

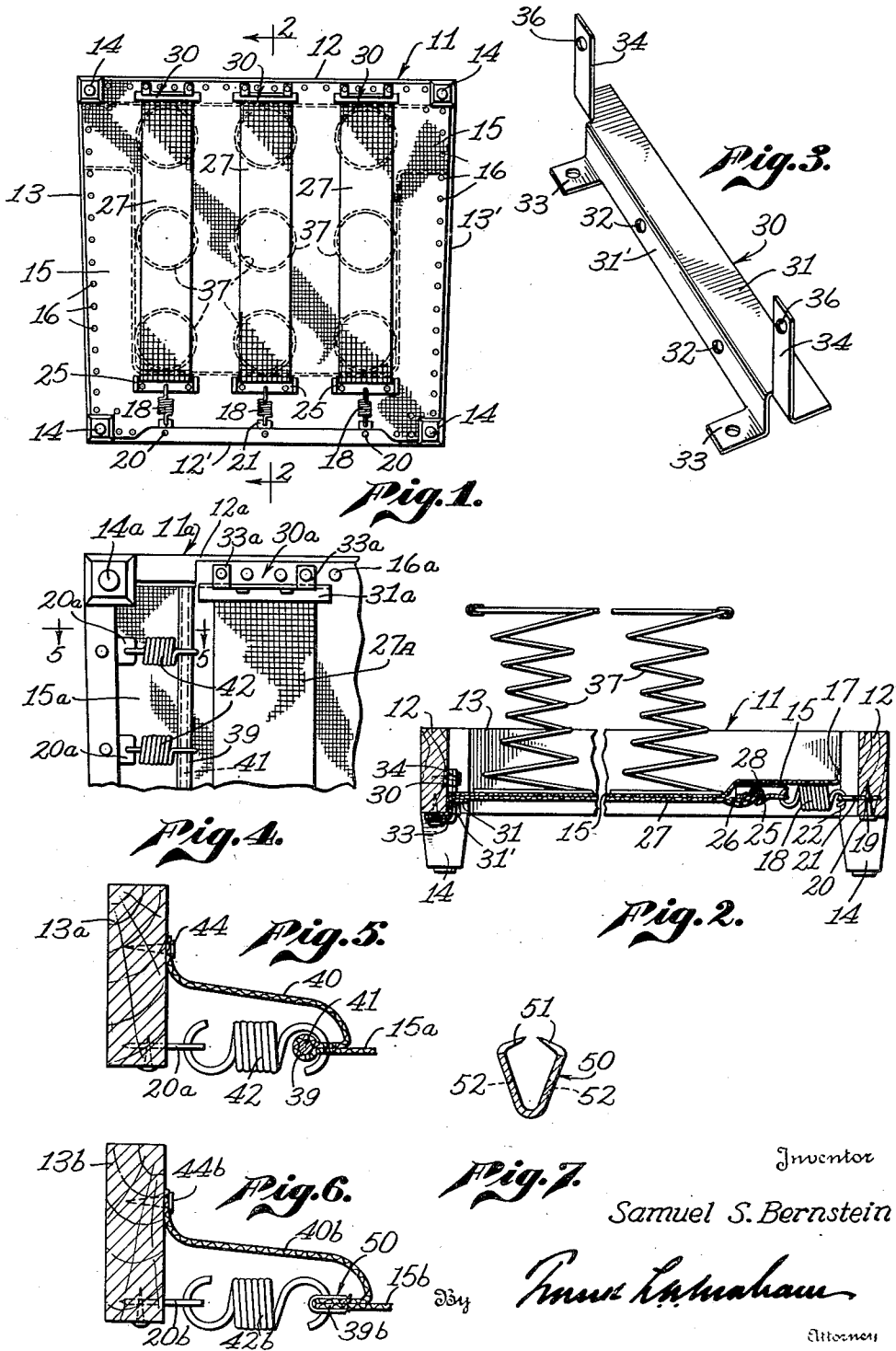
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S. S. BERNSTEIN

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SAGLESS SPRING SUPPORT FOR UPHOLSTERED FURNITURE

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Inventor

Samuel S. Bernstein

Paul K. Mahan

Attorney

UNITED STATES PATENT OFFICE

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SAGLESS SPRING SUPPORT FOR UPHOLSTERED FURNITURE

Samuel S. Bernstein, Beverly Hills, Calif.

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8 Claims. (Cl. 155—179)

This invention relates to the manufacture of furniture and is more particularly related to improvements in the design and construction of seats for upholstered chairs, davenport and the like. As is well known to those familiar with the art, this type of construction generally consists of a seat frame which is supported by the legs of the piece, such frame being provided with a bottom usually of a fabric nature, the bottom in turn supporting a system of springs which carries the cushion or seat member of the chair.

This invention contemplates a construction of the class described having a bottom formed from a single sheet of fabric secured to the under side of the frame which has the advantage of preventing the springs tilting and also serves to prevent dirt and vermin reaching the upholstery.

It is a primary object of this invention to provide a construction which may be manufactured cheaply and with this end in view my invention contemplates securing the fabric sheet to the frame by means of tacks. To relieve the tacks and the immediately adjacent fabric from strain and further to prevent the large bottom sheet from becoming stretched to the point that it permanently sags and tilts the springs out of line, my invention contemplates as its chief feature the provision of resilient means for supporting the fabric sheet in the regions occupied by the cushion supporting springs. This last mentioned object or feature is accomplished by employing a plurality of strips of webbing which are positioned in the bottom of the frame immediately below and in engagement with the under surface of the fabric sheet, all of such strips being substantially parallel and arranged so as to lie immediately below the rows of springs which carry the cushion of the chair.

In order to obtain the maximum area of spring supporting surface and further to add to the cheapness with which the unit may be constructed, my invention contemplates rigidly securing these strips of webbing to one end of the frame and in this connection it is a further object of this invention to provide novel means for making this attachment whereby the nails or tacks which support the fabric sheet and the webbing in the region at which the webbing is secured to the frame are relieved of strain and further to provide an attaching means of this character whereby the webbing strips are elevated a slight distance above the lower edge of the frame so as to assure their supporting contact with the fabric sheet at all times.

As has been pointed out above it is the chief

object of this invention to provide a construction of the class described which eliminates the possibility of the spring supporting sheet becoming sagged and with this object in mind my invention contemplates the use of yieldable means for connecting the other end of the webbing strips to the frame so that sufficient resiliency is afforded to absorb all of the strain placed upon the chair bottom by the occupant in the resilient means or tension springs, as are used in the form chosen for illustration herein. The fabric sheet is thereby prevented from becoming stretched to the point that it will permanently sag to a hammock shape and tilt the springs out of line.

My invention further contemplates as another object the provision of means for yieldably supporting the sides of the fabric sheet and at the same time providing a closed bottom construction which will prevent the ingress of dirt and insects as pointed out above.

The details in the construction of certain preferred embodiments of my invention, together with other objects attending its production, will be best understood from the following description of the accompanying drawing which has been chosen for illustrative purposes only and in which

Fig. 1 is an inverted plan view illustrating the details in the construction of one preferred embodiment of my invention;

Fig. 2 is a sectional elevation taken along the line 2—2 of Fig. 1;

Fig. 3 is a perspective view illustrating the details in the construction of a preferred form of clamping bracket contemplated by this invention;

Fig. 4 is a fragmentary inverted plan view showing the details in the construction of a modified form of this invention;

Fig. 5 is an enlarged sectional elevation taken along the line 5—5 of Fig. 4;

Fig. 6 is an enlarged sectional elevation similar to Fig. 5 but illustrating a further modification in this type of construction, and

Fig. 7 is a sectional end elevation illustrating a modified form of reinforcing unit such as is used in the construction shown in Fig. 6.

Referring now to the drawing with particular reference to Figs. 1 and 2, reference numeral 11 indicates the seat frame of a chair which is shown as having front and rear end rails 12 and 12' respectively and side rails 13 and 13' respectively, such frame being supported by means of legs indicated generally by reference numeral 14. 55

Reference numeral 15 indicates a fabric sheet which is stretched across the bottom of the frame and in this form of my invention is shown as being secured at its edges to the frame by means of tacks 16.

It will be observed that the fabric sheet 15 in the form of my invention shown in Figs. 1 and 2 is tacked to the underside of the front rails 12 and the two side rails 13 and 13'. On the rear rail 12', however, it will be observed that the edge of the sheet 15 is drawn inwardly and upwardly and is secured to the inner face of the rail 12 as indicated by reference numeral 17. This affords sufficient room beneath the sheet 15 to permit the support of a series of tension springs indicated by reference numeral 18.

These tension springs may be supported on the frame in various ways. In the particular embodiment chosen for illustration herein, I show the springs as being supported by means of a wedge type of connection such as is shown and described in my co-pending application, Serial No. 734,608, which was filed on July 11th, 1934. This wedge comprises a flat plate member having a slot 19 on its pointed or wedged end which is driven into the wood and through which a locking pin or nail 20 is driven. The extending end 21 of the plate is provided with an eye 22 which is adapted to receive the hook in the spring 18.

The free end of the spring 18 carries what I may term a web clamping unit which may also be of any preferred type but which is shown here as comprising a clamping unit of the type shown and described in my co-pending application, Serial No. 658,678 filed February 27, 1933. This clamping unit is in the nature of a slotted plate 25 through the slot of which a folded end 26 in a strip of webbing 27 is adapted to be inserted. The fold of the webbing is locked in place in the slotted plate by means of a locking pin 28. This construction has the advantage of being readily adjusted before the spring is hooked in place so as to provide the desired tension in the webbing.

The other end of the webbing strip 27 is rigidly secured in any suitable manner to the end of the frame opposite the end to which the yieldable attaching means is positioned. In this form of my invention the webbing is shown as being rigidly secured to the front end of the frame and is yieldably attached to the rear end thereof. Although various types of attachments may be used for the webbing the simplest being to merely tack or nail it to the under side of the front rail 12, I find that best results are obtained if a clamping bracket of the general type indicated by reference numeral 30 is employed.

This clamping bracket which is illustrated more in detail in Fig. 3 comprises an angle plate, one face 31 of which is curved to form a lip or supporting shelf for the webbing, the other face 31' being parallel with the inner face of the rail 12 and secured thereto by means of tacks or nails which are driven through suitably provided openings 32. Ears 33 are provided at the ends of the face plate 31', such ears extending outwardly beneath the rail and being provided with openings for the reception of tacks which are driven upwardly into the bottom of the rail. As an additional securing means, I provide this member with upwardly extending ears 34 which extend through perforations provided in the

edge of the sheet 15 immediately adjacent the rail. These ears are provided with apertures for the reception of suitable securing means as indicated at 36. This type of bracket locks the webbing in place by means of a pressure clamping action, so that each fiber of the webbing is held with equal force, and the strain is not on isolated points in the fibers as is the case with tacks or nails which pierce only a few fibers where the tacks are located.

It will be observed from Fig. 1 that the webbing strips 27 are in substantially parallel relation with each other and as has been pointed out hereinabove these strips are positioned so as to provide a support for the springs which carry the cushions. These springs are indicated generally by reference numeral 37 and as shown in Fig. 1 the springs appear in dotted lines in rows immediately above the strips of webbing. It will be understood that any desired number of webbing strips may be employed, depending upon the size of the unit and the number and size of the springs to be employed. It will also be observed that the webbing strips with their yieldable connections to the frame, constitute a yieldable support for the fabric sheet, relieving the tacks from strain and preventing the fabric sheet from becoming sagged. Furthermore this construction provides a double webbing support for the base rings on the cushioning springs which prevents the spring wearing and breaking through its fabric support as frequently happens with single fabric supports.

In Figs. 4 and 5 I show a slightly modified construction in which the sides of the fabric sheet 15a are shown as being yieldably supported. This type of construction is obtained by providing folds on the two sides (only one being shown in the illustration) of the fabric sheet, such folds being substantially parallel to the webbing strips 27A. In order to provide a dust-proof construction the folds indicated by reference numeral 39 are formed so as to leave a free end 40 which is of sufficient width to provide what may be termed a longitudinal gusset. The fold 39 which is shown as being provided with a longitudinal reinforcing bar 41 is engaged by a plurality of helical springs 42 which in turn are secured to the side rails in any suitable manner such as by means of the locked web connection 20a of the type described above. The free end of the gusset strip 40 is secured to the inner face of the side rail in any suitable manner such as by means of tacks 44. This strip 40 is made of sufficient width to permit a free resilient movement of the bottom sheet and at the same time it provides a dust and vermin proof construction the same as is obtained in the form shown in Fig. 1.

The form of my invention shown in Fig. 6 is the same as that shown in Fig. 5 except for the type of reinforcing member used and the parts in Fig. 6 will be designated by the same reference numerals as are used in Fig. 5, such numerals being distinguished by the letter "b." In this latter form of my invention it will be observed that the fold 39b in the edge of the sheet 15b is reinforced by means of a clamping strip 50. This clamping strip 50 which is shown in section in Fig. 7 is merely an elongated strip of metal which prior to its installation is in the nature of a V or U-shaped cross section having inwardly extended teeth 51 formed on its oppositely disposed edges. If desired the strips

may be provided with aligned openings indicated in dotted lines at 52 for the reception of the hook on the helical spring 42b or if desired this hook may be made of a nature such that it will extend clear over the full width of the clamping strip.

It is to be understood that while I have herein described and illustrated one preferred form of my invention that the invention is not limited to the precise construction described above but includes within its scope whatever changes fairly come within the spirit of the appended claims.

I claim as my invention:

1. In an article of furniture, a seat embodying: a frame; a fabric sheet secured at its edges to the bottom of said frame; a plurality of substantially parallel webbing strips secured in said frame below said fabric sheet; and tension means yieldably holding said webbing strips in supporting engagement with said sheet.

2. In an article of furniture, a seat embodying: a frame; a fabric sheet secured at its edges to the bottom of said frame; a plurality of substantially parallel webbing strips secured in said frame below said fabric sheet; tension means yieldably holding said webbing strips in supporting engagement with said sheet and a plurality of cushion supporting springs mounted on top of said sheet above said webbing strips.

3. In an article of furniture, a seat embodying: a frame; a fabric sheet secured at its edges to the bottom of said frame; a plurality of substantially parallel webbing strips positioned beneath said sheet; means rigidly securing one end of each of said strips to one of the rails in said frame; and yieldable means for securing the opposite end of each strip to the opposite rail in said frame whereby said strips are held in supporting engagement with said sheet at all times.

4. In an article of furniture, a seat embodying: a frame; a fabric sheet secured at its edges to the bottom of said frame; a plurality of substantially parallel webbing strips positioned beneath said sheet; means comprising a bracket having a clamping plate secured to the bottom of said frame opposite the inner face thereof and a strip supporting shelf positioned above the bottom edge of said frame for rigidly securing one end of each of said strips to one of the rails in said frame; and yieldable means for securing the opposite end of each strip to the opposite rail in said frame whereby said strips are held in supporting engagement with said sheet at all times.

5. In an article of furniture, a seat embodying: a frame; a fabric sheet; means rigidly connect-

ing opposite ends of said sheet to the ends of said frame; reinforcing means in the sides of said sheet; yieldable means connecting the reinforced sides of said sheet to the sides of said frame; a plurality of webbing strips positioned beneath said strip in engagement with the bottom thereof; means rigidly securing one end of each strip to one end of said frame; and yieldable means securing the opposite end of each strip to the corresponding end of said frame whereby said strips are held in supporting engagement with said sheet at all times.

6. In an article of furniture, a seat embodying: a frame; a fabric sheet; means rigidly connecting opposite ends of said sheet to said frame; said sheet being provided with folds near its sides forming gusset strips; yieldable means connecting said folds to the sides of said frame; means securing the edges of said gusset strips to said frames; a plurality of webbing strips positioned beneath said sheet in substantially parallel relation with said folds; and means yieldably supporting said strips between the ends of said frame and in supporting engagement with said sheet at all times.

7. In an article of furniture, a seat embodying: a frame; a fabric sheet; means rigidly connecting opposite ends of said sheet to said frame, said sheet being provided with folds near its sides forming gusset strips; yieldable means connecting said folds to the sides of said frame; means securing the edges of said gusset strips to said frame; a plurality of webbing strips positioned beneath said sheet in substantially parallel relation with said folds; means rigidly securing one end of each strip to the corresponding end of said frame; and tension means yieldably securing the opposite end of each strip to the opposite end of said frame.

8. In an article of furniture, a seat embodying: a frame; a fabric sheet; means rigidly connecting opposite ends of said sheet to said frame, said sheet being provided with folds near its sides forming gusset strips; yieldable means connecting said folds to the sides of said frame; means securing the edges of said gusset strips to said frames; a plurality of webbing strips positioned beneath said sheet in substantially parallel relation with said folds; means rigidly securing one end of each strip to the corresponding end of said frame; tension means yieldably securing the opposite end of each strip to the opposite end of said frame; and a plurality of rows of cushion supporting springs supported on said sheet above said strips of webbing.

SAMUEL S. BERNSTEIN.