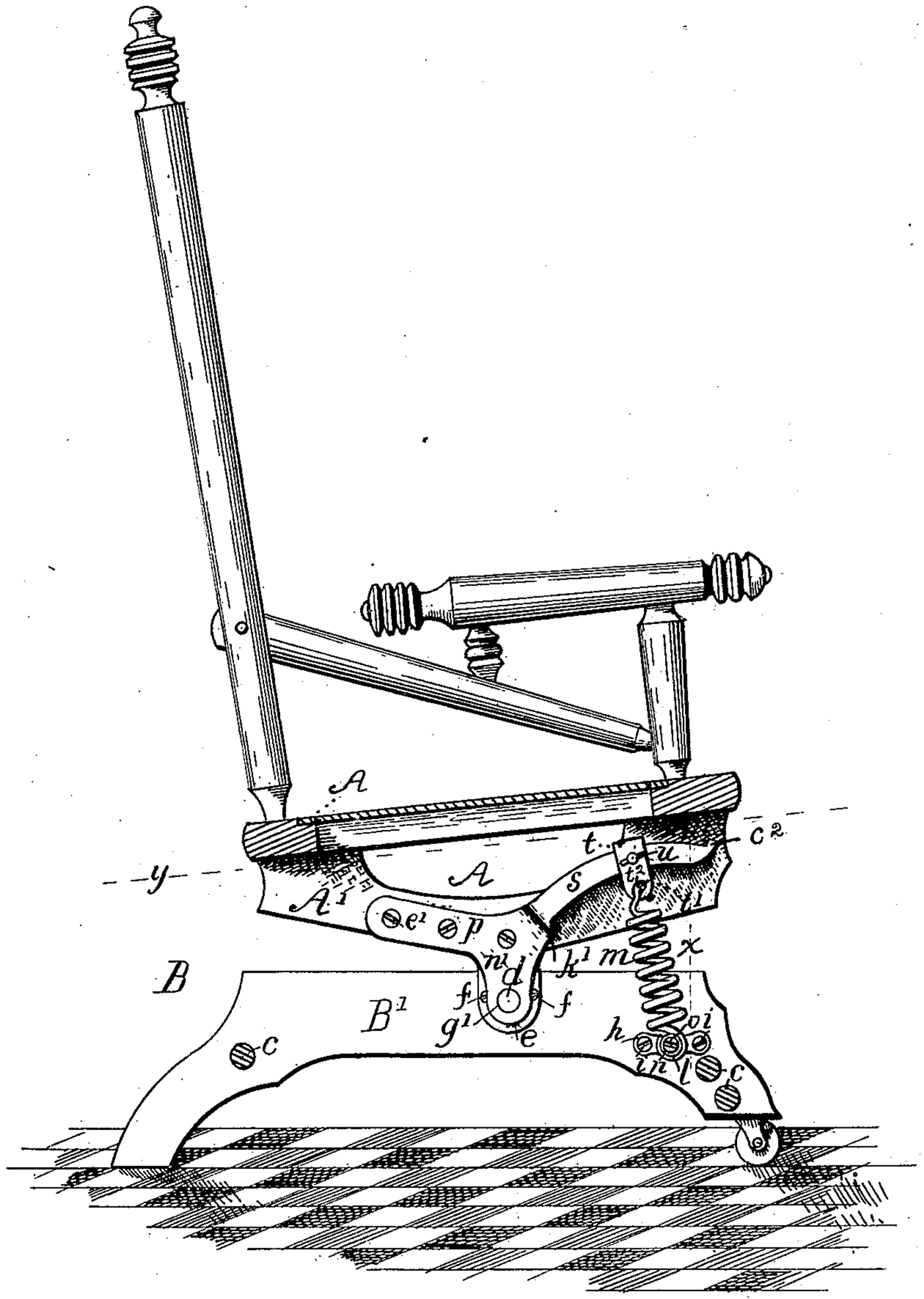
(No Model.) 2 Sheets—Sheet 1.

C. E. WHITTLESEY.

OSCILLATING CHAIR.

No. 401,089. Patented Apr. 9, 1889.

Fig. 1



WITNESSES:

Linus Barnes Sr.

Linus Barnes Jr.

INVENTOR

Chas. E. Whittlesey

BY George L. Barnes.

ATTORNEYS

(No Model.) 2 Sheets—Sheet 2.

C. E. WHITTLESEY.

OSCILLATING CHAIR.

No. 401,089. Patented Apr. 9, 1889.

Fig. 2

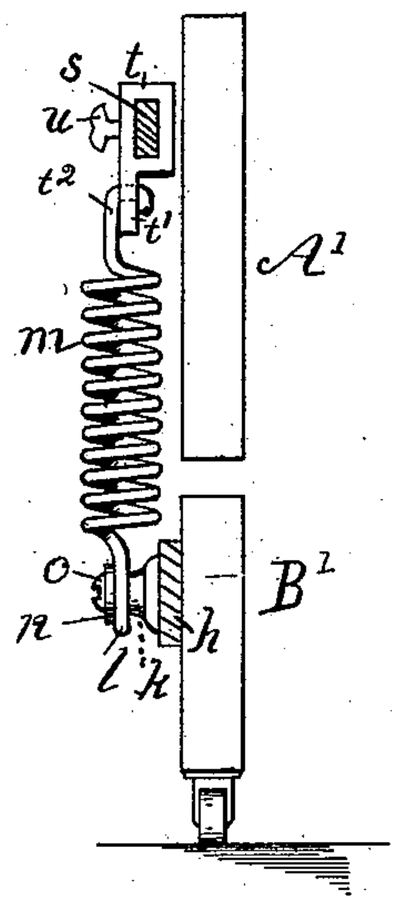


Fig. 3

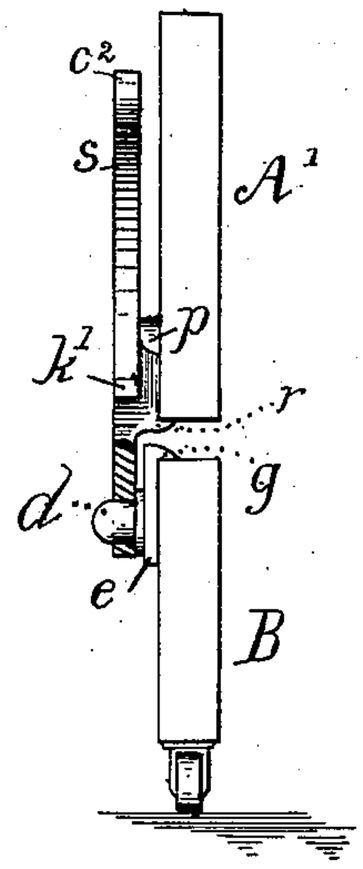


Fig. 4

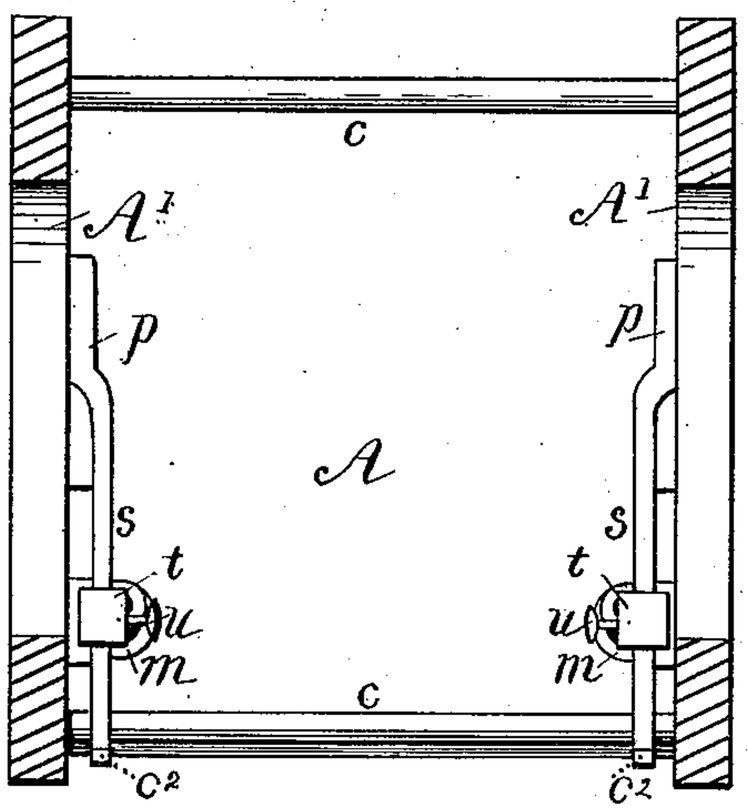
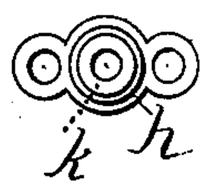


Fig. 5



WITNESSES:

Linus Barnes Sr.

Linus Barnes Jr.

INVENTOR

Chas. E. Whittlesey

BY George L. Barnes.

ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES E. WHITTLESEY, OF NEW HAVEN, ASSIGNOR OF ONE-HALF TO CHARLES LEE, OF BRIDGEPORT, CONNECTICUT.

OSCILLATING CHAIR.

SPECIFICATION forming part of Letters Patent No. 401,089, dated April 9, 1889.

Application filed November 15, 1888. Serial No. 290,972. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. WHITTLESEY, a citizen of the United States, residing at New Haven, in the town and county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Oscillating Chairs, of which the following is a specification.

My invention relates to an improvement in oscillating chairs, and has for its object to provide means for regulating or adjusting the spring-pressure which resists the tilting motion of the chair, and adapting the same to different weights or loads.

The invention consists in means for readily changing the points of attachment of the springs to vary the leverage of the action of the same, as hereinafter more particularly described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical section of my improved chair, centrally and lengthwise through the same. Fig. 2 is a front view of one side of the lower part of the chair, and partly in section on the line *x*, Fig. 1. Fig. 3 is a view similar to Fig. 2, but having the spring removed. Fig. 4 is a sectional plan view of the lower part of the chair on the line *y*, Fig. 1; and Fig. 5 is a view of one of the trunnion-plates *h*.

Referring to the drawings, A designates the movable or tilting part of an oscillating chair, and B is the base or stationary support to which it is hinged or pivoted. The base is composed of the two side frames B′, connected by ordinary cross-bars, *c*, the chair shown being of the general style known as a "base-rocker," but the tilting part A is not adapted to "rock" on the track formed by the base, but to swing or oscillate on the pivots or trunnions *d* as an axis. These trunnions are formed on plates *e*, which are secured to the inside faces of the side frames B′ by suitable screws, *f*, each trunnion extending inward from the plate horizontally. Each plate is preferably formed with a slight flange, *g*, which rests on the upper edge of the side frame B, thus receiving the strain that would otherwise fall on the screws *f*.

On the inner side of each frame B, near its forward end, is a plate, *h*, secured to the wood by suitable screws, *i*, and formed with a trunnion, *k*, which is preferably made somewhat tapering or slightly conical. These trunnions receive the eyes or loops *l* formed on the lower ends of a pair of ordinary spiral springs, *m*, which are adapted to resist the tilting movement of the chair, as hereinafter described. Each of the trunnions is perforated through axially, and a washer, *n*, is placed at the end of each trunnion to hold the eyes of the springs in place, and a screw, *o*, is inserted through both washer and trunnion and screwed into the frame.

Upon the inside face of each of the side frames A′ of the tilting part A is a metal hinge or part, *p*, fastened to the frame by suitable screws, *e′*, and preferably having a short flange, *r*, on its lower edge, to fit under the edge of the frame and receive the weight or strain imposed and thus relieve the screws *e′*. The hinge is formed with a depending projection, *n′*, which extends down just inside the plate *e*, and has a perforation, *g′*, which fits upon the trunnions, the hinge *p* being thus pivoted to the base of the chair. The hinges are placed upon the trunnions before being screwed to the chair, and therefore when fastened in place cannot slip off from the trunnions, and the tilting part A is thus securely held to the base and cannot be removed therefrom except by detaching one of the hinges *p* from the wood, or else removing a plate, *e*. The hinges are each formed with a forwardly-projecting arm or part, *s*, which is curved in the arc of a circle having its center approximately coincident with the center of the trunnions *k*, when the chair is in its normal or central position. A sliding piece, *t*, like a band, is placed upon each arm, fitted to move freely thereon and having a depending ear, *t′*, which is perforated to receive the hook t^2 on the upper end of the spring *m*. A set-screw, *u*, is inserted through the sliding piece on the side away from the frame A′, by means of which the sliding piece may be fastened anywhere along the arm to adjust the spring. The sliding piece conforms in shape to the sectional area of the arm *s*, fitting nicely, though freely,

upon it. At the extremity of the arm, on its upper side, is a stop or shoulder, c^2, to prevent the sliding piece from slipping off the arm, although it may readily be removed or placed in position when the spring is detached from it, as the end of the arm on its lower side is rounded, as shown, to permit this. Each arm is offset from the frame sufficiently to bring the spring entirely away from contact with the wood, the plate *p* being correspondingly formed, and a small boss is preferably provided on the face of the plate *e*, around the trunnion *d*, to reduce the frictional surface between the hinge and plate to a minimum.

The point of attachment of the spring *m* to the base is unvariable; but its point of attachment to the upper or tilting part of the chair is changeable, as the spring is attached to the sliding piece, which may be set anywhere along the arm, so that although the tension of the spring remains the same the resistance to tilting caused by the spring will depend upon the distance of the sliding piece from the pivot or axis upon which the chair oscillates, which is the center of the trunnions *d*. Thus if the sliding pieces are set near the ends of the arms *s* the resistance of the springs to the tilting motion will be at a maximum, while if set near the trunnions the springs will have little effect to resist the backward movement of the chair. It is preferable to provide a stop-shoulder, as *k'*, on each arm, at a short distance from its axis, to limit the traverse of the sliding pieces toward the center, so that they cannot be placed so near the axis that the springs will have no control over the tilting motion. In operation this spring device, constructed as described, is adapted to offer different resistances to the oscillation of the chair, and it may thus be adjusted to any load and set to conform to the weight of large or small persons by simply sliding the adjustable pieces *t* along the arms, and thus varying the leverage of the action of the springs *m*. The springs are proportioned to be adapted for medium weight when set about midway of the length of the arms, and then when set at the extremity of the arms the springs will hold the stoutest person, or they may be adjusted for a child by fastening the sliding pieces *t* near the center of oscillation. Thus the chair may be regulated in its action to provide the utmost ease of repose to the occupant, whatever the weight of such occupant may be; also, the location of the pivots at about two-thirds of the distance between the floor and the seat of the chair insures an agreeable motion or oscillation, the resulting arc or path described by the occupant in tilting being more comfortable than it would be if the pivots were placed higher or lower, and thus correspondingly varying the track through which the chair swings to arcs respectively of greater or less curvatures. This chair is thus adapted for comfort, and the fault of spring-controlled tilting chairs in general is that the springs can only be adapted to one size of person, which objection is here entirely avoided.

It will be seen that a single spring may be arranged to control the chair placed on one side, as shown, or a pair of springs may be employed, one on each side of the chair, to make the strain on each side equal. In such case the springs and also the attachments should be duplicates of each other, except being "rights and lefts." The springs hold the chair from falling forward, which cannot take place without the springs being compressed.

Although only one spring makes a complete device, it is preferable, and I contemplate to ordinarily provide a pair of springs, one on each side, as described above, which insures equal strain on each side of the chair and is the preferred construction.

I therefore claim—

1. The combination, with the stationary and tilting parts of an oscillating chair, of a spring pivotally attached to one of the parts, a guide, track, or lever-arm attached to the other part in a line the points of which are at different distances from the center of oscillation, and an attachment for connecting the spring to the lever-bar, adapted to be moved thereon and adjusted at different distances from the center to vary the force of the action of the spring.

2. The combination, with the stationary and tilting parts of an oscillating chair, of a spring pivotally attached or hinged to one of the parts, a curved lever-arm attached to the other part arranged in a line the points of which are at different distances from the center of oscillation, and having its curve formed in the arc of a circle approximately concentric to the pivotal center of the spring when the chair is in normal position, and a sliding part fitted upon the lever-bar and connected to the spring and adapted to be moved along the arm to vary the leverage of the action of the spring on the chair.

3. The combination, with the stationary and tilting parts of an oscillating chair, of a spring pivotally attached or hinged to the base thereof, a lever-arm attached to the tilting part and arranged in a line the points of which are at different distances from the center of oscillation, an attachment fitting upon the lever-arm and adapted to slide thereon and having the spring connected to it, and means for securing the sliding attachment to the arm at different distances from the center of oscillation to vary the leverage of the action of the springs on the oscillation of the chair.

4. The combination, with the stationary and tilting parts of an oscillating chair, of a spiral spring pivotally connected or hinged at one end to the base of the chair, a curved arm attached to the tilting part as a lever from the center of oscillation, a part fitted upon the arm and adapted to slide thereon and connected with the upper end of the spring, and a set-screw for securing the said part to the

arm at different distances from the center of oscillation, as specified.

5. The combination of the base B, having the side frames B′, the tilting part A, having the side frames A′, each hinged to the side frames of the base, with the axis below the surface of the frames of the base, the lever-arms S, attached to the side frames of the tilting part, the springs *m*, pivotally attached to the base at the lower ends, the sliding attachments *t*, fitted to slide upon the lever-arms, with the upper ends of the springs connected to them, and set-screws for securing the sliding attachments upon the lever-arms at different distances from the center of oscillation, substantially in the manner and for the purpose specified.

CHARLES E. WHITTLESEY.

Witnesses:
GEORGE A. TYLER,
SAVILIAN R. HULL.