(No Model.)

D. W. HOUSLEY.

TILTING CHAIR.

No. 321,816. Patented July 7, 1885.

Fig. 1.

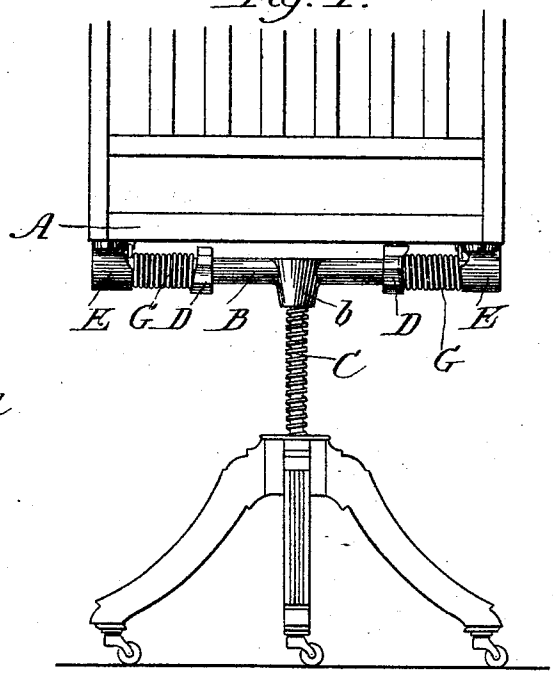


Fig. 6.

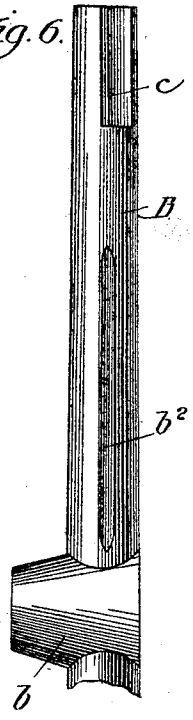


Fig. 7.

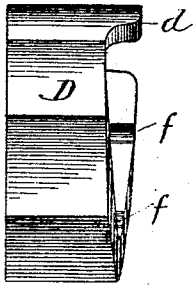


Fig. 2.

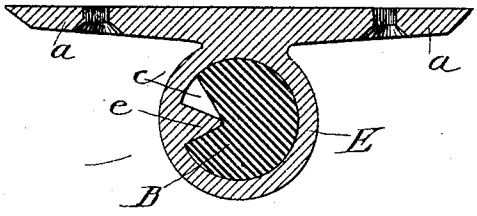


Fig. 3.

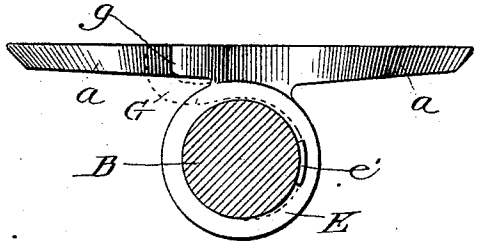


Fig. 4.

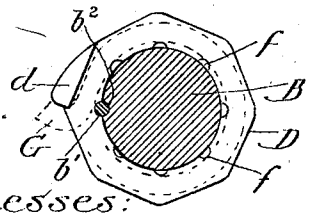
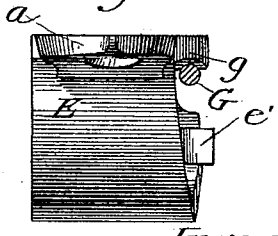


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

DANIEL W. HOUSLEY, OF CHICAGO, ILLINOIS.

TILTING CHAIR.

SPECIFICATION forming part of Letters Patent No. 321,816, dated July 7, 1885.

Application filed August 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, DANIEL W. HOUSLEY, of Chicago, in the county of Cook and State of Illinois, have invented certain Improvements in Tilting Chairs, of which the following is a specification.

My invention relates to certain improvements in tilting chairs, and which will be hereinafter fully described with reference to the accompanying drawings, in which—

Figure 1 represents a rear view of the lower portion of a chair provided with my improvement; Fig. 2, a cross vertical section in detail of one of the bearings for the axial shaft B, the two parts being in position together; and Figs. 3, 4, 5, 6, and 7, like views of the same and other views of other parts.

In the drawings, B indicates an axial shaft provided with a vertical socket, *b*, for the elevating-screw C; E, the two bearings for the shaft, provided with horizontal supporting-plates *a a*, upon which the frame of the chair is fastened; and *e*, V-shaped projections on the interior peripheries of the tubular portions of the bearings, and are designed to enter and operate in the longitudinal grooves *c* in the shaft in like form in and along each end of the same. These projections *e* extend a little beyond the inner edges of the tubes E, respectively, so as to furnish supports *e'* for the springs and hold them up off the shaft, in order that they may not interfere with its revolving motion.

The V-shaped grooves in the shaft should be large enough to afford ample room for the circular motion of the bearings upon the shaft in the tilting action of the chair that rests upon them, and yet not large enough to admit of more of such motion than would be desirable. In order, however, that such motion may be a gradual one that will yield to force gradually applied, as by the weight of one sitting in the chair and tilting it, I have provided spiral springs G, one of which is seated upon the shaft just within the bearing at each end, as shown in Fig. 1, and the tubular portion of each bearing is provided with a notch or recess, *g*, for the outer end of the wire of the spring to be confined within and be out of the way, and the springs G are made fast and their tension regulated by means of the nuts D, an edge view of one of which is shown in Fig. 4, and a side view in Fig. 7. Its outer periphery is octagonal in form, in order that it may be turned upon the shaft by means of a wrench, while the interior periphery is cylindrical in form, and is provided with a series of longitudinal grooves, *f*, in order to facilitate the operation of keying it upon the shaft to any desired adjustment upon the same.

The shaft B is provided with suitable longitudinal grooves, b^2, and by the use of a simple key, b', the nuts may be tightened at any adjustment upon the shaft. The outer edge or face of each nut is inclined spirally, as shown in Fig. 7, in order that it may conform to the course of the wire of the spiral spring against which it abuts, and each is provided with a notch and projection, *d*, to receive and hold securely the end of each spring. Then, in order to adjust the tension of the springs to the weight of the sitter upon the chair at any time, or to supply the loss by use of stiffness in the springs, the key b' may be removed, and the nuts, by means of a wrench, turned in the proper direction to wind up or unwind the springs, and thus increase or diminish the tension to any degree desired.

I am aware that Henry Weber, in his Letters Patent of the United States for a school desk and seat, dated December 9, 1884, shows and describes a shaft, D, having a knife-edge adapted to rock in blocks *e*, and I hereby disclaim that construction of parts.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the axial shaft B, having the V-formed grooves *c* in the side of each end thereof, and the tubular bearings E, provided with the V-formed projections *e* in their interiors, substantially as and for the purpose described.

2. The combination of the tubular bearings E, provided with inclined inner ends and notches for the ends of the springs, the said springs themselves, the nuts D, provided with inclined outer ends and notches for said springs, and the axial shaft B, substantially as and for the purpose described.

3. The combination of the shaft B, provided with the longitudinal grooves b^2, key b', and the nuts D, provided in their interiors with

series of longitudinal grooves *f*, and having their outer ends inclined and notched to accommodate the springs, substantially as and for the purpose described.

4. The combination of the tubular bearings E, having their projections *e* extended inwardly, so as to afford supports to hold the springs up from the ends of the shaft B, so that they will not interfere with the tilting action of the shaft, with the said shaft having V-formed grooves *c*, substantially as described.

DANIEL W. HOUSLEY.

Witnesses:
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