

H. G. HUNN.
REVOLVING CHAIR AND LIKE ARTICLE OF FURNITURE.
APPLICATION FILED SEPT. 11, 1909.

968,565.

Patented Aug. 30, 1910.

2 SHEETS—SHEET 1.

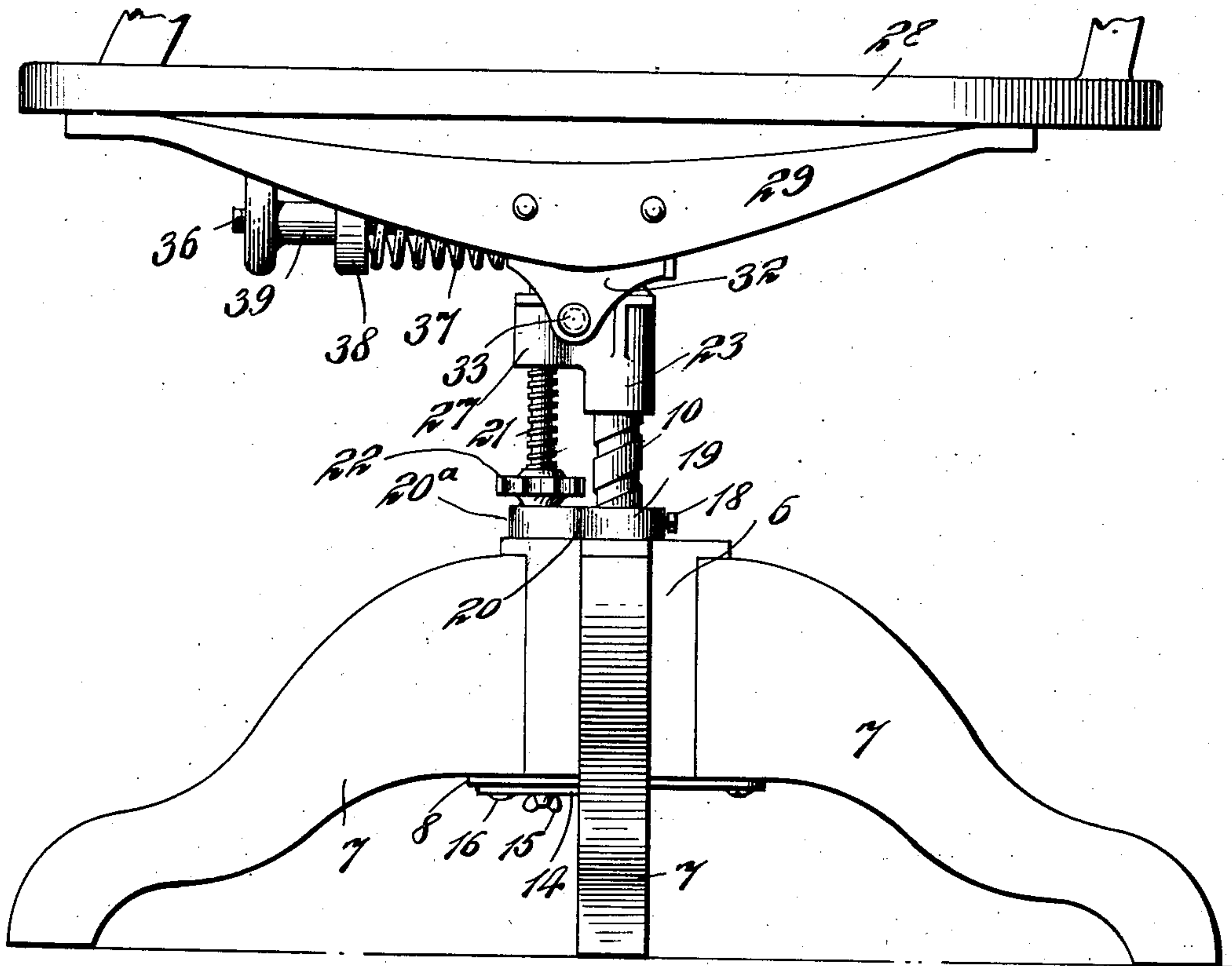


Fig. 1.

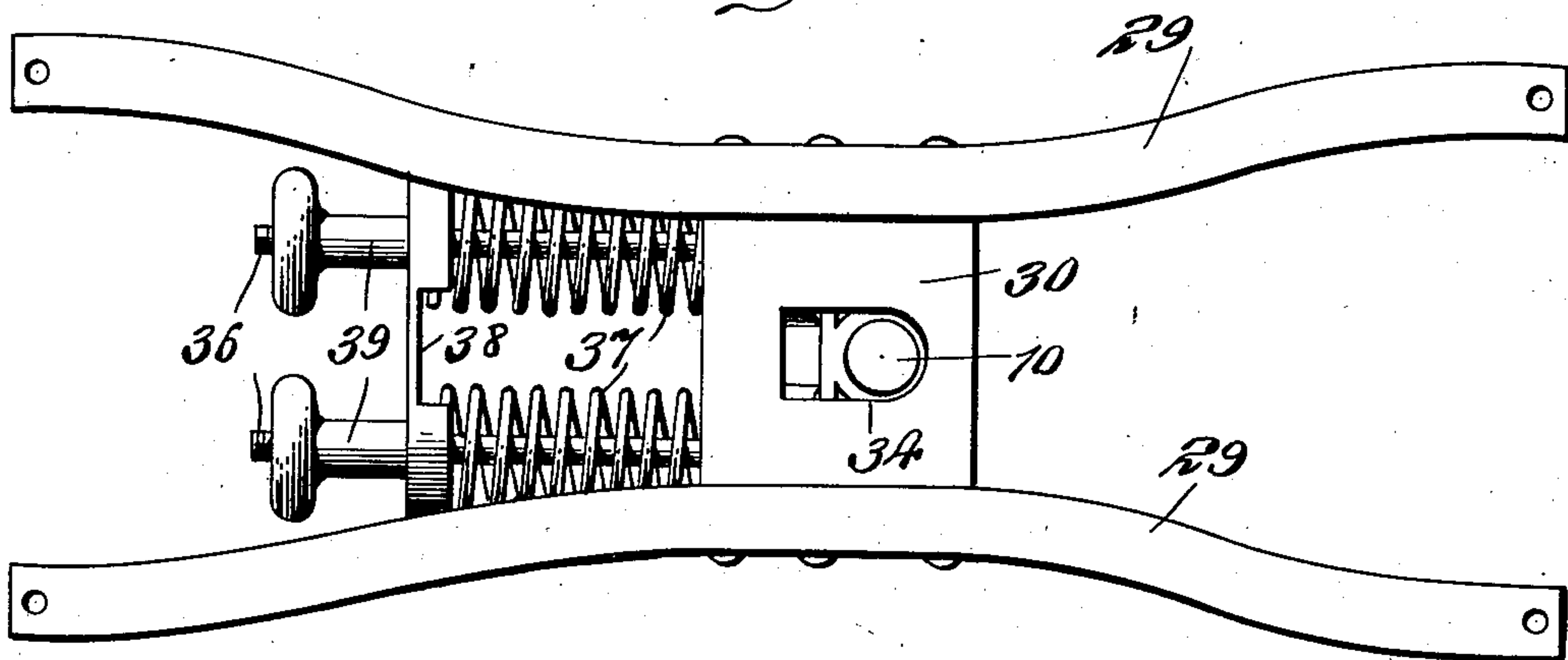


Fig. 2.

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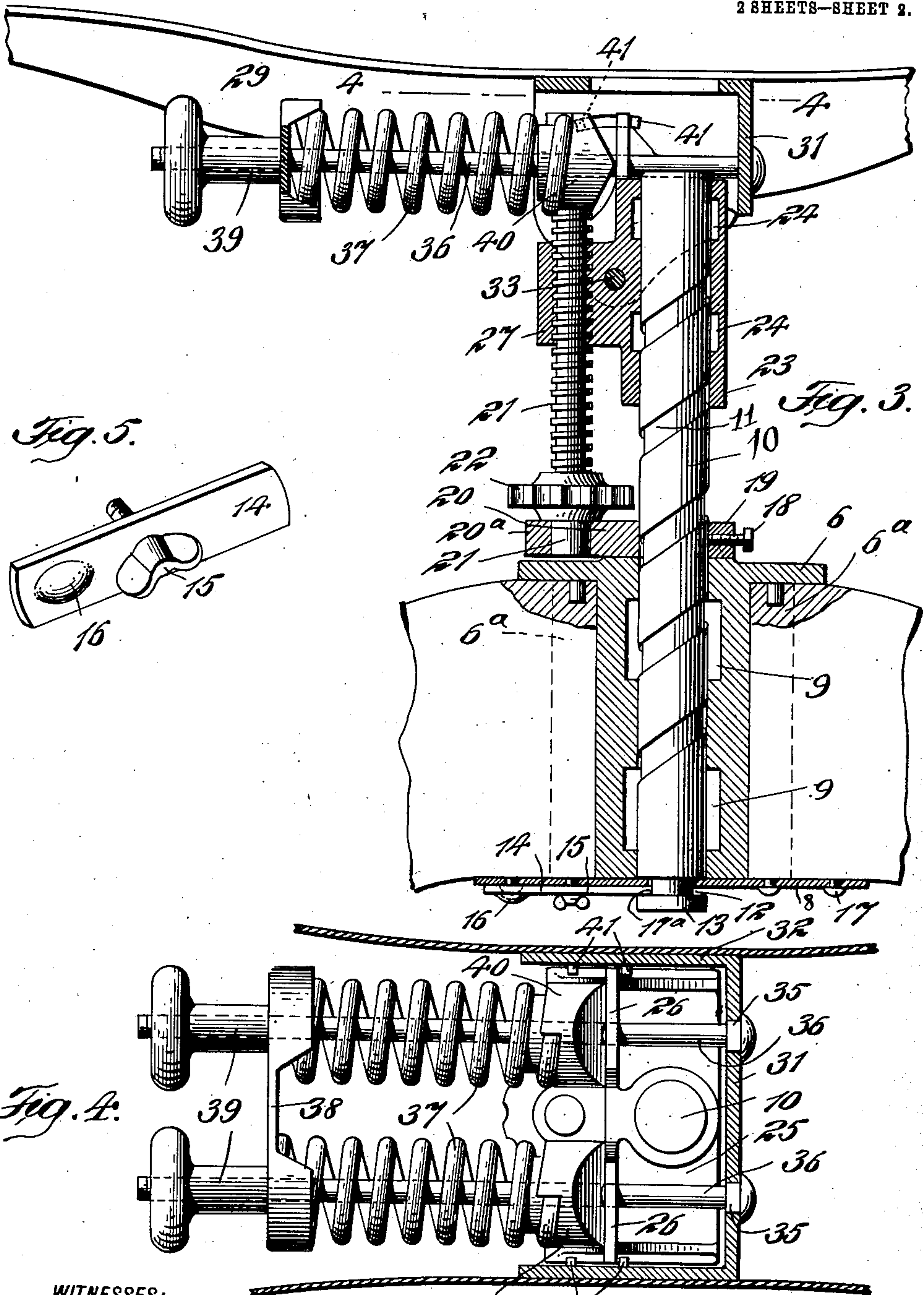
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REVOLVING CHAIR AND LIKE ARTICLE OF FURNITURE.

968,565.

Specification of Letters Patent.

Patented Aug. 30, 1910.

Application filed September 11, 1909. Serial No. 517,237.

To all whom it may concern:

Be it known that I, HOWARD G. HUNN, a citizen of the United States of America, residing at No. 1133 Broadway, New York city, in the county and State of New York, have invented certain new and useful Improvements in Revolving Chairs and Like Articles of Furniture, of which the following is a specification.

This invention relates to improvements in revolving chairs and like articles of furniture, and it refers more particularly to adjusting mechanism therefor of that class wherein the vertical adjustment of the chair seat is effected by means distinct from the means which support the seat in adjusted position.

The principal object of the invention is to provide a structure wherein the seat may be vertically moved and held firmly in adjusted position without liability of the parts breaking or becoming injured as a result of the adjustment; the feature of especial importance in this connection being the permanent vertical position of the revoluble seat supporting spindle or member along which the seat is vertically moved, so that irrespective of the height to which the seat is adjusted (within the limits of the length of the supporting spindle) there will be no lost motion between the parts and the seat will have a uniformly substantial support for the entire length of the supporting spindle.

A further object of the invention is to provide means for liberal lubrication of interengaging parts, to minimize friction and avoid creaking when the seat is adjusted or tilted.

A further object of the invention is to so construct the tension springs and their associated parts that when the chair seat is tilted the springs will flex with the movement of the seat and prevent bending or breaking of the rods used to adjust the tension of the springs.

Further objects and advantages of the invention, and its operation and construction will be more fully hereinafter described, reference being made to the accompanying drawing wherein the embodiment of the invention at present preferred by me is illustrated, and in which drawings—

Figure 1 is an elevational view of a portion of a revolving chair provided with my invention; Fig. 2 is a top plan view thereof; Fig. 3 is a vertical sectional view; Fig. 4 is

a horizontal sectional view along the line 4—4 of Fig. 3; and Fig. 5 is a detail perspective view of a special form of clip used to retain the supporting spindle.

The invention will be described in its application to a revolving chair, although it is to be understood that the use of the invention is not so limited and that the latter is applicable to numerous articles wherein one part is adjustably arranged in relation to another part.

Referring to the accompanying drawing by reference numerals, 6 designates the hub of a suitably constructed supporting spider in the sockets 6^a of which the legs 7 are secured, preferably being held therein by means of a metallic plate 8 screwed against the lower faces of the legs. I prefer to form interiorly upon the hub 6 a plurality of fairly deep grooves or channels 9 (Fig. 3) for the reception of lubricant. The hub 6 is centrally bored to receive a seat supporting spindle 10 the surface of which is preferably cored, as at 11, to present passages wherein lubricant may be retained. Near its lower end the spindle 10 is reduced at 12 and is provided with the head 13 adjacent the reduced portion 12, the latter passing through an approximately central orifice in the plate 8. To prevent the spindle from being accidentally drawn out of the hub, I provide upon one face of the plate 8 a clip 14, pivoted at 15 and having a depression 16 therein which is adapted to engage one of a plurality of headed screws 17 passing through the plate 8 into the legs 7. It will be understood that the clip 14 may be swung on its pivot so that its end 17^a engages between the plate 8 and head 13 of the spindle 10 holding the latter against vertical movement while the depression 16 is passed over one of the screw heads 17 thus locking the clip in position.

Surrounding the spindle 10 at approximately its median portion and either formed integrally therewith or preferably secured thereto as by a screw or pin 18 is a collar 19 having formed as a part thereof a laterally extending arm 20 which is enlarged at 20^a and bored to present an annular orifice in which one end of the seat adjusting screw spindle 21 bears. Revolvable about the screw 21 is a hand wheel 22 whereby the screw may be revolved to the right or to the left to raise or lower the seat as more fully hereinafter described.

Arranged to slide longitudinally upon the spindle 10 is an elongated sleeve 23, internally recessed at 24 to receive lubricant, and carrying or formed integrally with a horizontally disposed plate 25, from which project at right angles a pair of lugs 26 against which one end of the tension springs, to be later referred to, abut. Formed as an integral offset part of the sleeve 23 is a second sleeve 27 internally threaded and engaged by, and designed to be raised and lowered by, the screw spindle 21, it being apparent that the turning of the screw 21 will move the sleeves 23 and 27 with their appurtenant parts as an integral structure.

The chair, of which the seat 28 only is shown (Fig. 1) is tiltably supported on the structure above described, and secured to the bottom of the chair seat is a pair of suspender arms 29, rigidly joined together by an angular metallic frame constituted by the walls 30 and 31 and the lateral arms 32 which are downwardly extended and perforated for the passage therethrough of the pivot pin 33 which also passes through the web of the metal between the sleeves 23 and 27 (Figs. 1 and 3). The wall 30 has formed therein an aperture 34 to permit the spindle 10 to project therethrough when the seat adjustment is sufficiently low to cause such projection. The rear wall 31 is provided with a pair of aligned, preferably square apertures 35 to receive the squared headed ends of bolts 36 which pass through suitably formed apertures in the lugs 26, and about which bolts the tension springs 37 are coiled. Overlying one end of the springs 37 is a plate 38 against which the knobs 39 may be screwed to adjust the tension of the springs, while the opposite end of each spring 37 is covered by a substantially wedge shaped cap 40, the sharp wedge end of which contacts with the face of the lug 26 and forms the pivot, as it were, when the springs are flexed by the tilting of the chair seat. Although the springs act as means to limit the rocking or tilting movement of the chair seat, I prefer to provide additional limiting means by forming upon the inner face of each of the lateral arms 32 a pair of pins 41, one at each side of the lugs 26, so that these pins will strike the lugs when the chair is tilted a certain distance and impede further tilting movement thereof.

The manner in which my improved device is assembled and operated will be clearly understood from the following description:—The legs 7 having been inserted in the sockets 6^a of the hub 6 and lubricant having been freely applied in the recesses 9, and 24, and to the screw spindle 21, the chair supporting spindle 10 is inserted in the hub 6, the plate 8 secured in position and the clip 14 swung with one end engaging between the head of the spindle 13, and the

depression 16 overlying one of the screws 17. The integral sleeves 23 and 27 are then passed over the spindles 10 and 21, respectively, and the adjusting mechanism is in condition to receive the chair seat. The suspender arms 29 with the attached chair are then pivotally secured by passing the pin 33 through the arms 32, through lugs depending from the plate 25 (said lugs not being shown in the drawing) and through the perforation in the metal web between the sleeves 23 and 27. It only then remains to put the springs 37 in place, and this is done by inserting the bolts 36 through the apertures in the plate 31 and lugs 26, arranging the caps 40 as shown in Fig. 4, putting the springs 37 and end plate 38 in position on the bolts 36 and securing the knobs 39 the desired distance to produce the requisite tension of the springs. The hand wheel 22 may then be turned to raise or lower the sleeve 23 supporting the chair seat, until the vertical position of the latter is satisfactory and the chair is then ready for use.

It will be noted from the foregoing description that the spindle 10 throughout the entire range of adjustment of the chair seat does not change its vertical position relatively to the hub 6, and that consequently, even though the chair seat be adjusted to practically the upper free end of the spindle 10, the latter will not bend or break owing to the length of its support and embrace by the hub 6. It is further to be noted that the chair adjusting mechanism and the chair supporting mechanism are interconnected by the collars 19 and 20 and sleeves 23 and 27 so as to swing horizontally practically as an integral structure thereby avoiding any undue strains between the parts which would tend in course of time to weaken or break the same during use.

I have herein shown and described my invention in considerable detail, but it will be obvious to those skilled in the art that the described structure is susceptible of modification and variation in numerous details and that my invention is not to be understood as being limited to such details, but that its scope is to be determined by the claims appended hereto.

I claim:—

1. In a device of the character described, the combination with seat adjusting means, of a seat carrier adapted to have a tilting seat mounted thereon, and to be raised and lowered by said adjusting means, and a supplemental supporting member held against vertical displacement, upon which said carrier is mounted and along which it may be adjusted by the seat adjusting means.

2. In a device of the character described, the combination with seat adjusting means, of a seat carrier adapted to have a tilting seat mounted thereon, and to be raised and

lowered by said adjusting means, and a supplemental revoluble supporting member held against vertical displacement, upon which said carrier is mounted and along which it may be adjusted by the seat adjusting means.

3. In a device of the character described, the combination with threaded seat adjusting means, of a seat carrier adapted to have a tilting seat mounted thereon, and to be raised and lowered by said adjusting means, and a supplemental spindle held against vertical displacement, upon which said carrier is mounted and along which it may be adjusted by the seat adjusting means.

4. In a device of the character described, the combination with a hub, of a supporting member retained therein against vertical displacement and projecting upwardly therefrom, a seat carrier adapted to be mounted upon said member, and adjusting means, supplemental to said member, whereby said carrier may be adjusted vertically along said member.

5. In a device of the character described, the combination with a hub, of a revoluble spindle retained therein against vertical displacement and projecting upwardly therefrom, a seat carrier adapted to be mounted upon said spindle, and adjusting means, supplemental to said spindle, whereby said carrier may be adjusted vertically along said spindle, said adjusting means being revoluble with said spindle.

6. In a device of the character described, the combination with a hub, of a supporting member bearing therein and projecting upwardly therefrom, a seat carrier adapted to be mounted upon said member, and adjusting means, supplemental to said member, whereby said carrier may be adjusted vertically along said member, said adjusting means being carried by the supporting member clear of the hub.

7. In a device of the character described, the combination with a hub, of a supporting member bearing therein and projecting upwardly therefrom, means for retaining the member against vertical displacement in the hub, a seat carrier adapted to be mounted upon said member, and adjusting means,

supplemental to said member, whereby said carrier may be adjusted vertically along said member, said adjusting means being carried by the supporting member clear of the hub.

8. In a device of the character described, the combination with a hub, of a spindle held therein against vertical displacement, a seat carrier mounted upon and movable longitudinally of said spindle, adapted to have a tilting seat mounted thereon, and means for moving said carrier along the spindle, said last named means being carried by the spindle clear of the hub.

9. In a device of the character described, the combination with a hub, of a spindle held therein against vertical displacement, a seat carrier mounted upon and movable longitudinally of said spindle, adapted to have a tilting seat mounted thereon, a collar carried by said spindle and not being connected to the hub, and seat adjusting means bearing in said collar for moving said carrier along the spindle, said last named means being carried by the spindle clear of the hub.

10. In a device of the character described, the combination with a hub, of a revoluble spindle held therein against vertical displacement, a sleeve adapted to have a tilting seat mounted thereon, slidably mounted on said spindle, a collar carried by said spindle and not being connected to the hub, and seat adjusting means extending from the collar to the sleeve.

11. In a device of the character described, the combination with a hub, of a seat supporting spindle retained therein against vertical displacement, a seat carrier adapted to have a tilting seat mounted thereon and to be raised and lowered on said spindle, and adjusting means for said carrier adapted to have pivotal movement therewith, said adjusting means being carried by the spindle and not being connected to the hub.

In testimony whereof I have affixed my signature in presence of two witnesses.

HOWARD G. HUNN.

Witnesses:

OTTO MUNK,
FRED S. DUTTON.