July 15, 1958 W. G. REGAN 2,843,191

AUXILIARY FURNITURE SPRING

Filed June 26, 1956 2 Sheets-Sheet 1

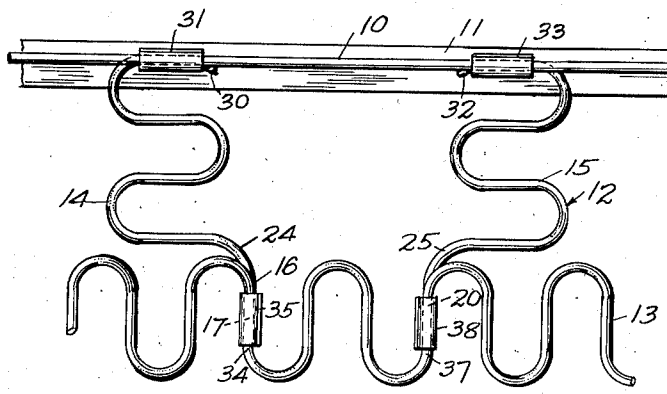


Fig. 1

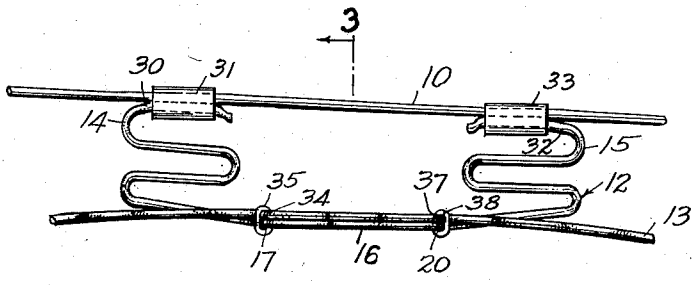


Fig. 2

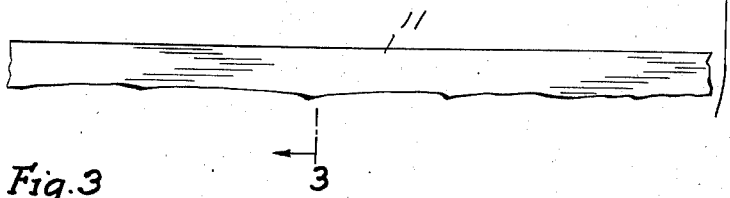
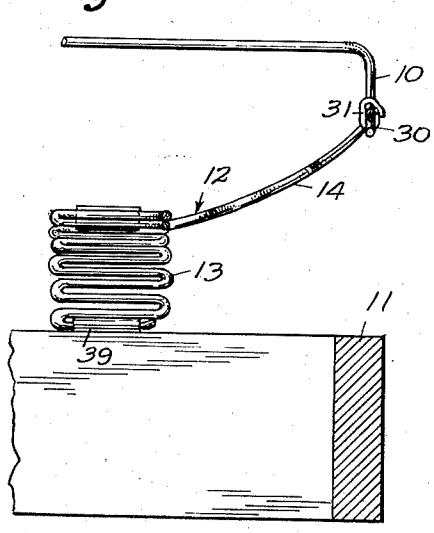


Fig. 3



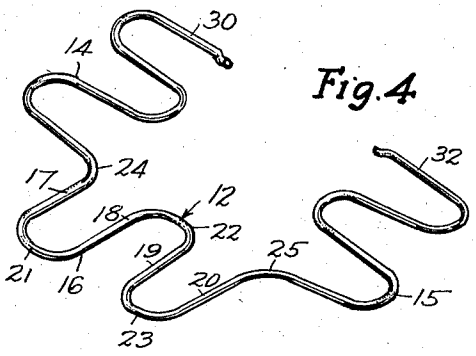


Fig. 4

INVENTOR.
William G. Regan
BY Harry Jacobs
ATTORNEY

July 15, 1958 W. G. REGAN 2,843,191

AUXILIARY FURNITURE SPRING

Filed June 26, 1956 2 Sheets-Sheet 2

Fig. 5

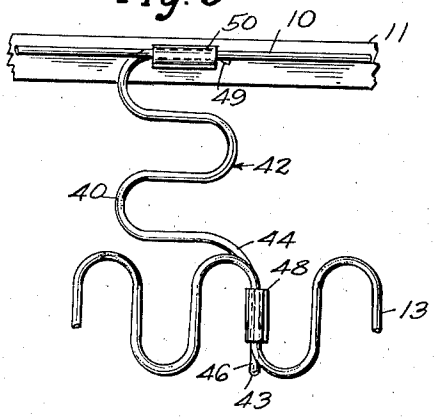


Fig. 9

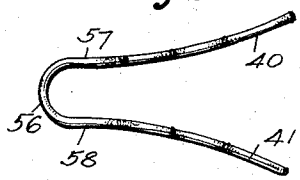


Fig. 6

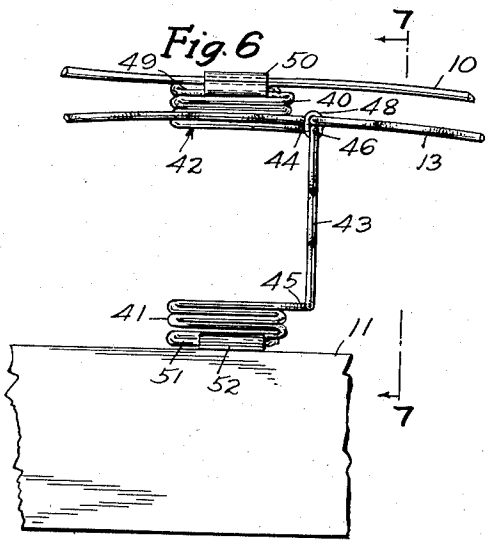


Fig. 7

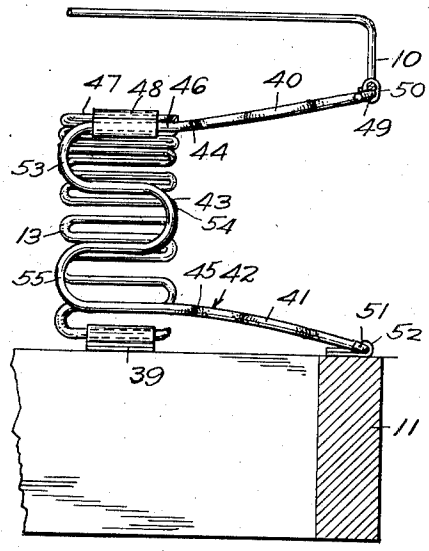
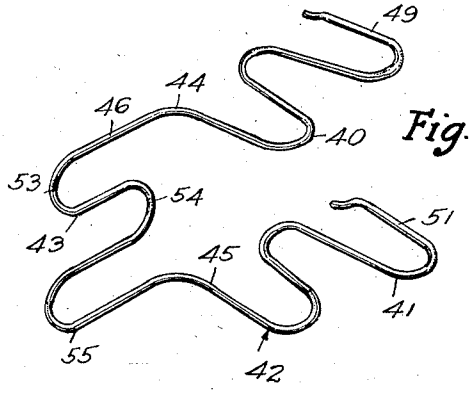


Fig. 8



INVENTOR.
William G. Regan
BY Harry Jacobs
ATTORNEY

United States Patent Office

2,843,191

Patented July 15, 1958

2,843,191

AUXILIARY FURNITURE SPRING

William G. Regan, Shrewsbury, Mass., assignor to Kay Manufacturing Corporation, Brooklyn, N. Y., a corporation of New York

Application June 26, 1956, Serial No. 594,060

10 Claims. (Cl. 155—179)

This invention relates to auxiliary springs for upholstered furniture and particularly to springs supplementing the bowed sinuous springs and useable at the edges of an upholstered seat or back.

Where the side edge of a seat or back is exposed and unprotected by arms or projecting sides on the furniture, some means are required to produce a soft springy or cushioned side edge portion. The auxiliary springs customarily used at the exposed front edge of the seat or top edge of the back are unsuitable because they cannot be effectively or economically secured to the adjacent main sinuous spring which they are intended to aid or supplement.

The present invention therefore contemplates the provision of a side edge spring which is efficient in operation, which may quickly and easily be secured to the adjacent main sinuous spring and which may be economically produced from available sinuous wire spring stock.

The invention further contemplates the provision of an auxiliary side spring of sinuous wire spring material having two spaced apart and similar sinuous end portions each provided with transverse crossbars, and a connecting sinuous portion having similar crossbars perpendicular to the crossbars of the end portions thereby to arrange at least one of the crossbars of the connecting portion in a position wherein it is coextensive with a crossbar of the main sinuous spring, so that said crossbars may be efficiently and durably clipped together and the auxiliary spring secured to the main spring as well as to a border wire or frame or both.

The various objects of the invention will be clear from the description which follows and from the drawings, in which

Fig. 1 is a top plan view of one form of the auxiliary side spring as it appears attached to the side of a border wire and to the adjacent main sinuous spring of a seat or back, showing that side of the furniture frame below the border wire.

Fig. 2 is a side elevational view thereof.

Fig. 3 is a vertical sectional view thereof taken on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the side spring.

Fig. 5 is a plan view similar to Fig. 1 of a modified form of the side spring.

Fig. 6 is a side elevational view thereof.

Fig. 7 is a vertical sectional view thereof taken on the line 7—7 of Fig. 6.

Fig. 8 is a perspective view of the side spring.

Fig. 9 is a view similar to Fig. 7 of another modified form of the side spring in which the connecting portion has only one upright bend or loop.

As illustrated in Figs. 1–4, the side portion **10** of the border wire is arranged in sufficiently lateral spaced relation to the furniture frame **11** to permit the spring structure to yield properly as is well understood. Said border wire portion **10** preferably slopes downwardly from front to back when used in a seat and is yieldingly

supported by the auxiliary side spring **12** extending between and secured to the portion **10** and to the adjacent main sinuous spring **13**, whereby pressure on the side edge of the seat or back is in part transmitted to the main spring and in part absorbed by the auxiliary side spring.

Said side spring **12** comprises two similar and substantially parallel and coplanar sinuous end portions **14** and **15**, and a sinuous intermediate connecting portion **16** joining the inner ends of the end portions. The axis or longitudinal center line of the connecting portion **16** is perpendicular to the axes or longitudinal center lines of the end portions **14** and **15**. As shown, said portion **16** comprises four substantially parallel crossbars as **17**, **18**, **19** and **20** joined by the respective 180° bends **21**, **22** and **23**, the bars and bends being preferably substantially identical with those of the main spring **13**, whereby the portion **16** is coextensive or registers with a section of the main spring when arranged thereunder as shown in Figs. 1–3. At each end thereof the connecting portion is joined to the adjacent end portion by a 90° bend as **24** for the portion **14** and **25** for the portion **15**. Said bend is easily formed by partly unbending one of the 180° bends of an untempered length of the same sinuous spring formation or stock as forms the main spring.

Since such spring stock is normally arched or bowed, the arc or curvature may be retained, increased or diminished as desired to give the required concavity to the end portions. Said end portions **14** and **15** are arranged in such positions that the arc is concave upwardly or opposite to the bow or arc of the main spring as best seen in Fig. 3. Each of said sinuous end portions has as many bends and crossbars as are required to bridge the space between the main spring and the border wire, three bends being illustrated. The outermost or terminal crossbar **30** of the end portion **14** is secured to and preferably under the border wire **10** as by means of the clip **31**. However, the crossbar **30** while parallel and in contact with the border wire may be arranged at the top if found desirable or convenient. The similar crossbar **32** of the other end portion **15** is similarly secured to the border wire by means of the clip **33**. The auxiliary spring is so arranged that the end crossbar **17** of the connecting portion **16** is underneath or above or otherwise registers with one of the crossbars as **34** of the adjacent main spring and therefore may conveniently be connected thereto by the clip **35**. Similarly, the crossbar **20** at the other end of the portion **16** registers with the crossbar **37** of the main spring and is similarly connected thereto by the clip **38**. The entire connecting portion **16** is thereby preferably in registration with a section of the main sinuous spring **13**.

Forces exerted upon the border wire and adjacent parts of the spring structure are transmitted to the main spring by the auxiliary spring and finally transferred to the frame **11**, the end crossbars of said main spring being secured to the frame by suitable clips as **39** in the usual manner. The side spring resists downward movement and urges the border wire toward its uppermost position in a seat to form a yieldable side edge thereon or on the back when there used.

In that form of the invention shown in Figs. 5–8, the sinuous end portions **40** and **41** of the side spring **42** are arranged in a seat one above the other in vertical alignment and with the corresponding crossbars thereof substantially parallel. However, owing to the arch of the sinuous spring stock from which the side spring is made and for the purpose of arranging the terminal crossbar of the end portion at the proper height above the sinuous main spring, the upper end portion **40** is or may be made slightly concave upwardly while the lower end portion **41** is slightly concave downwardly as best seen in Fig. 7. The sinuous connecting portion **43** is joined to the end portions **40** and **41** by the respective right angle bends **44**

and **45** at the ends of the connecting portion. Said bends arrange said connecting portion in a substantially vertical plane instead of the horizontal plane in which the connecting portion of the side spring **12** is arranged. The uppermost crossbar **46** of the connection portion **43** is secured to a parallel and coextensive crossbar **47** of the main spring as by the clip **48**. The terminal crossbar **49** of the upper end portion is secured to the border wire **10** by means of the clip **50** and the terminal crossbar **51** of the lower end portion **41** is secured to the frame **11** by means of the clip **52**. Three bends **53**, **54** and **55** are shown in the connecting portion and four transverse crossbars.

However, as shown in Fig. 9, where the vertical distance between the border wire and the frame is reduced, a single bend **56** and two crossbars **57**, **58** form the connecting portion. In this form of the side spring, part of the stress upon the border wire and the adjacent areas of the spring structure, not absorbed by the side spring, is passed to the main spring and part directly to the frame. It will be seen that in all forms of the invention, the side spring may be economically manufactured of the well known sinuous spring stock to provide two end portions and an intermediate connecting portion having a center line or axis perpendicular to the axes of the end portions, the connecting portion being joined by a right angle bend to the adjacent end portion, a terminal crossbar of at least one of the end portions registering with the border wire and the end crossbar of the intermediate portion registering with a crossbar of the main spring whereby the auxiliary side spring may be conveniently and inexpensively secured in place.

While certain specific forms of the invention have herein been shown and described, various obvious changes may be made therein without departing from the spirit of the invention defined by the appended claims.

I claim:

1. An auxiliary side spring adapted to be interposed between a sinuous main spring and a border wire in a spring structure for upholstered furniture, said side spring comprising a pair of similar spaced apart sinuous end portions each having a plurality of substantially parallel transverse crossbars joined by substantially 180° bends, the crossbars of one end portion being substantially parallel to the crossbars of the other end portion, a sinuous intermediate connecting portion having a plurality of crossbars joined by bends and perpendicular to the crossbars of the end portions, and a right angle bend at each end of the intermediate connecting portion joining the end crossbar of said intermediate portion to a crossbar of the adjacent end portion.

2. The side spring of claim 1, the end portions being spaced apart horizontally and being concave outwardly, and the intermediate connecting portion being in a horizontal plane.

3. The side spring of claim 1, the end portions being spaced apart vertically, and the intermediate connecting portion being in a vertical plane.

4. A sinuous auxiliary side spring having crossbars joined by substantially 180° bends, and having two 90° bends intermediate the ends thereof arranging the crossbars between the bends at an angle of substantially 90° to the remaining crossbars, the end portions of the spring beyond the 90° bends being bowed concavely upwardly and spaced apart horizontally, and the intermediate portion of the spring between the 90° bends being substantially horizontal.

5. A sinuous auxiliary side spring having crossbars joined by substantially 180° bends, and having two 90° bends intermediate the ends thereof arranging the crossbars between the bends at an angle of substantially 90° to the remaining crossbars, the crossbars and 180° bends between the 90° bends being arranged in a substantially vertical plane.

6. The side spring of claim 5, one end portion of the spring beyond one 90° bend being bowed concavely upwardly and the other end portion beyond the other 90° bend being bowed concavely downwardly and being spaced downwardly from said one end portion.

7. A spring structure for upholstered furniture comprising a sinuous main spring having transverse crossbars and bends joining the crossbars, a border wire above and spaced transversely from the main spring, an auxiliary sinuous side spring having a pair of spaced apart end portions each comprising a plurality of crossbars parallel to the border wire and perpendicular to the crossbars of the main spring and approximately 180° bends joining the crossbars of the end portion, a terminal crossbar of an end portion being parallel to and secured to the border wire, the remaining crossbars and bends of the end portion bridging the space between the border wire and the main spring, an intermediate portion joined by 90° bends to the respective end portions and having a plurality of crossbars parallel to the crossbars of the main spring, at least one of the crossbars of the intermediate portion being coextensive with and overlapping a crossbar of the main spring and a clip securing said one crossbar of the intermediate portion to the overlapped crossbar of the main spring.

8. The spring structure of claim 7, the end portions being spaced apart horizontally and the crossbars of the intermediate portion being coextensive with and registering with a corresponding part of the main spring.

9. The spring structure of claim 7, the end portions being spaced apart vertically, a frame, and means connecting the terminal crossbar of the lower of the end portions to the frame.

10. An auxiliary side spring adapted to be interposed between a sinuous main spring, the border wire and the frame in a spring construction for upholstered furniture, said side spring comprising an upper sinuous end portion adapted to be secured to the border wire and to bridge the space between the border wire and the main spring, an intermediate substantially upright sinuous portion adapted to be secured to the main spring, and a lower sinuous portion adapted to be secured to the frame and to extend inwardly from the frame in the same general direction as the upper end portion.

References Cited in the file of this patent

UNITED STATES PATENTS

2,551,800	Hopkes	May 8, 1951
2,613,733	Mouw	Oct. 14, 1952