

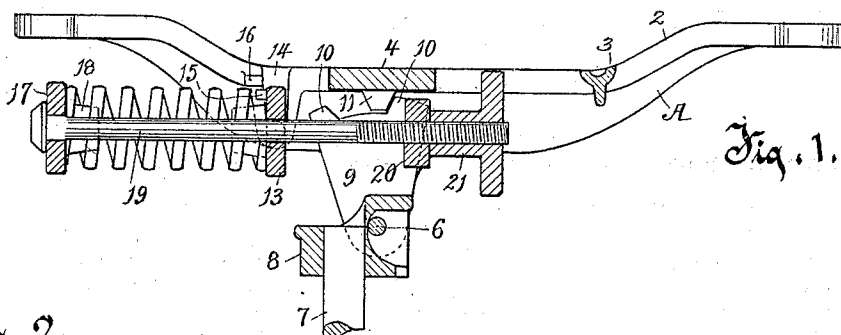
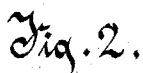
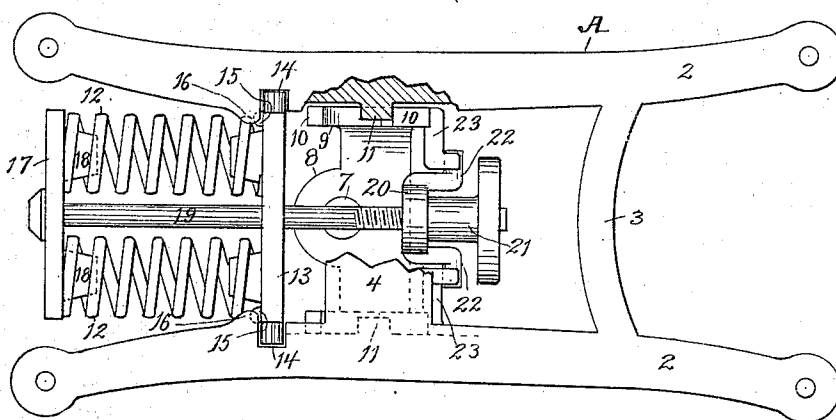
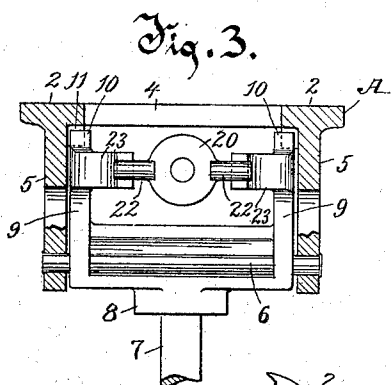
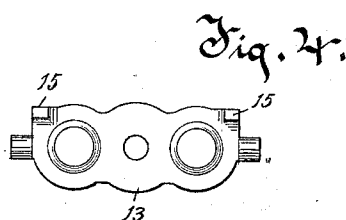
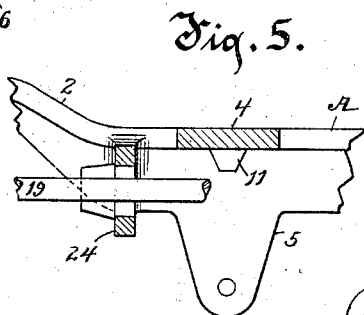
No. 696,667.

Patented Apr. 1, 1902.

J. ELLENBECKER.
TILTING CHAIR.

(Application filed June 20, 1901.)

(No Model.)



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN ELLENBECKER, OF PORT WASHINGTON, WISCONSIN.

TILTING-CHAIR.

SPECIFICATION forming part of Letters Patent No. 696,667, dated April 1, 1902.

Application filed June 20, 1901. Serial No. 65,225. (No model.)

To all whom it may concern:

Be it known that I, JOHN ELLENBECKER, residing at Port Washington, in the county of Ozaukee and State of Wisconsin, have invented a new and useful Improvement in Tilting-Chairs, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The object of my invention is to provide improved means for supporting the seat of a chair tiltably, the improved device being especially adapted for use in a chair in which the seat is also revoluble horizontally and is adjustable vertically by means in common use.

The invention consists of the device, its parts and combinations of parts, as herein described and claimed, or the equivalents thereof.

In the drawings, Figure 1 is a longitudinal section from front to rear of my improved device. Fig. 2 is a top plan view of the device, parts being broken away for showing otherwise-hidden parts. Fig. 3 is a front view of the head of the spindle with related parts, the spider being shown in transverse section. Fig. 4 is a rear view of a rocking cross-bar. Fig. 5 is a fragment, partly in section, of a modified form of the device.

In the drawings, A is a spider or frame on which the chair-seat rests and to which it is secured conveniently by screws or equivalent means. This spider in a general way is of a common form, consisting of the forwardly and rearwardly extending side rails 2 2, a front cross-bar 3, and a medially-located cross-bar 4. Also there are integral downwardly-projecting ears 5 5, one on each rail 2, medially thereof. The spider is advisably of malleable iron, and other parts may also be of malleable iron, except the springs, which are of steel.

The spider A is pivoted on its support by means of a pin 6, so as to be capable of tilting rearwardly from its normal position. As tilting devices are usually employed in connection with a revolving chair, I have shown a fragment of a spindle 7, such as is employed for supporting the chair-seat vertically and revolubly on the ordinary base. This spindle is provided with a rigid head 8,

having two upwardly-extending arms 9 9. The pivot-pin 6 passes transversely through the lower ends of the ears 5 5 and through the head 8 at the lower extremities of the arms 9 9, which arms project upwardly from the pivot-pin radially and are expanded in the form of segments of a disk. The top edges of the radial arms 9 9 are recessed centrally, providing radial fingers 10 10, two on each arm, one at the front and the other at the rear, which are adapted to engage an interposed stop 11, integral with the spider and projecting into the path of the fingers 10 10. These fingers on the radial arms 9 9 are so disposed that the stops 11 bear against the front fingers 10 10 in the manner shown in Fig. 1 and prevent the front of the spider from tilting downwardly beyond a substantially horizontal position. The fingers 10 10 at the rear are so disposed as to permit the spider to be tilted upwardly at the front and correspondingly rearwardly to a predetermined position.

For holding the spider in the substantially horizontal position shown in Fig. 1 yieldingly and for returning it to this position when it has been tilted rearwardly one or more springs 12 12 are provided. Preferably two coiled steelsprings are employed. These springs at their front ends bear against a transversely-disposed rocking plate 13, provided at its extremities with trunnions that rest in sockets 14 14 therefor, the sockets being formed in the inner sides of the rails 2 2 of the spider a little at the rear of the ears 5 5 or at the rear of the vertical plane of the pivot-pin 6. The sockets 14 are in the form of vertically-disposed recesses open upwardly, so that the trunnions on the plate 13 may be placed in the sockets from above when the plate is in other than a substantially vertical position. When the trunnions have been thus introduced into the socket, the plate is brought to a vertical position and lugs 15 15 thereon come immediately below stops 16 16 on the rails of the spider and prevent the removal of the plate from the sockets while in such vertical position in which it is held by related parts, as hereinafter described. At the rear extremities of the springs 12 a transverse plate 17 bears against the springs, which springs are held in position on the plates 13

and 17 by bosses 18 in truncated-cone form thereon. A tie-rod 19, provided with a head that bears against the outer surface of the plate 17, passes through the plate 17 and through the plate 13 and through a rocking yoke 20 and is provided with a nut 21, turning on a screw-thread on the rod 19, against the front surface of the yoke 20. The nut 21 is advisably provided with a small hand-wheel for conveniently rotating it. The rod 19 is preferably faced or squared near its head and fits in a corresponding aperture in the plate 17, whereby the rotation of the rod 19 is prevented. The yoke 20 includes angled or cranked arms 22 22, the front extremities of which are in the form of trunnions, having their bearings in trunnion-bearing members 23 23, formed integrally on the radial arms 9 and extending inwardly toward each other and slightly forwardly therefrom. This construction locates the yoke 20 near to and advisably slightly in front of the vertical plane of the pivot-pin 6, and at the same time the body of the yoke against which the nut 21 bears is at the rear of the trunnions of the yoke, thus providing for a swing of the yoke at the rear of its axis and at that side thereof in the direction of the pull on the rod 19. The nut 21, with its hand-wheel for ready adjustment of the nut for regulating the tension of the springs, is also located at the front of the pivot of the spider and is therefore convenient of access, while not being so near the front of the chair as to be in the way of the user of the chair or otherwise objectionable.

In the modified form of construction shown in Fig. 5 a transverse plate 24, rigid on the spider and advisably integral therewith, is employed instead of the rocking plate 13 of the other form of construction. Otherwise the two devices are substantially alike. In this modified form of construction the rod 19 passes through the plate 24 in a slot thereof that is somewhat elongated vertically to provide for a slight shifting of position of the rod with reference to the plate.

What I claim as my invention is—

1. In a tilting-chair, a support having upwardly-projecting expanding radial arms provided with terminal fingers and an intermediate space, a chair-seat spider pivoted on the support tiltable backwardly, stops fixed on the spider projecting into the space between said fingers and adapted to engage said fingers toward front and rear and limit the tilting movement of the spider and springs secured to the spider and to the support adapted to hold the spider yieldingly against the front fingers and permit it to tilt to and against the rear fingers on said arms.

2. In a tilting-chair, a support having upwardly-projecting radial arms, a horizontally-disposed chair-seat spider provided with me-

dial downwardly-projecting ears pivoted near their lower extremities on the arms of the support, springs at the rear of the vertical plane of the axis of the pivot, a plate on the spider at the rear of the vertical plane of the pivot against which the front ends of the springs bear, a plate against the rear ends of the springs, a rod secured to the rear spring-plate and passing movably through the front spring-plate, a yoke trunnioned on the arms of the support, and a nut turning by screw-thread on said rod and bearing on the yoke at the rear of the axis of the trunnions.

3. In a tilting-chair, a support having upwardly-projecting radial arms, a horizontally-disposed chair-seat spider provided with medial downwardly-projecting ears pivoted near their lower extremities on the support, springs at the rear of the vertical plane of the axis of the pivot, a plate on the spider at the rear of the vertical plane of the pivot against which the front ends of the springs bear, a plate against the rear ends of the springs, a rod secured to the rear spring-plate and passing movably through the front spring-plate, a yoke through which said rod passes movably, said yoke having forwardly-extending cranked arms provided with trunnions, trunnion-bearing members extending inwardly from the upper ends of said arms of the support, and a nut turning by screw-thread on said rod against the yoke at the rear of its trunnions.

4. In a tilting-chair device, a spider provided with trunnion-sockets extending vertically and open upwardly in its side rails, and stops on the spider near the sockets and a spring-plate provided with trunnions adapted to enter and bear in said sockets, and lugs on said plate adapted when the plate is in place having its width in vertical position to engage the stops on the spider and prevent the removal of the plate from the spider while in such normal vertical position.

5. In a tilting-chair, a support having upwardly-projecting arms provided at the front near their upper ends with inwardly-projecting trunnion-bearing members having bearings for trunnions, a yoke provided with forwardly-projecting cranked arms having trunnion-terminals revoluble in said trunnion-bearings, a spider pivoted on said support, springs mounted on the spider at the rear of its pivot, a spring-controlling rod extending movably through said yoke, and a nut turning on said rod and bearing against said yoke at the rear of the axis of its trunnions.

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

JOHN ELLENBECKER.

Witnesses:

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ANDREW J. FLIER.