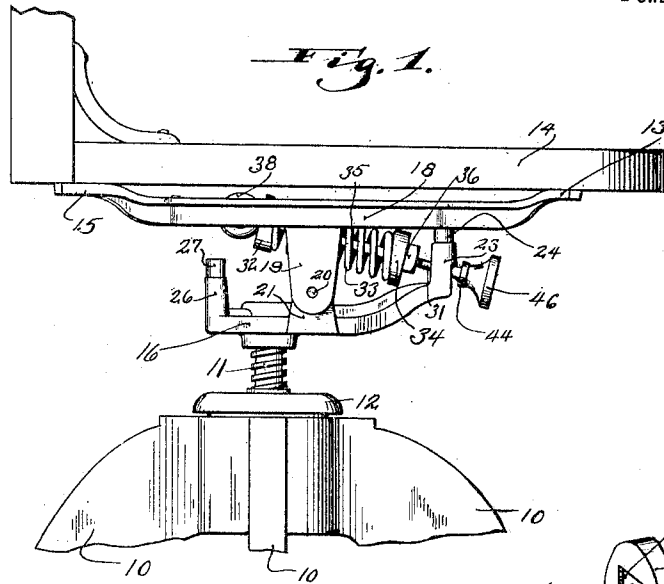
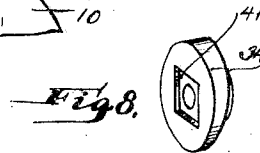
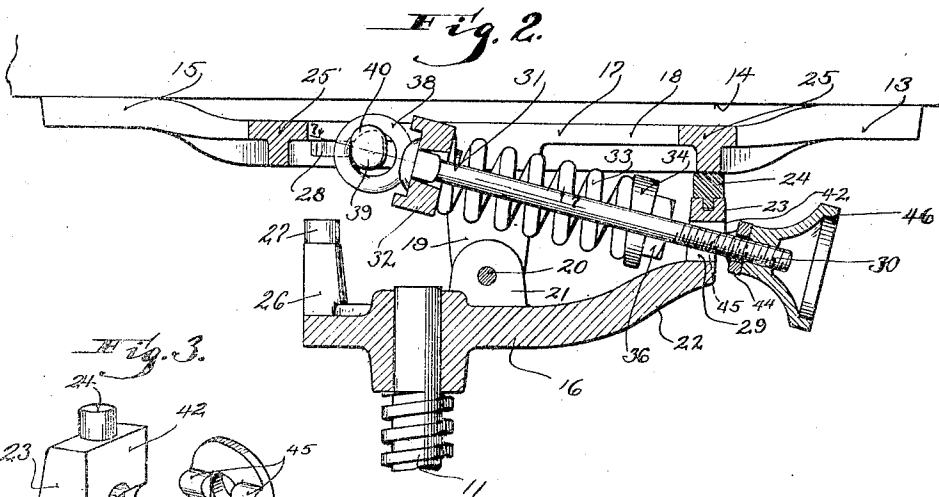
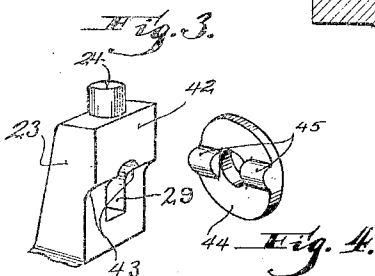


H. A. ATWOOD.
CHAIR.
APPLICATION FILED MAR. 13, 1920.

1,346,110.

Patented July 13, 1920.
2 SHEETS—SHEET 1.



Inventor
Harry A. Atwood.
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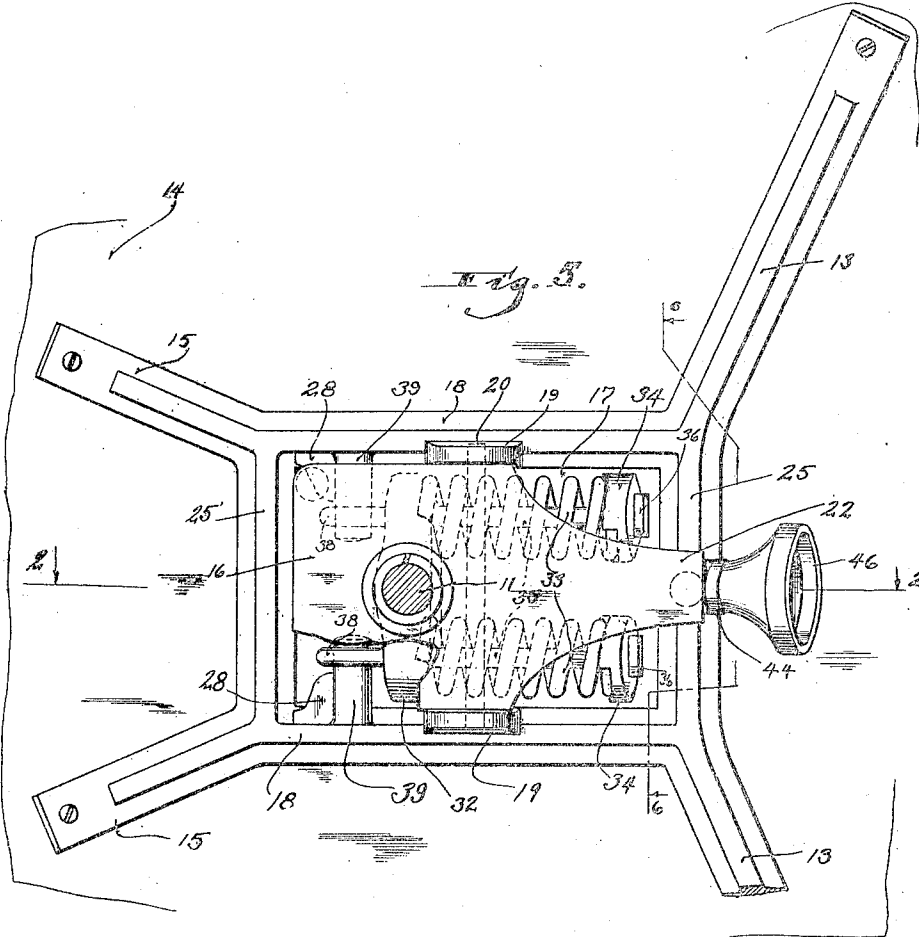
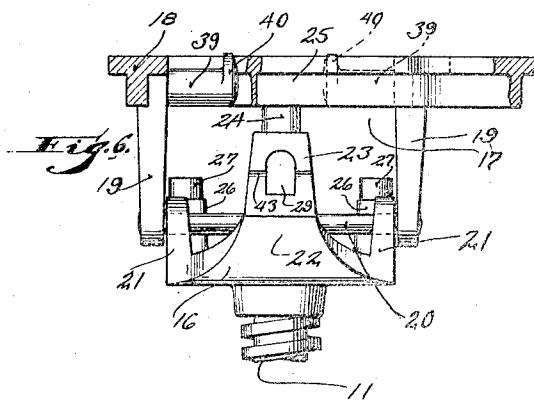
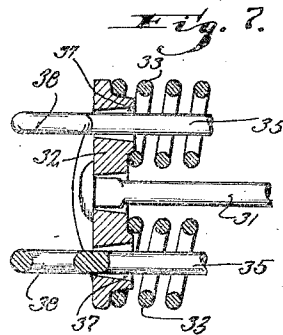
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UNITED STATES PATENT OFFICE.

HARRY A. ATWOOD, OF MILWAUKEE, WISCONSIN.

CHAIR.

1,346,110.

Specification of Letters Patent.

Patented July 13, 1920.

Application filed March 13, 1920. Serial No. 365,455.

To all whom it may concern:

Be it known that I, HARRY A. ATWOOD, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Chairs, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The present invention relates to certain new and useful improvements in chairs in general, but refers more particularly to features of novelty and advantage in swivel chairs with tiltable seats.

Heretofore, in chairs of this type, the spring or springs employed to normally yieldingly urge the chair bottom to substantially horizontal position have been so arranged that the pull thereon is direct, and one object of this invention is to provide an improved construction whereby a leverage action upon the spring or springs is produced.

Another object of the present invention is to provide a chair of the type described employing a leverage spring arrangement in which the springs are inclosed by the chair irons, and in which the spring tensioning rod has one end in pivotal connection with the lower chair iron section or supporting member.

A further object of this invention is to provide an adjustment for the spring cushion by means of a handle or nut in such a position that it may be operated by a person while seated in the chair.

A still further object of my invention resides in the means for securing the cushioning springs in position. Besides the accomplishment of these and other purposes, other salient features of the invention are simplicity in structure, economy in manufacture, accessibility of adjustable parts and a construction of pleasing appearance.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts, substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings I have illustrated one complete example of the

physical embodiment of my invention, constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side elevation of a chair embodying the features of my invention, a portion of the back thereof and the supporting legs being broken away.

Fig. 2 is a sectional view taken through the chair on the plane indicated by the line 2-2, of Fig. 5.

Fig. 3 is a perspective view of the forward stop so constructed as to impart to the spring tensioning rod a rocking or pivotal connection with the lower chair iron or supporting member.

Fig. 4 is a perspective view of the collar member provided with lugs engageable with the front stop member.

Fig. 5 is a bottom plan view of the underside of the chair seat and irons, parts being broken away to more clearly illustrate structural details.

Fig. 6 is a view, part in section and part in elevation, looking at the front of the chair irons, the springs being removed and said view being taken on the line 6-6 of Fig. 5.

Fig. 7 is a fragmentary view, part in section and part in elevation, taken through the inner ends of the cushion springs on the line 7-7 of Fig. 2, and

Fig. 8 is a perspective view of the member for engaging the outer end of each cushion spring.

Referring now more particularly to the accompanying drawings it will be perceived that the improved chair comprises a suitable supporting base composed of a plurality of legs 10, an adjustable threaded vertical post or shaft 11, the position of which may be regulated by an adjusting nut 12, a seat frame or supporting iron having diverging forwardly extending arms 13 fastened to the bottom of seat 14 and a pair of shorter diverged rearwardly extending arms 15 likewise secured to the under face of the seat, and a lower chair iron or supporting member 16 secured on the top of the post and having a pivotal connection with the supporting iron or seat frame as will be later described.

The seat supporting spider arms are connected together beneath the middle of the chair by side web members 18 and transverse web members 25 and 25' to form a rectangular opening 17 providing spring receiving compartment within which the

spring cushion device is positioned. The side webbed members 18 forming the sides of the rectangular opening 17 are each formed with depending arms or ears 19 having their lower ends pivotally secured, by means of a pivot pin 20, to smaller upstanding ears 21 whereby the seat frame and seat are tiltably supported from the lower chair iron 16.

10 The iron 16 has a forwardly extending arm 22 provided with an upstanding projection 23 upon the top of which is secured a bumper 24 for engagement with the forward transverse rib 25 when the seat is in its normal horizontal position. The rearward tilting movement of the seat is limited by two spaced upstanding projections 26 formed on the rear end of the iron 16 and provided with bumpers 27 engageable with projecting lugs 28 formed on the side webs 18, adjacent the rear transverse web 25'. The chair is at all times yieldingly urged to normal position, with the web 25 engaging bumper 24, by spring means concealed within the recess 17 between the lower iron and the chair bottom, to be later described.

The forward projection 23 has a vertically extending elongated aperture 29 therein through which passes the outer threaded end 30 of a tension adjusting bolt 31 having a cross head member 32 secured on its inner end and engaging the inner ends of a pair of cushion springs 33, the outer ends of which are engaged with collar members 34 carried by guide rods 35 (see Figs. 2 and 5). The springs 33 are coiled about the rods 35 which have their outer threaded ends engaged by nuts 36 and their inner ends passed through apertures 37 in the cross head 32, the inner ends of said guide rods being formed with eyes 38, engageable over inwardly projecting studs 39 formed integral with the side webs 18 rearwardly of the pivot 20. Each stud 39 is formed with an upstanding rib 40 to prevent the accidental disengagement therefrom of the eye 38 secured thereto.

The collar members 34 are formed with squared recesses 41 in their outer faces in which the nuts 36 are seated and thus held against accidental disengagement from the guide rods 33, as will be obvious. As best shown in Figs. 2, 3 and 6, the upper outer face of the projection 23 is projected outwardly as at 42 to provide a curved surface 43 midway of the elongated aperture 29 to afford a pivotal or rocking connection between the tension rod 31 and the iron 16. Freely engaged with the outer end of the tension rod 31 is a member 44, having two spaced apart diametrically opposed curved projections 45 engageable with the curved surface 43, the same being held in engagement therewith by means of a nut or hand-

wheel 46 in threaded engagement with the end 30 of the tension bolt to maintain the springs 33 in tension as will be obvious.

From this construction it will be readily apparent that I provide a rocking or pivotal connection between the tension rod and the iron 16, and that a leverage action is applied to the springs 33, as the opposite ends of the springs move simultaneously toward each other when the seat is tilted from its normal horizontal position, by reason of the tension bolt 31 having one end connectible with the inner ends of the springs and its other end connectible with the chair iron 16, and the guide rods 35 having their outer ends connected with the outer ends of the springs and their inner ends connected with the upper chair iron.

It will also be apparent that the springs 33 are completely inclosed between the iron 16 and the seat bottom and thus make it possible to provide a very neatly finished chair. The studs 39 and the guide rod eyes 38 also provide an extremely cheap but efficient manner of connecting the springs with the upper chair iron or seat frame.

What I claim as my invention is:

1. A chair comprising a supporting member, a tiltable iron, means pivotally connecting the tiltable iron with said member, and means for yieldingly restraining the tiltable iron from movement and including a contractile spring, a stud integral with said tiltable iron to one side of its pivotal connection with the supporting member, a guide having an end engaging one termination of the spring and its other end provided with an eye pivotally engaged with said stud, and means connecting the other end of said spring with the supporting member on the side of its pivot opposite said stud.

2. A chair comprising a supporting member, a chair bottom supporting iron tiltably connected with said member, a cushion spring, a guide rod passed therethrough, means on one end of said rod engaging the adjacent end of the spring, means pivotally connecting the other end of said rod with the supporting iron to one side of its connection with the supporting member, a plate slidably mounted on the guide rod and engaging the other end of said spring, and a tension rod having one end connected with the plate member and its other end connected with the supporting member to the side of its connection with the supporting iron opposite to the connection of the guide rod with the supporting iron.

3. A chair comprising a supporting member, a tiltable chair bottom supporting iron, a pair of spaced depending ears carried by said supporting iron, a pair of spaced upstanding ears carried by the supporting member, a pivot pin connecting the depending and upstanding ears to tiltably connect the

supporting iron with the supporting member, a cushion spring, a guide rod passed through the spring and having means fixed on one end and engaging the adjacent outer
5 end of the spring and means on the other end of the guide rod in pivotal engagement with the supporting iron rearwardly of the pivot, a plate member slidably mounted on the guide rod and engaging the inner end of
10 the spring, and a tension rod having one end connected with the plate member and its other end connected with the supporting member forwardly of the pivot.

4. A chair comprising a supporting member, a tiltable chair bottom supporting iron
15 carried by the supporting member, and cushion means yieldingly withholding the

supporting iron from tilting movement and including a guide rod having a retaining washer on one end and an eye on its other
20 end, means connecting the eye with the supporting iron to one side of its pivot, a plate member slidably mounted on said guide rod, a cushion spring mounted on the guide rod
25 between the retaining washer and the plate member, and a tension rod connecting the plate member with the supporting member, whereby a tilting movement of the supporting iron will move the opposite ends of the
30 guide rod and tension rod toward each other to compress the cushion spring between said washer and plate member.

In testimony whereof, I affix my signature.

HARRY A. ATWOOD.