

(No Model.)

3 Sheets—Sheet 1.

J. POOLMAN & F. R. MARKS.

ADJUSTABLE CHAIR.

No. 305,845.

Patented Sept. 30, 1884.

Fig. 1.

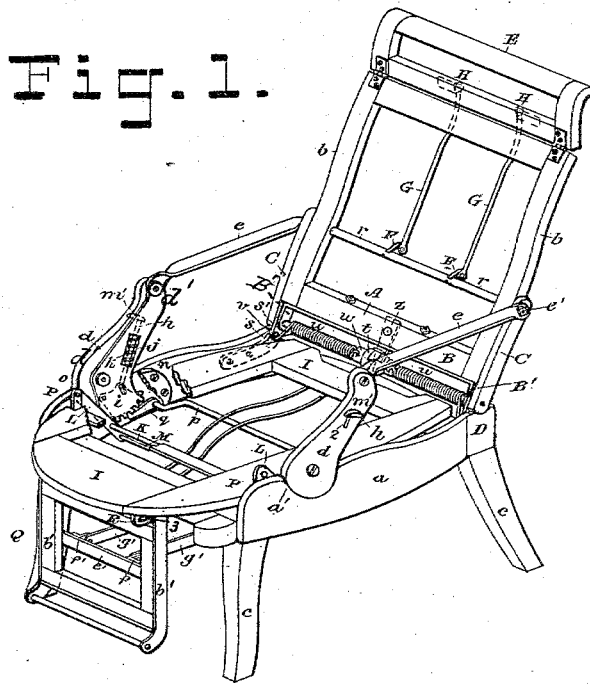
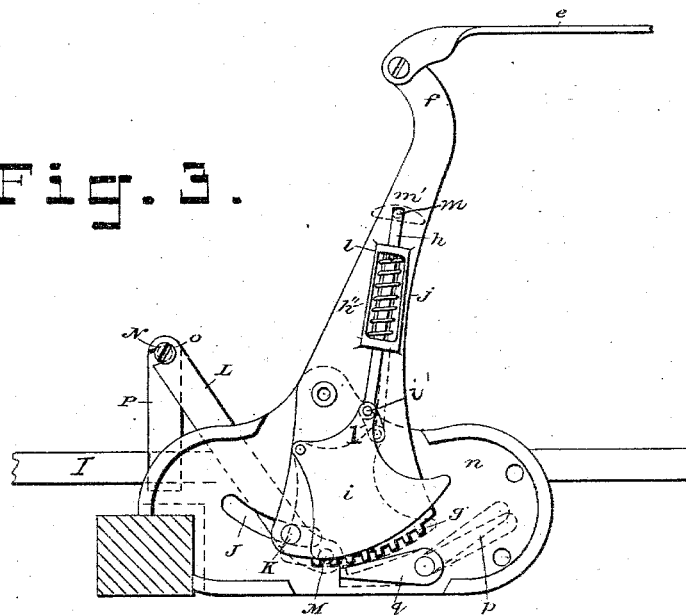


Fig. 3.



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By his Attorney,

H. H. Newell

(No Model.)

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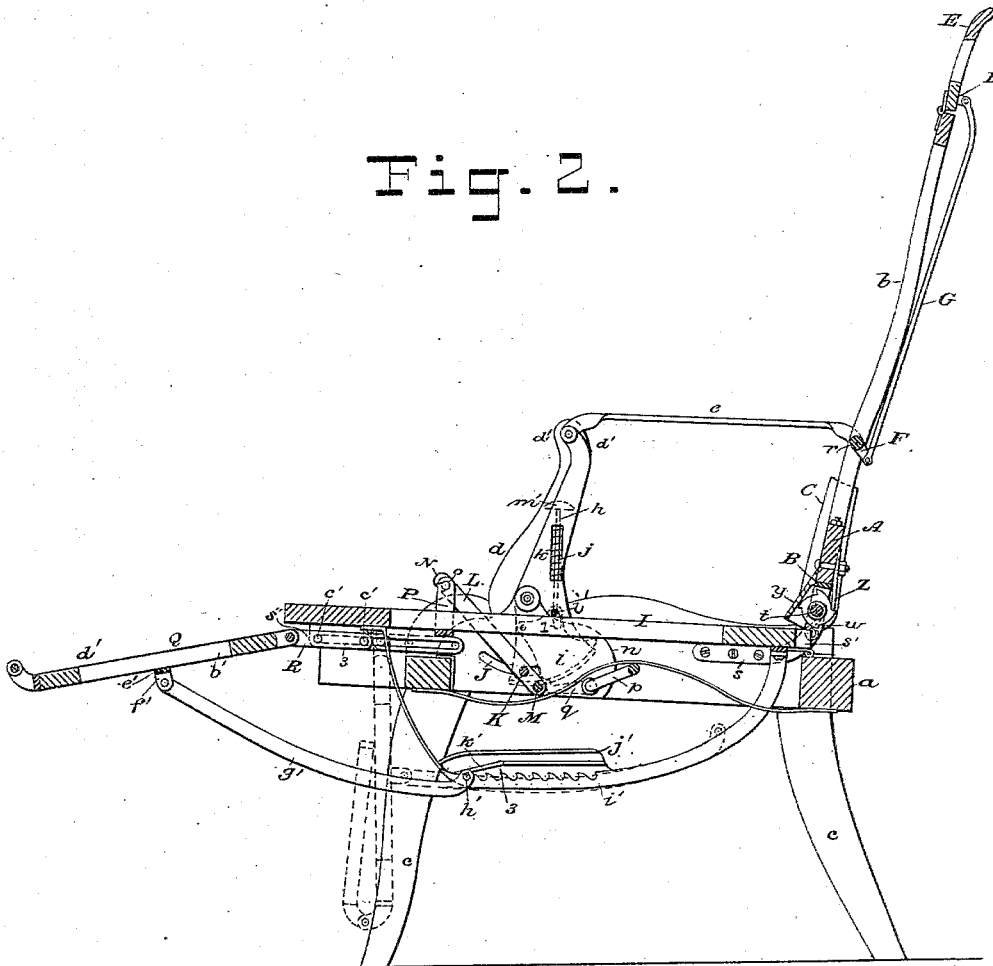
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Fig. 2.



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Fig. 4 Patented Sept. 30, 1884.

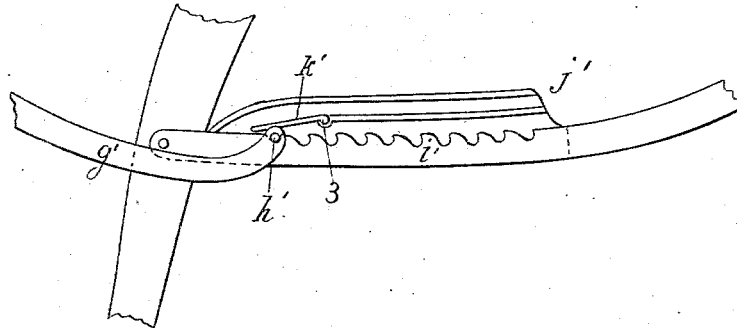


Fig. 5

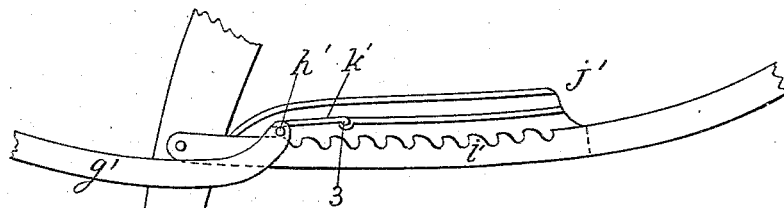
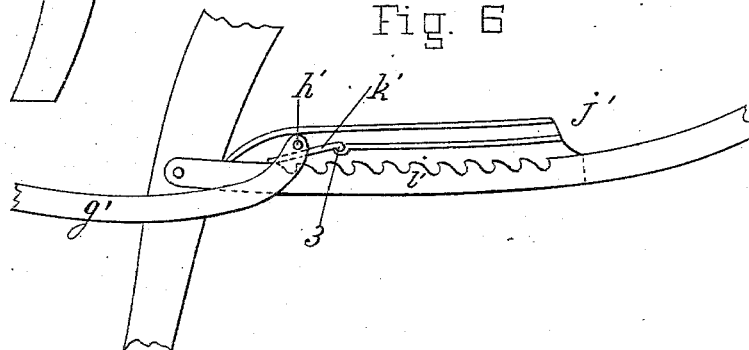


Fig. 6



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UNITED STATES PATENT OFFICE.

JAMES POOLMAN AND FRANK R. MARKS, OF NEW YORK, N. Y.

ADJUSTABLE CHAIR.

SPECIFICATION forming part of Letters Patent No. 305,845, dated September 30, 1884.

Application filed June 20, 1883. (No model.)

To all whom it may concern:

Be it known that we, JAMES POOLMAN and FRANK R. MARKS, citizens of the United States, and both residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Adjustable Chairs, of which the following is a specification.

Our invention relates to improvements in that class of easy chairs, in which each part or section is adjustable; and it consists, first, in an improved mechanism for operating the back and seat sections; second, in the combination of a head-rest and connecting operating devices; third, in a device for suspending the foot-section with means for effecting its adjustment; and, finally, in the combination and arrangement of certain parts and devices for producing a simultaneous adjustment of all the sections, all as will be more fully herein-after set forth.

In the accompanying drawings, which fully illustrate our improvements, Figure 1 is a perspective view of a chair embodying our improvements, with a portion of the seat-frame broken away on one side. Fig. 2 is a section of the same, showing the foot and leg section elevated to pass the switch-pawl, in full lines, and representing by dotted lines the position of the said section when released from the ratchet-bar and pushed under the seat. Fig. 3 is an enlarged fragmentary view of the plate carrying the operating mechanism for adjusting the back of the chair removed from the standard. Figs. 4, 5, and 6 are enlarged fragmentary views of the ratchet-bar, with attached plate, pawl, and engaging arms, the pawl being shown in three positions.

Let *a* represent the frame for supporting the seat; *b*, the back frame; *c*, the legs of the chair, and *d* the standards which support and to which are hinged the arms *e*.

We will first confine our description to the mechanism for effecting, primarily, the adjustment of the back-section.

Within the standard *d* is arranged the operating device, and since the same arrangement is carried out on each side of the chair it will be only necessary to describe one of them.

f is a curved metal plate, similar in shape to the standard, which is secured between the

two parts *d'* forming the standard, suitable recesses being made therein to receive it. The lower edge of this plate is provided with teeth or notches *g*, which are slightly beveled inward.

h is a push-bar working in a guideway, *h'*, on the plate *f*. To its lower end is pivoted a cam-plate, *i*, which plate is pivoted to the plate *f*, and is adapted to be swung over and cover the teeth or notches on said plate when it is operated by the push-bar.

On the push-bar *h* is arranged a spring, *j*, which projects into and is retained in the slot *k* by a cross-pin, *i*, arranged on the push-bar. The movement of the push-bar is limited by the pin *i*, which travels in a slot, *l*, in the plate *f*. A short rod, *m*, on the upper end of the push-bar projects through the slot *2* in the standard, and has a knob, *m'*, or other suitable device arranged on its end, so that the push-bar can be conveniently operated from the outside of the standard.

To the inside of the front rail and side rail of the seat-frame *a* is attached an angle-plate, *n*. To the upper part of this plate is hinged or pivoted the lower end of the standard *d*. The side rail of the seat-frame is provided with a deep socket, *a'*, adapted to receive the lower round end of the standard.

Into the angle-plate *n* is journaled a bent bar, *p*, which carries on its ends the fixed pawls *q*, to engage with the toothed periphery of the plate *f*. The arms *e* are pivoted at their front end to standards *d*, and their rear end is secured by means of nut *e'* to the rod *r*, journaled in the back frame.

To the rear part of the side rails of the seat-frame *a* are secured cast-iron plates *s*, having upwardly-turned ends *s'*, which receive the ends of a rod, *t*. Two strong coiled springs, *u*, are arranged on this rod, one end of the spring being secured to a pin, *v*, on the plate *s*, and the other is held in a notched projection, *w*, formed on the rod. This rod is enlarged at its central part, and is provided with holes *x* to receive a key for rotating it, if it becomes necessary to tighten the springs. The rod at this part is also provided with notches *y* on its periphery, and the pawl *z*, arranged on the back frame, is thrown into engagement with the rod when the proper tension is given to the springs.

To the under part of the cross-rail A of the back frame is attached by bolts and nuts a flat iron bar, B, having depending ends B', through which the rod *t* passes. The side bars of the seat-frame *a* are cut away to receive the upright bars C, which latter are rounded at their lower edge and fit into the sockets D, formed in the side rails of the seat-frame *a* in a manner similar to the standards *d*.

Having now described the main mechanism for effecting the adjustment of the chair, we will set forth its method of operation before describing the several connecting devices whereby the head-rest, foot-section, and seat are adjusted simultaneously with the back. When it is desired to change the inclination of the back, the occupant presses on the knobs *m'*, forcing the push-bar *h* down until its hinged plate *i* strikes the pawl *q* and disengages it, and the plate *i*, then covering the teeth on the plate *f*, holds the pawls out of engagement until the occupant has pressed the back into the desired position, when, upon releasing the push-bar, the rod *p* will fall by its own gravity and throw the pawls into engagement.

E represents the head-rest, which is connected to the back-frame by leaf-hinges, and swings forward. The mechanism which connects it with the main operating device is as follows: To the rod *r*, to which the rear ends of the arms *e* are keyed, are secured two short arms, F, to which are pivoted one end of the levers G, which levers are bent to a curve outwardly and inwardly at their upper ends, and are pivoted to short arms H, affixed to the head-rest. Upon disengaging the pawl the movement of the arms and back-frame will cause a partial rotation of the rod *r*, which movement will cause the head-rest to be thrown forward by the levers G in the position shown in Fig. 2.

The third part of our invention relates to the means for operating the seat of the chair.

I is an inner seat-frame, which is hinged at its back to the outer seat-frame, *a*. To the side bars of this inner frame, near the front, are secured upright bars P, having pins or studs *o*.

In the lower part of the plate *f* are secured the ends of rod K, which passes beneath the seat-frame, and on which is hung arms L, that are connected at their lower ends by a cross-rod, M. The upper ends of the arms L are formed with a hook, N, to engage with the pins *o* on the arms P of the inner seat-frame, I. The rod K passes through and works in a curved slot, J, in the angle-plate *n*.

If it is desired to elevate the front of the inner seat-frame, I, the arms L are secured to the arms P of the seat-frame. Then, as the back-frame is tilted backward (on releasing the pawl) and the arm-supporting standards are turned, the lower end of the plate *f* is thrown forward, carrying the rod K with it, which causes the arms L to assume a more upright position, lifting the front of the seat I with them.

The fourth and remaining part of our invention has relation to the foot-and-leg section Q. This latter section is connected to the seat I as follows: To the front of the seat is affixed the bars R—one at each side—which bars are slotted longitudinally, as shown at 3. To the side bars, *b' b'*, of the foot-and-leg section are pivoted the short bars S", which are provided with pins *c'*, which work in the slots in the bars R. The front of the seat-frame *a* is cut away, so as to allow of the foot-and-leg section being pushed in beneath the chair. By releasing the foot-and-leg section from its ratchet-bar, as will presently be set forth, it may be easily pushed back far enough to be entirely out of the way and be held in a vertical position. To the leg portion *d'* of the section Q is secured a cross-bar, *e'*, having short arms *f'*, to which are pivoted the front end of the curved bars *g' g'*, which have pins *k'* on their rear ends to engage with the ratchet-bars *i'*. The ends of the ratchet-bar are bent upwardly and secured to the under part of the seat I. To the outer side of these ratchet-bars are secured the plates *j'*. These plates are constructed to form a channel or recess above the notched part of the bar, and at the front end of such channel is hung, in any suitable manner, a pawl, *k'*, which, when it is in its normal position, falls over the front notches in the ratchet-bar. This pawl is hinged at 3 to the bottom plate, which forms the channel or recess, and its front end rests on the ratchet-bar. It serves as a switch-arm to switch the engaging-bars off of the front end of the ratchet-bars into the channel or recess above, through which they are slid easily to the rear end clear of the notches.

When it is desired to adjust the foot-and-leg section beneath the chair, as shown in Fig. 2 in dotted lines, it is raised in a horizontal position and pulled forward, elevating the pawl *k'* as it traverses the ratchet-bar until, having passed by the pawl, the pawl falls onto the bar, and the engaging-bars are then, by pushing backward, carried up over the pawl through the channel, and fall upon the clear end of the ratchet-bar. The foot-and-leg section can then be pushed beneath the seat in a vertical position as far as the slot and pin connection will admit of.

We do not confine ourselves to the use of only one of these switch-pawls, as, besides the one arranged to drop over the front notches, we may employ one about midway of the ratchet-bar also, if desired, in which case the ratchet engaging-bars may be made to travel backward, clearing the notches without being brought to the extreme front end of the ratchet before being switched off.

What we claim as new, and desire to secure by Letters Patent, is—

1. In an adjustable chair, the combination, with the main frame and arm-supporting standards pivoted thereto, of a notched plate secured within said standards, a weighted rod and pawl to engage with said plate, a sliding

bar having a hinged cam-plate constructed to be moved over the notches, and means for operating said bar, as and for the purpose set forth.

5 2. The combination, with the main frame and arm-standards pivoted thereto, arms *e*, and back-frame, of the ratchet-plate *f*, weighted rod *p*, having pawl *g*, push-bar *h*, with pivoted cam-plate *i* and spring *j*, all arranged and operating as and for the purpose set forth.

10 3. The combination, with the main frame and arm-standards pivoted thereto, arms *e*, and back *b*, of the plate *f*, inclosed within said standard, having a notched periphery, angle-plates *n*, secured to the seat-frame, weighted rod *p*, journaled in said plates, pawl *g*, push-bar *h*, with swinging cam-plate *i*, with spring *j*, arranged and operating as set forth.

15 4. The combination, with the back frame, main frame, and arm-standards pivoted thereto, of the hinged head-rest *E*, rod *r*, journaled in the side rails of the back frame, and having arms *e e* keyed thereto, with the upright levers *G G*, connecting said rod and head-rest, as and for the purpose set forth.

20 5. The combination, with the outer seat-frame, *a*, of the inner frame, *I*, hinged thereto at the back, and having upright arms *P* on

its front, provided with pins *o*, rod *K*, connecting ratchet-plates *f f*, and arms *L*, having a hook end for engaging pins *o*, all arranged and operating as set forth.

6. The combination, with the outer or main frame and the plates *f f*, of connecting-rod *K*, plate *n*, having curved slot *J*, inner seat-frame, *I*, hinged to the outer seat-frame; and having upright arms *P*, with levers *L*, for connecting said arms with rod *K*, whereby the front of the inner seat-frame is elevated when the back frame is tilted, as set forth.

7. In a chair, the combination, with the seat-frame having a ratchet-bar attached thereto, and foot-and-leg section having bars constructed to engage with said ratchet-bars, of a grooved or channeled plate, substantially as described, placed above said ratchet-bar, having one or more pawls hinged thereto, and constructed to fall over the notches, whereby the engaging-bars are carried to the rear end of the bar by the lowering of the foot-and-leg section, as set forth.

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Witnesses:

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