No. 633,948. Patented Sept. 26, 1899.

D. J. BIGELOW.

CHAIR.

Application filed May 24, 1899.

(No Model.)

Fig. 3.

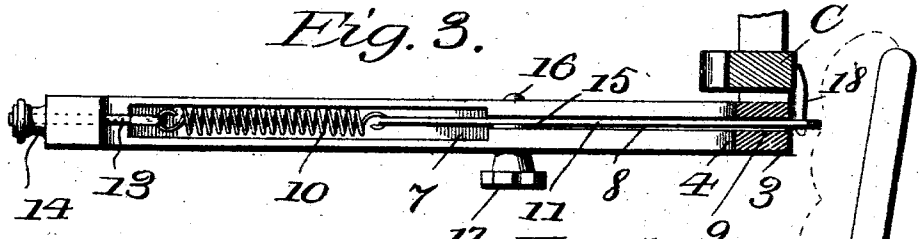


Fig. 4.

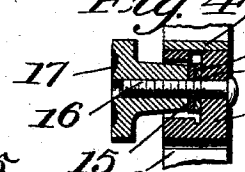
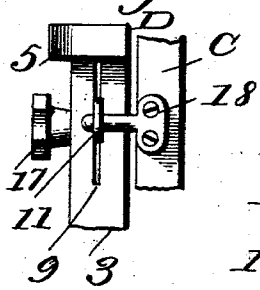


Fig. 5.



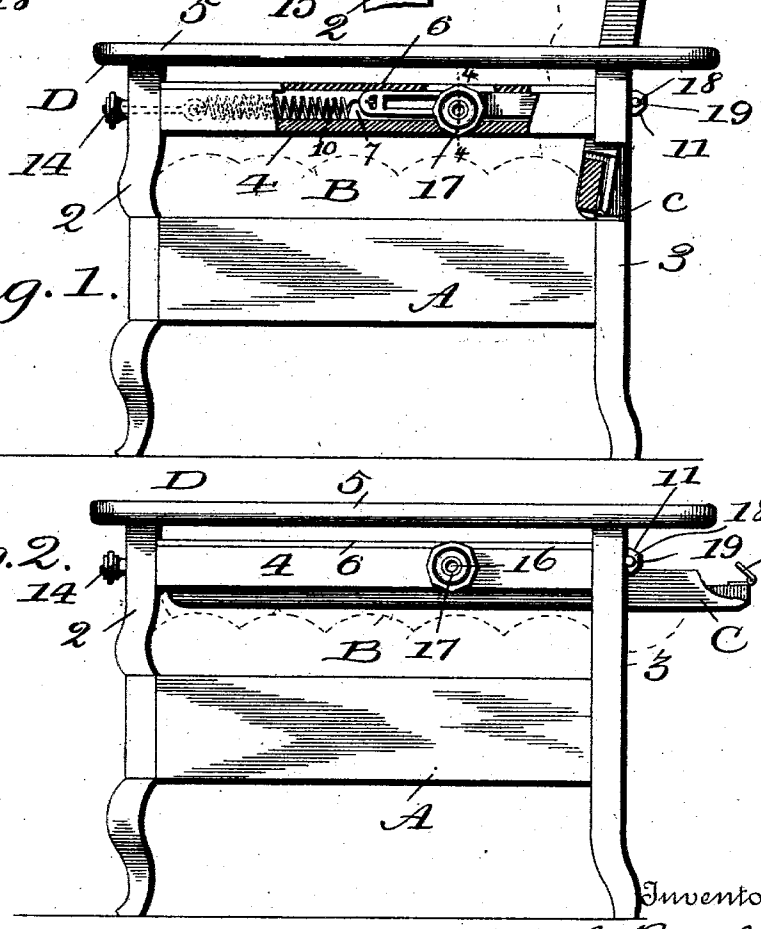


Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

DON J. BIGELOW, OF MEDINA, NEW YORK, ASSIGNOR TO S. A. COOK & CO., OF SAME PLACE.

CHAIR.

SPECIFICATION forming part of Letters Patent No. 633,948, dated September 26, 1899.

Application filed May 24, 1899. Serial No. 718,051. (No model.)

To all whom it may concern:

Be it known that I, DON J. BIGELOW, a citizen of the United States, residing at Medina, in the county of Orleans and State of New York, have invented certain new and useful Improvements in Chairs, of which the following is a specification.

Figure 1 is a side view of a chair embodying my invention, parts of the arm of the chair being represented in section and parts being shown as broken away. Fig. 2 is a side elevation of the chair as knocked down or folded for shipment or storage. Fig. 3 is a top plan view of the horizontal rail of the arm, the view being taken on the line 3 3 of Fig. 1. Fig. 4 is a cross-sectional view taken on the line 4 4 of Fig. 1. Fig. 5 is a detached rear view showing the connection between the swinging back and the spring devices for operating it.

In the drawings, A represents the base or seat-frame of the chair, this part being of any usual or preferred construction and design suitable to receive the seat B.

C represents the swinging back of the chair, hinged at its lower end to the seat-frame at *c*.

D D represent the arms of the chair, they being preferably constructed so as to extend rearward beyond the swinging back, when in its normal or upright position, the back being arranged to swing or move between the arms. The arms are stationary, and there are spring devices connected with the swinging back which operate normally to hold the latter in its upright position; and one part of my present invention relates to the spring actuating devices for the swinging back, the means for adjusting and controlling such devices, and their peculiar arrangement with relation to the arms of the chair.

2 and 3 represent, respectively, the front and rear uprights of the arm of the chair, between which are arranged the horizontal rails or bars 4. These horizontal parts 4 might be finished so as to constitute the arm-rests proper; but I prefer the construction represented in the drawings, wherein the uprights 2 and 3 are shown as extending beyond the rails 4, and separate arm-rests 5 are arranged above the rails.

Each horizontal rail or bar 4 of the arm is formed with a recess 7, in which is mounted the spring 10, that serves to assist in returning the chair-back to its normal position when free to act.

11 indicates a slide-plate which serves to connect the spring 10 with the chair-back. Its forward end extends into the recess 7 in the rail 4, and its middle and rear portions are situated in slots or kerfs 8 and 9, formed, respectively, in the rail 4 and the upper part of the rear upright piece 3. The recess 7 and slot or kerf 8 in the rail are covered by a strip or piece of wood 6, secured to the upper face of the rail, and which serves to impart a neat and finished appearance to the rail and effectually hide the mechanism which is mounted therein.

The forward end of the spring 10 is connected with a screw-threaded bolt 13 extending forward through the upright 2 and having mounted upon its forward end the nut 14. The nut and screw-bolt just referred to constitute means for adjusting the tension of the spring, which may thus be regulated to suit the weight of the back of the chair or the individual preferences of the user as well as affording means to compensate for any weakening of the spring which may take place through age or other causes. By means of the arrangement described and shown a longitudinal adjustment of from an inch to an inch and a half may be easily effected. This adjusting mechanism does not impair the appearance of the chair, as the nuts 14, the only parts which are exposed to view, may be made ornamental in appearance and so constructed as to entirely hide the projecting end of the bolts or screw-rods 13.

I combine with the spring-actuating devices for the chair-back means for securing the parts in position to give the back any desired inclination, and the means which I employ are preferably the following: 16 represents a screw-threaded rod or bolt supported in the horizontal rail 4 of the arm and extending through a slot 12 in the slide-plate 11. The screw-threaded end of this bolt or rod extends outward beyond the face of the rail and has mounted thereon a nut 17, which is adapted to engage with and clamp the slide-plate 11 and so hold it against longitudinal move-

ment. The end of the nut 17 might bear directly against the face of the slide-plate 11, but I prefer to interpose between them a bearing-washer 15, as represented in Fig. 3. By tightening the nuts 17 the back may be held at any angle to which it may be adjusted. The ends of the slots 12 may serve as abutments to limit the extent of swing or movement of the back in both directions, thus preventing overstraining or breakage of the springs.

The connections between the sliding plates 11 and the chair-back are flexible or pivotal and are so arranged that the back may turn upon them as a fulcrum and be moved into the position indicated in Fig. 2, occupying a position between the arms D and substantially horizontal or parallel with the seat B. These connections when once made are intended to be permanent, and when it is desired to fold or turn the back into the Fig. 2 position one leaf of each hinge *c* is disconnected, thus leaving the back free to turn upon the hinge or pivotal connections referred to.

The form of connection which I prefer to use is the following: 19 indicates an aperture in the slide-plate 11 near its rear end, and 18 indicates a pintle or pin suitably secured to the frame of the swinging back and projecting laterally therefrom through the hole 19. The advantages incident to this part of my invention will be apparent, permitting the back to be folded down close to the seat without necessitating the breaking of the connection between the back and the springs which actuate it—the connection which it is most difficult to make in assembling the chair—so that the chair may be packed for shipment in less space than would be required were the back to remain in upright position.

By constructing the arm of the chair as described, and mounting the spring-actuating mechanism for the back therein in the manner herein set forth, these operative parts are entirely concealed and the artistic features of the chair are not sacrificed, while I am able to secure all of the adjustments desirable in a chair of this kind.

In some forms of chairs, particularly those having swinging backs and spring mechanism for returning the backs to their normal positions, it is found to be very desirable to have the frame-pieces which extend between the uprights 2 and 3 (the rails or bars 4 of the construction shown in the drawings) strong and substantial. I secure the necessary solidity and strength of construction and at the same time mount the spring mechanism for moving the back within the bar or rail 4 by constructing it as shown in the drawings. It will be seen, particularly by reference to Fig. 3, that the bar or rail is practically solid on either side of the recess 7, in which is mounted the spring 10. At the rear it is only weakened by the narrow slit in which the slide-plate is situated, and the clamping-nut 17 is arranged in this part of the rail. The bolt 13, to which the forward end of the spring is connected, passes through the solid part of the rail in front of the recess 7.

In some forms of chairs the shape or carving of the uprights 2 makes it impracticable to arrange the adjusting-nuts 14 on the outside of such uprights, as shown in the drawings, in which event the nuts may be arranged inside of the uprights in recesses formed therefor.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a chair, the combination of a swinging back, the upright frame-pieces, 2 and 3, a horizontal rail extending between such upright pieces and having therein a spring-recess and being solid in front of such recess, a spring situated in the said recess of the rail, connections between the spring and the back, and means for adjusting the tension of the spring situated forward of the said solid part of the rail, substantially as set forth.

2. In a chair, the combination of a swinging back, a substantially horizontal rail having a spring-recess therein, and in rear of such recess a narrow slot or kerf, a spring situated in the said recess, a slide-plate situated in the said slot or kerf, and connecting the spring with the back, and a clamping means for engaging the said slide-plate, in the slotted part of the rail, substantially as set forth.

3. The combination of the swinging back, the stationary arms, having longitudinally-recessed rails, 4, which are solid in front of the recessed portions thereof, the springs, 10, mounted in the recesses of the said rails, connections between the springs and the swinging back, screw-threaded bolts connected with the springs and extending forward through the said solid portions of the rails and adjusting-nuts on the said screw-bolts, substantially as set forth.

4. In a chair, the combination with a swinging back, of the stationary arms having the longitudinally-recessed rails, 4, formed with narrow kerfs or slots, 8, in rear of the recesses therein, springs mounted in the recesses of the said rails, the longitudinally-slotted slide-plates, 11, connected with the springs and with the chair-back, and situated in the said slots or kerfs, 8, screw-threaded bolts or rods supported in the rails and extending through the said slots in the slide-plates, and clamp-nuts mounted thereon and adapted to be operated by hand, for clamping the slide-plates and holding the chair-back in positions to which it may be adjusted, substantially as set forth.

5. In a chair, the combination of the swinging back, the arms, B, formed with the substantially horizontal rails, 4, which are formed with recesses, 7, and slots, 8, the springs, 10, mounted in the said recesses, the slide-plates, 11, mounted in the said slots, and connecting the springs and the swinging back, the screw-

threaded bolts or rods, 13, to which the springs are connected, and the nuts, 14, upon the screw-threaded portions of the said bolts, substantially as set forth.

6. In a chair, the combination with the seat-frame and the swinging back hinged at its lower end to the said frame, of the stationary arms arranged outside of the back, the spring-actuating devices for the back, and the pivotal or flexible connections between the back and the said spring-actuating devices, and arranged to serve as the fulcrum upon which the back may turn to fold the same between the arms, substantially as set forth.

7. In a chair, the combination of a swinging back, the actuating-springs therefor, the connecting bars or plates, and pintles or pins secured to the back and extending laterally beyond the side edges of the back and through apertures in the said plates, substantially as and for the purposes set forth.

8. In a chair, the combination of the seat-frame, a swinging back hinged thereto, spring-actuating devices for the back, the flexible or pivotal connections between the back and the said spring-actuating devices, the said connections being arranged substantially as described to serve as a fulcrum upon which the back may turn, when the hinged connection with the seat-frame is broken, allowing the back to be folded, and the arms of the chair arranged outside of the side edges of the back, substantially as set forth.

DON J. BIGELOW.

Witnesses:
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HENRY A. CHILDS.