April 7, 1953 W. H. NEELY ET AL 2,633,904

RAIL MEMBER FOR REMOVABLY MOUNTING SINUOUSLY CORRUGATED WIRE SPRINGS

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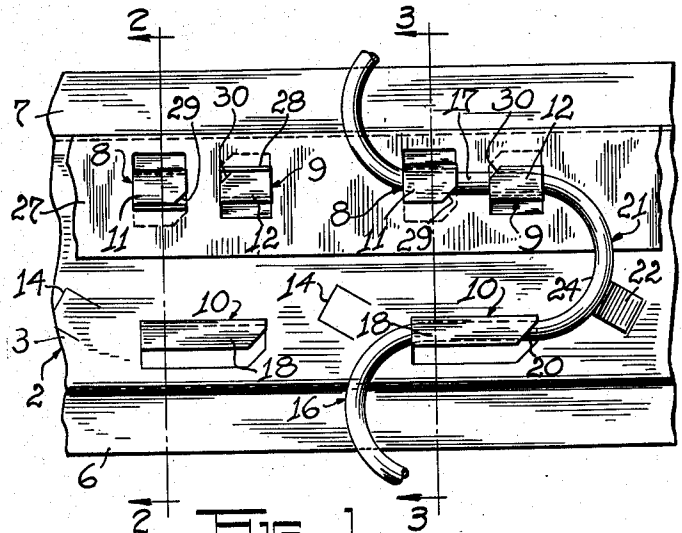


FIG. 1

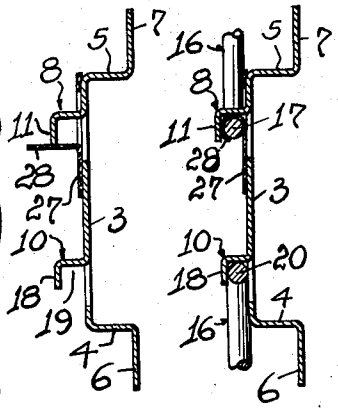


FIG. 2

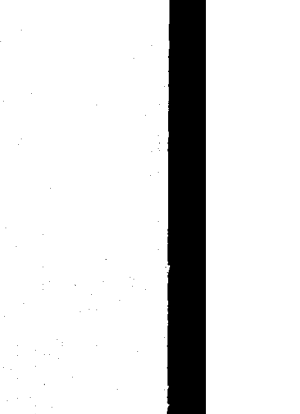


FIG. 3

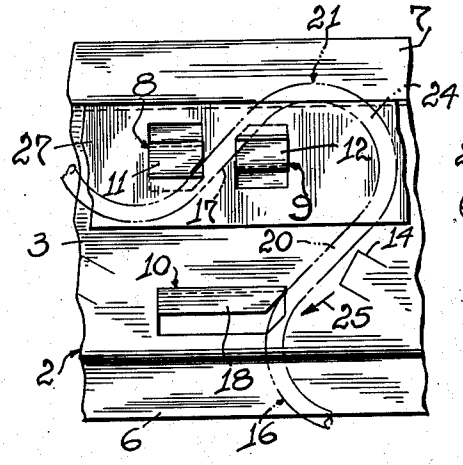


FIG. 4

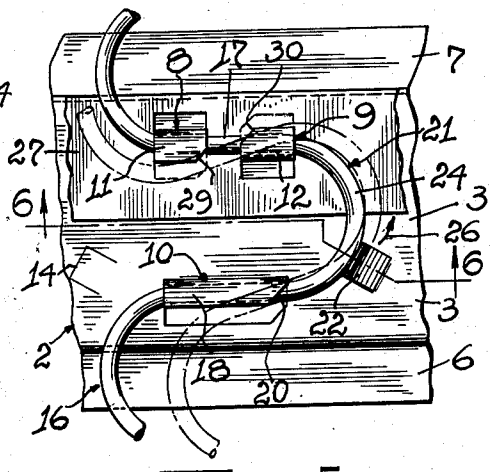


FIG. 5

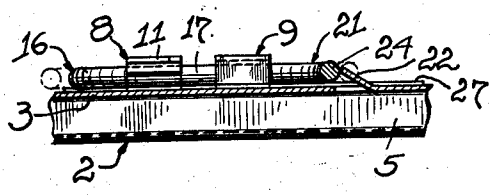


FIG. 6

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RAIL MEMBER FOR REMOVABLY MOUNTING SINUOUSLY CORRUGATED WIRE SPRINGS

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7 Claims. (Cl. 155—179)

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This invention relates in general to supporting members for springs of spring constructions, and, more particularly to supporting rails for sinuously corrugated wire springs assembled to wire constructions.

The primary object of this invention is the provision of a rail member adapted to readily removably and non-shiftably support corrugated wire springs of the type embodying left and right-handed loops connected with each other by cross wires, the rail member including for each spring two aligned, hook-shaped elements positioned in laterally-spaced, reversed relation with respect to each other for seating and gripping opposite sides of a cross wire of a corrugated wire spring when such cross wire is shifted into engagement with said elements, another hook-shaped element symmetrically spaced from said two elements and constructed to grip the cross wire adjacent to said first cross wire, and struck-up means positioned in offset relation with respect to all said elements and adapted to engage the loop connecting the said two cross wires to releasably lock the corrugated wire spring in proper position without deforming the rail member and the hook-shaped elements thereof.

Another object of the invention is the provision of a rail member adapted to readily removably and non-shiftably support sinuously corrugated wire springs embodying left and right-handed loops connected with each other by cross wires, the rail member including for each spring two, aligned, struck-up portions of hook-shaped form arranged in laterally-spaced, reversed relation with respect to each other, adapted to seat and grip opposite sides of a cross wire of a corrugated wire spring when such cross wire is shifted into engagement with said struck-up portions, a third struck-up portion of hook-shaped form positioned in symmetrical spaced relation with respect to said first two struck-up portions and adapted to grip a cross wire adjacent to the said first cross wire of the corrugated wire spring, and a struck-up stop member positioned in offset relation with respect to said first struck-up portions adapted to engage the loop connecting said cross wires of the corrugated wire when said cross wires thereof are shifted into engagement with the hook-shaped, struck-up portions of the rail member.

A further object of the invention is the provision of a rail member of the type described above in which the struck-up stop member includes a stop shoulder arranged at a right angle to the rail member and adapted to contact the said loop

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of the corrugated wire spring when seated on the rail member and engaged with the struck-up, hook-shaped portions thereof.

Still another object of the invention is the provision of a rail member of the type described above in which the portion of the rail member having the aligned hook-shaped portions struck up therefrom is insulated by a strip of fibrous material formed with struck-up portions for cooperation with the hook-shaped portions in insulating the cross wires held thereby and avoiding direct contact of such cross wires with the rail member and the hook-shaped portions thereof.

With the above and other incidental objects in view, the invention has other marked improvements and superiorities which radically distinguish same from presently known structures. These improvements and superior characteristics, embodying certain novel features of construction and relation of parts are clearly set forth in the appended claims and the preferred embodiment of the invention hereinafter shown with reference to the accompanying drawing forming part of the specification.

In the drawing:

Fig. 1 is a fragmentary plan view of a rail member constructed in accordance with the invention, the rail member having removably secured thereto a convolution of a sinuously corrugated wire spring;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a view similar to Fig. 1 showing in dash-dotted lines, resting on the rail member, a corrugated wire spring positioned to be shifted so that two adjacent cross wires of the spring engage with the hook-shaped, struck-up portions of the rail member;

Fig. 5 is a plan view similar to Fig. 4 showing in dash-dotted lines a position of the wire spring while the two adjacent cross wires of the wire spring are being shifted into engagement with the struck-up portion of the rail member, and in full lines said cross wires fully engaged with the struck-up portions and the loop connecting the cross wires contacted by the upwardly bent stop member.

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5.

Referring now in detail to the exemplified form of the invention shown in the drawing, reference numeral 2 denotes a flanged, U-shaped rail mem-

ber embodying a seating and resting portion 3, downwardly extended side flanges 4 and 5, and lateral flanges 6 and 7 extended from side flanges 4 and 5. Seating or resting portion 3 is formed with a plurality of groups of struck-up, hook-shaped portions, each group including two, aligned, struck-up, hook-shaped portions 8 and 9 which are laterally spaced from each other a short distance and reversed, with respect to each other, to extend their open hook ends in opposite directions at a right angle to the axis of rail member 2, and a third struck-up, hook-shaped portion 10 positioned in spaced, symmetrical relation with respect to a struck-up hook-shaped portions 8 and 9. The latter portions are struck up from seating portion 3 by shifting said seating portion so as to form oppositely extending tongue members 11 and 12, tongue member 11 being bent upwardly and inwardly and tongue member 12 being bent upwardly and outwardly. The thus formed hook-shaped portions 8 and 9 include upper wall portions spaced from seating portion a distance approximately equal to the gage of the wire of the sinuously corrugated wire spring 16, the cross wire 17 of which is engaged and held by portions 8 and 9.

Hook-shaped portion 10, which is positioned in spaced, symmetrical relation with respect to hook-shaped portions 8 and 9, is also struck up from seating portion 3 slit for this purpose to form a tongue member 18 bent upwardly and outwardly to provide a seat 19 for cross wire 20 adjacent and parallel to cross wire 17 of convolution 21 of the sinuously corrugated wire spring 16.

The described three hook-shaped portions 8, 9 and 10 which form a group removably seating, holding and gripping sinuously corrugated wire spring 16, cooperate with a stop member 22 struck up from resting portion 3 of rail member 2. This stop member is positioned in laterally and angularly offset relation with respect to the two hook-shaped portions 8, 9 and hook-shaped portion 10 to contact loop 24 forming part of convolution 21. Stop member 22 is formed by a U-shaped slit 14 in resting portion 3 and forcing the slitted area upwardly when the convolution 21 of wire spring 16 is properly seated in hook-shaped portions 8, 9 and 10 to lock such convolution against accidental displacement.

Mounting of a corrugated wire spring 16 on rail member 2 is effected by placing the spring, as shown in dotted lines in Figs. 4 and 5, on the seating surface of seating portion 3 so that cross wire 17 extends between the hook-shaped portions 8 and 9 and has the cross wire 20 positioned to be shifted into seat 24 of hook-shaped portion 10 from one side thereof. In this position spring 16 is rotated in a direction indicated by arrow 25 to extend cross wire 17 under wall portions 14 and 15 of hook-shaped portions 8 and 9 and slide into hook-shaped portion 10 (see Figs. 4 and 5) until convolution 21 properly rests in hook-shaped portions 8, 9 and 10. When thus seated the slitted portion in resting portion 3 is forced upwardly to engage loop 24 and prevent as stop member 22 rotation of convolution 21 in a direction indicated by arrow 26. A rotation of convolution 21 in the direction indicated by arrow 25 is prevented by hook-shaped portions 8 and 9 as will readily be seen from the full line position of spring 16 (see Fig. 5).

Demounting of corrugated wire spring 16 from rail member 2 can be effected only after stop member 22 has been forced downwardly into the resting surface to permit rotation of convolution 21 in the direction of arrow 26.

A direct contact of convolution 21 with seating portion 3 adjacent to hook-shaped portion 8 and 9 and such hook-shaped portions is prevented by a strip 27 of insulating material such as fiber placed on seating portion 3. This strip includes struck-up tongue members 28 which are arranged to align with the edges of the upper wall portions of hook-shaped portions 8 and 9. These tongue members which are pliable to permit their wrapping around cross wire 17 when spring 16 is being rotated into engagement with hook-shaped portions 8, 9 and 10 in the manner described above, insulate the cross wire 17 from direct contact with seating portion 3 and hook-shaped portions 8 and 9.

To facilitate assembly and disassembly of springs 16 from rail member 2, hook-shaped portions 8 and 9 have their opposing corner edges at their upper wall portions cut on slanting, parallel lines 29 and 30.

Having thus described our invention, what we claim is:

1. A rail member for mounting sinuously corrugated wire springs embodying a metal strip, two aligned, hook-shaped elements arranged on said strip in laterally spaced, reversed relation with respect to each other so that their open hooks face in opposite directions parallel to the axis of the metal strip, and a third hook-shaped element arranged in symmetrical relation with respect to said two aligned, hook-shaped elements, said third hook-shaped element having its open hook end facing parallel to the axis of said rail member in a direction away from said two aligned, hook-shaped elements and all said elements cooperating in removably mounting a sinuously corrugated wire spring on the metal strip.

2. A rail member for mounting sinuously corrugated wire springs embodying a metal strip, two aligned, hook-shaped elements arranged on said strip in laterally-spaced, reversed relation with respect to each other so that their open hooks face in opposite directions parallel to the axis of the metal strip, a third hook-shaped element arranged in substantial symmetrical relation with respect to said two aligned, hook-shaped elements, and a stop member arranged in laterally offset relation with respect to said two hook-shaped elements and said third hook-shaped element, said hook-shaped elements and stop member cooperating in removably mounting and locking a sinuously corrugated wire spring on said metal strip.

3. A rail member as described in claim 2, wherein said third hook-shaped element has its open hook end facing parallel with respect to the axis of said metal strip in a direction away from the two aligned, hook-shaped elements.

4. A rail member for mounting sinuously corrugated wire springs embodying a metal strip, two aligned, hook-shaped elements formed as struck-up portions of said strip and arranged therein in laterally spaced, reversed relation with respect to each other so that their open hook ends face in opposite directions parallel to the axis of said strip, a hook-shaped element struck up from said strip in axially offset relation with respect to said two hook-shaped elements so that the open hook end of this one element faces parallel to the axis of said metal strip in a direction away from the two aligned hook-shaped elements, and a holding element struck up from said strip to extend in laterally offset, angular relation with

respect to the two aligned, hook-shaped elements and the one hook-shaped element, said hook-shaped elements and holding element cooperating in removably mounting and locking a convolution of a sinuously corrugated wire spring on the metal strip.

5. A rail member as described in claim 4 wherein the struck-up holding element forms a stop shoulder tangentially contacting one loop of the convolution of a sinuously corrugated wire spring when engaged with the hook-shaped portions of the metal strip by sliding such spring on the resting surface of the rail member under the hook-shaped portions thereof.

6. A rail member as described in claim 4 wherein the top portions of the two aligned, hook-shaped elements of the metal strip have their adjacent corner edges cut off on slanted parallel

lines to facilitate inserting of the cross wire of a spring between the two aligned, hook-shaped, struck-up elements.

7. A rail member as described in claim 4 wherein the metal strip is lined by a strip of fibrous material arranged in the area of the two aligned, hook-shaped elements, and wherein the strip of fibrous material includes struck-up tongue portions adapted to partly encircle the cross wire of a spring attached to the metal strip by engagement with said aligned, hook-shaped elements to effect insulation of such cross wire from contact with the metal strip.

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No references cited.