(No Model.)

C. E. DAVIS.

MECHANISM FOR SPRING BACK CHAIRS.

No. 594,679. Patented Nov. 30, 1897.

Fig. 1.

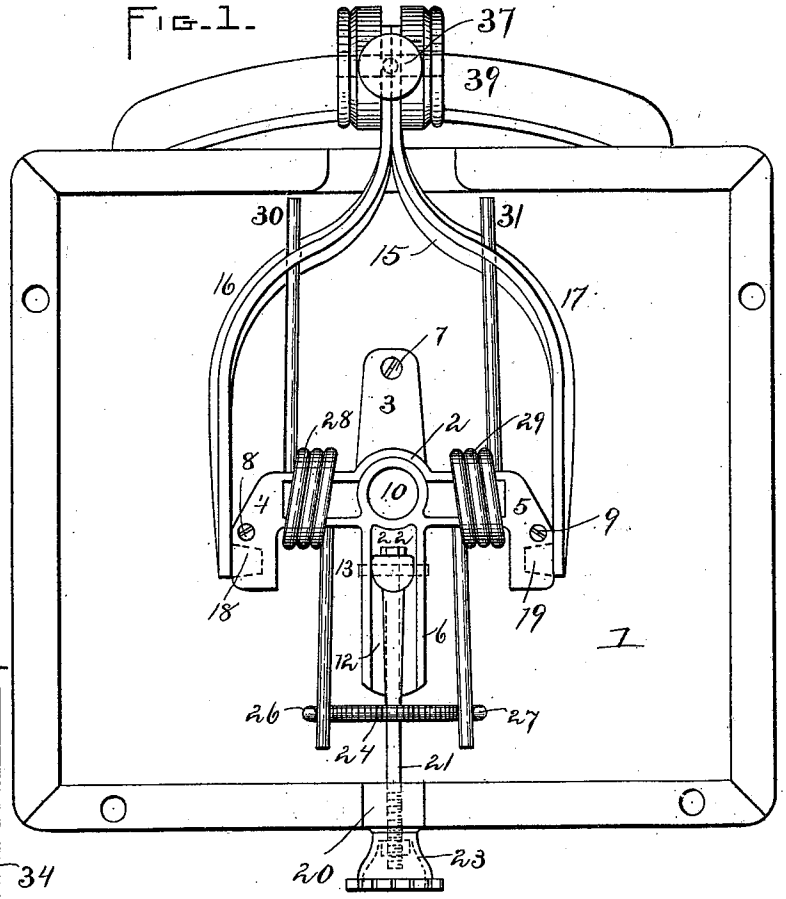


Fig. 4.

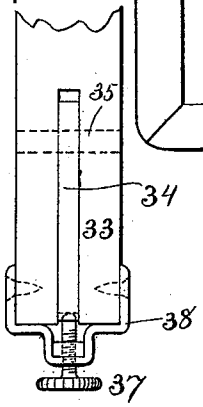


Fig. 2.

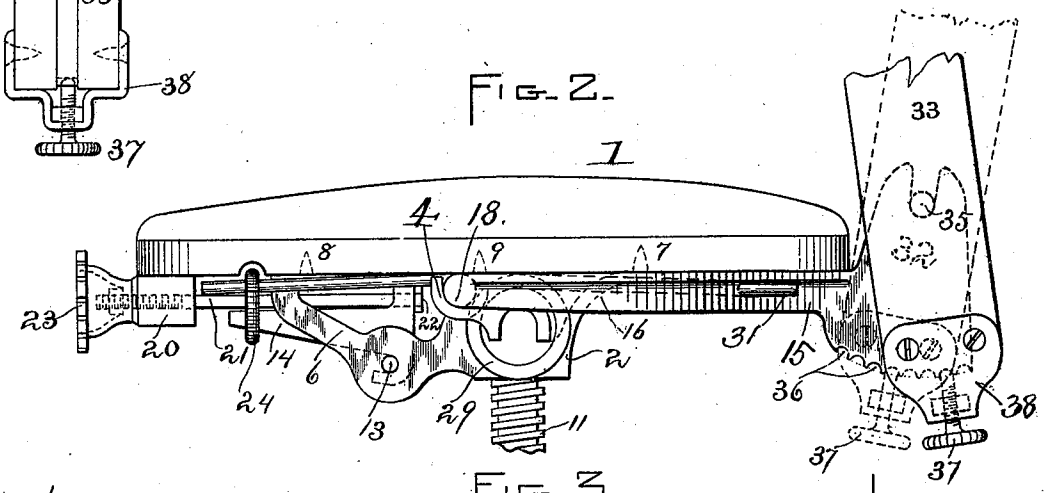


Fig. 3.



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CHARLES E. DAVIS, OF BOSTON, MASSACHUSETTS.

MECHANISM FOR SPRING-BACK CHAIRS.

SPECIFICATION forming part of Letters Patent No. 594,679, dated November 30, 1897.

Application filed June 3, 1896. Serial No. 594,124. (No model.)

To all whom it may concern.

Be it known that I, CHARLES E. DAVIS, a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Mechanism for Spring-Back Chairs, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to those chairs in which the seat is rigid in relation to a spring-back.

The object of my invention is to provide a more simple and convenient means for adjusting the inclination of the back in relation to the seat, whereby the back can be made to incline forward over the seat, stand perfectly vertical, incline backward away from the seat, or be made to stand at intermediate points to meet the exigencies of the occasion.

A further object of my invention is to provide superior springs for supporting the back and more desirable means for adjusting the tension of the springs.

To this end my invention consists in the peculiar features and combinations of parts more fully described hereinafter and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a bottom view of a chair-seat provided with my improvements; Fig. 2, a side elevation thereof, and Figs. 3 and 4 views of details.

The reference-numeral 1 denotes an ordinary non-tiltable rigid chair-seat having attached to its under side a cast-iron spider 2, provided with branching arms 3, 4, 5, and 6, secured to the bottom of the seat by screws 7, 8, and 9. This spider is provided with a threaded bore 10 to receive a vertical screw 11, on which the whole seat revolves. The back 39 is supported upon the rear end of a Y-shaped rocking frame 15, composed of the forwardly-projecting arms 16 and 17, which terminate at a point in front of the screw, where they are provided with inwardly-projecting pivots 18 and 19, which rock in sockets in the arms 4 and 5 of the spider. The free end, which is the back end of the supporting-frame 15, is supported by means of a pair of peculiarly constructed and arranged springs 28 and 29, which will now be described. These springs each consist of a bar of heavy round wire, preferably steel, although other material might be used. Each bar is made to form a spring by being coiled at or near its middle portion, the ends of the coils being left uncoiled and extending backward and forward, respectively, in opposite directions and at right angles to the axis of the coils. The rear prolonged ends 30 and 31 pass through holes in the rocking frame 15 and support the latter, while the front prolongations of the springs project horizontally forward, where they are held down by the arms 26 and 27 of a transversely-extending bracket 24, connected to the forward end of a bell-crank lever 14, which passes through a hole 25 in the bracket. It is by this means that the forward ends of the springs are lowered and raised to regulate the tension of the springs and hence the amount of resistance offered in supporting the back 39. This adjusting-lever 14 is provided with a fulcrum 13, passing through the front arm 6 of the spider. The upwardly-projecting arm of the bell-crank lever 14 is connected to the forwardly-extending adjusting-rod 21, which passes through a bracket 20 and is provided on its forward end with an adjusting hand-nut 23.

The means by which the back-standard, and hence the back 39, is adjusted in various upright positions consists of a set-screw 37, which passes longitudinally through a socket 38 in the lower end of the back portion and engages any one of a series of notches 36 in the bottom of a flat wide vertically-extending plate 32 on the rear end of the rocking frame 15. This plate passes into a centrally-located slot formed by bifurcating the lower end of the back-standard 33. This series of notches 36 is arranged to extend in the arc of the circle described by the end of the screw. The back-standard 33 is supported on the casting 32 by means of a pivot 35.

Having thus set forth the construction of my device, I will now briefly describe its operation. Assuming that the parts are adjusted as in Fig. 2, backward pressure on the back 39 will fall on the frame 15, which will rock downward on the pivots 18 and 19 against the tension of the prolongation 30 and 31 of the springs 28 and 29, which support the frame and hence the back. When pressure is removed from the back, the tension of the

springs will restore it to its former position up against the under side of the seat. If the tension of the springs is too great or too little, it can be quickly regulated by turning the hand-screw 23 to the right or left. In the tightening operation the bolt 21 is drawn forward, carrying with it the vertical arm of the bell-crank lever 14, lowering the bracket 24, and drawing downward the forward prolongations of the spring, thereby increasing the upward pressure of the rear prolongations 30 and 31 and making the back stiffer. A contrary adjustment of the hand-screw 23 will have a contrary effect on the springs and the back will be rendered more yielding. To incline the back 39 to the position shown in dotted lines in Fig. 2, set-screw 37 should be loosened and the back rocked on the pivot 35, so that the screw can be operated to engage one of the notches a little farther forward on the bottom edge of the plate 32.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a non-tiltable seat, of a tiltable back supported upon a rocking frame, a spider on the under side of the seat in which the frame is pivoted, an adjusting mechanism in front of the spider, and a pair of coiled springs embracing the arms of the spider, and being provided with forward and backward prolongations arranged to engage the adjusting device in the rocking frame respectively, substantially as described.

2. In a spring-back chair, the combination with a non-tiltable seat, of an adjustable back, a standard on which the back is supported, a pivot for supporting the standard, a frame secured to the under side of the seat and being provided with a vertically-projecting plate in which the pivot is seated, said plate being provided with notches on its under side, and a hand-screw on the lower end of the standard adapted to engage the notches, substantially as described.

3. The combination with a non-tiltable seat, of a tiltable back portion, a rocking support for the back pivoted beneath the seat, a pair of coiled springs secured beneath the seat and having forward and backward prolongations, and an adjusting device for regulating the tension of the springs, substantially as described.

4. In a chair, a non-tiltable seat portion provided with a tiltable back, a Y-shaped frame arranged to rock up and down under the seat, a vertically-extending plate rising from the back end of the frame, a standard provided with a bifurcated lower end within which the plate fits, and a longitudinally-extending set-screw on the lower end of the standard, said screw being arranged and adapted to engage the lower edge of the plate, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 29th day of January, A. D. 1896.

CHAS. E. DAVIS.

Witnesses:
H. DUNHAM,
T. J. DONOGHUE.