March 30, 1954 G. H. GRATTAN 2,673,598

SPRING FOR PRODUCING SOFT EDGES FOR SINUOUS SPRINGS

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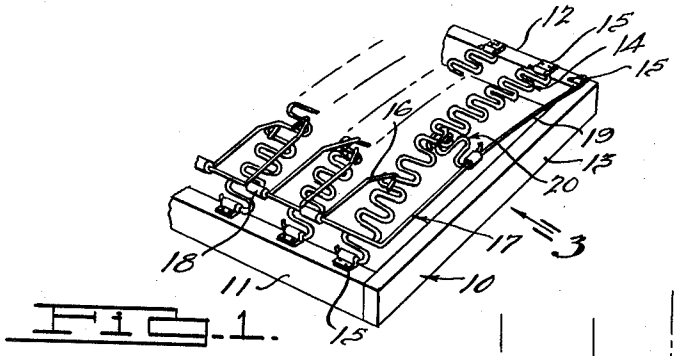


Fig. 1.

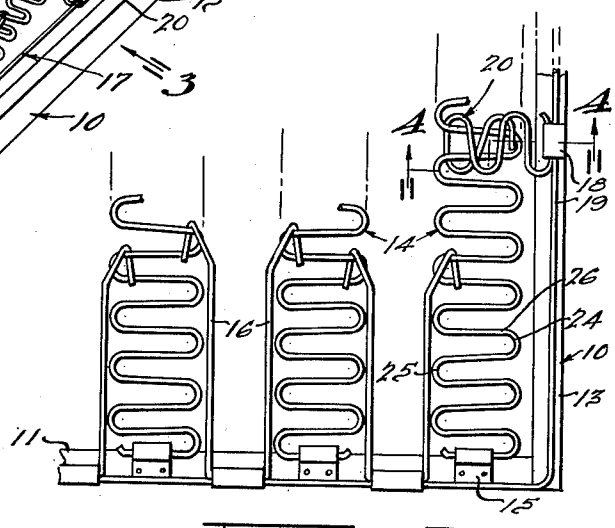


Fig. 2.

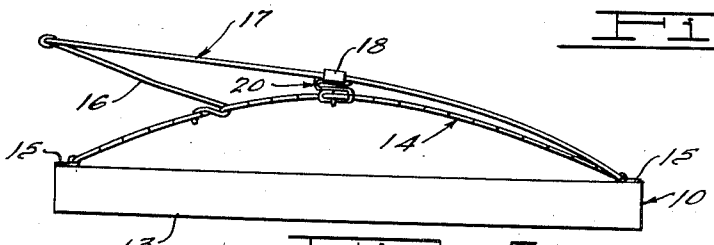


Fig. 3.

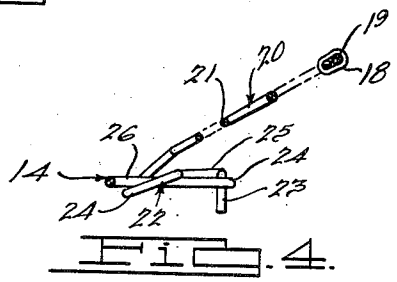


Fig. 4.

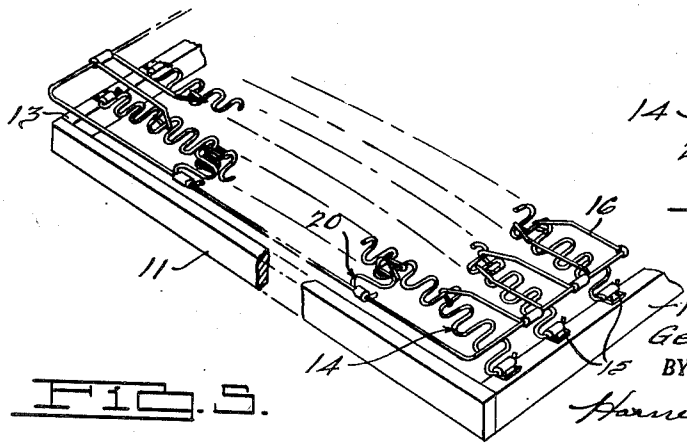


Fig. 5.

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SPRING FOR PRODUCING SOFT EDGES FOR SINUOUS SPRINGS

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6 Claims. (Cl. 155—179)

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This invention relates to spring constructions, and particularly to a spring element which forms a soft edge support for a spring assembly.

The invention pertains primarily to a spring to be employed with spring elements made from sinuous spring strips which are formed of wire bent back and forth to form adjacent alternate, oppositely disposed loops joined by straight portions. When the spring elements are supported by the ends across a frame, the ends form a hard seating edge and the central side edges are weak.

The spring of the present invention is of sinuous form having one complete end loop reversely bent, with the projecting end wire bent downwardly on the center line of the spring so that the spring thus formed may be placed over one of the loops of the cushion sinuous element and anchored therein by the downwardly projecting end disposed within the loop. When the projecting end of the spring is secured to a border wire or other element and drawn downwardly thereby, the spring element is securely attached to the assembly. A soft edge may be provided along the front edge of the seat cushion when the sinuous spring strips of the cushion extend laterally along, or the springs may be employed for securing a border wire on the loops of the sinuous spring strips of the assembly when extending from the front to the back frame members.

Accordingly, the main objects of the invention are: to provide a sinuous spring which is supported upon a U-shaped loop of a sinuous spring strip or similar type of spring strip; to provide a soft edge spring element by reversely bending an end of a sinuous spring strip and deflecting the terminal end downwardly centrally of the strips; to provide a spring which extends over one of the loops of the sidemost strips of an assembly of sinuous spring strips and is anchored thereto when the projecting ends of the springs are secured to a border wire or like element; and, in general, to provide a spring made of sinuous construction for interconnecting the side strips of a spring strip assembly to a border wire or to provide a soft edge to an assembly which is simple in construction and which is readily attached to the strip.

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 a broken perspective view of a sinuous spring strip assembly having a spring thereon embodying features of the present invention.

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

Fig. 3 is a view in side elevation of the structure illustrated in Fig. 1;

Fig. 4 is an enlarged sectional view of the structure illustrated in Fig. 2, taken on the line 4—4 thereof, and

Fig. 5 is a view of structure, similar to that illustrated in Fig. 1, showing a different form thereof.

Referring to Figs. 1 to 4, a spring assembly is illustrated, embodying a frame 10 having front and rear cross members 11 and 12 and side members 13. Sinuous spring strips 14 are interconnected to the front and rear frame members 11 and 12 by suitable clips 15. Spring elements 16 are interconnected to certain loops of the sinuous spring strips 14 near the front member 11 to extend thereabove and to be connected to a U-shaped border wire 17 by the clamping bands 18. The spring strips 16 are illustrated and described in the copending application of Henry Hopkes, Jr., Serial No. 594,002, filed May 16, 1945, now Patent 2,551,800, and assigned to the assignee of the present invention. The side portions 19 of the border wire are anchored by a clip 15 to the rear frame member 12 and are secured to the sidemost sinuous spring strips 14 by spring elements 20.

The spring element 20 has a load-supporting portion 21, a reversely bent anchoring portion 22 and a downwardly presented terminal end portion 23 which is disposed substantially centrally of the strip. The sinuous spring strip is constructed of wire bent back and forth to provide oppositely presenting adjacent loops 24 and 25 interconnected by straight portions 26. A pair of the loops 24 and 25 of the spring 20 is of a length to be received by the straight portion 26 of the spring strip 14, with one straight portion 26 of the spring 20 extending under the straight portion 26 of the spring 14 while the adjacent straight portion 26 of the spring 20 extends over the top of the straight portions 26 of the loop of the spring 14. The end portion 23 of the strip 20 thereafter is deflected into the loop 24 of the spring 14. To assemble the spring 20, it is only necessary to slide the loop 24 thereof over a loop of the spring 14 and therafter rock the spring downwardly to have the end 23 project within the loop 24 of the spring 14. When the free end of the load-supporting portion 21 of the spring 20 is secured to the side portion 19 of the border wire 17 by a suitable band 18, the end of the spring is deflected downwardly, thereby securely anchoring the end 23 within the

loop 24 of the spring 14. With this construction, resilient support is provided to the side portion 19 of the border wire over which the padding and trim material may be stretched to finish the cushion.

In Fig. 5, a different type of assembly is illustrated, that wherein the spring strips 14 are connected between the side elements 13 of the frame. The spring elements 20 are employed to provide a soft edge along the front of the seat, while one or more of the spring elements 16 are employed at the sides for supporting the border wire. It will be seen from this assembly that whereas the spring elements 16 are employed lengthwise of the strips 14, the spring elements 20 extend at a right angle thereto and with the use of both spring elements 16 and 20, a soft edge may be provided around the entire spring assembly irrespective of whether the sinuous spring strips 14 extend transversely or longitudinally of the front frame member.

What is claimed is:

1. A spring element made of wire bent back and forth to provide adjacent oppositely presenting loops joined by straight portions and comprising a load-supporting portion, a reversely bent portion containing two loops with the adjacent loops of the load supporting and reversely bent portions forming an aperture for receiving a U-shaped member on which the element is supported, and a downwardly extending end on the reversely bent portion disposable within the U-portion of the member by which the spring element is anchored in position thereon when deflected downwardly thereagainst.

2. A spring strip made of wire bent back and forth to provide adjacent oppositely presenting loops joined by straight portions attachable to a U-shaped support and having a projecting load-supporting portion, a reversely bent portion with the adjacent loops of the load supporting and reversely bent portions forming an aperture for receiving said U-shaped support, the end of said reversely bent portion being deflected downwardly to project into the opening in said U-shaped support for retaining the spring strip on the support.

3. In a spring assembly, a frame, a plurality of sinuous spring strips spanning said frame, said spring strips having a plurality of adjacent oppositely presenting loop portions joined by straight portions, a sinuous spring element having a load-supporting portion and a reversely bent portion, the junction of the portions providing a loop which receives a loop of the assembled spring strips and supports the spring element at right angles to the spring strips, and a centrally disposed downwardly projecting end portion which locks the reversely bent end portion on the loop of the spring strip when the spring element is rocked downwardly to have the projecting end disposed within the last said loop.

4. A spring strip made of wire bent back and forth to provide adjacent oppositely disposed loops joined by straight portions, said spring strip having two loops at one end thereof reversely bent to form a supporting portion, the two adjacent straight portions of the reversely bent portion extending under and over a U-shaped supporting member when attached thereto to have the spring strip disposed in extension of said supporting member, the end of the endmost loop of the reversely bent portion being bent at right angles thereto away from the main portion of the spring strip, the length of the reversely bent end portion being less than that of the U-shaped supporting member upon which it is secured when the spring strip is attached thereto.

5. In a soft edge element for attachment to a stressed sinuous spring formed of wire bent back and forth to provide adjacent oppositely presenting loops joined by straight portions, said element having an extending body portion terminating in a substantially closed loop which is insertable over a loop and two adjacent straight portions of said stressed sinuous spring against the two loops on the opposite end of the straight portions, said substantially closed loop having an extending end portion projecting downwardly therefrom substantially on the center of the loop for projecting between said straight portions inwardly of the connecting loop thereof when the body of said element is rocked downwardly in fixed relation on said straight portions for preventing the substantially closed loop from sliding therefrom.

6. In a soft edge element for attachment to a stressed sinuous spring formed of wire bent back and forth to provide adjacent oppositely presenting loops joined by straight portions, said element being constructed from a like stressed sinuous spring strip having a supporting portion and a portion containing two oppositely presenting loops reversely bent therefrom, the adjacent loop being disposed substantially against the supporting portion, the second loop being disposed at an angle to the first loop and therefore at a substantial angle from said supporting portion, the end of the second loop being bent downwardly to be substantially aligned with the center of said loop, said first loop of the reversely bent portion being disposed to receive a loop in the two adjacent straight portions of said stressed sinuous spring, a second loop resting on the top thereof when the supporting portion is rocked to supporting position having the extending end disposed in the area defined by the loop and straight portion of said stressed sinuous spring for preventing the element from being detached from the spring when the supporting portion is loaded.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,124,655	Freund	July 26, 1938
2,235,554	Hopkes	Mar. 18, 1941
2,341,419	Bank	Feb. 8, 1944
2,384,191	Neely	Sept. 4, 1945
2,392,254	Mayer	Jan. 1, 1946
2,526,184	Williams et al.	Oct. 17, 1950
2,551,800	Hopkes	May 8, 1951