March 1, 1960 M. TASCHNER 2,926,878

CLIP MADE OF WIRE FOR SUPPORTING THE ENDS OF SINUOUS SPRING STRIPS

Filed Nov. 18, 1953 2 Sheets-Sheet 1

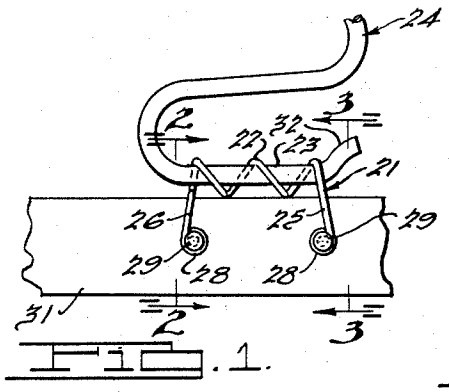


FIG. 1.

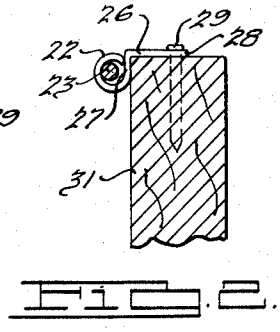


FIG. 2.

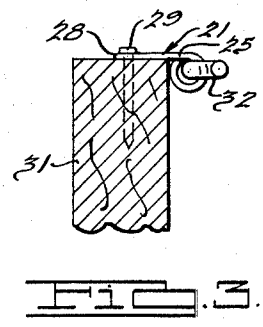


FIG. 3.

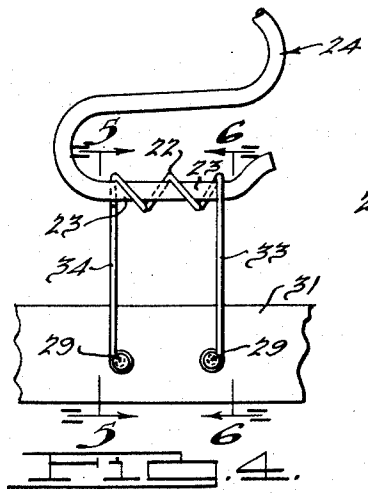


FIG. 4.

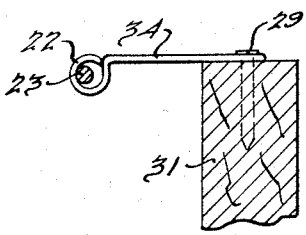


FIG. 5.

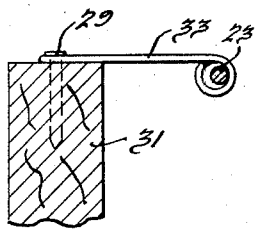


FIG. 6.

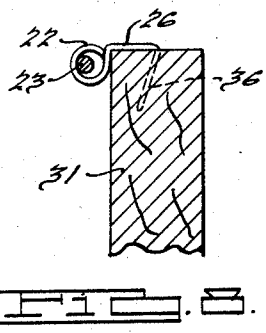


FIG. 8.

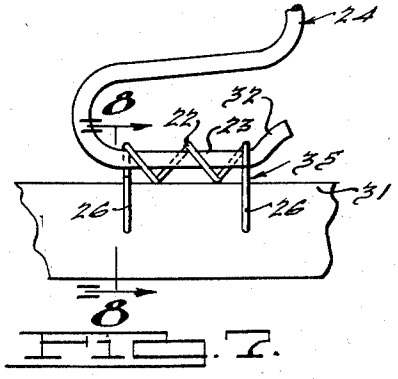


FIG. 7.

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CLIP MADE OF WIRE FOR SUPPORTING THE ENDS OF SINUOUS SPRING STRIPS

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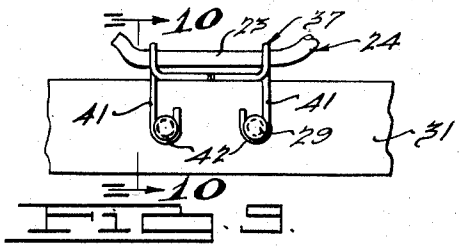


FIG. 9.

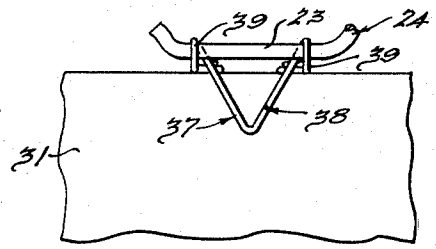


FIG. 11.

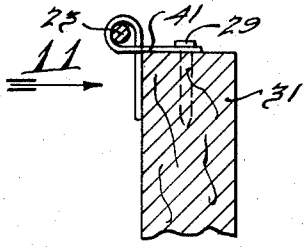


FIG. 10.

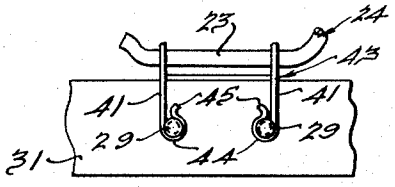


FIG. 12.

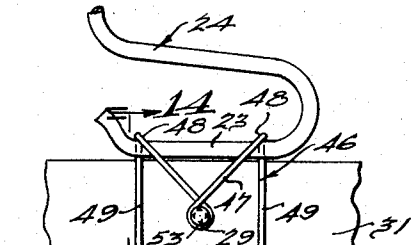


FIG. 13.

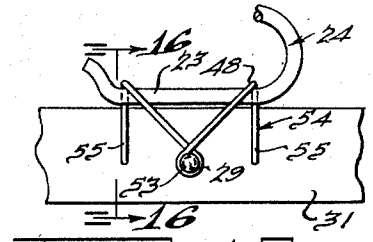


FIG. 15.

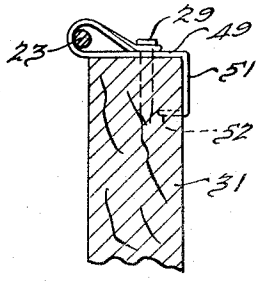


FIG. 14.

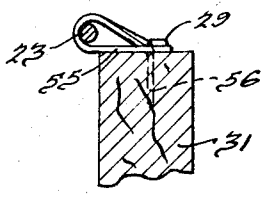


FIG. 16.

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2,926,878

CLIP MADE OF WIRE FOR SUPPORTING THE ENDS OF SINUOUS SPRING STRIPS

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Application November 18, 1953, Serial No. 392,962
8 Claims. (Cl. 248—302)

This invention relates to clips for supporting the ends of sinuous spring strips, and particularly to a clip made of wire which supports the spring ends.

It has been the practice to make clips of solid strip material formed in various shapes to provide a loop or tunnel for receiving the end of a sinuous spring strip and supporting the end on a frame when the clip is secured thereto. The metal of the clip produced squeaks due to the pivoting of the spring end within the loop or tunnel. To overcome such squeaks, a lining material was applied to the clip over the entire loop portion thereof. Not only was the weight of metal employed in the clip substantially greater than that in the present wire clip, but additional expense resulted from the application of the sound deadening material thereto. By reducing the contact between the wire forming the clip and the end of the spring, the chance of producing squeaks was substantially reduced. Squeaks were entirely eliminated when brass or like material was employed in the wire of the clips.

Accordingly, the main objects of the invention are: to form a clip from wire in a manner to have a loop portion for receiving and supporting the end of a spring strip; to form a clip from wire having a pair of extending arms, with a coiled portion therebetween forming a tunnel; to form a clip with spaced loop portions for receiving the end of a spring strip from which arms of different length extend, having means on the free ends thereof by which the arms are secured to a frame, and, in general, to provide a clip which is simple in construction and economical of manufacture.

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 drawings, wherein:

Figure 1 is a plan view of a wire clip attaching the end of a spring strip to a frame, embodying features of the present invention;

Fig. 2 is a sectional view of the structure illustrated in Fig. 1, taken on the line 2—2 thereof;

Fig. 3 is a sectional view of the structure illustrated in Fig. 1, taken on the line 3—3 thereof;

Fig. 4 is a view of structure, similar to that illustrated in Fig. 1, with the arms lengthened to form a spring support;

Fig. 5 is a sectional view of the structure illustrated in Fig. 4, taken on the line 5—5 thereof;

Fig. 6 is a sectional view of the structure illustrated in Fig. 4, taken on the line 6—6 thereof;

Fig. 7 is a view of a clip, similar to that illustrated in Fig. 1, showing a further form of attaching means thereon;

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

Fig. 9 is a plan view of a clip, similar to that illustrated in Fig. 1, showing a different form thereof;

Fig. 10 is a sectional view of the clip illustrated in Fig. 9, taken on the line 10—10 thereof;

Fig. 11 is a view of the clip illustrated in Fig. 10, as viewed from the point G thereof;

Fig. 12 is a view of structure, similar to that illustrated in Fig. 9, showing a different form of support at the end of the arms thereof;

Fig. 13 is a plan view of a clip showing another form which the invention may assume;

Fig. 14 is a sectional view of the structure illustrated in Fig. 13, taken on the line 14—14 thereof;

Fig. 15 is a view of structure, similar to that illustrated in Fig. 13, showing another form thereof, and

Fig. 16 is a sectional view of the structure illustrated in Fig. 15, taken on the line 16—16 thereof.

Referring to Figs. 1, 2 and 3, a clip 21 is illustrated made of wire having a coiled portion 22 which forms a tunnel for the reception of the terminal end 23 of a sinuous spring strip 24. It will be observed that the internal diameter of the tunnel formed by the coiled portion 22 is substantially larger than the diameter of the terminal end 23 so that only a portion of each convolution of the coiled portion 22 engages the terminal end 23. The end of the coiled portion 22 is provided with arms 25, while the opposite end has an arm 26 of shorter length than the arm 25 as it extends from the adjacent side 27 of the coiled portion. Each end of the arms 25 and 26 is formed into an eyelet 28 through which a nail 29 is driven into the frame 31 for supporting the clip in rigid relation thereto. When so supported, the coiled portion 22 is disposed against the inner face of the frame member 31 below the top surface thereof. The end of the spring strip 24 has a reversely bent end portion 32 which may be moved through the coiled portion 22 of the clip. After the spring is tensioned across a pair of the frame members 31, the end portion 32 prevents the end 23 of the strip 24 from moving out of the coiled portion.

Referring to Figs. 4, 5 and 6, a further form of the invention is illustrated, that wherein arms 33 and 34 are employed of substantially greater length than the arms 25 and 26 of the clip 21 illustrated in Figs. 1, 2 and 3, in which arrangement the coiled portion 22 is spaced a substantial distance from the inner face of the frame member 31. This permits the arms 33 and 34 to deflect and thereby provide a resilient support for the end 23 when disposed in the coiled portion 22 when a load is applied to the strip.

In Figs. 7 and 8, a wire clip 35 is illustrated which is similar to the wire clip 21, the arms 25 and 26 thereof having the end portions 36 bent downwardly and reversely bent angularly toward the coiled portion 22, as clearly illustrated in Fig. 8. The end portions 36 may be driven directly into the frame for supporting the coiled portion 22 on the inner faces thereof, thereby eliminating the nails 29 which were employed with the clip 21.

In Figs. 9, 10 and 11, a further form of wire clip 37 is illustrated, that having a V portion 38 which engages the inner face of the frame member 31, with the free ends provided with loops 39 and extended to form supporting arms 41. The ends of the supporting arms are reversely bent, providing U-shaped end portions 42 which may be hooked over the body of nails which are first driven into the frame. The heads of the nails when driven home support the clip rigidly upon the frame member.

In Fig. 12, a clip 43 is illustrated which is similar to the clip 21 of Figs. 9, 10 and 11, with the exception that the terminal end portions form complete loops 44. The ends 45 of the loops are bent outwardly so that the loops may cam open when the arms 41 are pulled forwardly to have the loop 44 extend about the body of the nails 29 if driven into the frame before the clip is applied thereto. It is to be understood that in either of the clips 37 or 43 the nails may be driven directly through the end loops when the clip is applied to the frame.

In Figs. 13 and 14, a further form of clip 46 is illustrated, that having a central V portion 47 reversely arched to form spaced loops 48 from which arms 49 extend. The arms 49 are bent downwardly at 51 and

are bent inwardly to form ends **52** which may be driven into the outer face of the frame member **31**. The apex of the V portion **27** is twisted to form an eye **53** through which a nail **29** is driven after the end **23** of the spring strip **24** has been disposed in engagement with the loops **48**. When the diameter of the loops **48** is sufficiently large, the clip may be secured to the frame, first by the driving of the ends **52** in the outer face thereof and then by securing the eye **53** by the nail **29** driven through the top of the frame **31**. The end **23** of the spring may be applied through the loop in the same manner as it is applied through the coiled portion **22** of the spring strips illustrated in Figs. 1 to 3.

A clip **54** is illustrated in Figs. 15 and 16 which is similar to the clip **46** described above, with the exception that the arms **55** thereof are shorter in length than the arms **49**, with the ends **56** thereof bent downwardly at right angles. This clip is applied to the frame **31** by driving the ends **56** into the top edge of the frame, after which the eye **53** is secured between the arms by the nail **29** when driven therethrough. The spring end **23** may be applied to the loop **48** prior to the securing of the eye **53** to the frame, or after the eye is nailed thereto, as pointed out above.

In any of the constructions, a clip is formed of wire to have arms by which the clip is secured to the frame and other portions which abut the frame and form loops for receiving and supporting the end of the spring strips. By employing wire instead of strip material to form the clip, as has occurred in the past, a substantial saving in weight and cost of materials is thereby obtained. A non-frictional material, such as brass, bronze, aluminum and the like may be employed in the material of the wire forming the clip so as to substantially reduce the friction between the spring end and the points of engagement with the clip, thereby eliminating the squeaks which may otherwise occur. The reduction of the area of engagement between the spring end and the coiled or loop portions of the clip substantially reduces the possibility of undesirable noises occurring even though both the spring and the wire are made of steel.

What is claimed is:

1. In combination with a sinuous wire spring strip having a transversely disposed end portion, a wire clip comprising a coiled length of wire having a plurality of open coils disposed over said end portion of the spring strip, the internal diameter of said open coils being substantially larger than the diameter of said end portion, and arms extending in the same direction from each end of the coil at one side of the coil for attaching the clip to a seat frame to secure the end of the spring strip to the frame.

2. In combination with a sinuous wire spring strip having a transversely disposed end portion, a wire clip comprising an open length of coiled wire having the coils thereof in W relation, said coiled wire being disposed over said end portion and having an internal diameter which is substantially larger than the diameter of the end portion, and arms extending in the same direction from each end of the coil at one side of the coil for attaching the clip to a seat frame to secure the end of the spring strip to the frame, one of said arms being of greater length than the other.

3. In combination with a sinuous wire spring strip having a transversely disposed end portion, a wire clip comprising a coiled length of wire disposed over said end portion and having an internal diameter which is substantially larger than the diameter of the end portion, and arms extending in the same direction from each end of the coil and located in the same plane for attaching the clip to a seat frame to secure the end of the spring strip to the frame, one of said arms being of greater length than the other, the end portion of the arms being bent downwardly providing end portions which may be driven into the frame member.

4. In combination with a sinuous wire spring strip having a transversely disposed end portion, a clip made of wire having extending arms formed on adjacent ends with anchoring means, and loops on the opposite ends of the arms having a joining portion therebetween to space the loops a substantial distance part and having an internal diameter substantially larger than the diameter of said end portion, said loops being disposed over said end portion, said joining portion being of V-shape and disposed in substantially right-angle relationship to the arms.

5. In combination with a sinuous wire spring strip having a transversely disposed end portion, a clip comprising a central V portion having the apex of the V twisted to form an eye, with loops formed at the free ends of the V and reversely bent to provide supporting arms disposed in the plane in which the eye is located, said loops being disposed over said end portion of the spring strip and having an internal diameter substantially larger than the diameter of said end portion, said eye and supporting arms being adapted to be secured to a seat frame to secure the spring strip to the frame.

6. In combination with a sinuous wire spring strip having a transversely disposed end portion, a clip comprising a central V portion having the apex of the V twisted to form an eye, with loops formed at the free ends of the V and reversely bent to provide supporting arms disposed in the plane in which the eye is located, said loops being disposed over said end portion and having an internal diameter substantially larger than the diameter of said end portion, the end of said arms being formed to provide anchoring means for attaching the clip to a seat frame to secure the end of the spring strip to the frame.

7. In combination with a sinuous wire spring strip having a transversely disposed end portion, a clip comprising a central V portion having the apex of the V twisted to form an eye, with loops formed at the free ends of the V and reversely bent to provide supporting arms disposed in the plane in which the eye is located, said loops being disposed over said end portion, and having an internal diameter substantially larger than the diameter of said end portion, the end of said arms being formed to provide anchoring means for attaching the clip to a seat frame to secure the end of the spring strip to the frame, said anchoring means at the end of the arms embodying a downwardly extending portion and an inwardly extending terminal end which is parallel to the arms.

8. In combination with a sinuous wire spring strip having a transversely disposed end portion, a clip comprising a central V portion having the apex of the V twisted to form an eye, with loops formed at the free ends of the V and reversely bent to provide supporting arms disposed in the plane in which the eye is located, said loops being disposed over said end portion and having an internal diameter substantially larger than the diameter of said end portion, the end of said arms being formed to provide anchoring means, said anchoring means at the end of the arms embodying a downwardly extending portion which may be driven into the top of the frame for attaching the clip to a seat frame to secure the end of the spring strip to the frame.

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