May 28, 1940. W. W. GLEASON 2,202,052

UPHOLSTERY SPRING STRUCTURE

Filed April 7, 1938

Fig. 1.

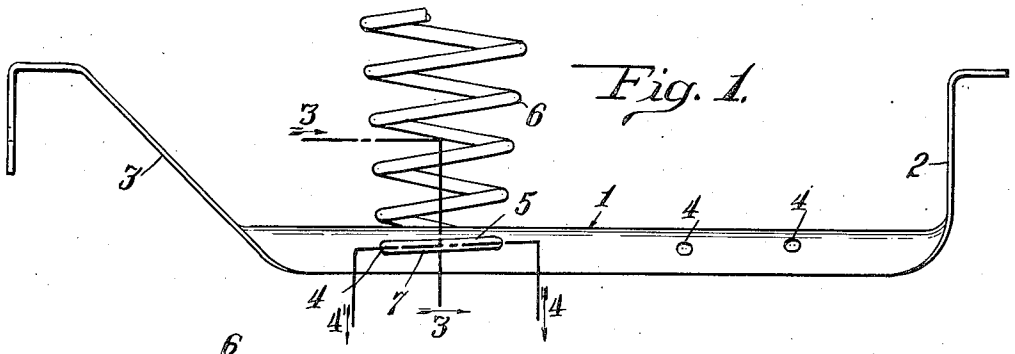


Fig. 2.

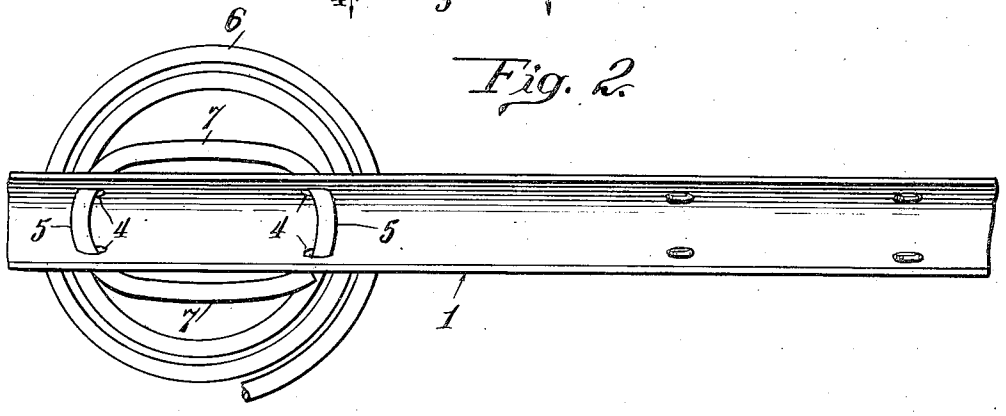


Fig. 3.

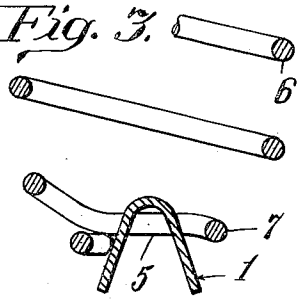


Fig. 5.

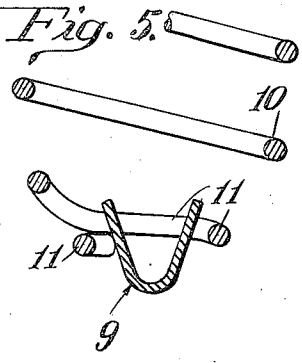
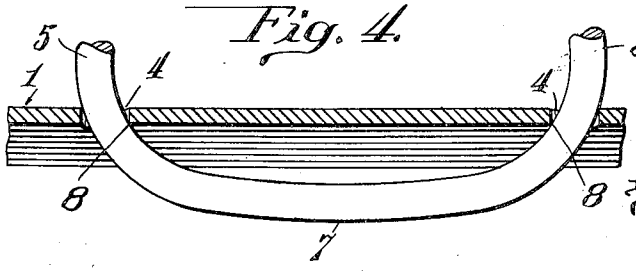


Fig. 4.



Inventor

William W. Gleason

By Rudolph Wm. Loy

Attorney

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UPHOLSTERY SPRING STRUCTURE

William W. Gleason, Chicago, Ill., assignor to Nachman Springfilled Corporation, Chicago, Ill., a corporation of Illinois

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3 Claims. (Cl. 5—264)

The present invention relates to improvements in spring structures for upholstery of the type commonly used by upholsterers and manufacturers in the construction of seating furniture units.

Structures of the type to which the invention relates consist generally of channeled bars equipped at opposite ends with supporting arms and between their ends with formations for engaging and attaching to the bars upholstery springs of the cone type.

It is most desirable, as will be obvious, to make these all-metal structures as light as possible consistently with requisite strength, and to this end the bars of the type referred to are commonly composed of a relatively light sheet metal.

The most popular shape of spring supporting bar employed is of inverted V-shape. Various spring-engaging formations are used in said bars, perforations being, however, most commonly used.

Under the influence of excessive load upon the springs attached to said bars, the flanges of the latter will spread and thus the bar sags and buckles and requires replacement.

The object of the present invention is to provide a spring structure wherein a supporting bar of substantially V-shape is employed, but wherein the springs attached to and mounted upon the bar are shaped to re-inforce and strengthen the bar and prevent the aforesaid spreading apart of the flanges thereof and avoiding the ensuing sagging or buckling of the bar.

Suitable embodiments of the invention are illustrated in the accompanying drawing, wherein,

Fig. 1 is a fragmentary side elevation of a substantially conventional type of spring supporting bar commonly used.

Fig. 2 is a fragmentary bottom plan view of the same on an enlarged scale.

Fig. 3 is a vertical, transverse sectional view of the same on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary plan sectional view on an enlarged scale taken on the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 3 showing the bar inverted.

In carrying out the present invention, I provide an inverted substantially V-shaped bar 1 equipped at its ends with the conventional type of supporting flange structures 2 and 3, respectively. Said bar 1 is equipped at spaced apart points between its ends with sets of perforations 4 which, in the instance illustrated, are of slightly elliptical shape. Said perforations are disposed between the apex portion of the bar and the lower edges of the flanges thereof.

The lower terminal coils 5 of conventional upholstery springs 6 are threaded through the sets of perforations 4 by rotation of said springs to attach the same to said bars for support by the latter.

After said terminal coils 5 have been threaded through the perforations 4, as aforesaid, they are flattened as illustrated in Fig. 2 at points 7. This flattening of the portions 7 causes the points in the terminal coils to bear against the meeting point of the walls of the perforations 4 with the bar 1, as indicated at points 8 in Fig. 4, to clamp the flanges of said bar against spreading.

In the normal and customary condition of the bars 1, they span a space between the supporting flange structures 2 and 3 over their entire length without being reinforced against spreading at any point between their ends. Obviously, the pressure of springs upon said bars is such, ordinarily, as tend to spread the flanges thereof, whereas in the instant structure, the pressure of the flattened terminal coil portions against the outer surface portions of the flanges of the bar at the points 8 is such as to tend to pinch said flanges and force them toward each other.

In Fig. 5 the bar 9, of substantially V-shape, is shown inverted from the position of Figs. 1–3 inclusive, with the flanges of said bar extending upwardly and being equipped adjacent their upper edges with perforations corresponding to the perforations 4 of Fig. 1, said perforations being disposed more nearly proximate to the upper edges of the flanges and thereby causing the flattened portions of the springs 10 to exert their resistance to spreading of said flanges more nearly proximate to the said upper edges.

The plan sectional view of Fig. 4 is also clearly illustrative of the points of contact and pressure of the lower terminal coil 11 of the spring 10 against the flanges of the bar 9.

The distortion of the terminal coils of the springs after threading the same through said perforations prevents further rotation of the springs and causes the portions of the same lying between the flanges of the bar to prevent convergence of said flanges.

The elliptical perforations or short slots 4 are advantageous in promoting ease of threading of the springs into desired position and are also advantageous in that in applying bending pressure to the outer portions of the coil of the springs engaged in said portions, the portions thereof

disposed between the flanges of the bar are bent to a shorter radius and become so disposed that the said flanges cannot converge.

I claim as my invention:

1. An upholstery spring structure comprising a channeled strip of sheet metal equipped with opposed pairs of perforations in its flanges arranged about an axis, and a spring having its lower terminal coil threaded through said perforations and distorted laterally to cause portions of the same engaged in said perforations to exert pressure on said flanges in a direction tending to force them toward each other.

2. An upholstery spring structure comprising a channeled supporting bar equipped in its flanges with spaced apart sets of four perforations each relatively arranged to permit the lower terminal coil of an upholstery spring to be threaded through the same, upholstery springs having lower terminal coils of larger diameter than the greatest width of said bar threaded through said respective sets of perforations and normally presenting arcuate portions of said coils disposed outwardly of the flanges of said bar, said lower terminal coils being of a flattened oval shape with the said outwardly disposed portions comprising the flattened portions and extending in part parallel with said flanges and the more sharply curved portions being disposed between said flanges whereby in consequence of contact of the coils with the edges of the orifices the bending of said flanges toward or from each other and detachment of said springs from the bar are prevented.

3. An upholstery spring structure comprising a channeled supporting bar equipped in its flanges with spaced apart sets of four perforations each, upholstery springs corresponding in number with said sets of perforations and each thereof having a substantially elliptical lower end coil extending through all of the perforations of a set, the long diameter of said terminal coil extending longitudinally of the bar and being of greater length than the distance between the two pairs of said perforations of each set spaced from each other longitudinally of the bar, the shorter diameter of said end coil being of greater length than the width of the bar and extending transversely thereof.

WILLIAM W. GLEASON.