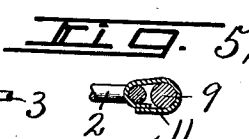
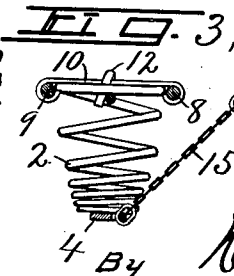
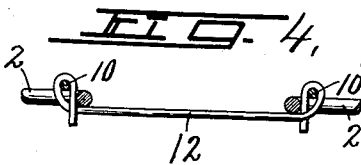
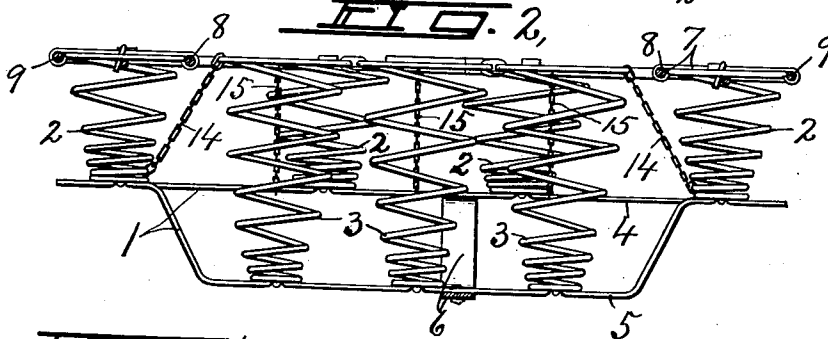
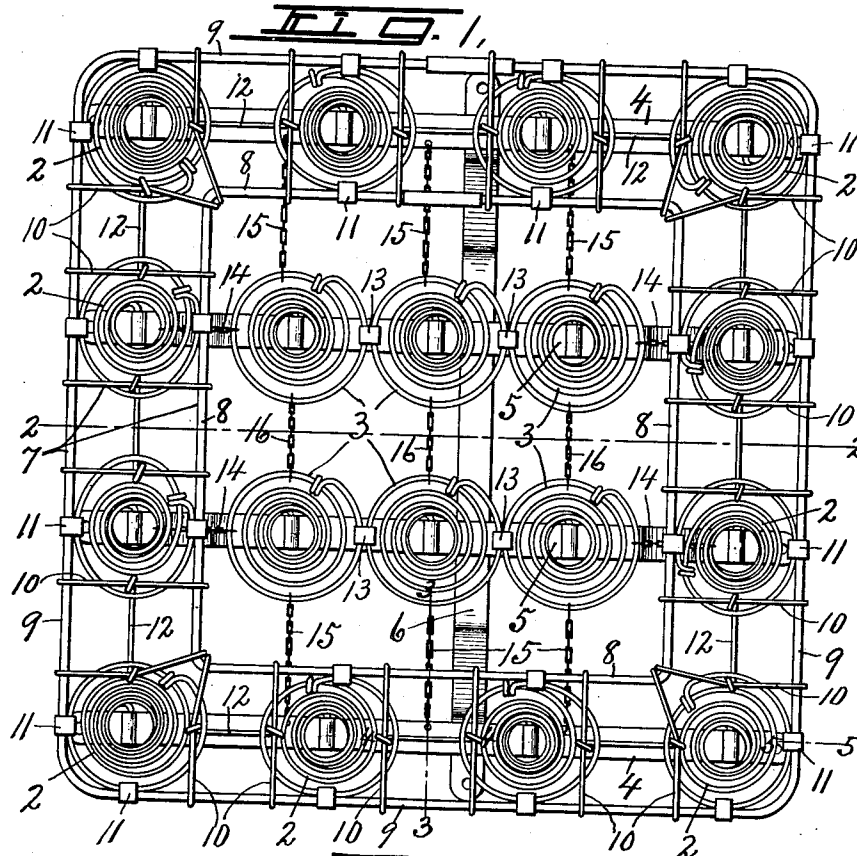


W. LEWIS.  
 SPRING SEAT.  
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1,087,248.

Patented Feb. 17, 1914.



Witnesses  
*A. J. Hunt*  
*W. E. Chase*

*Wm. Lewis*  
 Inventor  
 By *Howard P. Austin*  
 Attorney.

# UNITED STATES PATENT OFFICE.

WILLIAM LEWIS, OF UTICA, NEW YORK.

## SPRING-SEAT.

1,087,248.

Specification of Letters Patent.

Patented Feb. 17, 1914.

Application filed November 27, 1912. Serial No. 733,806.

*To all whom it may concern:*

Be it known that I, WILLIAM LEWIS, of Utica, in the county of Oneida, in the State of New York, have invented new and useful Improvements in Spring-Seats, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in spring seats for upholstered furniture of the class set forth in my pending applications Nos. 692,611, filed April 23, 1912, and 706,378, filed June 28, 1912 and allowed October 30, 1912, issued May 27, 1913, Patent No. 1,062,597, except, that instead of tying the upper helices of the entire series of coil springs to each other and to a marginal frame, they are divided into two series, namely: a central series and a marginal series, those of one series being detached from those of the other series.

It is well known that the central portions or springs of seats of this character are subjected to the most severe pressure and usage and, when the upper helices of the entire series of coil springs are tied to each other and to the marginal frame, the excessive depression of the center coils tends to draw the marginal coils and frame inwardly so that in time the marginal frame becomes permanently deformed although the springs may retain their full resiliency. This deformation is particularly true of the front portion of the frame which receives a considerable portion of the pressure and strain so that the front portion of the frame and adjacent coil springs connected thereto become permanently tilted rearwardly after a short period of use while the intermediate portions of the sides of the frame are frequently bent inwardly, thereby causing the center sides and front of the seat to sag more or less.

The object in dividing the springs of the seat into separate central and marginal series is two-fold, viz.: (1) to permit independent action of each series so that the center series which is adapted to bear the greater part of the load may have a free and highly resilient vertical and lateral rolling action independently of the marginal frame or adjacent marginal series of springs, thereby allowing this portion of the seat to conform more readily to the position of the occupant affording a more luxuriant and comfortable seat, and (2) to prevent excessive strains

and consequent deformation or lateral tilting of different portions of the frame and adjacent marginal springs.

Another object is to provide simple flexible means for holding the central series of springs in proper relation when restored to their normal upright positions under their own tension.

Other objects and uses relating to specific parts of the seat will be brought out in the following description.

In the drawings, Figure 1 is a top plan of a spring chair seat embodying the various features of my invention. Fig. 2 is a transverse vertical sectional view of the same seat taken on line 2—2, Fig. 1. Fig. 3 is a detail vertical sectional view through one side of the same seat taken on line 3—3, Fig. 1. Fig. 4 is a sectional view of a portion of the upper helices of two adjacent springs showing the form of the tie rod and its connecting means. Fig. 5 is a cross section on line 5—5, Fig. 1, showing one of the clips for fastening one of said helices to the marginal frame.

This seat comprises a supporting base —1— carrying separate sets or series of upright coil springs —2— and —3—, the springs —2— being arranged symmetrically around the marginal edge of the seat which, in this instance, is quadri-lateral and nearly rectangular in plan while the remaining series of springs —3— are symmetrically arranged within the marginal series of springs —2—. These springs of both series are preferably tapering or conical and arranged with their lower edges resting upon the base —1— and their upper ends disposed in substantially the same horizontal plane some distance apart.

The base —1— preferably consists of lengthwise side bars —4— and a plurality of, in this instance two, intermediate lengthwise bars —5—, said bars being spaced some distance apart directly under the centers of the lower reduced ends of their respective rows of springs. The ends of these bars are disposed in substantially the same horizontal plane for attachment to the frame of a chair or other piece of furniture to which the combined sets of springs are to be applied, the intermediate portions of the side bars —4— being disposed in substantially the same plane as the ends of said bars, while the central portions of the intermediate bars —5— are depressed some distance

beneath said plane for supporting the central series of springs —3— which are, therefore, somewhat longer vertically than the marginal springs —2— so as to afford  
5 greater resiliency where the load or pressure is greatest.

The base bars —4— and —5— extend in the same general direction substantially parallel with each other and are held in fixed  
10 relation uniform distances apart by a cross bar or brace —6— preferably extending under the bars —4— and —5— and having its ends projecting laterally beyond the side bars and adapted to be attached to the frame  
15 of the seat or other piece of furniture to which the spring seat is to be applied, the intermediate portions of the cross bar being riveted or otherwise secured to the central portions of the lengthwise bars.

Mounted upon the upper ends of the marginal series of springs —2— is a quadri-lateral frame —7— which, in this instance is substantially square and determines the formation of the seat or other part to be upholstered, said frame consisting in this instance of inner and outer rings or sections  
25 —8— and —9— disposed some distance apart in substantially the same horizontal plane as the upper helices of the marginal springs —2— and are connected at intervals by tie pieces —10— for holding them in fixed relation against relative lateral movement and, at the same time, permitting slight relative vertical movement. These  
30 frame sections —9— and —10— run along and in close proximity to the inner and outer edges of the upper helices of the marginal springs and are attached thereto by metal clips —11— as shown more clearly in Fig. 5.

The tie wires —10— are preferably disposed at substantially right angles to the inner and outer frame sections —8— and —9— to which they are secured and rest upon diametrically opposite sides of the upper helices of the marginal springs, thereby supporting the frame directly upon said helices, sufficient clearance being left between the tie wires and adjacent helices of the marginal springs to receive the ends of  
45 additional tie wires —12— which connect the intermediate portions of the tie wires —10— between and parallel with the adjacent sides of the inner and outer sections of the frames —8— and —9—, said tie wires —12— being  
50 extended under the adjacent sides of the uppermost helices of said springs and having their ends brought upwardly and over and downwardly around the tie wires —10— and between said tie wires and inner sides  
60 of the adjacent portions of the uppermost helices so as to additionally hold the upper ends of the springs in fixed relation to the frame.

The central set or series of springs —3—  
65 are arranged wholly within and apart from

the marginal frame —7— with their lower reduced ends resting upon the depressed intermediate portions of the base bars —5— and their upper ends disposed in substantially the same horizontal plane as the marginal frame or upper ends of the marginal  
70 springs so as to support the central portion of any upholstery which may be applied to the seat and at the same time permitting an independent vertical movement and lateral rolling action of the central portion of the seat irrespective of the marginal frame or additional springs.

As previously intimated, the central series of springs are arranged in rows, the adjacent sides of the upper helices of each row being flexibly connected by metal clips —13— while the opposite outer sides of the upper helices of the end springs of each row are flexibly connected by chains —14— to the lowermost helices of the adjacent marginal springs. It, therefore, follows that the chains —14— are disposed in downwardly and outwardly inclined positions. In like manner, the outer sides of the uppermost  
80 helices of the central springs of each row are flexibly connected by chains —15— to the outer side bars —4— of the supporting base as shown more clearly in Fig. 3, said chains —15— also extending downwardly  
85 and outwardly in inclined planes to allow free vertical and lateral rolling action of the central series of springs. The adjacent sides of the uppermost helices of the central springs of each row are also flexibly connected  
90 to each other by chain —16—, which permit the springs of each row to yield vertically and laterally relatively to each other so that the springs of the entire central series may yield vertically and laterally  
95 relatively to each other or as a unit independently of the marginal frame —7— or corresponding marginal series of springs.

The chains —14— and —15— serve to restore the central series of springs to their normal upright positions when released from pressure and, at the same time, allow the independent vertical and lateral resiliency previously referred to.

What I claim is:

1. A spring seat comprising a supporting base, separate sets of coil springs having one end mounted on the base and their other ends disposed in substantially the same plane, one of said sets surrounding the other  
115 set and constituting a marginal series of springs, a frame mounted on the larger helices of the marginal springs and detached from the inner series of springs, the inner series of springs connected to each other independently of the marginal series, and flexible connections between the springs of the inner series and the base.

2. A spring seat comprising a supporting base, separate sets of coiled springs having  
130

one end attached to the base, the opposite ends of both sets being disposed in substantially the same plane, the upper helices of the springs of each set attached to each other  
5 independently of the other set, whereby the springs of one set may yield under compression independently of those of the other set.

3. A spring seat comprising opposite end and intermediate spring-supporting bars  
10 spaced apart, the intermediate bars having their central portions depressed some distance below the plane of their ends, said end bars being disposed in the plane of the ends of the intermediate bars, a set of coil springs  
15 resting on the depressed portions of the in-

intermediate bars, a separate set of coil springs resting upon the ends of the intermediate bars and upon the end bars and a metal frame supported entirely by the upper ends of the last named set of springs independ- 20  
ently of the springs of the first named set whereby said sets of springs may act independently of each other.

In witness whereof I have hereunto set my hand this 18th day of November, 1912. 25

WILLIAM LEWIS.

Witnesses:

G. G. JONES,  
GEORGE P. BERGEVIN.