(No Model.) 2 Sheets—Sheet 1.

W. I. BUNKER.

ROCKING CHAIR ATTACHMENT.

No. 354,038. Patented Dec. 7, 1886.

Fig. 2

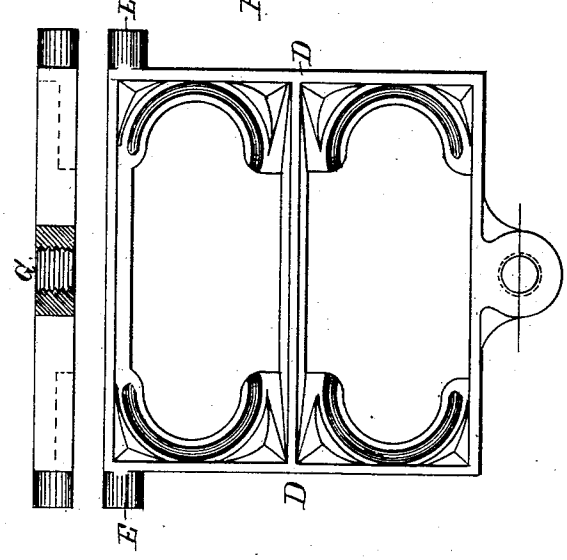


Fig. 4.

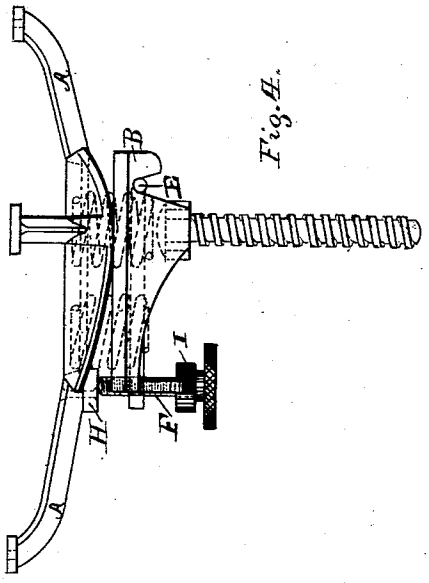


Fig 1

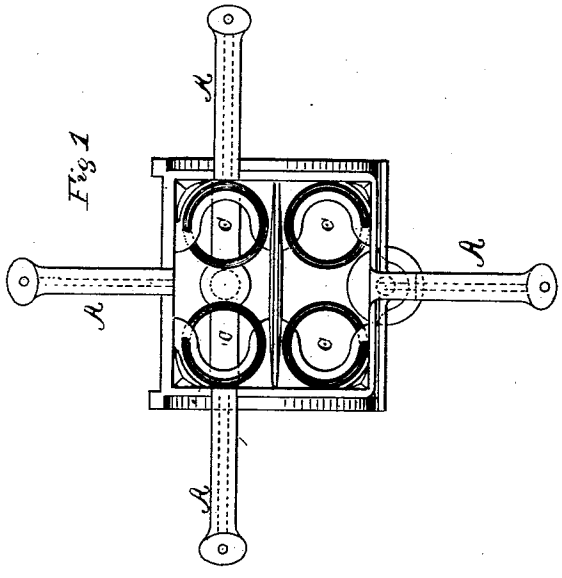
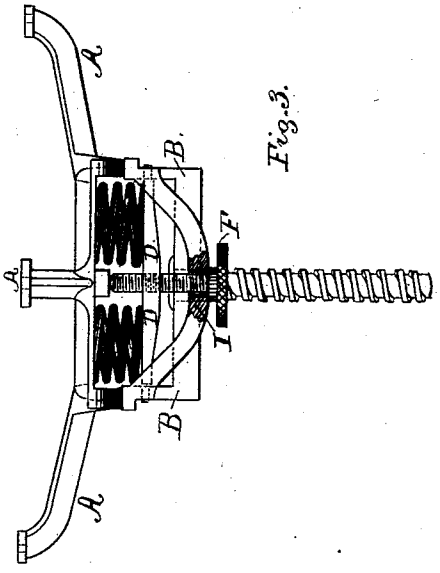


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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ROCKING CHAIR ATTACHMENT.

No. 354,038. Patented Dec. 7, 1886.

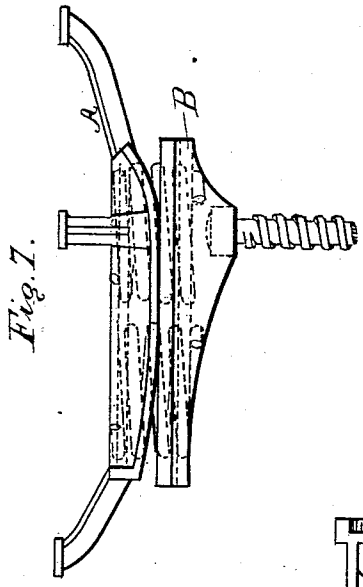


Fig. 7.

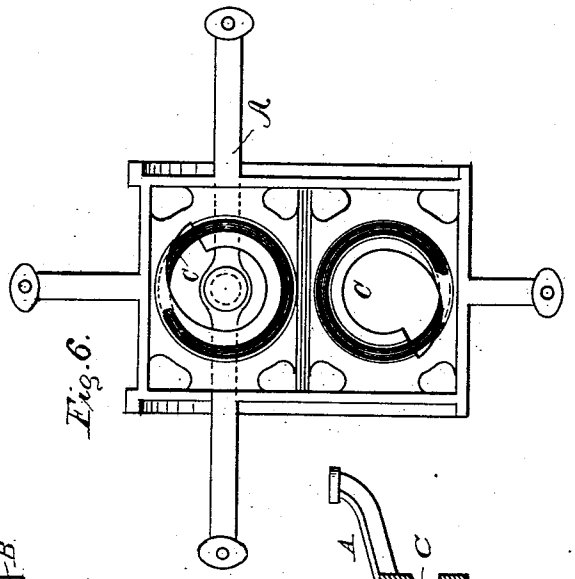


Fig. 6.

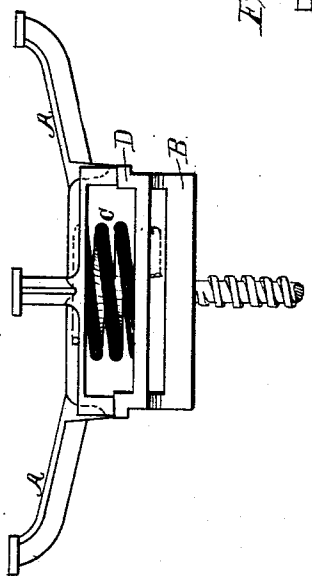


Fig. 5.

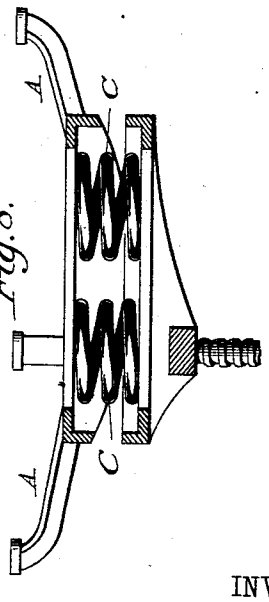


Fig. 8.

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UNITED STATES PATENT OFFICE.

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ROCKING-CHAIR ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 354,038, dated December 7, 1886.

Application filed January 3, 1885. Serial No. 151,893. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM I. BUNKER, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Rocking-Chair Attachments, of which the following is a specification.

In the drawings, Figure 1 is a plan view of the spider of a combined swivel and rocking chair, having two springs in the center of oscillation and two in front thereof, showing the upper brackets or attachments for the springs. Fig. 2 is a plan view of the bottom piece to which the springs are attached, showing the lower brackets or attachments for the springs. Fig. 3 is a front view of the spindle and spider, showing the springs in place and a screw for adjusting the stop and regulating the oscillation of the parts. Fig. 4 is a side view of the spindle and spider, showing the same parts as in the last figure as they appear from a different standpoint, one of the springs being in the center of oscillation and one in front thereof. Fig. 5 is a front view of the chair where only two coiled springs are used, one in the center of oscillation and one in front thereof. Fig. 6 is a plan view of the same. Fig. 7 is a side view of parts showing a diminished curvature in the rockers; and Fig. 8 is a side view, partly in cross-section, showing one spring in the center of oscillation and one in rear thereof.

In the drawings, A represents the spider; B, the spindle; C, the springs; D, the plate or piece to which the lower ends of the springs are attached; E, trunnions on such lower piece or plate, as represented in Figs. 2 to 4; F, a screw-bolt for regulating the extent of the rocking, as shown in Figs. 3 and 4; G, the hole for such screw; H, the shoulder for the bolt to strike against, and I a bow or depending piece through which the screw-bolt is loosely passed.

In constructing a chair containing my improvement I mount a spindle on the ordinary base of a tilting or office chair. This spindle is provided at its top with ways or bearing-surfaces of sufficient length and distance apart to be adapted to receive a pair of rockers. To the upper part of the ordinary tilting or office chair I attach a spider provided with rockers adapted to rest and oscillate upon the rocker-bearing surfaces of the spindle. This spider, as I make it, is cast in one piece with brackets, into which the upper coils of the coiled springs intended to connect the two parts of the chair together may be screwed or attached in a proper and secure manner.

In the first figures of the drawings I have represented the use of four springs, and in the last figures of the drawings I have shown the use of two springs.

For the attachment for the lower ends of the springs I cast a plate with brackets or grooves, into which the lower end coils of the springs may be screwed or otherwise securely attached. This plate or piece may be cast solid with the spindle, as shown in the last three figures of the drawings, or it may be cast as a separate piece and provided with trunnions E, which fit into a notch or hole made in the spindle to receive them, as shown in Fig. 4. In putting the parts together the springs are slightly opened or stretched, so that their tendency to return to their normal positions will hold the piece D and the trunnion E in their proper place when it is cast as a separate piece, while the notch or hole in which the trunnions are placed will prevent the springs from compression beyond a certain point. No such provision is made as to the front springs, and without the arrangement hereinafter described they would lift the plate D, when made as a separate piece, until the front springs had fully returned to their natural position. To prevent this and regulate the oscillation, I have in this case provided a hole in the front part of this plate D, with screw-threads, as shown in a part of Fig. 2. I place a screw-bolt loosely through a hole in the depending bow or piece I and screw it up through the hole provided in plate D. This bolt is provided with a head large enough to make it easy and convenient to screw it in or out. The end of this bolt strikes against a shoulder on the spider, and as it is screwed in it will draw the plate D down and stretch the front pair of springs more and more apart.

In operation, where the plate D is made adjustable, as the rockers oscillate on the rocker-bearing surfaces, the spider comes against the

end of the bolt, and as the piece in which the bolt is placed is suspended by the springs the piece yields until it comes into contact with the bow I, through which the bolt is loosely placed. The extent that the bolt is screwed through the plate D regulates its distance from this bow I, and consequently the extent of oscillation in a forward direction that is permitted to the rockers. The yielding that takes place in the rear springs when the spider strikes and presses on the bolt causes a gradual and easy cessation of the forward movement.

In the last three figures of the drawings I secure the same result, but with the piece D, in which the lower ends of the coiled springs are secured, cast rigid with the other parts of the spindle. In this case the screw-bolt is of course dispensed with, one or more of the coiled springs is placed over the center of oscillation—and by this I mean over the threaded bolt of the spindle—and the others are placed off center, or before or behind this point. This position of the springs may also be used where the adjustable piece D is employed, and is the preferred arrangement. Where it is not used, I prefer to make the curvature in the rockers longer and more gradual than they are ordinarily made, and as I have represented them in Fig. 7. By thus locating the coiled springs it will be seen that, in operation, as the forward ends of the rockers approach the rails a leverage will be called into operation that will lift the rear ends of the rockers, and so open the coils of the rear springs, by which the forward movement of the rockers will be gradually and evenly arrested and brought to a state of rest without any jarring or jerking sensation.

In both of the ways above described the opening of the coils or the increasing of the tension of a part of the springs employed to connect the parts of the chair together is made to produce a cushioned or yielding stop and to regulate and determine the extent of the same.

I am aware that chairs have been heretofore constructed in which one spring was placed in front of another, as in the references cited; but in such chairs the springs have not been rigidly secured at both ends, or made to form the connecting medium between the base and seat parts, so as to hold the rockers in alignment with their supports, as in my invention.

What I claim is—

1. In a combined swivel and rocking chair, a plate or support, to which the bottom end coils of the springs are attached, pivotally connected at one end to the spindle irons and adjustable up or down at the other end, whereby the rocking movement of the chair is regulated and arrested, substantially as described.

2. In a combined swivel and rocking chair, the combination of a base provided with rocker-bearing surfaces, a seat provided with rockers adapted to rest and rock on such surfaces, springs for attaching the seat and base together, and a pivoted plate for supporting the same, one set of said springs having a predetermined tension and the other a variable tension, adjustable by the raising or lowering of one end of the plate or piece in which their lower ends are placed, substantially as described.

3. In a rocking or tilting chair, the combination of a seat part provided with rockers on its under side, a base part provided with surfaces or ways on which said rockers rest and move, and vertical spiral springs rigidly secured to said parts, respectively, and forming the connection between them, at least one of said springs being placed in the center of oscillation of the chair-seat and one in the front or rear of such center, substantially as described.

WILLIAM I. BUNKER.

Witnesses:
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