herein illustrated as by nails 18. The inward edge of the web 16 is flanged downwardly to provide a shoulder 19 which abuts the face of the frame element to accurately space the projecting U-shaped hook portion 21 therefrom. The U-shaped hook portion receives a straight portion 22 of the spring strip 11 to anchor it in position. It will be noted that the ends of the U-shaped clip portion 21 are drawn outwardly at 23 to have the hook portion disposed arcuately at the ends, following the curvature of the ends of the straight portion 22 of the spring strip. The shoulder 19 positions the edge 24 of the U-shaped clip portion 21 a predetermined distance from the inner face of the frame element 12 so as to permit the straight portion 22 of the spring strip to pass therebetween. Sound deadening material 25 is applied to the inner face of the hook portion which may extend over the shoulder and the web. The material on the hook portion prevents squeaking and noises from occurring from any movement of the spring strip 11 relative thereto. The material may be cloth, paper and the like, adhered to the strip before it is stamped and formed, or such material may be applied thereafter, or a coating of tin, copper and other soft metals may be applied to the entire face of the strip or only to the arcuate U-shaped portion 21.

The straight portion 22 of the spring strip next adjacent to the end straight portion thereof, is engaged by the U-shaped clip portion 21, thereby having the U-shaped clip portion function as a fulcrum relative to the end portion of the strip to produce a high arch in the spring strip 11, as at 26 in the assembly illustrated in Fig. 5. This produces a different shape to the spring strip than that resulting when both ends are pivoted to supporting clips. Due to the unpivoted support provided for the front end of the spring strip in the clip 14, the front portion of the spring strip resists deflection a greater amount than the rear portion, thereby producing the desired contour when the cushion is occupied. This contour is illustrated in the dotted line position 27 of Fig. 5 and follows that found to be most desirable from data described in the patent to Walter E. Lay et al., No. 2,359,318, issued October 3, 1944.

In Fig. 3 a further form of clip 28 is illustrated, which is similar to the clip 14, with the exception that the forward end is flanged downwardly at 29 to provide an additional web by which the clip is nailed or otherwise secured to the frame element 12.

In Fig. 4, a still further form of clip 31 is illustrated, which is similar to the clip 28 with the exception that the shoulder 19 is omitted and the web 29 employed for positioning the edge 24 of the U-shaped clip portion 21 from the inner face of the frame element when engaging the opposite face thereof.

In Fig. 6 a still further form of clip 32 is illustrated, wherein the shoulder portion 19 has been omitted and one or more tongues 33 have been struck from the web portion 34 for spacing the edge 24 of the U-shaped clip portion 21 from the face of the frame element when in engagement therewith.

In Fig. 10 a similar clip 35 is illustrated, wherein a downwardly extending web 36 has inwardly projecting teeth 37 thereon which are driven in the front face of the frame for securing the clip in position and for spacing the edge 24 relative to the inner face of the frame element.

In Figs. 7 and 8 a further form of clip 38 is illustrated, one which is constructed to be mounted on an angle iron frame 39 for securing the spring strip 11 in predetermined arched position. A U-shaped portion 41 extends inwardly from the top edge of the frame element 39 and is provided with a downwardly extending web portion 42 and an inwardly and downardly presenting tongue 43 which projects through an aperture 44 in the upwardly disposed flange of the angle member 39. The straight portion 22 of the spring strip adjacent to the end portion is positioned within the U-shaped portion 41 of the clip, with the end portion of the spring resting against the inner face of the angle member, to thereby anchor the end against rotation and provide an arched portion at the front end of the spring strip.

In Fig. 9 a similar form of clip 45 is illustrated, having a top web 46 extending over the top of the frame element 39 and having a U-shaped clip portion 47 curving downwardly and inwardly therefrom for receiving the straight edge 22 of the spring strip 11, with the edge abutting against the tongue 43 of the clip. In this construction the tongue 43 is stamped from the U-shaped hook portion 47, as illustrated by the slot 48. A substantial amount of material is saved when stamping the tongue 43 from the U-shaped hook portion.

In all of the embodiments herein illustrated, it is to be understood that the sound deadening material is applied to the inner face of the U-shaped hook portions thereof or to the entire inner face of the clip, whichever is the more economical method of applying the sound deadening material thereto.

What is claimed is:

1. A clip for securing a spring strip in position in a frame element, said clip having a web portion, a shoulder formed in said web portion adapted to abut a side of the frame element, and a U-shaped hook portion extending from said shoulder below the plane of said web portion, said shoulder being arranged for spacing the end of the U-shaped hook portion a predetermined distance from the face of the frame element toward which the open side of the U-shaped hook portion is directed.

2. A clip for supporting one end of a spring strip, said clip having a horizontal web portion, a U-shaped hook portion on one edge of said web portion, a downwardly projecting flange on the opposite edge of said web portion, and inwardly projecting teeth on the end of said flange.

3. A clip for supporting one end of a spring strip, said clip having a horizontal web portion, a U-shaped hook portion on one edge of said web portion, a downwardly projecting flange on the opposite edge of said web portion, inwardly projecting teeth on the end of said flange, and sound deadening material provided at least on the inner face of the U-shaped hook portion.

4. A clip for supporting a sinuous spring strip, said clip having a web portion for extending over the top of the frame element, a U-shaped hook provided on one edge of said web portion for receiving a straight portion of the spring strip, a downwardly projecting flange on said web portion opposite to said hook, and an inwardly and downwardly projecting tongue on said flange.

5. A clip for supporting a sinuous spring strip, said clip having a web portion for extending over the top of the frame element, a U-shaped hook provided on one edge of said web portion for receiving a straight portion of the spring strip,

a downwardly projecting flange on said web portion opposite to said hook, an inwardly and downwardly projecting tongue on said flange, and sound deadening material at least on the inner face of the hook portion of said clip.

6. The combination with a frame having spaced front and rear frame elements, of a clip on the front frame element having a U-shaped hook portion spaced a predetermined distance from the inner face of said element, a clip secured to the rear frame element, and a sinuous spring strip pivotally secured to the clip on the rear frame element and secured by a straight portion of the spring inwardly of the front end thereof to the hook portion of the first said clip to have the adjacent loop at the end of the spring engage the inner face of the front frame element to form a high arch in the strip at the front of the frame.

7. The combination with a frame, of a clip secured to the front frame element having a U-shaped hook portion spaced a predetermined distance from the inner face of the element, and a sinuous spring strip made of oppositely disposed loops joined by straight portions secured to said clip through the engagement of a straight portion inwardly from the end thereof in said U-shaped hook portion, with the adjacent loop at the end of the strip in engagement with the inner face of the frame element to form a high arch at the front frame end when the opposite end of the strip is secured to the opposite frame element.

8. The combination with a frame element having a clip thereon, of a sinuous spring made of wire bent back and forth to provide oppositely directed open loops joined by straight portions, the next adjacent straight portion to the end of the spring being engaged by said clip for securing the spring to the frame element with the end loop and straight portion extending from said secured straight portion disposed in engagement with a side face of said frame element for securing the end of the spring strip thereto in a manner to prevent relative rotation between the secured straight portion and the frame element.

WILLIAM ENGEL.

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