Nov. 19, 1935. C. E. PLATT 2,021,430

SPRING STRUCTURE

Filed Jan. 20, 1934 2 Sheets-Sheet 1

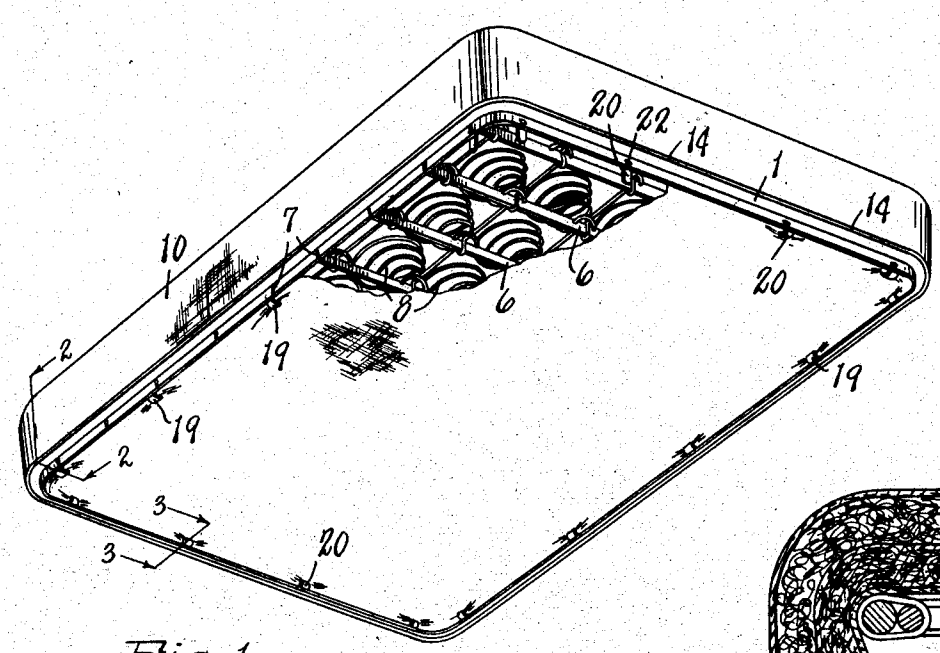


Fig. 1

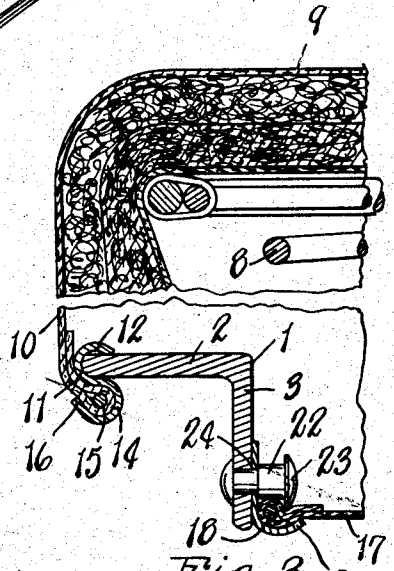


Fig. 3

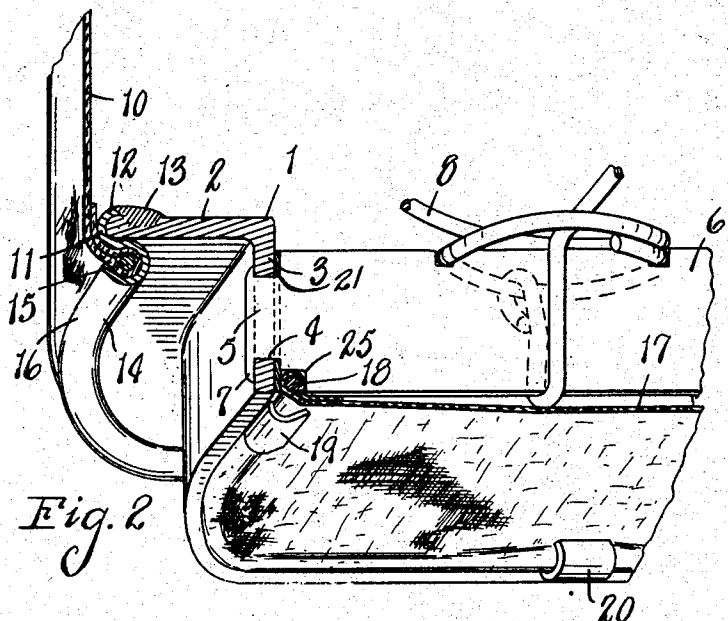


Fig. 2

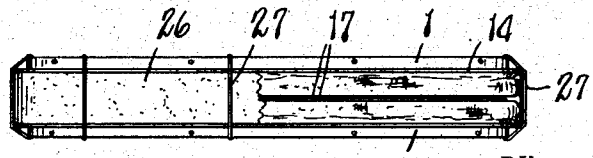


Fig. 4

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SPRING STRUCTURE

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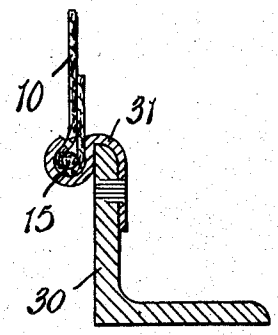


Fig. 6

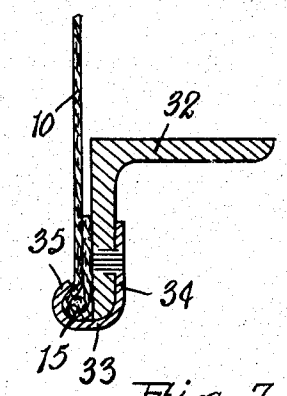


Fig. 7

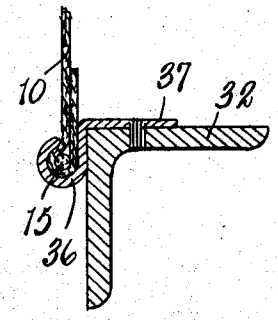


Fig. 8

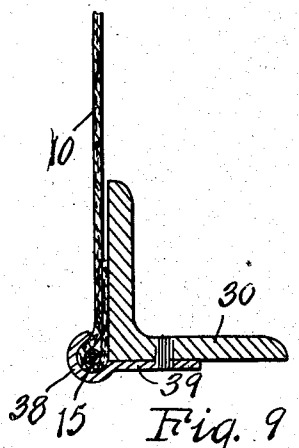


Fig. 9

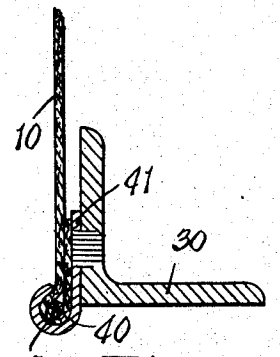


Fig. 10

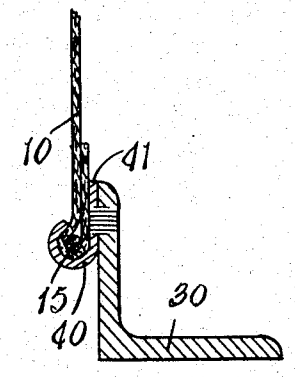


Fig. 11

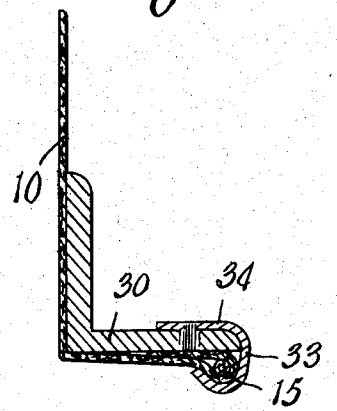


Fig. 12

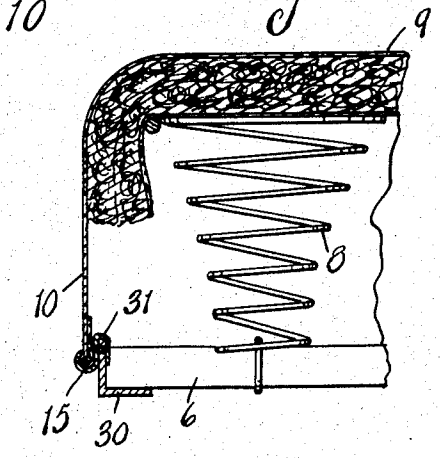


Fig. 5

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2,021,430

SPRING STRUCTURE

Cornelius E. Platt, Windsor, Ontario, Canada, assignor to L. A. Young Spring and Wire Corporation, Detroit, Mich.

Application January 20, 1934, Serial No. 707,468

8 Claims. (Cl. 5—351)

The main objects of this invention are:

First, to provide an improved box spring which is very attractive in appearance and at the same time one in which the upholstery is very securely retained.

Second, to provide a box spring in which the springs are entirely enclosed to exclude dust, and at the same time a structure which can be conveniently handled for shipping and opened for inspection of the interior or spring structure.

Third, to provide in a spring structure an improved means for securing the upholstery to an angled or relatively heavy iron frame.

Fourth, to provide a structure having these advantages which may be very conveniently packed or bundled for shipping.

Fifth, to provide a box spring structure having these advantages which is very simple and economical in its parts and at the same time rigid and durable.

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

A structure which is a preferred embodiment of my invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a bottom perspective view of a box spring structure embodying the features of my invention, a portion of the bottom being broken away and no attempt being made to illustrate the parts in their relative proportion.

Fig. 2 is a detail perspective view in section on line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmentary view on a line corresponding to line 3—3 of Fig. 1.

Fig. 4 is a side view of a pair of the box spring units assembled for shipment, a portion of the wrapping being sectioned and broken away.

Fig. 5 is a fragmentary section of a slight modification in the arrangement of the angled frame and the upholstery attaching rim.

Fig. 6 is an enlarged detail section of the structure shown in Fig. 5.

Figs. 7 to 12 inclusive illustrate further modifications and adaptations in the relation of the upholstery attaching rim and frame.

The embodiment of my invention illustrated comprises an angle iron frame 1 preferably formed continuous; that is, as a single piece, the angle iron being bent to proper shape and the ends butt welded together, the joint not being illustrated. This frame is disposed with its angle facing outwardly and downwardly; that is, the horizontal arm 2 of the frame is at the top of the frame. The vertical arm 3 of the frame has openings 4 in opposed side members thereof receiving the tongues 5 of the spring supporting bars 6, these tongues being upset or riveted at 7 to secure the cross bars in place. The body springs 8 are mounted on these cross bars, the cross bars being disposed vertically or on edge which is quite common practice in structures of this class.

The upholstery designated generally by the numeral 9 is provided with a continuous skirt portion 10. To secure this skirt portion to the frame, I provide a rim 11 of S-cross section formed of sheet metal and disposed with its inwardly facing channel 12 embracing the edge of the horizontal arm 2 of the frame and secured thereto as by welding, indicated conventionally at 13. The outwardly facing channel 14 of this rim receives the beaded edge 15 of the upholstery skirt 10, the lower flange 16 of the rim being clamped securely upon the edge of the skirt permanently securing the skirt to the rim and providing a continuous metal binding therefor. This provides a very effective and expeditious means for securing the upholstery which is preformed with its filler as indicated, arranged over the springs, the springs placed under compression and the edge of the upholstery engaged in the outwardly facing securing channel with the flange 16 clamped by hammering or pinching upon the upholstery.

The bottom 17 is preferably a sheet of fabric having a wire border or rim 18 enclosed in the edge thereof. This bottom is detachably secured by means of bendable clips 19 and 20, the clip 19 having holes 21 therein which receive the tongues 5 of the cross pieces before the tongues are riveted in the openings provided therefor in the frame so that the cross pieces serve as a securing means for these clips which have bendable hook portions projecting inwardly from the frame and adapted to be clamped or bent upon the bottom as is illustrated.

The clips 20 are also bendable but these are secured to the end members of the frame by means of the shouldered studs 22 provided with heads 23, the clips having holes 24 therein receiving the studs which are riveted in holes provided therefor in the frame, as shown in Fig. 3. The inwardly projecting portion of the studs and the heads form rests for the bottom and the bottom or its border is clamped against these rests by the bendable clips.

The cross pieces are preferably notched at 25 to receive the border of the bottom, and the bot-

tom is engaged in these notches and in the recesses formed by the heads of the studs and the adjacent portions of the clips, the clips bent or clamped upon the bottom where it is securely retained and forms an effective closure for the unit, but at the same time permits removal for inspection as is frequently desired in merchandising.

The units may be assembled in pairs for shipment or storage, the bottoms of a pair being removed and superimposed upon one unit and the second unit inverted thereon. A band-like wrapping 26 is placed about the pair of units between the frame so that the upholstery is completely covered and the two units collapsed and tied together by the ties 27 engaged over the vertical arms 3 of the frames. This provides a shipping unit in which the frames are exposed to receiving the buffeting incident to shipment and storage, the upholstery being effectively protected.

In the embodiment of my invention illustrated in Figs. 5 and 6, the frame 30 is arranged with its angle facing inwardly, the upholstery securing rim 31 being disposed with its inner channel embracing the edge of the vertical arm of the frame, its outer channel facing upwardly to receive the edge of the upholstery skirt.

In the embodiment of my invention shown in Fig. 7, the frame 32 is arranged with its angle facing inwardly and downwardly. The rim 33 is of channel cross section and has its inner flange 34 extended to embrace and lap upon the inner side of the vertical flange of the frame and is spot welded thereto as indicated, its outer flange 35 being supported to receive and clampingly engage the skirt 10 of the upholstery.

In the embodiment shown in Fig. 8, the frame is arranged as in Fig. 7, the upholstery securing rim 36 having an angled inner flange 37 lapped upon and welded to the top of the frame 32, the channel facing upwardly to receive the upholstery, substantially as in Figs. 5, 6 and 7.

In the embodiment shown in Figs. 9, 10 and 11, the frame 30 is arranged with its angle facing upwardly and inwardly as in Figs. 5 and 6. In Fig. 9, the channel sheet metal rim 38 has its inner flange extended into a horizontal arm 39 lapped upon and secured to the underside of the frame. In the embodiments shown in Figs. 10 and 11, the sheet metal rim 40 has its inner flange extended into an arm 41 lapped upon the side of and secured to the frame 30, these embodiments being the same except as to positioning of the rim.

In the embodiment shown in Fig. 12, the rim 33 is substantially the same as that shown in Fig. 7, the inner flange of the rim being extended and lapped upon the inner side of the frame, the difference being that in Fig. 7 the frame is disposed with its angle facing downwardly and inwardly whereas in Fig. 12 it is disposed with its angle facing upwardly and inwardly. The embodiment of Fig. 7 is, however, preferred over that shown in Fig. 12 for most uses for the reason that in Fig. 7 the continuous binding afforded by the clamping rim serves to protect the portion of the upholstery most exposed to wear of the frame parts whereas in Fig. 12, the upholstery skirt is drawn around the angle of the frame. The clamping rim does, however, provide a continuous binding for the edge of the upholstery and receive the wear of the supporting frame.

My improvements enable the very rapid attachment of the upholstery and it is very securely retained, the edges being covered and protected from wear, avoiding the necessity for using gimp or other finishing strips. The structure is very strong and rigid even when made of comparatively light material.

I have not attempted to illustrate or describe certain embodiments of my invention and, as stated, I have not attempted to show the parts in their relative proportions as a completed bed spring or box spring unit. It will be understood that while the structure is especially designed as a bed spring, or the commonly called box springs, it is desirable for automobile, truck, bus or car springs, particularly where relatively strong or sturdy structures are desired.

The structure is also well adapted for embodiment in the back springs and as an upholstery means for the back and spring upholstery of automobiles. I have not attempted to illustrate such embodiments or adaptations as it is believed that this disclosure will enable the embodiment or adaptation 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 box-spring, the combination of a frame, spring supporting bars having tongues at the ends thereof disposed through openings provided therefor in the frame and riveted therein, bottom supporting clips having openings therein to receive said tongues and having bendable hooks at their lower ends, said tongues passing through said clip openings so that said clips are secured to the frame between the ends of said bars and the frame, the spring supporting bars having notches above said hooks of said clips, shouldered and headed studs disposed on the end members of the frame, bottom supporting clips disposed on the inner sides of said frame and having openings therein receiving said studs and having hooks at their lower ends opposite the heads thereof, the reduced portions of said studs passing through said last named clip openings and securing the clips to the frame between the latter and the stud shoulders so that border wire receiving spaces are provided between said stud heads and the inner side of the frame, and a fabric bottom provided with an enclosed border wire engaging said notches in said spring supporting bars and said border wire receiving spaces and detachably retained by said bendable clips.

2. In a box spring, the combination of a frame, spring supporting bars having tongues at the ends thereof disposed through openings provided therefor in the frame and riveted therein, bottom supporting clips having openings therein to receive said tongues and having bendable hooks at their lower ends, said tongues passing through said clip openings so that said clips are secured to the frame between the ends of said bars and the frame, studs disposed on the end members of the frame, bottom supporting clips disposed on the inner sides of said frame and having openings therein receiving said studs and having hooks at their lower ends, the studs securing the clips to the frame, and a fabric bottom provided with an enclosed border wire engaging said spring supporting bars and said studs and detachably retained by said bendable clips.

3. In a box spring, the combination of a frame, spring supporting bars having tongues at the ends thereof disposed through openings provided therefor in the side members of the frame and upset therein, bottom supporting clips having openings therein to receive said tongues and having bendable hooks at their lower ends, said tongues passing through said clip openings so that said

clips are secured to the frame between the ends of said bars and the frame, the spring supporting bars having notches above said hooks of said clips, and a bottom provided with a border wire engaging said notches in said spring supporting bars and retained by said clips.

4. In a box spring, the combination of a frame, spring supporting bars having tongues at the ends thereof disposed through openings provided therefor in side members of the frame and upset therein, bottom supporting clips disposed on the inner sides of the frame and having bendable hooks at their lower ends and openings through which pass said tongues to secure the clips to the frame, and a bottom engaged in said spring supporting bars and retained by said clips.

5. In a box spring, the combination of a frame, spring supports on said frame, shouldered and headed studs disposed to project on the inside of the frame, bottom supporting clips disposed on the inner sides of said frame and having openings therein receiving said studs and having hooks at their lower ends opposite the heads thereof, the reduced portions of said studs passing through said clip openings and securing the clips to the frame between the latter and the stud shoulders so that bottom margin receiving spaces are provided between said stud heads and the inner side of the frame, and a bottom having its margins engaging in said bottom margin receiving spaces and retained by said clips.

6. In a box spring, the combination of a frame, spring supports on said frame, studs disposed to project on the inside of the frame, bottom supporting clips disposed on the inner sides of said frame and having openings therein receiving said studs and having hooks at their lower ends, the studs securing the clips to the frame, and a bottom having certain of the margins thereof engaging said studs and retained by said clips.

7. In a box spring, the combination of a continuous angle iron frame disposed with its angle facing outwardly and downwardly, upholstery skirt retaining means disposed under the entire outer edge of the horizontal flange of said frame, spring supporting bars connected at their ends to opposite sides of the vertical flange of said frame and having downwardly facing notches adjacent said sides of the flange, a sheet of fabric having a wire border fitting within the lower edge of said vertical flange of the frame, certain portions of the border being received by said notches, and means acting to hold said border in place with the sheet of fabric covering the bottom of the interior of the spring, said last named means being readily releasable to detach said sheet from the frame.

8. In a box spring, the combination of a frame, spring supporting bars connected at their ends to opposite sides of said frame and having downwardly facing notches adjacent said sides, a sheet having a border fitting within the lower edge of the frame, certain portions of the border being received by said notches, and means acting to hold said border in place with the sheet covering the bottom of the interior of the spring.

CORNELIUS E. PLATT.