945,928.

E. FOWLER & H. E. SADLER.

RECLINING CHAIR.

APPLICATION FILED JAN. 4, 1909.

Patented Jan. 11, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

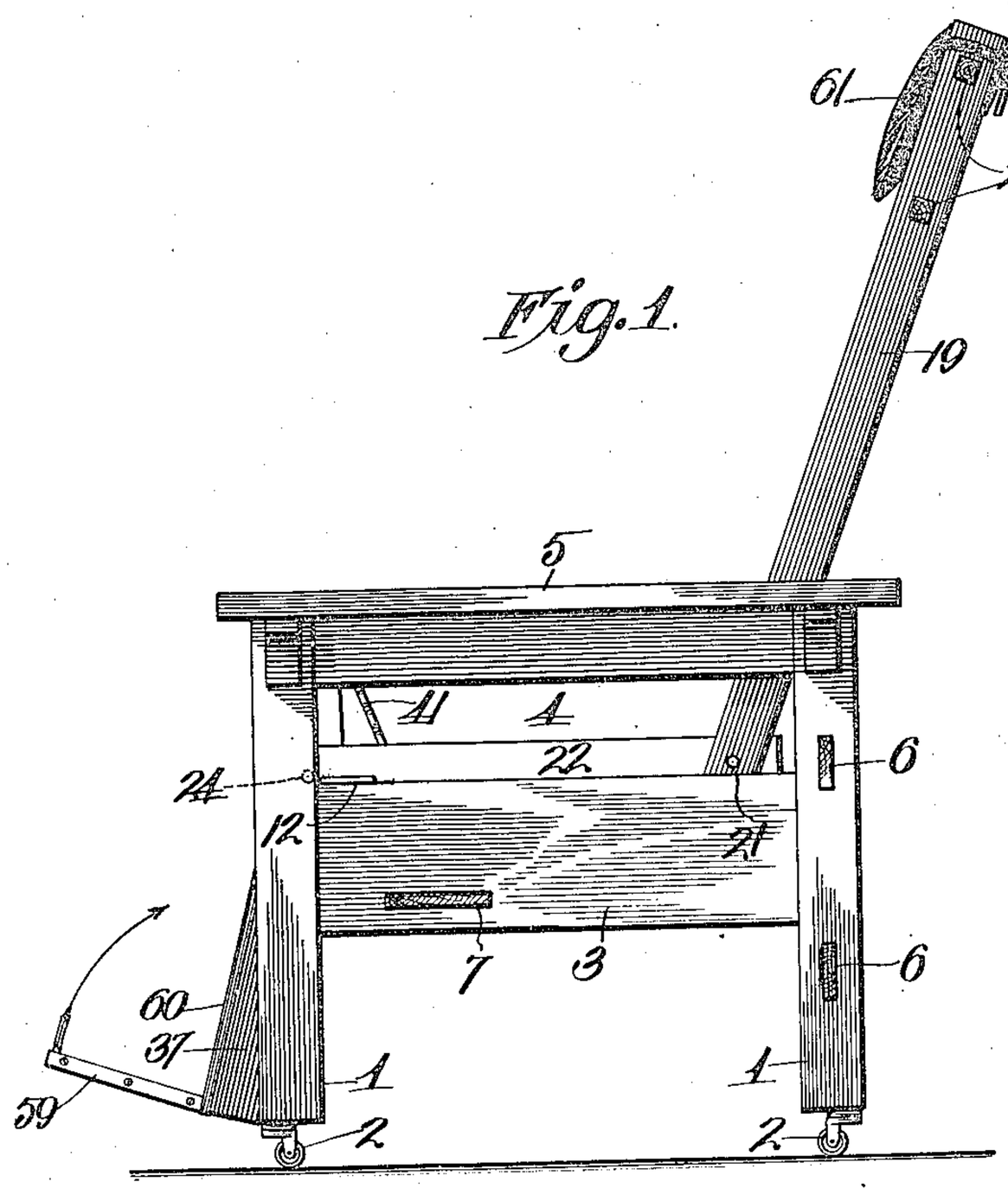
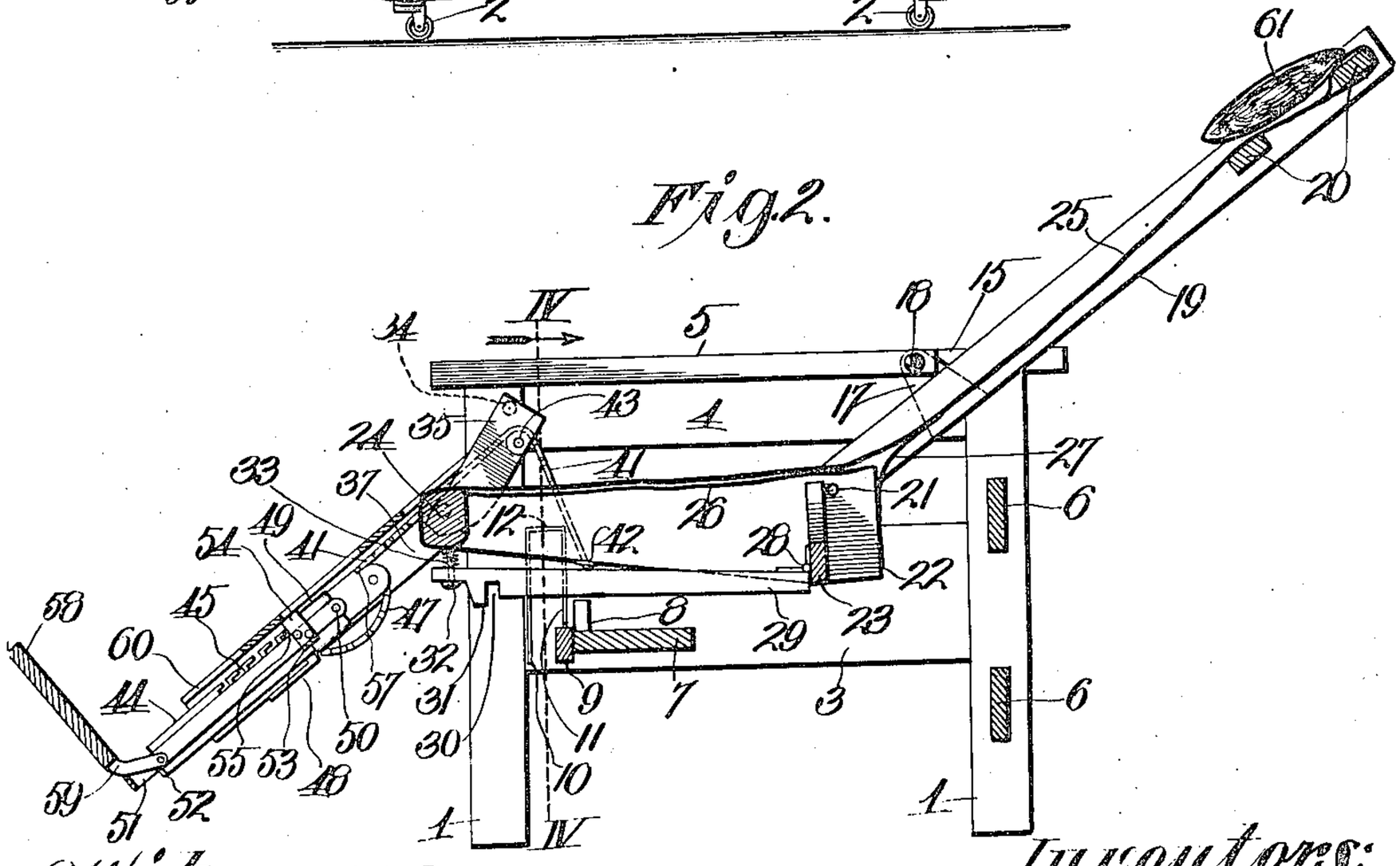


Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

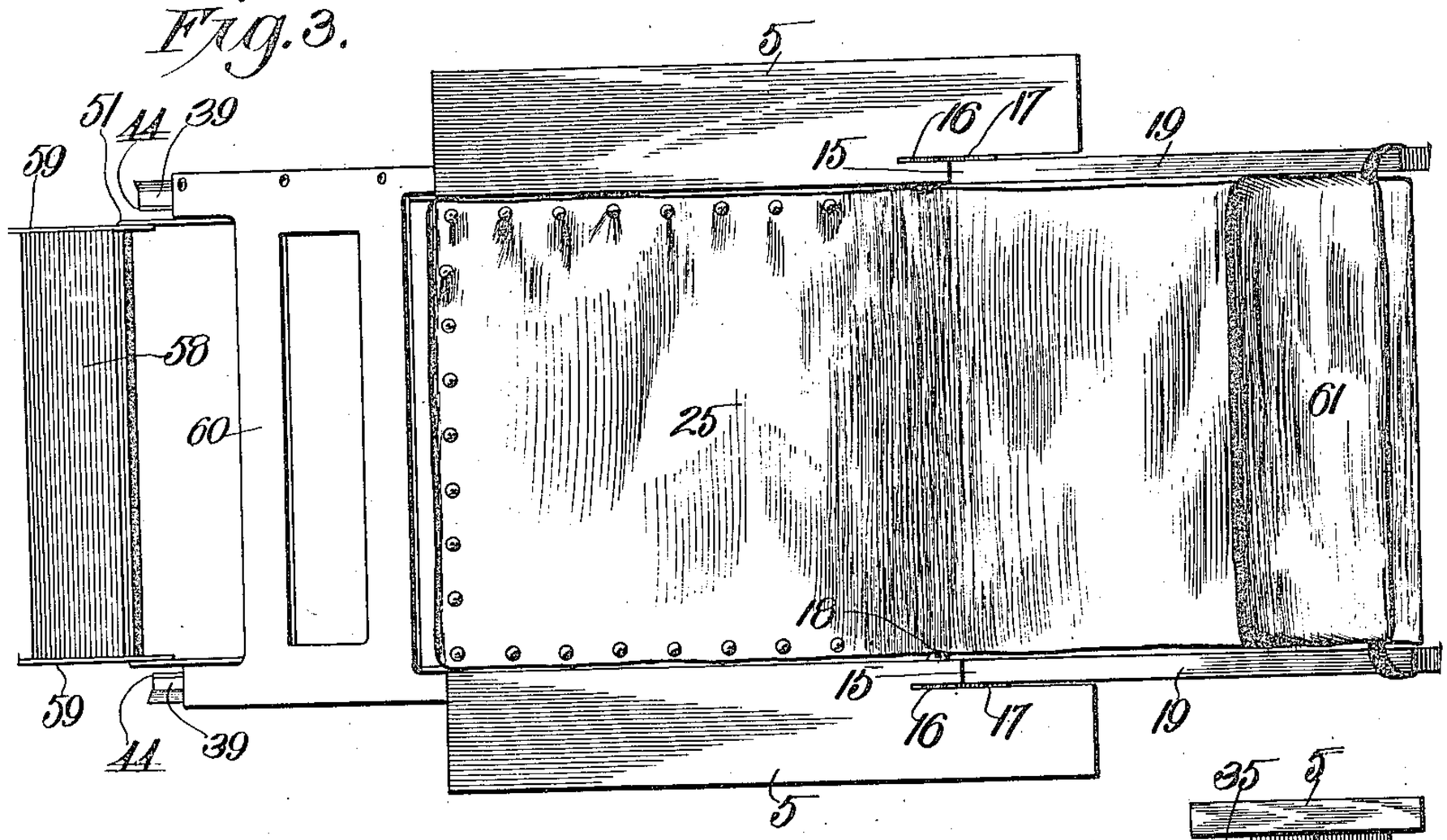


Fig. 4.

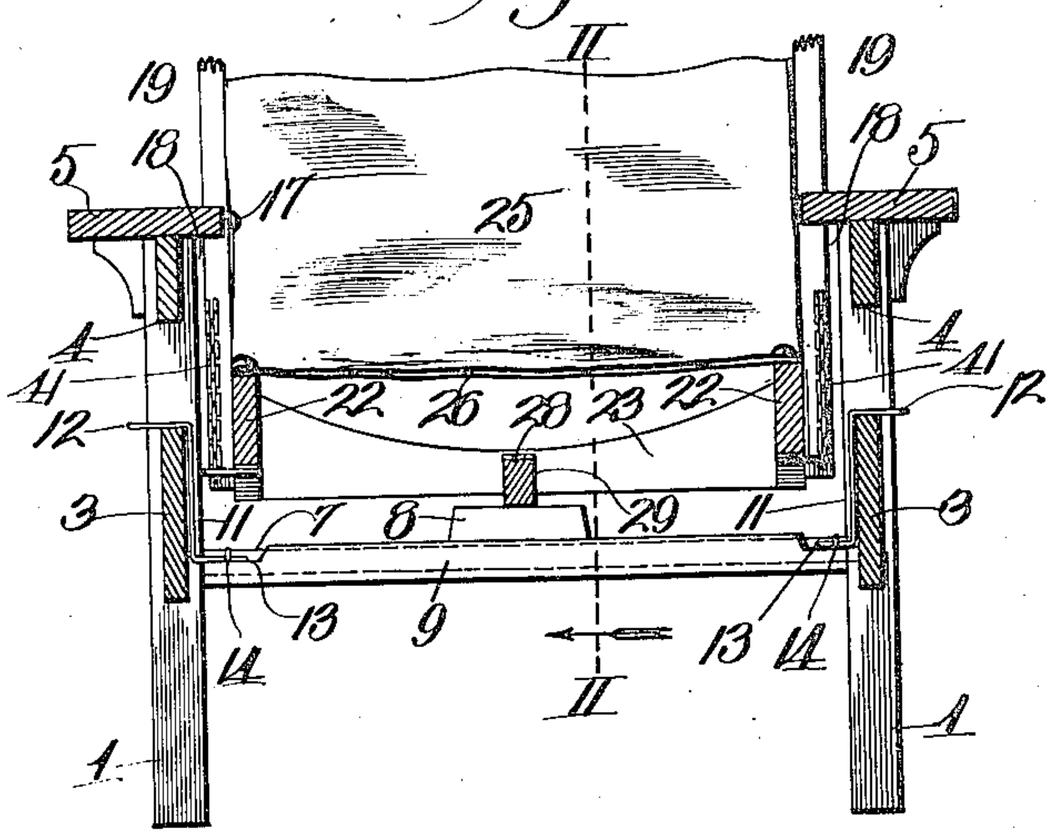
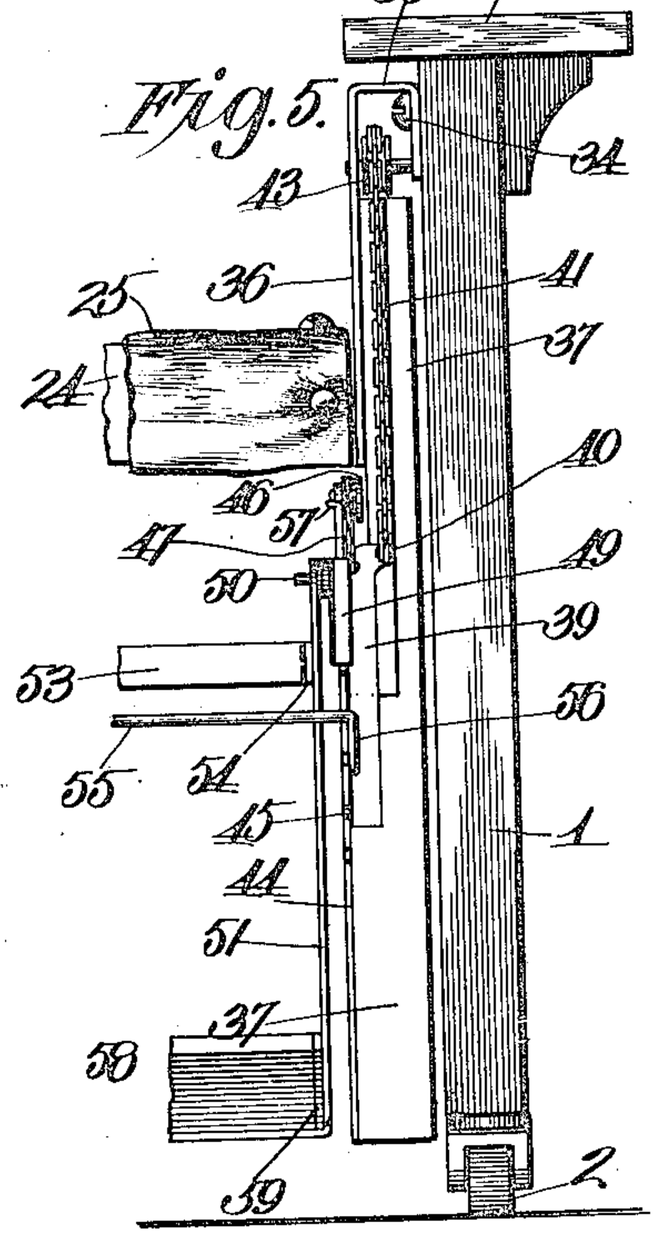


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

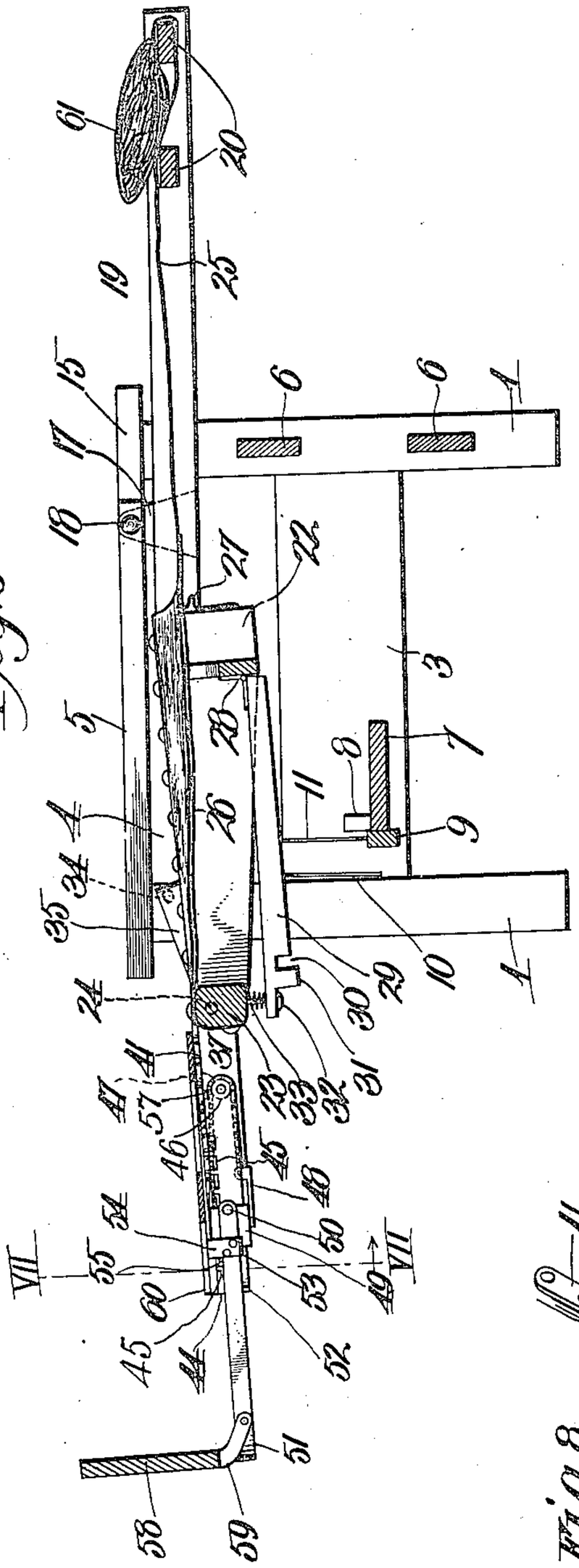


Fig. 9.

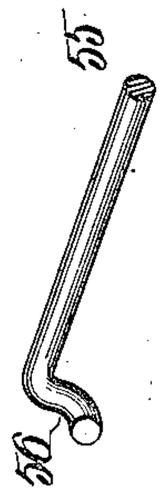


Fig. 10.

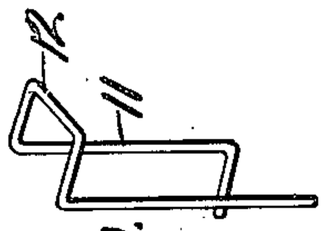


Fig. 7.

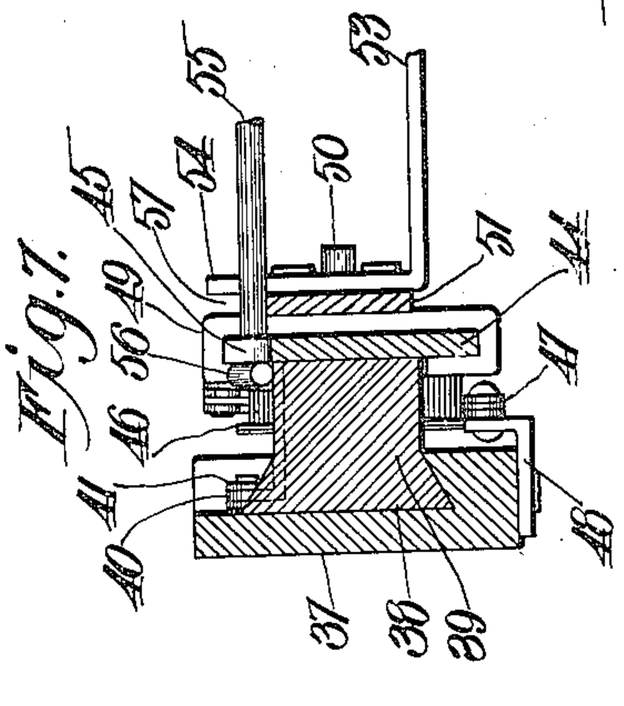
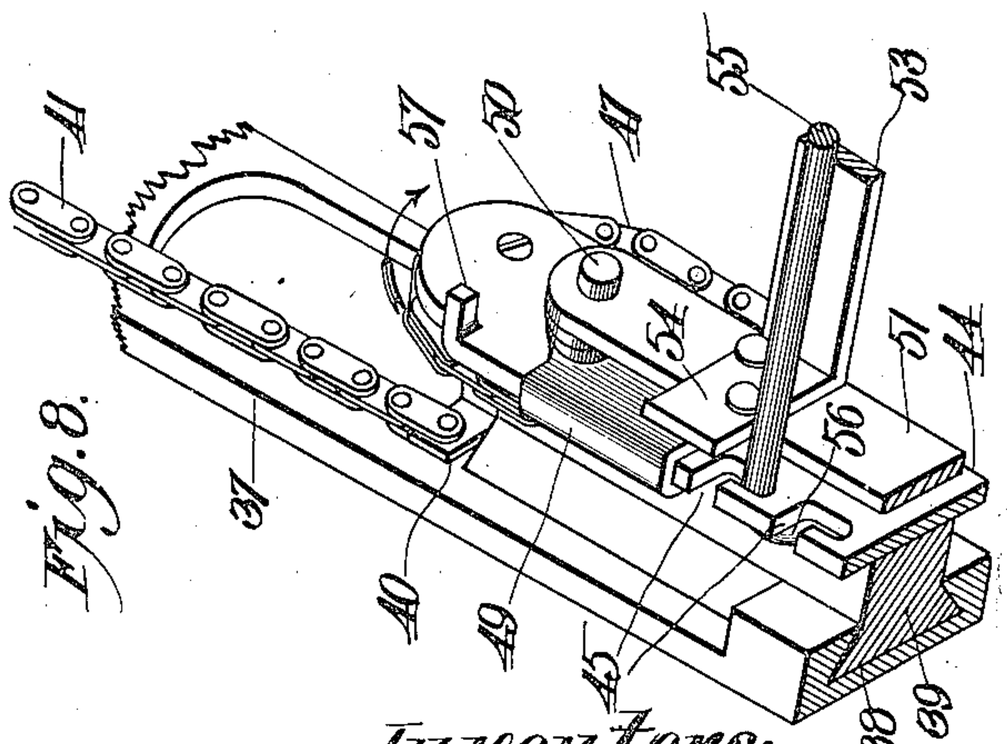


Fig. 8.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWIN FOWLER, OF KANSAS CITY, MISSOURI, AND HOLMES E. SADLER, OF SEDAN, KANSAS.

RECLINING-CHAIR.

945,928. Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed January 4, 1909. Serial No. 470,716.

To all whom it may concern:

Be it known that we, EDWIN FOWLER and HOLMES E. SADLER, citizens of the United States, residing, respectively, at Kansas City, Jackson county, Missouri, and Sedan, county of Chautauqua, State of Kansas, have invented certain new and useful Improvements in Reclining-Chairs, of which the following is a specification.

This invention relates to convertible chairs of that type which may be caused to assume proper positions to comfortably support the occupant in a sitting or reclining posture or in a half-sitting or other position between a sitting and reclining position, chairs of the type outlined embodying a rigid frame, a back section and a leg section pivoted thereto, and a seat-section, between and pivotally suspended from said back and leg sections and adapted to rise as the leg section and back sections swing simultaneously upward and downward respectively, and downward as such movements of the leg and back sections are reversed, and our objects are to produce means for locking said sections in position to accommodate the occupant in a sitting posture and means for tripping the locking means preliminary to the unfolding of the chair to reclining or any intermediate position.

A further object is to produce a chair having a swinging leg section provided with at least two slidable members so connected that they may be simultaneously moved outward or inward at different speeds and thus increase or diminish the length of the section as a whole, a distance equal to the aggregate movements of said slidable members, the extension of the section occurring as it swings upward and the contraction as it swings downward. A chair possessing a leg section of this character is very desirable because the seat section may be low enough to permit an undersized person seated thereon to rest his feet upon the floor and the sections together long enough when in reclining position to accommodate an exceptionally tall person.

With these general objects in view and others as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which:

Figure 1, is a side view of the chair embodying the invention, with its movable parts in normal position. Fig. 2, is a vertical section taken on the line II—II of Fig. 4, with the movable parts in an intermediate position. Fig. 3, is a plan view of the chair with the parts arranged as in Fig. 2. Fig. 4, is a vertical section on the line IV—IV of Fig. 2. Fig. 5, is an enlarged front view of a part of the chair when arranged in normal position and with certain parts omitted to disclose features of construction otherwise hidden. Fig. 6, is section corresponding in Fig. 2 but with the movable parts in substantially horizontal or fully-unfolded position. Fig. 7, is an enlarged vertical section taken on the line VII—VII of Fig. 6. Fig. 8, is a sectional perspective view of a part of the leg section. Fig. 9, is a perspective view of a stop-bar forming a part of the leg section. Fig. 10, is a detail perspective view of one of the lock-tripping devices.

In said drawings, 1 indicates the legs of the chair equipped if desired with casters 2, shown only in Figs. 1 and 5.

3 and 4 are side bars connecting the front and rear legs and 5 are arm-rests upon the front and rear legs and bars 4.

6 are bars connecting the rear legs.

7 is a cross bar connecting side bars 3 and provided centrally with an upwardly-projecting lug 8.

9 is a vertically-movable bar attached to the lower ends of a pair of frames and forming in conjunction therewith a lock-tripping means, said frames being preferably formed of wire rods bent to inverted-U form to provide front and rear vertical arms 10 and 11 to fit against the inner sides of bars 3 between the front legs and cross bar 7. The upper ends of said arms are bent outwardly so as to project over and beyond side bars 3 to form handles 12, and the lower ends of the arms 11 are bent to form the inwardly projecting portions 13 resting upon and secured by eye-bolts 14 or otherwise to the opposite ends of bar 9, the arrangement being such that when either of the frames is grasped and pulled upward bar 9 moves vertically upward and when released the frame and said bar drop downward until the handle portion of such frame is arrested by con-

tact with the upper edge of the underlying bar 3.

The arm-rests 5 are cut away at their rear inner corners to form recesses 15 and communicating with the same at their front ends and outward of their inner margins are kerfs 16 to receive the upper ends of a pair of brackets 17 pivoted to the arm-rests as at 18. The brackets 17 are secured in any suitable manner to opposite sides of the back section constructed as follows:—19 indicates parallel side bars extending through the recesses 15 and connected at their rear or upper ends by one or more cross bars 20. At their front or lower ends they externally embrace and are pivoted at 21 to the side bars 22 of the seat section, which side bars preferably taper at their lower edges and are connected near their rear ends by a cross-bar 23, concaved by preference at its upper edge, for a purpose which hereinafter appears. Bars 22 are connected at their front ends by a cross bar 24, which in conjunction with bars 22 and 23 constitute a rigid seat section.

To form the direct support for the occupant of the chair we employ a leather or equivalent strip 25, which by preference is secured at its upper end to the topmost bar 20, if more than one of said bars are employed, and at its opposite end to the cross bar 24 of the seat section, the strip being of sufficient length to sag between the side bars of said sections and thus comfortably support the occupant, it being noted in this connection that by concaving the upper edge of bar 23, the sagging of the flexible support may be accommodated without materially impairing the strength of the seat section, it being noted by reference to certain of the figures that the seat portion of the support is tacked as shown or otherwise secured to the upper edges of the bars 22, it being further noted by reference to Figs. 2 and 4 particularly, that the seat portion of the support is reinforced by an underlying portion 26 adapted to be secured to the seat section by the same devices which secure the support proper to said seat section, and in order to compel the support to assume an angular position at all times substantially the same as the angular position between the seat section and back sections we preferably connect the rear ends of the seat section and seat support by a flexible strip 27, as shown in Figs. 2 and 6.

To lock the movable parts of the chair in normal position a hinge 28 connects cross bar 23 with a locking bar 29, projecting forward and overlying lug 8 and provided near its front end with a downwardly-opening notch 30, the bar just forward of said notch, depending below the plane of the rear wall of the notch to form a rearwardly disposed shoulder 31 so that when the movable parts of the chair attain their normal position the shoulder 31 will abut against the front side of lug 8 and thus arrest the movable parts of the chair and permit the locking bar to drop downward so that its notch shall engage said lug. By preference the front end of the locking bar slidingly engages an inverted headed pin 32 depending from the bar 24 of the seat section, a spring 33 engaging said pin and bearing at its opposite ends against bar 24 and the locking bar to hold the latter yieldingly depressed. The employment of this pin is principally to prevent bar 29 having too much freedom of movement so that it may occupy a position where there is less chance of it being struck or wrenched sidewise in a manner which would be injurious to the hinge. The principal function of the spring 33 is to hold the bar 29 yieldingly depressed when locked so that the chair may be moved around with little danger of becoming accidentally unlocked.

The leg member of the chair is pivoted to the inner sides of legs 1 just below the arm-rests 5 as at 34, and is constructed as follows:—A pair of bars comprise down-turned hooks 35 and parallel bars 36, the hooks engaging the pivots 34. Said arms are equipped at their outer sides with side bars 37 preferably of wood, and of such length as to avoid contact with the floor when occupying a substantially upright position, as shown most clearly in Fig. 5, it being also noticed by reference to the same figure that the bars 37 are of increased width at their lower ends. The bars 37 are provided at their inner sides with longitudinally-extending dove-tail grooves 38 wherein fit slidingly dove-tail bars 39 equipped with brackets 40 at their upper ends connected by chains 41 which extend over guide sheaves 43 mounted in the hooks 35, as shown most clearly in Fig. 5. 44 are bars secured to the inner sides of the slide-bars 39 and provided with a longitudinal series of right-angled-shaped notches 45 in their upper edges. 46 indicates guide sheaves bearing a journaled relation to and carried by and at the outer sides and upper ends of bars 44, and engaging said sheaves are chains 47 secured at their lower ends to brackets 48 secured to and projecting inward from bars 37, and at their opposite ends to clips 49 mounted slidingly on the notched bars 44. The clips are provided with inwardly projecting pins 50 for engagement by the upper ends of the arms of the U-shaped frame 51, resting near its lower end on inwardly-projecting lugs 52 of the slide bars 44, the arms of said frame being braced by the cross-bar 53 having upwardly-projecting ends 54 for engagement with the stop bar 55 bridging the space between the slide-bars and adapted to engage one pair of

alined notches thereof, the said stop-bar 55 terminating in hook-ends 56 to engage the outer sides of the notched bars above slide-bar 39, to guard against endwise movement and possible dislocation from the notched bar. By means of this stop-bar downward sliding movement of the clips 49 and the frame 51 is limited, upward movement of said parts being limited by lugs 57 projecting inwardly from the upper ends of bars 44.

As a means of extending the leg section and controlling its contraction, a foot-rest 58 is secured between a pair of angle bars 59 pivoted to the inner sides of the arms of frame 51 in such a manner that when the foot-rest is unfolded as shown, the bars 59 will strike against and be arrested by the bridge portion of frame 51 shown clearly in Fig. 6.

Assuming that the leg section has been adjusted to accommodate the occupant by the engagement of the stop-bar 55 with the proper notches of bars 44, it will be seen that when the chair is folded, that is moved from the position shown in Fig. 6, to the position shown in Fig. 1, the chains 41 due to the downward movement of the seat-section will travel upwardly upon sheaves 43 and as a result slide the bars 39 and the parts carried thereby upwardly. At the same time the chains 47, because anchored at their lower ends to the bars 37 which have swinging movement only, will travel in the direction indicated by the arrow Fig. 8 around sheaves 46, and as a result cause clips 49 and the connected parts to slide upwardly at twice the speed of the slide bars 39, so that by the time the bars 37 attain a substantially vertically pendent position, the bottom of the frame 51 and the foot-rest 58 will clear the floor, it being understood that the seat section and the back section attain their initial and normal positions at the same time that the downwardly swinging movement of the leg section ceases, it being further noticed that as the seat section attains the position explained, the locking bar 29 becomes interlocked with lug 8. With the chair in its normal position the occupant can rest his feet upon the foot-rest or can swing the latter upwardly as indicated by the arrow Fig. 1, and rest his feet upon the floor.

To unfold the chair to a reclining position, the occupant first swings the foot-rest to the position shown in Fig. 1. He then leans forward slightly in order to reach one or both of the handles 12 for the purpose of pulling them upward and tripping the locking-bar from engagement with lug 8. As this is accomplished he leans against the back section and pushes against the foot-rest so as to start the unfolding operation and releases the tripping devices, the pressure of his feet on the foot-rest effecting an extension of the leg section, it being noticed in this connection that because of the fact that chains 47 are doubled around the sheaves 46, the forward movement of the foot-rest is more rapid than the corresponding movement of the slide bars 39 as hereinbefore explained. The distance the foot-rest has to travel is considerably in excess of that of the slide bars the outward movement of both terminate simultaneously.

To hide most of the operative parts of the leg section and also to provide an underlying support or rest for the leg section and also to provide an underlying support or rest for the legs below the knees, a skeleton plate 60 bridges the space between and is secured to the upper edges of bars 37 and to afford an elevated and comfortable rest for the head of the occupant a cushion is secured to the back section or rather to the upper end of the leather strip 25.

From the foregoing it will be apparent that by the proper adjustment of stop-bar 55 the adjustment of the leg section is regulated and that the outward adjustment of the stop-bar increases the extensible movement and inward adjustment diminishes such movement.

It will be seen that the chair can be so adjusted that an occupant of any ordinary height can apply the necessary foot-pressure on the foot-rest to effect a complete unfolding of the chair to a substantially horizontal or reclining position and that it affords the resistance or purchase desirable in reassuming an upright position, the chair of course returning to its upright or normal position at the same time, and it is to be so understood that other known latching or locking and movement-compounding means may be employed without departing from the principle of construction involved or the spirit and scope of claims hereto appended.

Having thus described the invention what we claim as new and desire to secure by Letters Patent is:—

1. A chair of the character described, comprising a rigid leg frame, a back section pivoted to said rigid frame, an extensible leg section pivoted to said rigid frame, a seat section pivotally suspended from the back section and the leg section below the pivotal points of the same, suitably arranged supports, flexible parts arched over and engaging said supports and connected at their front ends to the extensible part of the leg section and suitably secured at their rear ends below their arched points, a frame bearing a slidable relation to the extensible parts of the leg section, a foot-rest carried by said last-named frame, guiding means movable with said extensible part, and flexible connections doubled around said guiding means and extending forwardly therefrom and anchored at one end to the non-extensible parts

of the leg section, and at their opposite ends movable with the frame slidable on the said extensible part.

2. A chair of the character described, comprising a rigid leg frame, a back section pivoted to said rigid frame, an extensible leg section pivoted to said rigid frame, a seat section pivotally suspended from the back section and the leg section below the pivotal points of the same, suitably arranged supports, flexible parts arched over and engaging said supports and connected at their front ends to the extensible part of the leg section and suitably secured at their rear ends below their arched points, a frame bearing a slidable relation to the extensible parts of the leg-section, a pivoted foot-rest carried by said last-named frame and limited in its unfolding movement by its carrying frame, guiding means movable with said extensible part, and flexible connections doubled around said guiding means and extending forwardly therefrom and anchored at one end to non-extensible parts of the leg section, and at their opposite ends movable with the frame slidable on the said extensible part.

3. A chair of the character described, comprising a rigid leg frame, a back section pivoted to the said rigid frame, an extensible leg section pivoted to said rigid frame, a seat section pivotally suspended from the back section and the leg section below the pivotal points of the same, suitably arranged supports, flexible parts arched over and engaging said supports and connected at their front ends to the extensible part of the leg section and suitably secured at their rear ends below their arched points, a frame bearing a slidable relation to the extensible part of the leg section, a foot-rest carried by said last-named frame, guiding means movable with said extensible part, flexible connections doubled around said guiding means and extending forwardly therefrom and anchored at one end to non-extensible parts of the leg section, and at their opposite ends movable with the frame slidable on the said extensible part, and means to limit the forward movement of the last-named frame.

4. A chair of the character described, comprising a rigid leg frame, a back section pivoted to the said rigid frame, an extensible leg section pivoted to said rigid frame, a seat section pivotally suspended from the back section and the leg section below the pivotal points of the same, suitably arranged supports, flexible parts arched over and engaging said supports and connected at their front ends to the extensible part of the leg section and suitably secured at their rear ends below their arched points, a frame bearing a slidable relation to the extensible part of the leg section, a foot-rest carried by said last-named frame, guiding means movable with said extensible part, flexible connections doubled around said guiding means and extending forwardly therefrom and anchored at one end to non-extensible parts of the leg section, and at their opposite ends movable with the frame slidable on the said extensible part, and a stop-bar movable with and adjustable with respect to the said extensible part, to limit the forward movement of the last-named frame.

5. A chair of the character described, comprising a rigid leg frame, a back section pivoted to said rigid frame, an extensible leg section pivoted to said rigid frame, a seat section pivotally suspended from the back section and the leg section below the pivotal points of the same, suitably arranged supports, flexible parts arched over and engaging said supports and connected at their front ends to the extensible part of the leg section and suitably secured at their rear ends below their arched points, a frame bearing a slidable relation to the extensible part of the leg section, a foot-rest carried by said last-named frame, guiding means movable with said extensible part, flexible connections doubled around said guiding means and extending forwardly therefrom and anchored at one end to non-extensible parts of the leg section, and at their opposite ends movable with the frame slidable on said extensible part, a stop-bar movable with and adjustable with respect to the said extensible part to limit the forward movement of the last-named frame, and means to limit opposite or reverse movement of the last-named frame.

6. In a chair, a leg section comprising bars pivoted at their upper ends, bars slidably carried by said pivoted bars, slidable bars carried by the first-named slidable bars, and means whereby outward movement imparted to the slidable bars carried by the first-named slidable bars shall cause the latter to move outward at a fraction of the speed of the slidable bars carried thereby.

7. In a chair, a leg section comprising bars pivoted at their upper ends, bars slidably carried by said pivoted bars, slidable bars carried by the first-named slidable bars, means whereby outward movement imparted to the slidable bars carried by the first-named slidable bars shall cause the latter to move outward at a fraction of the speed of the slidable bars carried thereby, and means whereby downward movement of the pivoted bars shall reverse the movements of said slidable bars.

8. A chair of the character described, comprising a rigid leg frame, a back section pivoted to said frame, an extensible leg section pivoted to said frame, a seat section pivotally suspended from the back section and the leg section; said extensible leg section comprising bars pivoted at their upper ends to the leg frame, bars slidably carried by

said pivoted bars, slidable bars carried by the first-named slidable bars, means whereby outward movement imparted to the slidable bars carried by the first-named slidable bars shall cause the latter to move outward at a fraction of the speed of the slidable bars carried thereby, and means for arresting the movement of said slidable bars at points intermediate the extremes of their sliding movements.

9. A chair of the character described, comprising a leg frame having a cross bar provided with an upwardly-projecting lug, a vertically movable bar adjacent to said lug and suitably supported, a back section pivoted to the leg frame, a leg section pivoted to the leg frame, a seat section pivotally suspended from the back section and the leg section and disposed above said lug and movable bar, a locking bar arranged over the said lug and movable bar and under the seat section and hinged at its rear end to the latter and provided near its front end with a notch capable of receiving the said lug, and means carried by the seat section for limiting the downward swinging or hinge movement of the locking bar.

10. A chair of the character described, comprising a leg frame having a cross bar provided with an upwardly-projecting lug, a vertically movable bar adjacent to said lug and suitably supported, a back section pivoted to the leg frame, a leg section pivoted to the leg frame, a seat section pivotally suspended from the back section and the leg section and disposed above said lug and movable bar, a locking bar arranged over the said lug and movable bar and under the seat section and hinged at its rear end to the latter and provided with a notch to receive the said lug, means carried by the seat section for limiting the downward swinging or hinge movement of the locking bar, and handles carrying the vertically movable bar and overlying and normally resting on parts of the leg frame, either of said handles being adapted when pulled upward to raise the movable bar and cause it to elevate and thus trip the locking bar from engagement with said lug.

In testimony whereof we affix our signatures, in the presence of two witnesses.

EDWIN FOWLER.
HOLMES E. SADLER.

Witnesses:
M. A. O'Donnell,
G. Y. Thorpe.