July 22, 1958 J. J. WETZLER 2,843,857

SPRING ASSEMBLY

Filed July 25, 1955

Fig. 1.

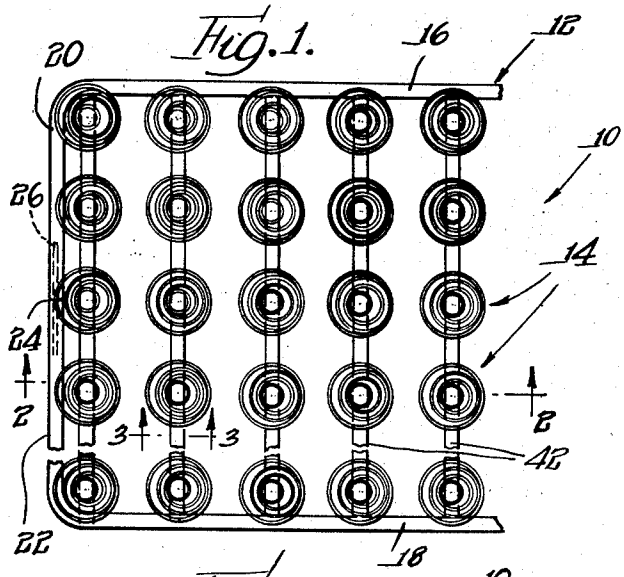


Fig. 2.

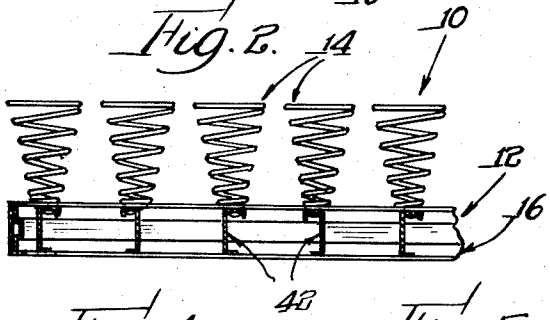


Fig. 3.

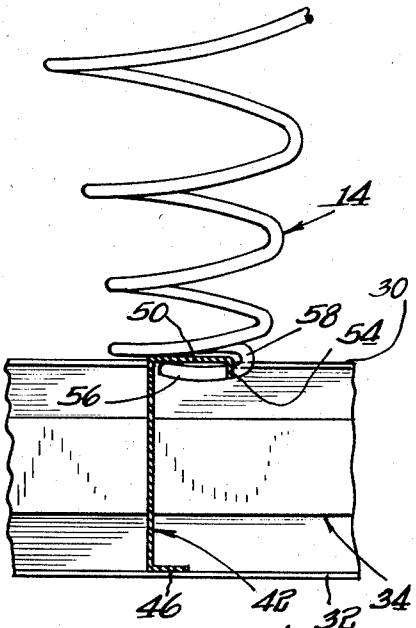


Fig. 4.

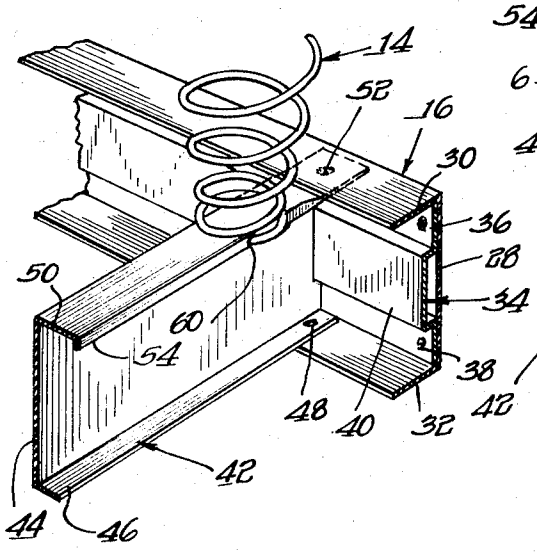


Fig. 5.

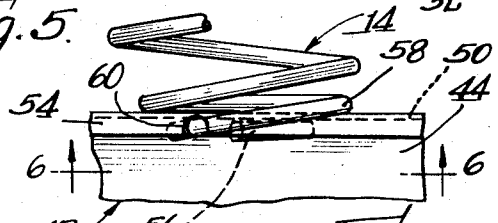
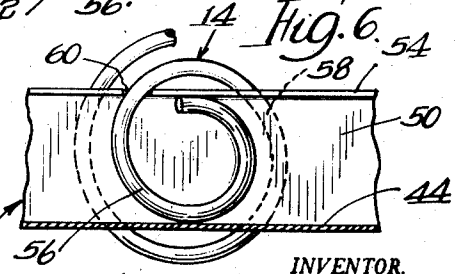


Fig. 6.



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United States Patent Office 2,843,857 Patented July 22, 1958

2,843,857

SPRING ASSEMBLY

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Application July 25, 1955, Serial No. 524,114

3 Claims. (Cl. 5—264)

The present invention relates to a novel spring assembly and more particularly to a spring assembly of the type adapted to be used in box springs, chairs, couches, day beds, vehicle seats and the like.

In spring units heretofore proposed wherein coil springs are used, the springs are usually connected with a frame structure by means of clips, staples, wires or other auxiliary fastening devices. Such auxiliary fastening devices may materially add to the cost of the spring unit and also require the expenditure of considerable amount of time and labor for the application thereof to the frame structure and the springs.

It is an important object of the present invention to provide a novel spring unit having a frame structure preferably fabricated from sheet metal and a plurality of coil springs, which frame structure and springs are formed so that the springs may be easily and quickly connected to the frame structure without the aid of auxiliary fastening devices.

A more specific object of the present invention is to provide a novel spring unit of the above described type wherein portions of the springs and the frame structure are formed for interlocking engagement so as to prevent shifting of the springs relative to or disassembly of the springs from the frame structure.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings wherein:

Fig. 1 is a fragmentary plan view showing a box spring unit embodying the principles of the present invention;

Fig. 2 is a fragmentary cross sectional view taken along line 2—2 in Fig. 1;

Fig. 3 is an enlarged fragmentary cross sectional view taken along line 3—3 in Fig. 1;

Fig. 4 is a fragmentary perspective view showing a structure embodying the present invention;

Fig. 5 is an enlarged fragmentary elevational view showing the manner in which a coil spring is connected with a frame member in accordance with the present invention; and

Fig. 6 is a fragmentary sectional view taken along line 6—6 in Fig. 5.

Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a box spring unit **10** embodying the principles of the present invention is shown in Figs. 1 and 2 and includes a frame structure **12** and a plurality of coil springs **14** mounted thereon. While only the coil springs and frame structure of the spring unit have been shown, it is understood that upper portions of the springs may be interconnected in any known manner such as by clips, wires, metal straps, helical springs and the like, and the unit may be covered by means of any suitable padding material and fabric, if desired.

The frame structure **12** includes a pair of side channel members **16** and **18** having end portions **20** and **22** turned inwardly and butt welded as at **24**. Preferably,

a reinforcing member **26** is disposed within the ends of the channel members and traverses the weld **24** and is welded to the channel members. While only one end of the frame structure is shown in Fig. 1, it is understood that the opposite end thereof is to be formed in the same manner. As shown best in Figs. 3 and 4, the channel member **16** has an upstanding web portion **28** and upper and lower inturned horizontal flanges **30** and **32**. The channel member **18** is preferably identical in cross sectional shape to the channel member **16**. A reinforcing member **34** is disposed within the side portion of the channel member **16**, and a similar reinforcing member is disposed within the side portion of a channel member **18**. As shown best in Fig. 4, these reinforcing members have vertically extending upper and lower flanges **36** and **38** welded to the channel member web portions and intermediate inwardly projecting channel sections **40** for promoting greater rigidity. The frame structure also includes a plurality of transverse frame members **42** which extend between the side channel members and have opposite ends disposed within and welded to the upper and lower flanges of the side channel members. More specifically, as shown in Fig. 4, each transverse frame member **42** has an upstanding web portion **44**, a lower generally horizontal flange **46** which is preferably spot welded to the lower flange of the side channel member as at **48**, and an upper generally horizontal flange **50** which is preferably spot welded to the upper side channel member flange as at **52**. The flange **50** of each transverse frame member **42** terminates in a short depending flange **54** for the purpose described below.

As shown in Figs. 1 and 2, a roll of coil springs **14** is disposed on each of the transverse frame members **42**, and it should be noted that one of the transverse frame members is disposed adjacent the end portions of the outer channel members so that the upper ends of the endmost row of coil springs would overlie the end portions of the outer channel member. The upper portions of the coil springs **14** may have any desired or known configuration. However, it is important to note that as shown best in Figs. 3 through 6, the two lowermost coils **56** and **58** of each spring are axially tightly coiled for gripping an associated transverse channel member in the manner described below.

In accordance with the present invention, each coil spring is connected with its associated transverse frame member quickly and easily by snapping its lower endmost coil **56** beneath the frame member flange **50** and the adjacent coil **58** over this flange so that the flange is gripped therebetween. Furthermore, it is important to note that the transverse frame member is formed so that the distance between the web portion **44** and the depending flange **54** is similar to the diameter of the lower endmost coil **56** so that the coil may be wedged therebetween as shown in Fig. 6. Thus, the lower end of the coil spring is positively prevented from shifting laterally in either direction with respect to its associated transverse frame member. In addition, a notch **60** is provided in the short depending flange **54** for each coil spring. Each notch **60** is adapted to receive its associated coil spring so that the coils **56** and **58** may be positioned substantially flush with the flange **50** properly to support the remainder of the springs in an upright manner. In addition, the edges of the notches **60** provide stops for positively preventing the coil springs from shifting longitudinally of the transverse frame member.

From the above description, it is seen that the present invention has provided a novel unit wherein coil springs or the like may be easily and rapidly connected with a frame structure without the aid of auxiliary fastening

devices. Furthermore, it is seen that the coil springs connected with frame members in accordance with the present invention are positively locked against shifting both laterally and longitudinally of the frame member.

While the preferred embodiment of the present invention has been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. In an assembly of the type described a frame member having a first portion and a pair of opposed sections spaced a predetermined distance from each other and extending from opposite margins of and away from one side of said portion, one of said sections having an opening therein adjacent said portion, a coil spring having a pair of adjacent coils respectively disposed along opposite sides of and aggressively engaging said portion therebetween, the coil disposed along said one side of said portion having a diameter similar to said predetermined distance and being wedged between said sections for preventing shifting of the coil spring laterally of said frame member, and one of said coils extending through and being confined by edges of said opening for preventing shifting of the spring longitudinally of said frame member.

2. In an assembly of the type described a frame member having a generally horizontal portion and opposed depending sections extending from opposite margins of said portion, one of said sections having a notch therein extending to adjacent said portion, and a coil spring having a major portion thereof arranged above said horizontal portion and having a pair of adjacent lower end coils respectively disposed along opposite upper and under sides of and aggressively engaging said portion therebetween and supporting said spring in an upright position, the coil disposed along the underside of said portion being confined between said depending sections for preventing shifting of the spring laterally of said frame member, and one of said coils extending through and being confined by edges of said notch for preventing shifting of the spring longitudinally of said frame member.

3. In an assembly of the type described a sheet metal frame member having an upstanding web portion, a flange of predetermined width extending from an upper margin of said web portion, and a short flange depending from a free margin of said first mentioned flange, said short flange having a notch therein extending to adjacent said first mentioned flange, and a coil spring having a major portion thereof disposed above said first flange and having a pair of adjacent lower end coils respectively disposed along opposite upper and lower sides of and aggressively engaging said first mentioned flange therebetween and supporting said spring in an upstanding position, the coil disposed along the under side of said first mentioned flange having a diameter similar to said predetermined width and being wedged between said web portion and said short flange for preventing shifting of the spring laterally of said frame member, and one of said coils extending through and being confined by edges of said notch for preventing shifting of the spring longitudinally of said frame member.

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