Feb. 8, 1938. T. KOLIBA 2,107,446

SPRING CUSHION STRUCTURE

Filed Sept. 24, 1936 2 Sheets-Sheet 1

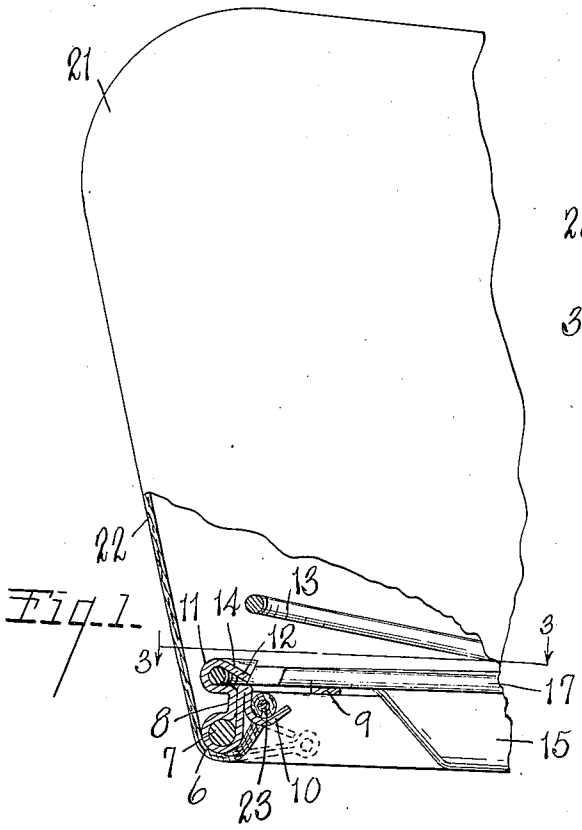


Fig. 1.

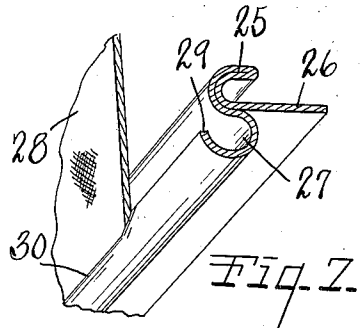


Fig. 7.

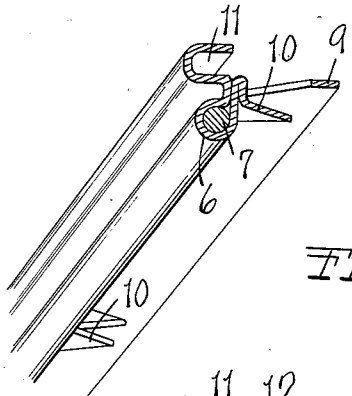


Fig. 4.

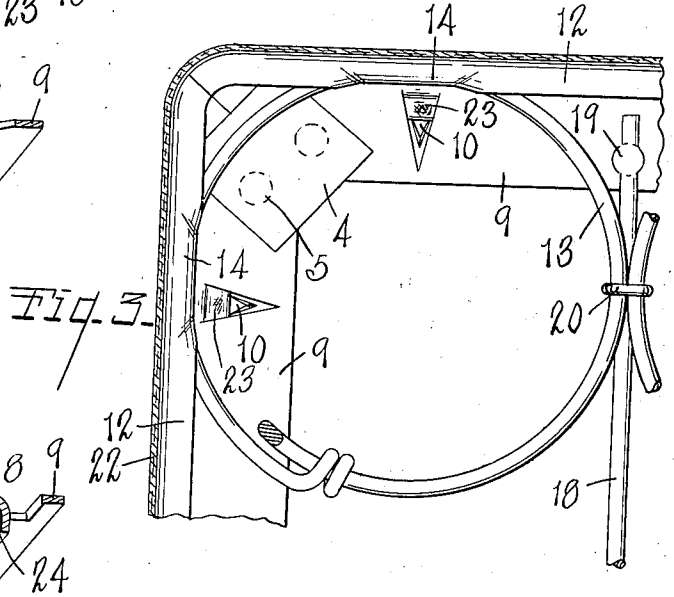


Fig. 3.

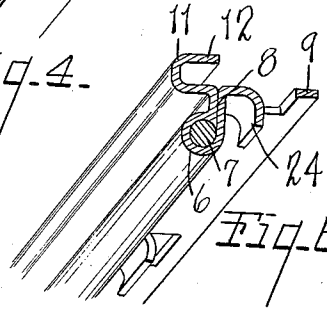


Fig. 6.

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SPRING CUSHION STRUCTURE

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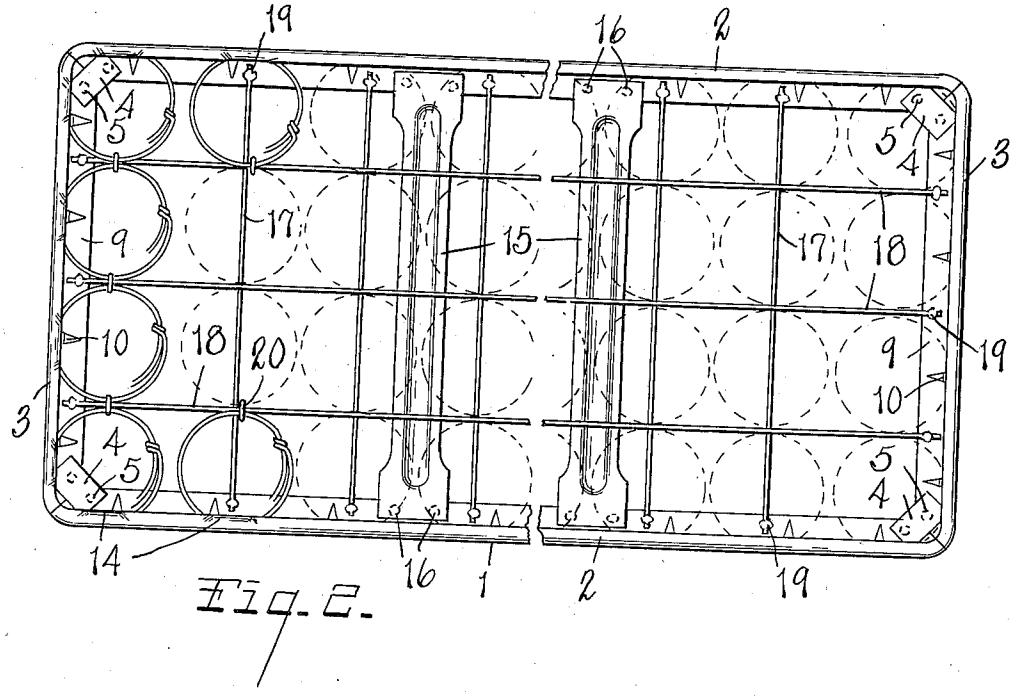


Fig. 2.

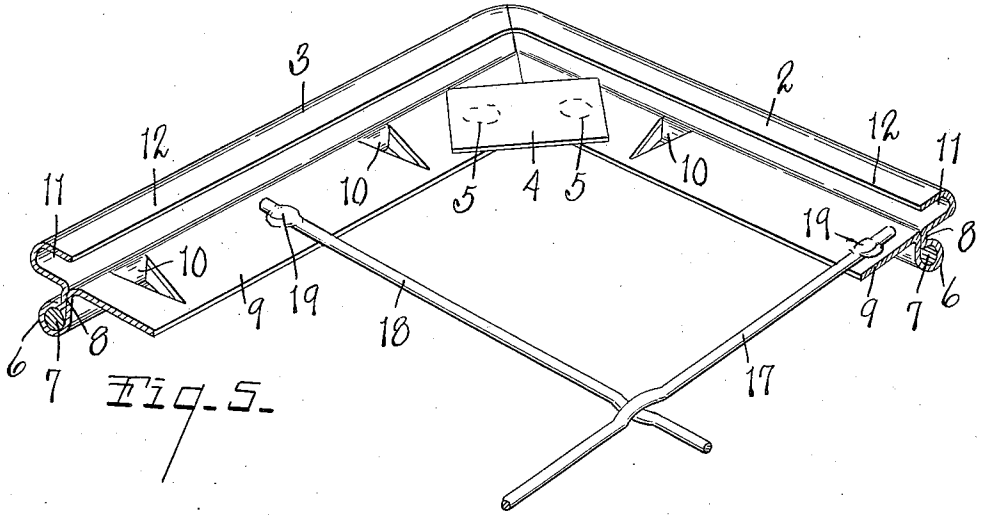


Fig. 5.

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Patented Feb. 8, 1938 2,107,446

UNITED STATES PATENT OFFICE

2,107,446

SPRING CUSHION STRUCTURE

Thomas Koliba, Detroit, Mich., assignor to L. A. Young Spring and Wire Corporation, Detroit, Mich.

Application September 24, 1936, Serial No. 102,296

14 Claims. (Cl. 155—130)

The main objects of this invention are:

First, to provide in a spring structure an improved base structure which is very rigid, facilitates the mounting of the springs and also the attachment of the upholstery.

Second, to provide a structure having these advantages which eliminates the necessity for the use of special tools in applying the upholstery and one which permits rapid application of the upholstery by unskilled workmen.

Third, to provide a structure of this type in which the upholstery may be readily removed and reapplied as occasion may require.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

Preferred embodiments of the invention are shown in the accompanying drawings, in which:

Fig. 1 is a fragmentary view partially in elevation and partially in vertical section of a structure embodying the features of the invention.

Fig. 2 is a fragmentary plan view of the spring assembly or unit, parts of the spring being indicated by dotted lines and others shown conventionally in full lines.

Fig. 3 is a fragmentary view in horizontal section on line 3—3 of Fig. 1.

Fig. 4 is a fragmentary bottom perspective view of the border frame.

Fig. 5 is a fragmentary perspective view illustrating the relation of the border frame members and the spring supporting grid.

Fig. 6 is a fragmentary perspective view of a slightly modified form or embodiment of the border frame.

Fig. 7 is a fragmentary perspective view illustrating another modification or embodiment.

Referring to the drawings, reference numeral 1 indicates generally the border frame made up of side members 2, 2 and end members 3, 3. The embodiment illustrated is substantially of rectangular cross section, the form shown being for convenience in illustration but it will be understood that in practice the frames are shaped to meet the particular requirements.

In this embodiment, the side and end members are formed separately and joined by corner irons 4 which are secured by means of spot welds 5. These border or frame members are formed of strips of sheet metal folded or conformed longitudinally to provide a rounded bight 6 preferably enclosing a reinforcing rod or wire 7. The arms above the bight are disposed side by side to provide an upstanding web 8. The inner arm terminates in a horizontally disposed flange or ledge 9 having tongues 10 struck downwardly therefrom, these tongues being preferably A-shaped to provide an eye for piercing the upholstery as will be described. The outer arm of the folded strip terminates in an outwardly offset inwardly facing spring supporting channel 11 which is spaced from the bottom bight 6 of the frame so that it may be engaged with a plier-like tool to clamp the upper flange of the channel 12 upon the bottom coil of a spring 13 as is shown at 14 in the drawings.

To support the body springs and to brace and make the frame rigid, I provide cross bars 15 which are lapped upon and welded to the flange or ledge 9 at 16, and I also provide a spring supporting grid of crossed wires 17 and 18, the ends of these grid wires being lapped upon and welded to the flange or ledge 9 as indicated at 19. The springs are secured to this grid by means of clips indicated at 20.

The upholstery 21 is provided with a skirt 22 having a beaded edge 23. This beaded edge is wrapped around the bottom or bight portion of the border frame and is engaged with the upholstery securing members 10 preferably by passing these tongue-like securing members through the upholstery below the bead and bending the securing members upwardly as is indicated by dotted and full lines in Fig. 1.

In the embodiment shown in Fig. 6, the upholstery securing members 24 are turned downwardly and designed to clamp the bead or edge of the upholstery skirt against the web portion of the frame.

In the embodiment of my invention shown in Fig. 7, the strip is folded to provide a double thickness spring receiving channel 25, the supporting ledge 26 extending from this channel, the other edge of the strip being conformed to provide an outwardly facing upholstery securing channel 27, the skirt 28 of the upholstery being arranged therein and secured by clamping the flange 29 of the channel upon the skirt as is indicated at 30. This also provides an effective means for securing the upholstery, rendering the upholstery operation practical with the use of unskilled labor, and the structure is very rigid so that it withstands severe usage and is suitable for heavy work.

I have illustrated and described embodiments of my invention which I consider very practical. I have not attempted to illustrate or describe certain other embodiments or adaptations which

I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a spring cushion structure, the combination of a border frame comprising fixedly connected side and end members formed of metal strips, the strips being folded longitudinally to provide a bottom bight enclosing a wire reinforcing element, the arms above the bight being disposed side by side to provide an upstanding web, the inner arm terminating in a horizontal flange having hook-like upholstery securing members struck downwardly therefrom, the outer arm terminating in an outwardly offset inwardly facing U-shaped spring supporting channel spaced from said reinforced bottom bight, cross bars extending between said side members arranged upon and welded to said inwardly projecting flanges thereof, a spring supporting wire grid disposed upon said cross members with their ends lapped upon and welded to said inwardly projecting flanges, coiled body springs arranged on said grid, the bottom coils of certain of said body springs being clamped within the inwardly facing spring supporting channel, and an upholstery covering for said springs having a depending skirt wrapped around the bottom of said border frame and having a beaded edge engaged with said upholstery securing members.

2. In a spring cushion structure, the combination of a border frame comprising fixedly connected side and end members formed of metal strips, the strips being folded longitudinally to provide a bottom bight enclosing a wire reinforcing element, the arms above the bight being disposed side by side to provide an upstanding web, the inner arm terminating in a horizontal inwardly projecting flange having hook-like upholstery securing members struck downwardly therefrom, the outer arm terminating in an outwardly offset inwardly facing U-shaped spring supporting channel spaced from said reinforced bottom bight, a spring support secured to said inwardly projecting flange, coiled body springs arranged on said support, the bottom coils of certain of said body springs being clamped within the inwardly facing spring supporting channel, and an upholstery covering for said springs having a depending skirt wrapped around the bottom of said border frame and having a beaded edge engaged with said upholstery securing members.

3. In a spring cushion structure, the combination of a border frame of metal folded longitudinally upon itself to provide a bottom bight, the arms above the bight being disposed side by side to provide an upstanding web, the inner arm terminating in a horizontal flange having upholstery securing members struck downwardly therefrom, the outer arm terminating in an inwardly facing U-shaped spring supporting channel, cross bars extending between said side members arranged upon and welded to said inwardly projecting flanges thereof, a spring supporting wire grid disposed upon said cross members with their ends lapped upon and welded to said horizontal flange, coiled body springs arranged on said grid, the bottom coils of certain of said body springs being clamped within the inwardly facing spring supporting channel, and an upholstery covering for said springs having a depending skirt wrapped around the bottom of said border frame and engaged with said upholstery securing members.

4. In a spring cushion structure, the combination of a border frame of metal folded longitudinally upon itself to provide a bottom bight, the arms above the bight being disposed side by side to provide an upstanding web, the inner arm terminating in a horizontal flange having upholstery securing members struck downwardly therefrom, the outer arm terminating in an inwardly facing U-shaped spring supporting channel, a spring support secured to said horizontal flange, coiled body springs arranged on said support, the bottom coils of certain of said body springs being clamped within the inwardly facing spring supporting channel, and an upholstery covering for said springs having a depending skirt wrapped around the bottom of said border frame and engaged with said upholstery securing members.

5. In a spring structure, a plurality of coiled springs, upholstery covering said springs, and means to support the springs and secure the upholstery around the springs comprising a metal border frame having an upstanding web and an integral inwardly facing channel and an integral inwardly projecting flange, a spring supporting base fixedly secured to said flange and supporting the springs, said channel receiving certain of the coiled springs and clampingly engaging the same, and inwardly facing projections struck downwardly from said flange and adapted to receive the skirt of the upholstery.

6. The combination with a plurality of coiled springs, of a base grid supporting said springs, upholstery covering said springs, said upholstery having a skirt provided with a beaded edge, a border frame supporting the base grid and formed to provide a channel receiving the lower coils of certain of the springs and adapted to clampingly engage the same, said frame having an inwardly extending ledge having downwardly projecting upholstery receiving projections punched out of the same, said grid being welded to said ledge.

7. The combination with a plurality of coiled springs, and upholstery covering said springs, said upholstery having a skirt, of means for supporting said springs and securing said upholstery around the same, comprising a border frame of metal bent to form a channel receiving the lower coils of certain of the springs and clampingly engage the same, and having an inwardly extending ledge provided with downwardly projecting upholstery skirt receiving projections punched out of the same.

8. The combination with a plurality of coiled springs, and upholstery covering said springs, said upholstery having a skirt provided with a beaded edge, of means for supporting said springs and securing said upholstery around the same, comprising a border frame of metal bent to form a channel receiving the lower coils of certain of the springs and clampingly engage the same, and having an inwardly extending ledge provided with downwardly projecting upholstery receiving projections punched out of the same, said projections being adapted to penetrate said skirt at the inside of its beaded edge and being deformable to facilitate the securing of said skirt.

9. A border frame member for cushion structures comprising a metal strip conformed to provide an integral channel adapted to receive and clampingly engage a coil of a spring, an integral

depending web, and an inwardly extending flange, said flange having projections struck out of the same to provide an upholstery securing space between said projections and said flange, said projections being bendable to clamp the upholstery.

10. A border frame member for cushion structures comprising a metal strip conformed to provide an integral channel adapted to receive and clampingly engage a coil of a spring, an integral depending web, and an inwardly extending flange, said flange having projections struck out of the same to provide an upholstery securing space between said projections and said flange.

11. In a spring cushion structure, fixedly connected side and end members formed of metal strips, the strips being folded longitudinally upon themselves to provide a bottom bight enclosing a wire reinforcing element, the arms above the bight being disposed side by side to provide an upstanding web, the inner arm terminating in a horizontal flange having inwardly projecting hook-like upholstery securing members struck downwardly therefrom, the outer arm terminating in an outwardly offset inwardly facing spring supporting channel spaced from said reinforced bottom bight.

12. In a spring cushion structure, fixedly connected side and end members formed of metal strips, the strips being folded longitudinally upon themselves to provide a rounded bottom bight, the arms above the bight being disposed to provide an upstanding web, the inner arm terminating in a horizontal flange having projecting upholstery securing members struck downwardly therefrom, the outer arm terminating in an inwardly facing spring supporting channel.

13. A border frame member for cushion structures comprising a metal strip conformed to provide an integral channel adapted to receive and clampingly engage a coil of a spring, an integral depending web, and an inwardly extending flange, said flange having projections struck out of the same to provide an upholstery securing space between said projections and said web, said projections being bendable to clamp the upholstery.

14. A border frame member for cushion structures comprising a metal strip conformed to provide an integral channel adapted to receive and clampingly engage a coil of a spring, an integral depending web, and an inwardly extending flange, said flange having projections struck out of the same to provide an upholstery securing space.

THOMAS KOLIBA.