

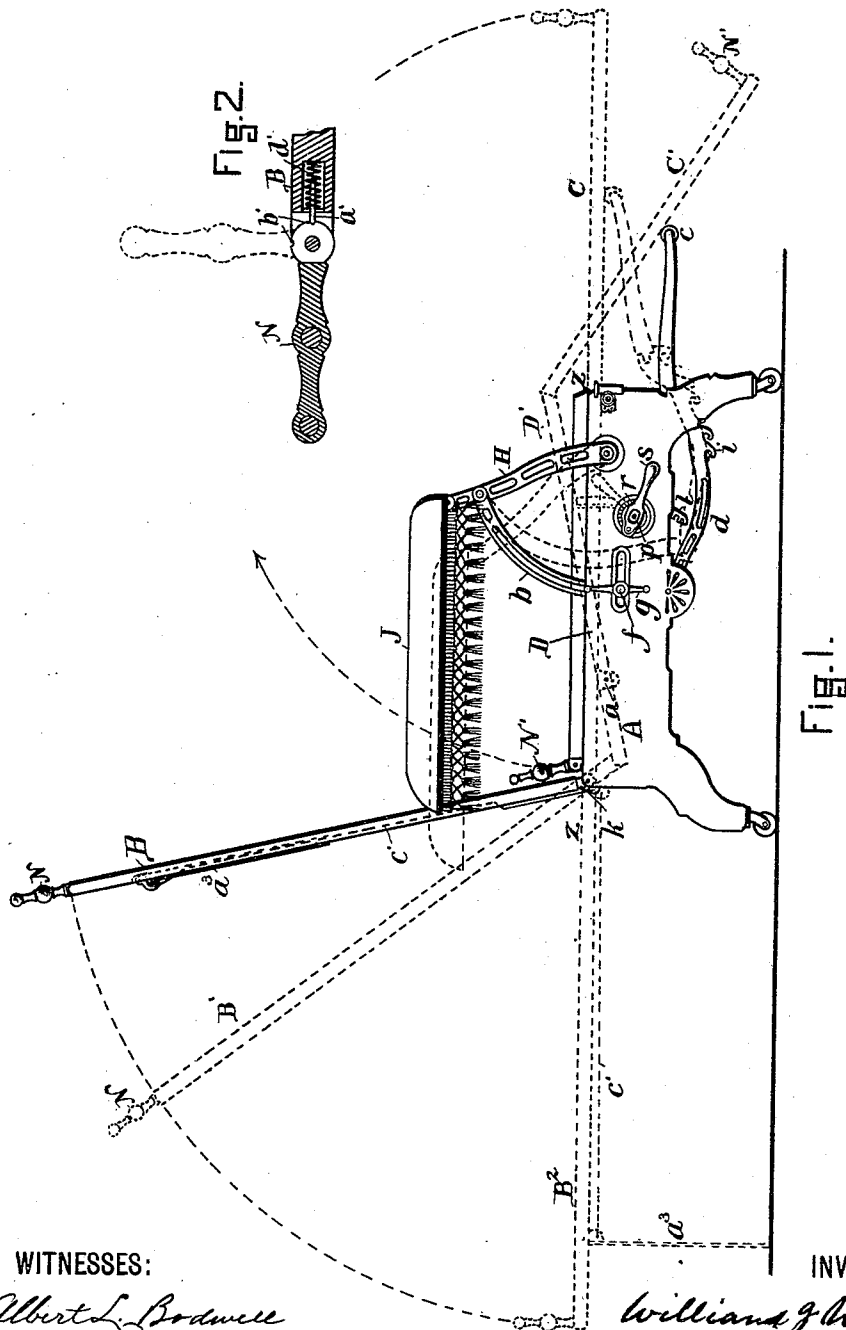
(No Model.)

2 Sheets—Sheet 1.

W. J. WILLIAMS, L. M. BATES & H. H. JAMES.
ADJUSTABLE RECLINING CHAIR.

No. 470,027.

Patented Mar. 1, 1892.



WITNESSES:

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James E. Arnold

INVENTORS:

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Fig. 3.

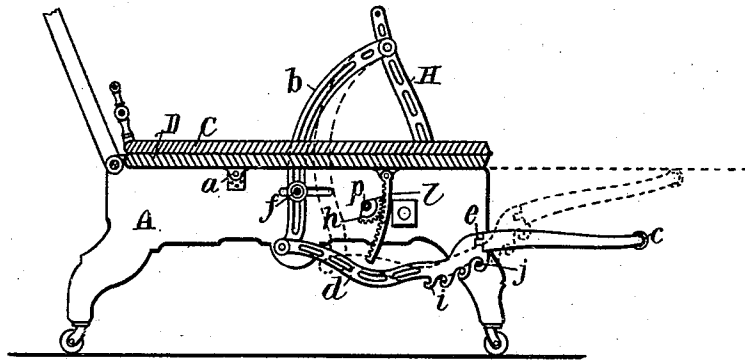


Fig. 4.

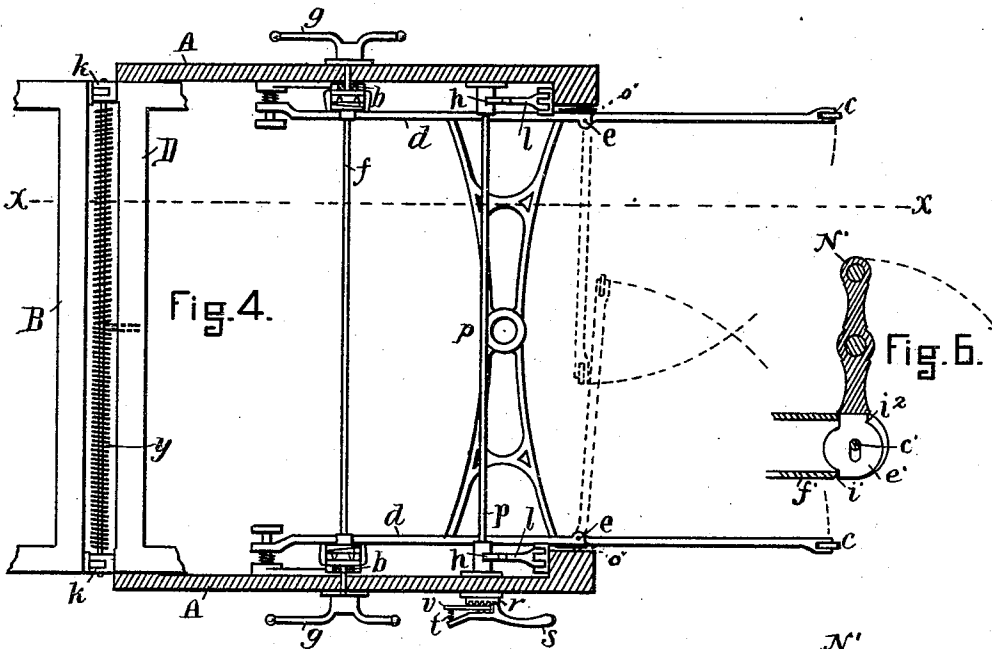


Fig. 5.

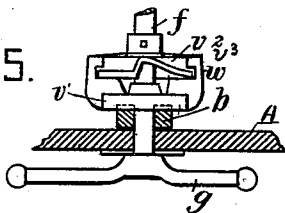
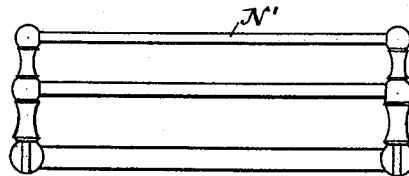


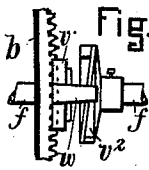
Fig. 7.



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Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM J. WILLIAMS, LEPRELET M. BATES, AND HENRY H. JAMES, OF
PROVIDENCE, RHODE ISLAND.

ADJUSTABLE RECLINING-CHAIR.

SPECIFICATION forming part of Letters Patent No. 470,027, dated March 1, 1892.

Application filed March 4, 1891. Serial No. 383,690. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM J. WILLIAMS, LEPRELET M. BATES, and HENRY H. JAMES, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Adjustable Reclining-Chairs; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of chairs called "adjustable reclining - chairs," and which are furnished with mechanism devised for the purpose of changing the relative positions of the various parts that support the body and limbs from the shape of an easy-chair to a level reclining-chair or lounge, with all the forms and positions intermediate between the two extremes. It is fully illustrated in the accompanying drawings.

Figure 1 is an elevation of the right-hand side of the chair, showing some of the various positions in dotted lines. Fig. 2 is an end view of the bars on the top of the chair-back, with a section showing the holding devices. Fig. 3 is a vertical section from front to back in direction of line *x x*, Fig. 4, showing the inner side of the left-hand side of the chair, the right-hand side being similar to it. Fig. 4 shows a horizontal section taken through just below the seat on line *z z*, Fig. 1, giving a top view of the mechanical devices in the body of the chair. Fig. 5 is an enlarged representation of the tightening devices on the rod *f*. Fig. 6 shows the manner of holding and changing the front bars on the foot-rest to accommodate them to a change of the position. Fig. 7 shows a front elevation of the bars on the back of the chair and on the foot-rest, which are of the same construction, differing only in the manner of changing and holding them in position. Fig. 8 shows an edge view of the brace *b* and a part of the clamping-plate *v'* and cam *v*.

The chair consists of a frame A, supported on four legs, and a back B, hinged to a seat D, supported on pivots fast to the frame A at *a* and by a rod *p* under the fore part of the seat, which rod has bearings in the frame A.

To the front edge of the seat D a foot-rest C is hinged, so as to be capable of being thrown out in front, as in Fig. 1, or folded over on the seat D, as in Fig. 3. To these main parts of the chair, back, seat, frame, and foot-rest the mechanical operating and holding devices are attached. The chair-arms J are pivoted at the rear ends to the back B and at their front ends to the upper termination of the bars H, which are held on a pivot fast in the side of the frame A. Diagonal braces *b* have their upper ends pivoted to the bars H a little below their connection with the arms J and extend down just inside of the frame A, their lower ends being pivoted to the back ends of the bars *d*, that support the foot-rest. A rod *f* passes through the horizontal slots in each side of the frame, and also freely through slots in the braces *b*, which are provided with rack-teeth on their inner sides, and a dish-shaped clamping-plate *v'* has its edges thinned down to enter between the teeth of the brace *b*. This clamping-plate *v'* is loosely seated on the rod *f* and provided with jaws *w*. Another clamping-block *v* is secured by a pin on the rod *f* and provided with a projecting cam-thread, whereby, through the turning of the rod *f* by the handle *g*, the cam-thread will act on the jaws *w* to advance or recede the clamping-plate *v'* toward or away from the teeth in the rack of the brace *b*.

The bars *d*, that support the foot-rest C, are made in two parts, a front and a back part, that are joined together in the middle by a horizontal swinging joint that allows the outer parts of the bars to swing under the front of the seat, and their outer ends are provided with friction-rolls *c* to bear against the under side of the foot-rest and facilitate its movement in changing its position. The inner parts of the bars *d* have series of notches *i* in their under sides to catch on studs *j*, that are made fast on the inner sides of the front legs of frame A.

The seat D has two vertical racks *l* just inside the frame A, one on each side, attached to the under side of the seat between the pivots *a* and the front edge of the seat. These racks *l* are supported on their backs by the blocks *a'* and engage in toothed segments *h*, fast on a rod *p*, that has bearings in the frame

A. This rod p extends out on one side to receive a fastening mechanism to hold the rod from turning by the weight of the seat, which fastening consists of a toothed or notched plate r , fast on the frame A, and a handle s , hung on a pin in the end of the rod p and made with one or more teeth in front of the rod, so as to enter the notches in the plate r and keep the rod p from turning. A spring t , between the back end of the handle and a plate v , fast on the rod, throws that end out and keeps the front of the handle in the notches, except when it is raised out to turn the bar.

The back of the chair B is attached to the seat D by hinges. A rod k extends between said hinges for holding a spiral spring y , one half of which is wound in a right-hand spiral and the other half in a left-hand spiral, forming a loop of the wire in the middle between the two parts, which loop is fastened to or bears against the lower rail of the back, while the two outer ends of the wire spring rest against the seat D, so that the torsion strain of the spring is exerted to hold the back up and relieve the mechanism that raises it of part of its weight.

An ornamental frame of bars N is placed in bearings on the top of the chair-back B. These bars are shown in front elevation in Fig. 7 and in end in Fig. 6. These bars N are intended to stand in the same plane as the back, as shown in Fig. 1, or to turn square to that plane, if desired, to hold the cushion while lying horizontally, and are held in either position by a bolt a' , which is pressed up toward the under side of the frame-bearings by a spiral spring d' , so as to enter recesses b' in the bearings. (See Fig. 6.) The bolt a' is rounded on its end, so that sufficient pressure on the bars will force it back and allow the bars to be turned, but at the same time will not allow them to be too easily turned or moved from either position.

The frame of bars N' on the foot-rest C are similar in construction to those on the back just described, but are held in position in a different manner. They are held on pivots c' , fast in the outer bar of the foot-rest, by a part of the end plate f' , that extends down over the sides of the foot-rest and have oval holes in them slotted lengthwise of the plates e' , which fit over the pivot c' and allow the frame N' to be raised on the pivots. (See Fig. 2.) When the frame N' stands square to the plane of the foot-rest C, the lower end of the plate e' has a projection i' , that catches against the end of a plate f' , fast on the rest, and prevents the bars from changing their position until they are raised, as the slots in the end plate e' allow them to be. The first position of the bars is shown in Fig. 1, with the foot-rest extended. The second position is shown in the same Fig. 1, where the foot-rest C is represented as being turned over on top of the seat, the bars N' being turned in the opposite direction as regards the foot-rest, and the pro-

jection i' of the plate e' brings up against the plate i , also fast to the rest, and keeps them from falling over on the seat formed by the foot-rest.

Legs a^3 , acting automatically, are pivoted to the back of the chair and connected by rods c' to the seat D, so that when the back is moved to the position of B the leg will be thrown down, as shown by the dotted lines, Fig. 1.

The fastening mechanism on each end of the rod f consists of the following devices, which are alike on both sides of the chair: A handle g is made fast on each end of the rod f , and a clamping-plate v' is placed across the brace b and has thin edges that fit into the teeth in the face of the brace. (See Fig. 5.) A cam v^2 is secured to the rod f . This cam has two inclines v^3 , made on the edge next to the clamp v' , and when the rod f is turned in one direction they will press the edges of the clamp into the teeth of the brace b and hold it firmly against slipping. By turning the cam v^2 in the other direction the inclines v^3 will draw the clamp v' back out of the teeth of the brace b by means of the lugs w , which extend around the edge of the cam v and over its back far enough to be operated by the inclines v^2 of the cam, and will leave the brace b free to be moved up or down.

To complete the description of the operation of the parts and of the whole, the lines in Fig. 1 show the chair as an easy-chair without a foot-rest, the foot part being folded over onto the seat, forming a seat of itself. By turning the handles g the clamped brace b will be made free to slide down in the recess, letting down the arm J, which will push the back B over to any position from upright to the dotted lines B and push down the back ends of the notched bars d and raise their front ends. Then the front parts of the bars d can be swung out from under the front of the seat and the foot-rest C turned down in the position of the dotted lines C', and by bringing the rod f forward in the slots in the frame A and the bar d up one or more notches on the stud j the foot-rest may be raised up to a level, as shown in the dotted lines C. The handle S can be raised out of its notch in the plate and turned with the rod p , which will raise the front part of the seat D to the position shown by the dotted lines D', and the handle dropped into another notch in the plate will hold it there. To hold the front bars d in place, either closed or open, flat springs o' are attached to the back portion of the bars. (See Fig. 4.) These positions of the parts of the chair described may be called the "primary positions," which, by being varied in degree and combined with one another, will produce a great number of variations, all of which, with the exception of the folding over and unfolding of the foot-rest, can be made by a person while sitting in the chair.

Having thus described our improvement, we claim as our invention—

1. In a chair of the kind described, the combination of the seat-frame, the seat pivoted thereon, the foot-rest hinged to the seat, the notched bars *d*, the pins or studs *j* on the frame-work, the outer ends of the said bars *d* having a bearing on the under side of the foot-rest to support it in the various elevations, the bars *H*, pivoted to the frame, and the braces *b*, pivoted to said bars *H* with their lower ends engaging the rear ends of the notched bars *d*, substantially as specified.

2. In a chair of the kind described, the combination of the seat-frame, the seat pivoted thereon, the foot-rest hinged to the seat, the notched bars *d*, the pins or studs *j* on the frame-work, the outer ends of the said bars *d* having a bearing on the under side of the foot-rest to support it in the various elevations, the bars *H*, pivoted to the frame, and the braces *b*, pivoted to said bars *H* with their lower ends engaging the rear ends of the

notched bars *d*, and clamping devices on the frame to secure the said brace in its adjusted positions, substantially as set forth.

3. In a chair having an adjustable seat, the combination of the rod *p*, toothed segment *h*, racks *l*, handles *S*, spring *t*, plate *v*, and notched plate *r* with the seat *D* and frame *A*, substantially as specified.

4. The combination, in an adjustable reclining-chair, of the frame *A*, rod *f*, and toothed brace *b* with the clamp-plate *v'*, having thin edges fitting into the teeth of the brace *b* and having lugs *w* extending around the edge of the cam *v''* and said cam, substantially as set forth.

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