H. W. BOLENS.

REVOLVING CHAIR.

APPLICATION FILED JAN. 6, 1905.

899,504. Patented Sept. 29, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

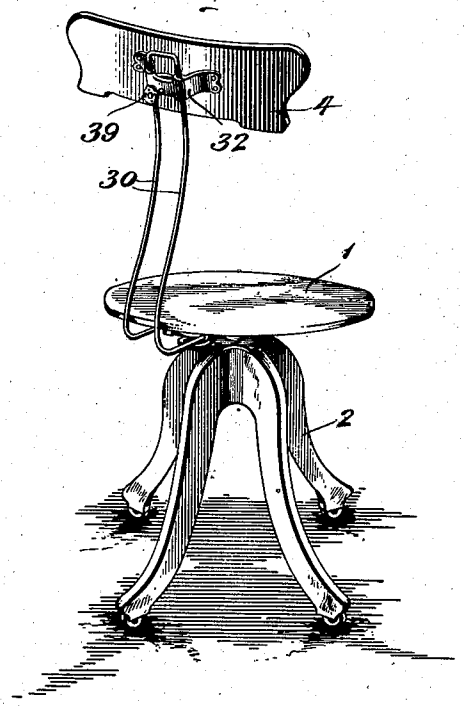
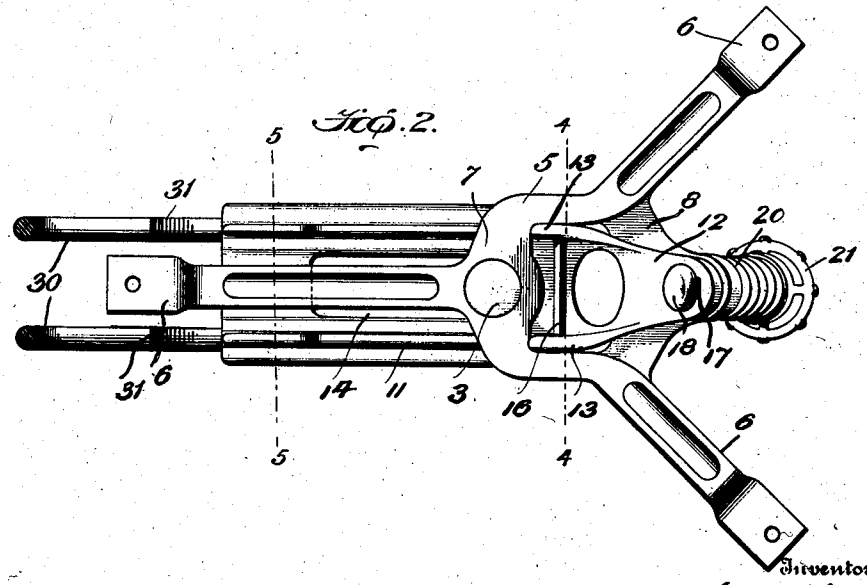


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

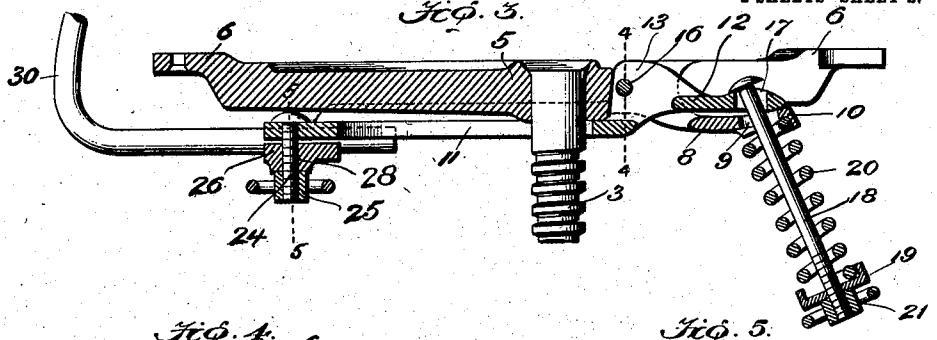


Fig. 4.

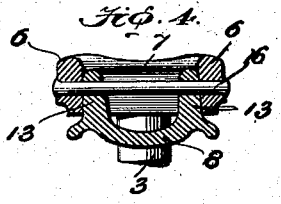


Fig. 5.

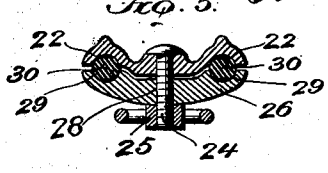


Fig. 6.

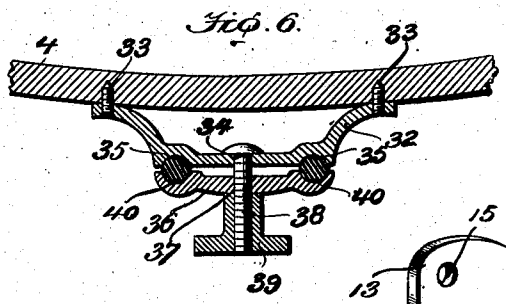
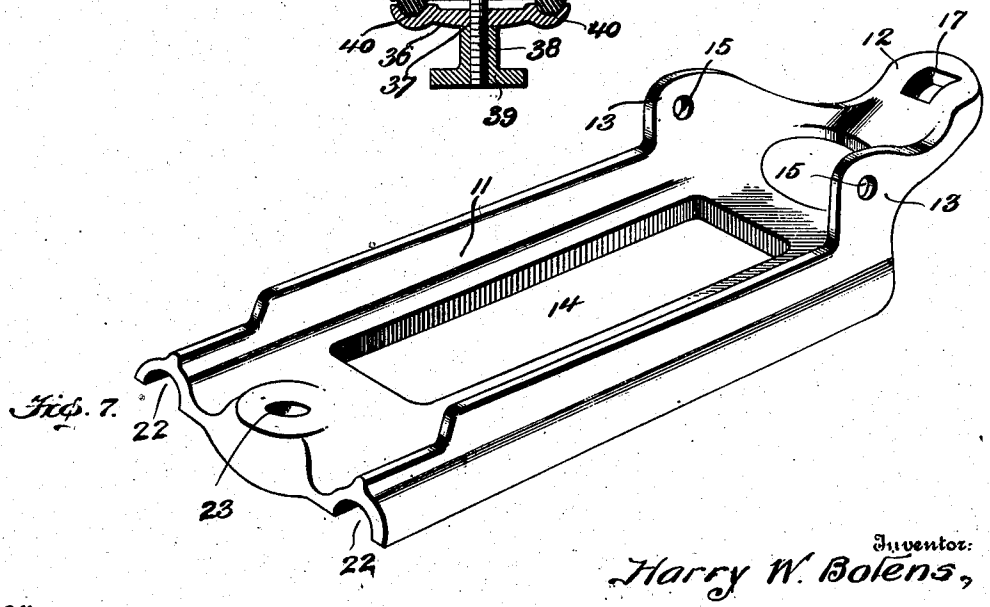


Fig. 7.



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UNITED STATES PATENT OFFICE.

HARRY W. BOLENS, OF PORT WASHINGTON, WISCONSIN.

REVOLVING CHAIR.

No. 899,504. Specification of Letters Patent. Patented Sept. 29, 1908.

Application filed January 6, 1905. Serial No. 239,836.

To all whom it may concern:

Be it known that I, HARRY W. BOLENS, a citizen of the United States, residing at Port Washington, in the county of Ozaukee and State of Wisconsin, have invented a new and useful Revolving Chair, of which the following is a specification.

My invention relates to improvements in revolving chairs, especially those designed for use by type-writists and sewing-machine operators, and wherein there is comprised a back supporting standard pivotally connected to the chair-iron.

Heretofore in this class of revolving chairs I have found by experience several important defects, namely, and principally, the principle upon which the chair-iron has been constructed has been erroneous, in that the pivotally supported back has had its fulcrum-point too far in rear of the longitudinal center of the body of the occupant; and, furthermore, the back has been supported too far in rear of the back of the occupant, so that it failed to follow up the back of the occupant when his or her body moved forward, and hence did not give that support to the body which might be supposed and which is necessary in a chair of this kind in order to accord with the fundamental principles involved.

As may be surmised from the foregoing statement, the principal objects of my present invention are to overcome these defects, and to construct a chair on an anatomical principle, that is to say, that will conform in its movements very closely to the movements of the body of the operator from the hips up. Although these objects are the principal ones in view, yet there are other objects, of less importance, such for instance as constructing a chair-iron of very cheap, simple and reliable construction, and one wherein the adjusting device is within easy reach of the operator, and wherein the parts are so arranged as to prevent accidentally catching and tearing the clothing.

With these various objects in view the invention consists, primarily, in a chair-spider or iron wherein the support for the back-standard is fulcrumed at a point in substantially vertical alinement with the hip-joint of the occupant, so that as the back of the occupant swings back and forth from the hip-joint, so will the back of the chair, the latter moving on a circle substantially concentric with the hip-joint of the occupant instead of eccentrically as heretofore.

Referring to the drawings: Figure 1 is a general view of a revolving chair embodying my invention. Fig. 2 is a top plan view of the spider in detail. Fig. 3 is a vertical central sectional view of the same. Fig. 4 is a transverse vertical central view of the same, on the line 4—4 of Fig. 2. Fig. 5 is a similar view, on the line 5—5 of Fig. 3. Fig. 6 is a transverse sectional view through the chair back and its clamp or support. Fig. 7 is a detail in perspective of the back standard supporting rocker-frame.

The chair-seat 1, legs 2, adjusting-post or screw 3, and back 4, are of the usual style which go to make up the conventional form of type-writist's or sewing-machine operator's chair illustrated in Fig. 1 of the drawings.

Rigidly secured to the upper end of the adjusting-post or screw 3 is the spider 5, and as best shown in Figs. 2 and 3 the same comprises the three spider-arms 6, all diverging from a central body portion or hub 7, which latter is formed with an opening for receiving the upper end of the adjusting-post or screw 3. In the present instance I illustrate a "three-contact" spider, but of course the contacts may be increased simply by increasing and re-arranging the number and relative positions of the spider-arms. Two of these arms diverge forwardly, while the third extends to the rear, and each may have its end slightly elevated, flattened and perforated, whereby it may be secured by the usual screw to the underside of the seat 1.

In advance of the adjusting-post 3, and located below the bottom place of and connecting the two front spider-arms 6, is a transverse depressed stirrup 8, the same being formed with a hole 9, and upon the underside and surrounding the hole with a bearing-socket 10.

11 designates the back-standard supporting rocker-frame (see for detail Fig. 7), and the same is preferably general oblong-shape, having a slightly elevated extension 12 at its front end, and at opposite sides near the end of the extension bearing-lugs 13. The frame is provided with an elongated opening 14, to loosely receive the adjusting-post 3, and its bearing-lugs 13, which take between the front spider arms 6 near the hub 7 of the spider, are formed with perforations 15, which agree in alinement with similar perforations formed in the spider-arms. Through such perforations may be passed a transverse

pintle 16, by means of which, as will be obvious, the frame 11 becomes pivotally mounted upon the spider 5, its extension 12 overlapping and resting upon the stirrup 8. The latter extension is formed with an opening 17 (preferably square) which alines with the aperture 9 of the stirrup 8, and through the two with its head upon the extension and its shoulder fitting loosely the said opening 17 is an inclined tension adjusting-bolt 18. The lower threaded end of the bolt carries a socket 19 (a companion to the socket 10), and between this socket and its companion 10 is a compression-spring 20, tension to which may be given by the usual nut or hand-wheel 21. This hand-wheel it will be noted is located under the front edge of the chair-seat within convenient grasp of the user.

Each of the longitudinal sides is upon its bottom formed with a half-round recess 22, which may extend throughout its length and be slightly flattened along its middle. The rear transverse part of the rocker-frame may be formed with a vertically bored boss 23, to receive a clamping-bolt 24, provided at its lower end with a hand-wheel or nut 25.

26 designates a clamping-plate, applied to the underside of the transverse part of the rocker-frame (see Figs. 3 and 5), and in order to coincide therewith is formed with a central perforation 28, to receive the bolt 24, and at opposite sides thereof with half-round and preferably slightly flattened grooves 29, it being obvious that the grooves 22 and 29 are designed to receive the usual spring rods 30, forming the back-standards. The latter, in order to obviate side play and conform to the grooves 22 and 29 are preferably very slightly flattened on their upper and lower sides, as at 31. The back standard may comprise two separate spring-rods or be formed of a single piece bent or doubled upon itself (as shown in Fig. 1). Also any desired means may be employed for securing the back 4 to the back-standard. In the present instance I employ a yoke 32 (see Fig. 6), the flared ends of which are by screws 33 secured to the rear side of the back. These terminals are of such length as to cause the back to set well within the vertical area of the seat, so that the back takes well under the shoulder-blades of the user following and gently supporting the back of the user whether his back be inclined forward or backward, in contradistinction to the usual chair-back which is of very little use unless the occupant leans backward.

The yoke 32 is centrally apertured, as at 34, and at each side thereof is formed a vertical half-round groove 35.

36 designates a clamping-plate, the same being centrally apertured, as at 37, coincident with the aperture 34 of the yoke. Through these apertures 34 and 37 is passed a bolt 38, at the outer end of which is located the hand-wheel or clamping-nut 39. The clamping-plate is formed with opposite half-round grooves 40, companion to the grooves 35 of the yoke, and the two receive the upper portions of the back-standard rods.

It will be obvious that the back 4 is capable of being vertically adjusted upon the back-standard; that the latter carrying the back may be laterally adjusted within the rocker plate, and, furthermore, the rocker-plate may be given the desired tension through the wheel 21.

It will be seen that in all pivotal movements of the back 4 and its standard the rocker-plate rocks or vibrates upon its pintle 16, and that the latter is located as near the center of the seat and therefore the hip-joint of the user or occupant as practicable. The result is that the rocker-frame, and hence the back 4 move upon a circle th· center of which is substantially concentric with the hip-joint of the occupant, and in this manner the back 4 is caused to describe substantially the same circle as the back of the occupant, thus obviating all rubbing, which latter results from the back of the seat and that of the occupant moving upon eccentric circles.

Of course various modifications will suggest themselves for securing the same or substantially the same results, and I desire it understood that I do not limit my invention to the exact details herein shown and described.

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

1. The combination of a seat post, a spider frame mounted thereon and provided in advance thereof with a stirrup, a rocker frame pivoted in the spider frame and extending opposite the stirrup, a tension device connecting the stirrup and rocker frame and a back frame carried by the rocker frame.

2. The combination, of a swivel-post, a spider-frame mounted thereon and provided in advance thereof with a stirrup, a rocker-frame pivoted in the spider-frame and extending opposite the stirrup, a tension device connecting the stirrup and rocker-frame, and means for securing the back-standard to the rocker-frame.

3. The combination, of a swivel-post, a spider-frame mounted thereon and provided in advance thereof with a stirrup, a rocker-frame pivoted in the spider-frame and having an extension overlapping the stirrup, a spring carrying tension-bolt passed through the stirrup and said extension, and provided with an adjusting means, and means for securing a back-standard to said rocker-frame.

4. The combination, of a swiveled post, a spider-frame mounted thereon, a lever like rocker-frame receiving the post and fulcrumed on the spider-frame in advance of the post, opposite grooves formed in the un-

derside and at opposite sides of the lever like rocker-frame, a similarly grooved clamp-plate thereunder, a set-bolt connecting the two, and a tension-device for the lever like rocker-frame and arranged in advance of the post.

5. The combination, of a chair-spider having forwardly disposed arms, a transverse depending stirrup, a lever like rocker-frame intermediately fulcrumed in the spider-frame and at its front end overlapping said stirrup, a tension device connecting the stirrup and front end of the lever like rocker-frame, and means for securing the back-standard to the rocker-plate.

6. The combination, of a chair-spider comprising a central hub, forwardly disposed spider-arms, and a transverse depressed connecting stirrup, an oblong lever like rocker-frame provided with a front extension apertured and overlapping the stirrup and provided in rear thereof with perforated bearing-ears taking between the rear ends of said forwardly disposed spider-arms and at its opposite sides having longitudinal grooves, a transverse pintle connecting the ears and arms, a grooved clamping-plate under the rocker-frame, and a clamping-bolt connecting the two.

7. In a chair, the combination with the back and the spring-supporting rods, of the yoke 32, centrally apertured, as at 34, and grooved, as at 35, to receive the rods, the apertured clamping-plate 36, grooved as at 40, the bolt 38, and the hand-wheel 39.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY W. BOLENS.

Witnesses:
W. S. DUVALL,
C. F. DUVALL.