(No Model.)

2 Sheets—Sheet 1.

E. G. WATKINS.
ADJUSTABLE CHAIR SUPPORT.

No. 544,472. Patented Aug. 13, 1895.

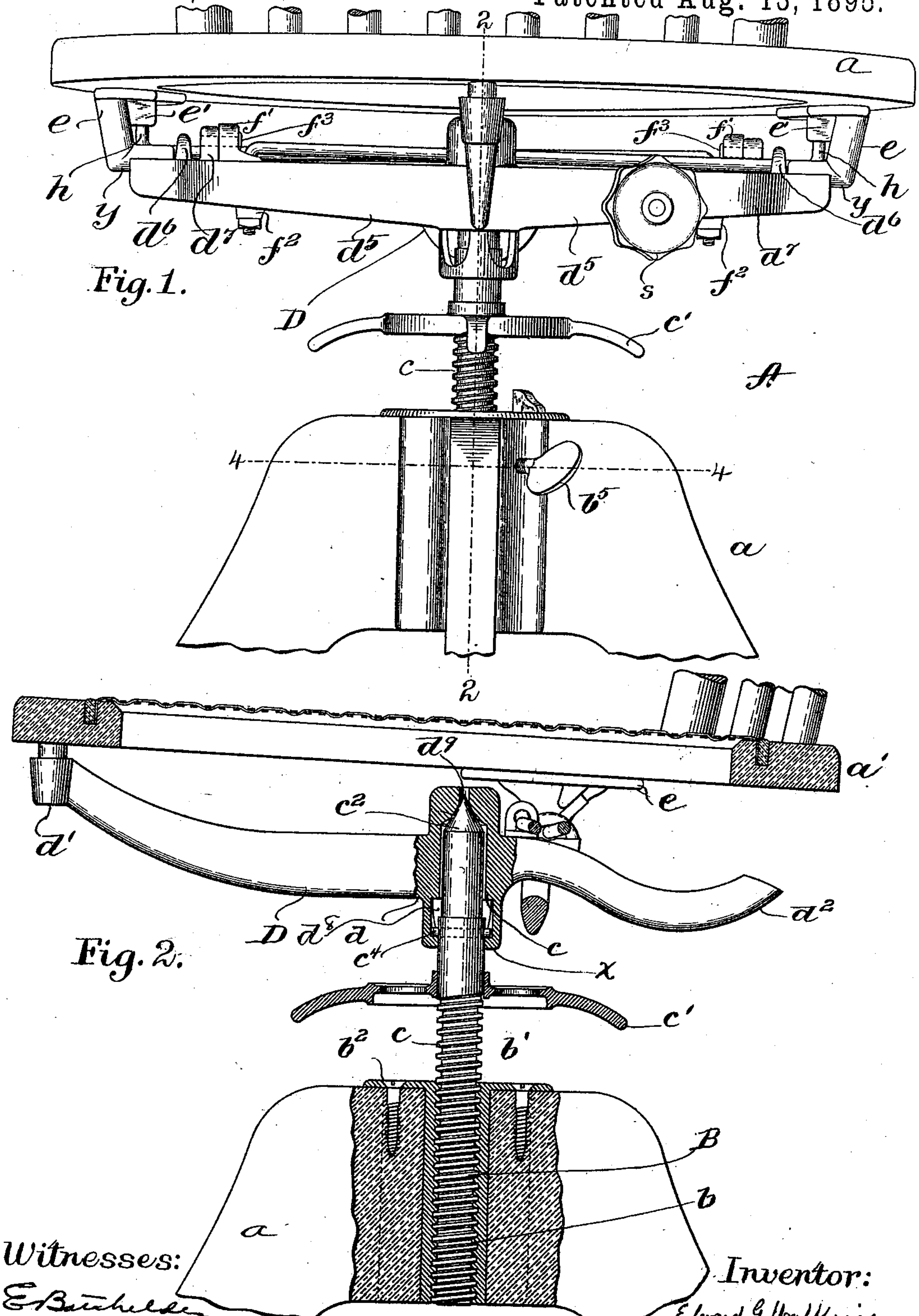

Fig. 1.

Fig. 2.

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Attys:

(No Model.) 2 Sheets—Sheet 2.

E. G. WATKINS.

ADJUSTABLE CHAIR SUPPORT.

No. 544,472. Patented Aug. 13, 1895.

Fig. 3.

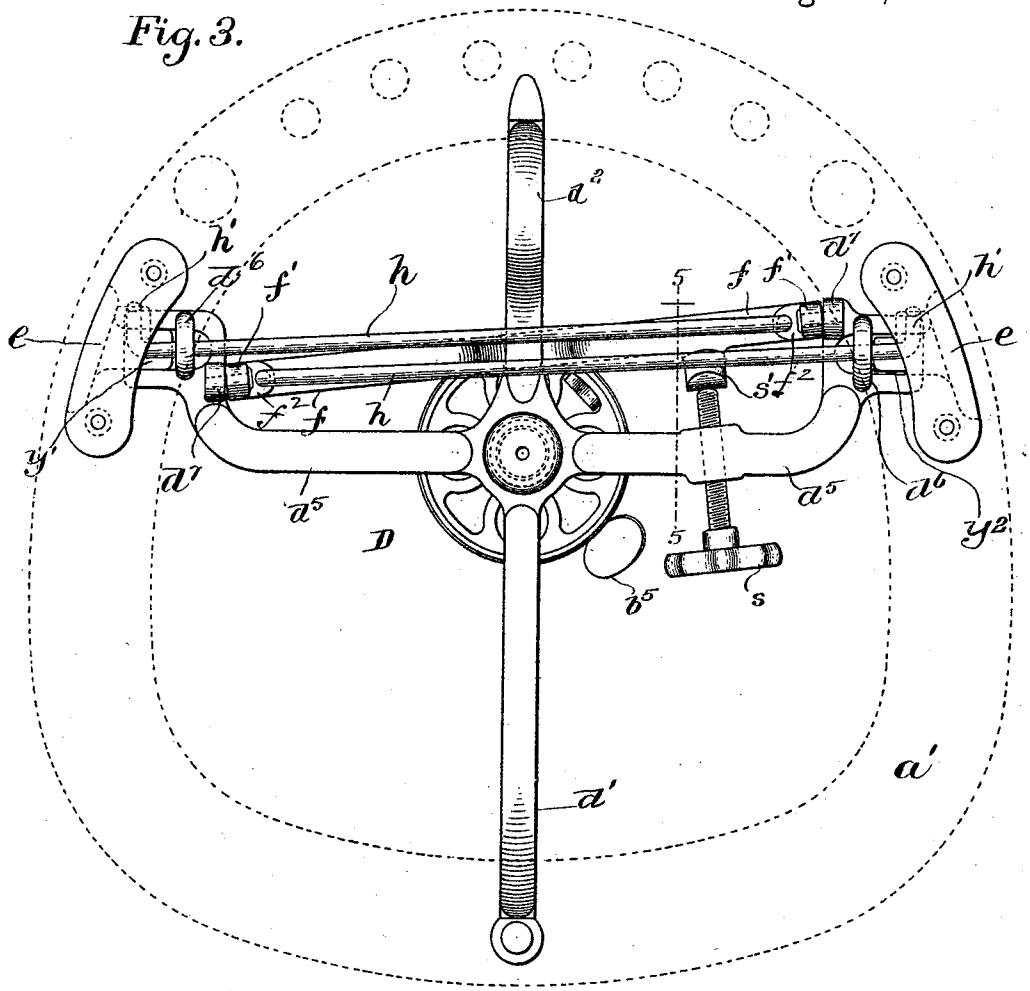


Fig. 4.

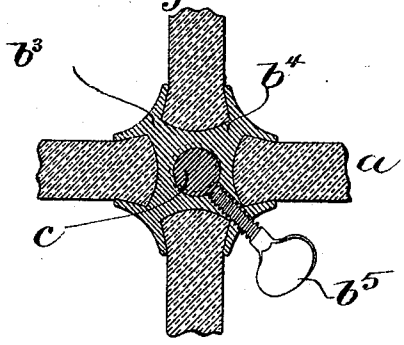
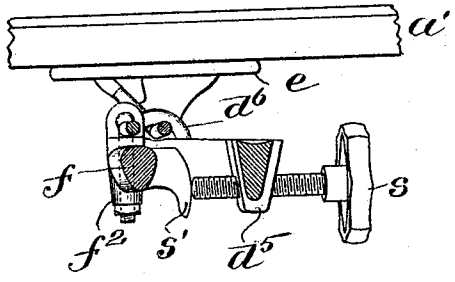


Fig. 5.



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Inventor:
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UNITED STATES PATENT OFFICE.

EDWARD G. WATKINS, OF GARDNER, MASSACHUSETTS, ASSIGNOR TO HEYWOOD BROS. & CO., OF SAME PLACE.

ADJUSTABLE CHAIR-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 544,472, dated August 13, 1895.

Application filed January 3, 1895. Serial No. 533,755. (No model.)

To all whom it may concern:

Be it known that I, EDWARD G. WATKINS, of Gardner, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Adjustable Chair-Supports, of which the following is a specification.

This invention relates to an improvement in chairs; and it consists in the novel features of construction and relative arrangement of parts hereinafter fully described in the specification, clearly illustrated in the drawings, and particularly pointed out in the claims.

Reference is to be had to the accompanying two sheets of drawings, forming a part of this application, in which like characters indicate like parts wherever they occur.

Figure 1 is a front elevation of a portion of a chair provided with my invention. Fig. 2 is a vertical cross-sectional view on the line 2 2 of Fig. 1. Fig. 3 is a top view of the spider and spring device with the seat-panel removed. Fig. 4 is a horizontal sectional view on the line 4 4 of Fig. 1. Fig. 5 is a detail sectional view on the line 5 5 of Fig. 3.

The chair A is made up of the seat a', suitably mounted on a spider or support D, this spider D being connected to a spindle c mounted in a web B to which the legs of the chair A are secured. The web B is a hollow casting, provided with internal screw-threads b, with radial projections b^3 and flanges b^4 integral with the ends of said projections b^3. Between these flanges the legs a of the chair are secured in the usual manner.

b^5 is a set-screw mounted to turn in said web and to engage said spindle. The spindle c is provided with exterior screw-threads arranged to engage the screw-threads b. Upon this spindle is mounted a handle c', by which the spindle may be turned. At its upper end c^3 this spindle has a cylindrical form provided with a cone-shaped apex c^2 mounted in a socket d^8 in the spider D. A pin c^4 is passed through said spindle, and resting upon a flange x prevents said spindle from being withdrawn accidentally. An aperture d^9 in the socket d^8 serves as a means for oiling the apex c^2 of the spindle, if desired. It will be seen that the spider D and the chair-seat are arranged to rotate freely on the end of the spindle and the spindle is turned by means of the handle c' or some analogous device. Now, by turning the handle c', the spider and consequently the chair-seat may be adjusted up and down to any desired height and locked in that position by means of the set-screw b^5. By this construction the chair and spider can be turned as much as desired without affecting their vertical adjustment.

The spider D is composed of the central hub d having a socket d^8. Integral with this hub are the arms d' d^2 extending to the front and rear side of the chair, respectively, as is common, and also the arms d^5 extending toward the sides of the chair. These arms d^5 are provided with corresponding ears d^6 d^6 and d^7 d^7. A bar f is pivoted at either end of the ears d^7 by means of rivets passing through said ears and through ears f' on the end of said bar. Tension-rods h have one end secured in a boss f^2 adjacent to the ears f', the other end of said rod passing through the ears d^6. The lugs e are secured to the bottom of the chair and rest in cavities in the ends of the arms d^5, the extremities h' of said rod being bent to bear against a stud e' integral with said lug e. These rods h serve as means for connecting the spider to the chair and also as tension devices or springs to yieldingly resist the backward or tilting movement of the chair-seat. As the chair is tilted the rods h are put under tension, since one of their ends is held in the boss f^2, while their other extremities h' bear against the studs e'. In chairs as they come from the factory these rods have about the same tensile strength. It is highly desirable to provide some means whereby the owner of a chair may adjust the tension upon these springs as desired. A heavy person would want the tension greater than a light person. Manifestly, this object cannot be accomplished without some means for adjusting the tension. While I do not wish to be understood as limiting myself to the means herein shown, I have found them the most efficient and inexpensive.

s represents a set-screw mounted to turn in a screw-threaded aperture in the arm d^5 and engage at its end a lug s' preferably integral with the bar f. Now, by turning this set-screw s, the tension upon the rods may be va-

ried at will, a few turns of the set-screw sufficing to make it almost impossible to tilt the chair, and this torsional resistance may be varied by means of this set-screw so that the chair will tilt at the slightest touch.

The lugs e have an inwardly-projecting arm y provided with a depression or cavity y' on their upper sides in which one end of the rods h rests. These arms y of the lugs e rest in depressions y^2 in the ends of the arms d^5 of the spider. The spider and chair are united, as stated above, by the rods h, while the arms y resting in the depressions y^2 serve as supports for the chair, and as pivots on which the chair rocks or tilts.

The socket d^8 in the hub d is made somewhat larger than the spindle that is arranged therein. The upper part d^9 of this socket has a conical shape to form a bearing for the cone-shaped apex c^2 of the spindle. The flange x bears against the sides of the spindle. Apart from these two places d^9 and x, the spider and spindle are not in contact. By this construction and arrangement I am enabled to greatly reduce the friction and wear between the said parts. If desired, the spider and spindle might be secured together by the pin c^3 passing through an extension of the spindle that was made to protrude above the hub, the particular location of the pin not being important.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, what I claim, and desire to secure by Letters Patent, is—

1. A chair comprising in its construction a seat, a spider, radial arms upon said spider, a bar loosely connected at its ends to said arms, rods having one of their ends connected to said bar and their other ends pivotally connecting said spider and seat, and means for turning said bar, substantially as and for the purpose set forth.

2. A chair comprising in its construction a seat, a spider, radial arms upon said spider, a bar loosely connected at its ends to said arms, rods having one of their ends connected to said bar and their other ends pivotally connecting said spider and seat, a lug upon said bar, a set-screw mounted in one of said arms and arranged to engage said lug to adjust the tension upon said rods, substantially as and for the purpose set forth.

3. A chair comprising in its construction a seat, a spider provided with radial arms having depressions in their ends, corresponding lugs (d^6) (d^7) upon two of said arms, a bar loosely connected at its ends to said lug (d^7), lugs upon said seat having arms arranged in said depressions, rods having one of their ends connected with said bar and their other ends passed through the lugs (d^6), the extremity of said last-mentioned ends of said rods being bent and arranged in a depression in the lugs on said seat, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 15th day of December, A. D. 1894.

EDWARD G. WATKINS.

Witnesses:
N. R. WASHBURNE,
E. BATCHELDER.