Oct. 2, 1951 H. E. LOWRY 2,570,000

CHAIR CONSTRUCTION COMPRISING A BASE AND A CHAIR FRAME RESILIENTLY SUSPENDED THEREFROM

Filed June 12, 1948 2 Sheets-Sheet 1

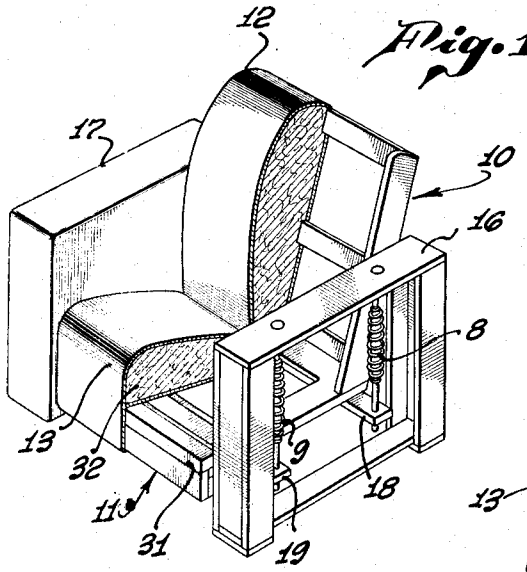


Fig. 1.

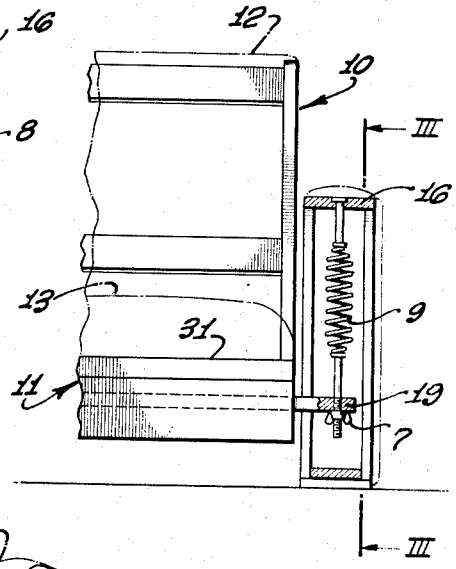


Fig. 2.

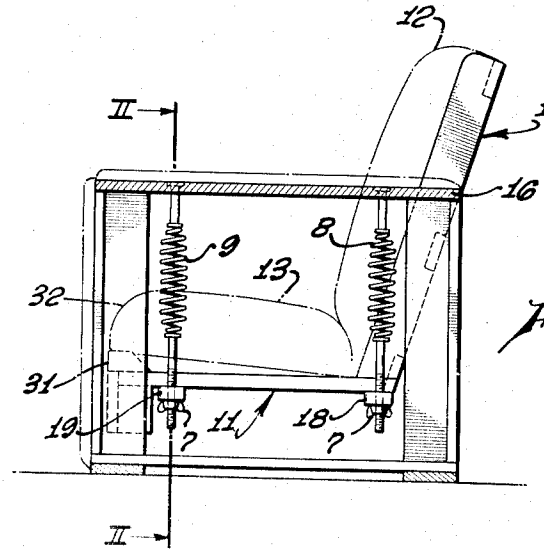


Fig. 3.

HUBERT E. LOWRY,
INVENTOR.

BY C. C. Cleveland

ATTORNEY.

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Fig. 4.

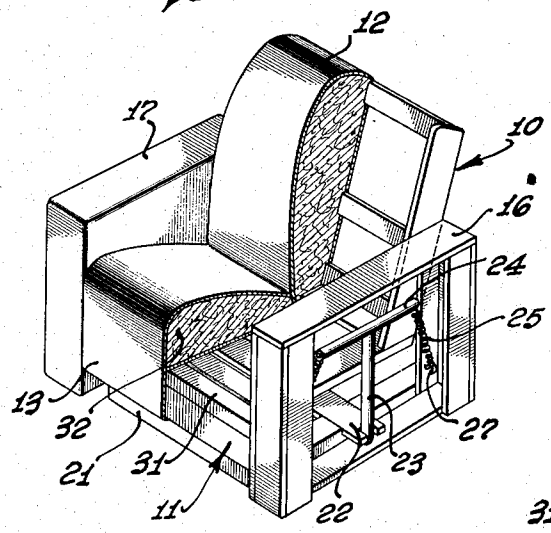


Fig. 5.

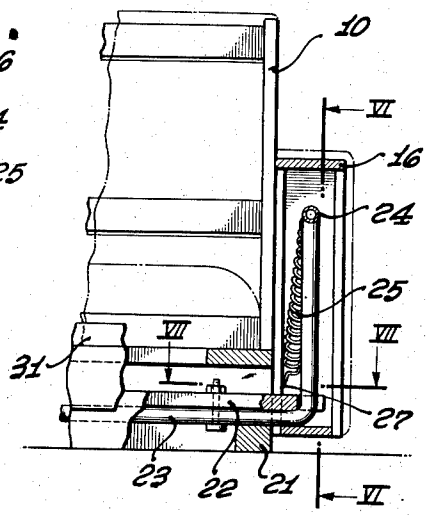
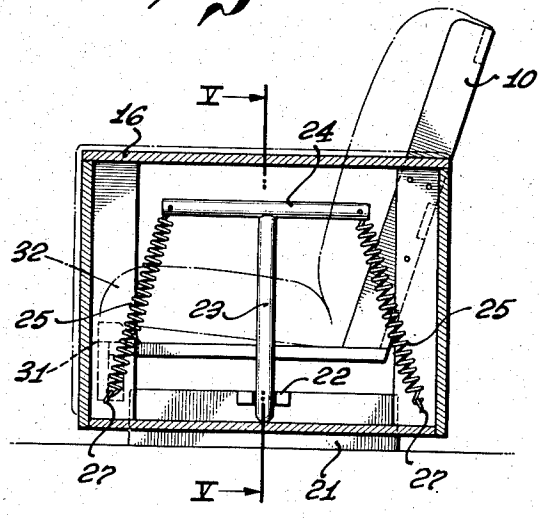


Fig. 6.



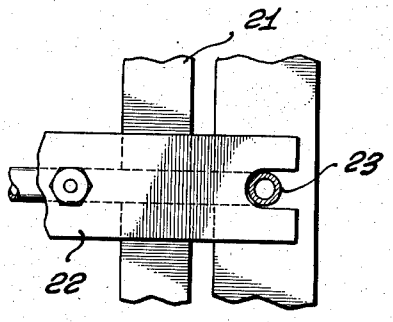


Fig. 7.

HUBERT E. LOWRY,
INVENTOR.

BY

ATTORNEY.

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CHAIR CONSTRUCTION COMPRISING A BASE AND A CHAIR FRAME RESILIENTLY SUSPENDED THEREFROM

Hubert E. Lowry, Gardena, Calif.

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3 Claims. (Cl. 155—50)

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This invention relates to an improved construction of upholstered chairs, divans, love seats and the like and is particularly directed to improvements in the construction of upholstered chairs and chair frames wherein the seat is yieldingly suspended for limited vertical and horizontal movement.

Most pieces of upholstered furniture are relatively immovable in that the seat and back do not give or move with the motions of the occupant. Most upholstered chairs, for example, have a seat frame in a fixed position and although the seat is upholstered and contains springs or other yielding materials, such seat will not change its general plane when occupied by people of different weight, leg length, etc. Most upholstered chairs, moreover, fail to support the average adult in the region of the lower thigh in back of the knee. Furthermore, the construction of upholstered chairs as customarily used permits the frontal portion of the seat to be readily crushed and broken under the weight of the body, this part of the chair showing signs of wear within a very short period of time.

The present invention is directed to a construction which obviates and eliminates the prior difficulties. In the first place, the construction here contemplated permits adjustment so that the plane of the seat may be changed in accordance with the body weight and leg length of the most frequent occupant of such chair. Secondly, the construction herein disclosed permits a limited yielding movement, both vertically and in a horizontal plane, without rocking, the limited horizontal movement creating a feeling of comfort and satisfaction which can not be obtained in a normal, stationary chair.

Furthermore, the present invention eliminates the necessity of employing a number of springs beneath the chair. In certain prior constructions springs have been placed beneath the seats of chairs, the yielding action being attained by the compression of such springs. This is disadvantageous inasmuch as a definite end point is soon reached and when a large or heavy person occupies the chair, the movement of the chair seat does not end in a yielding manner but instead the downward movement of the chair seat, under the weight imposed thereon, comes to a sudden and abrupt stop when the spring is collapsed, thereby losing all of the effect which was initially desired.

In the present construction, the chair seat is actually suspended from springs which expand when a weight is imposed upon the seat, and a soft and yielding effect is obtained irrespective of the weight of the occupant.

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Generally stated, the present invention contemplates a construction in which a rigid seat frame and back frame, in a fixed position with respect to each other, are suspended from stationary supports, one on each side of the seat frame, said supports extending to above the normal plane of the seat frame. Spring means having their upper ends connected to the stationary support and their lower ends to the seat frame, are used to yieldingly support the seat. Horizontal movement of the seat may be completely eliminated or it may be permitted within limits in accordance with variations of the construction employed. The undue compression or breaking of the upholstery covering the frontal area of the seat pad is prevented by providing a rigid seat frame having an enlarged front transverse member extending both above and below the plane of the seat frame.

It is an object of the present invention, therefore, to disclose and provide an improved upholstered furniture construction.

Another object is to disclose and provide an upholstered chair construction wherein the seat is yieldingly suspended for vertical movement.

A still further object of the invention is to disclose and provide an improved upholstered chair construction wherein the seat and back are yieldingly suspended from stationary supports extending upwardly on each side of the seat to a plane above the normal plane of the seat.

A still further object of the invention is to disclose and provide an improved chair construction wherein the seat, back and arms of a chair are yieldingly suspended from stationary supports for vertical movement under the influence of weight imposed upon or carried by the chair.

These and other objects and advantages of the invention will become apparent to those skilled in the art from the following description of certain exemplary forms.

In the drawings:

Fig. 1 is a three-quarter perspective view, partly in section, in order to show the details of the invention.

Fig. 2 is a sectional view taken along the plane II—II of Fig. 3.

Fig. 3 is a sectional view taken along the plane III—III of Fig. 2.

Fig. 4 is a view similar to Fig. 1 illustrating another embodiment of the invention.

Fig. 5 is a partial sectional view taken along the line V—V of Fig. 6.

Fig. 6 is a sectional view taken along the plane VI—VI of Fig. 5.

Fig. 7 is a fragmentary view taken along the plane VII—VII of Fig. 5.

Referring to the drawings, one preferred construction is illustrated by Figs. 1, 2, and 3, inclusive, and in order to carry out an article having the desired spring construction, I provide a frame consisting of a seat and back, which are made rigid to one another. The back, referred to generally as 10, and seat 11 constitute the main part of the chair and may be provided with any conventional upholstering 12 for the back and 13 for the seat. The purpose here is to so suspend the supporting structure as to give freely in response to the movement of a person sitting in the chair. This is accomplished by suspending the seat and back of the chair from the side arms. The side arms here illustrated as 16 and 17 may be hollow. In the embodiment in Figs. 1, 2, and 3 there may be provided fore and aft transverse members 18 and 19 beneath the seat, the end portions extending into the confines of the side arms 16 and 17. The ends of these transversely extending spaced members 18 and 19 are ported to freely receive the lower threaded ends of rods provided with adjustment wing nuts 7, the upper ends of the rods being connected to the lower ends of vertically disposed coil springs 8 and 9, the upper ends of the springs being firmly connected to the top member of the arm panels.

It has been found by experience that when the supporting portions of a chair, divan, or the like, comprising the seat and the back support, are made rigid and suspended so as to give simultaneously one with the other, greater comfort is afforded than when there is relative movement between the seat portion and the back portion. Moreover, most all chairs have springs of some sort of construction directly beneath the seat; the springs either become distorted on account of use or break and thereby fail to support the seat evenly. I have found that if the seat and back are made rigid and suspended as a unit, the chair can be adjusted to a desired angle by nuts 7 and will give more naturally and respond to pressure thereon in both vertical and to some extent in a horizontal direction.

The arrangement of vertical springs so that their upper ends are fixed to a support above the plane of the seat provides a support that has a resiliency which gives comfortably to the pressure of the weight of the person without a limit or stop imposed by the seat frame coming into contact with a fixed stop. I have found that this manner of supporting the chair, divan, or the like, affords comfort and restfulness not possessed of chairs or divans provided with the conventional coil springs.

It will be noted that the form of the chair illustrated by Figs. 1, 2, and 3, inclusive, is supported by vertically disposed coil springs, the weight of which is carried by the side arms at points forwardly and rearwardly. In certain classes of furniture I have found by testing that if the back and seat are made rigid one with the other and spring supported from the center of a base to a point above the plane of the seat, a desirable rocking effect may be obtained. This I accomplish in the embodiments illustrated by Figs. 4 to 7, inclusive. The frame of the seat and back may be identical to that shown at 10 and 11 in the embodiment just described, with the side arms 16 and 17 fixed rigid therewith. I mount this structure including the back, seat and side arms on a supporting base 21. The structure including the seat, back and side arms is preferably supported from the base by means of a substantially U-shaped member 23, having upstanding legs which may be T shaped, as clearly illustrated in Figs. 4 and 6. These upstanding legs of member 23 extend into the hollow arm panels 16 and 17 and the horizontal T portions 24 are above the plane of the seat frame but spaced below and out of contact with the top elements of the hollow arm panels. The upper horizontal member 24 carried by each upper end of each leg of the U-shaped member may have its ends connected to springs 25, the lower ends of which are fixed to the seat frame below the upper plane of the seat, as shown at 27. The U-shaped member may be firmly connected to base 21 in any suitable manner: a transverse member 22 attached to the base may have its ends recessed to embrace the arms of the U-shaped member and impart stability thereto.

In the embodiment illustrated by Figs. 4 to 7, inclusive, the entire structure, including the seat, back and side arms, which usually is in contact with the person occupying the seat, floats as a unit and makes possible a relaxing comfort not afforded by separately supported seat, back and arms. In carrying out this last feature it is of primary importance that a stationary base 21 support all portions of the structure in which a user may rest. If the supporting base 21 is provided with supporting arms, as indicated at 23, the latter having supporting portions located within the confines of the arm rest, a person reclining in a chair may find comfort and relaxation in any direction which he may desire to repose.

Accordingly, there is provided a construction of chairs, divans, love seats and the like, wherein the seat, the back and the arm rest are suspended for a sufficient, limited, vertical and horizontal movement, as may be desired by a user. While it is of primary importance that the seat and back of a chair move in unison, it may be desired in some structures that the arm rest move accordingly, the combined features just mentioned may be accomplished by the provision of a supporting base having means attached thereto to floatably mount the entire contacting part of a chair, including the seat, back, and side arms. As mentioned above, it is important that the springs extend from a point below the supporting surface of the seat to a point above the said surface.

Another important feature of the present invention is the manner in which the chair is constructed in order to support the forward portion of the seat. In almost all the conventional chair, divan, etc., constructions, the forward portion of the seat is subjected to usage which tends to distort the front of the chair. I have overcome this by providing a transverse member 31 which extends the length of the forward portion of the seat frame. This member 31 preferably should extend below the plane of the seat frame and to a point above the seat frame so as to give the front portion of the upholstered seat 32 additional support. By providing this transverse member, which is raised as compared to the other portions of the seat frame, I have found that such furniture does not only maintain its shape over a long period of time, but is more comfortable in use.

The provision of the T-shaped legs of the U-shaped member 23 gives to that portion of the

structure suspended from the springs a flexible characteristic not found in other spring-suspended structures known to me. Moreover, a considerable degree of rocking characteristics may be effected by either of the structures illustrated in the drawings. The springs such as **25** are preferably downwardly and outwardly directed as shown in Fig. 6, and enhance the rocking motion.

The above structures described are simple, rugged, efficient, durable and may be produced comparatively cheaply and yet may be embodied in the most expensive furniture.

While I have illustrated and described certain forms of the present device, it will be apparent to those skilled in the art that certain changes, modifications, additions, omissions and substitutions may be made in the forms here shown without departing from the spirit and scope of the invention as defined by the appended claims.

I claim:

1. The combination with a chair frame comprising: a pair of hollow arm panels, a seat frame and a back frame connecting said arm panels; of a fixed base including a pair of upstanding supports, one of said supports extending into each of said hollow arm panels to above the plane of the seat frame; and spring means carried by each of the supports and connected to the chair frame for yieldably suspending the chair frame,

including said arm panels, seat frame and back frame, from said supports.

2. A combination of the character stated in claim 1, wherein each of said upstanding supports is in the form of a T, and the spring means comprises a pair of laterally spaced springs in each arm panel, one being connected to each arm of said T.

3. The combination defined in claim 1 wherein each of said upstanding supports includes a forwardly and rearwardly extending element terminating in spaced relation to vertical portions of the hollow arm panels, and said spring means are carried at the ends of each element.

HUBERT E. LOWRY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,720,485	Leipert	July 9, 1929
1,979,892	Loeffler	Nov. 6, 1934
2,133,747	Hunter	Oct. 18, 1938

FOREIGN PATENTS

Number	Country	Date
485,887	Great Britain	May 26, 1938
531,269	Great Britain	Jan. 1, 1949