S. Chapin,

Invalid Chair,

No. 7210. Patented Mar. 26, 1850.

Fig. 1.

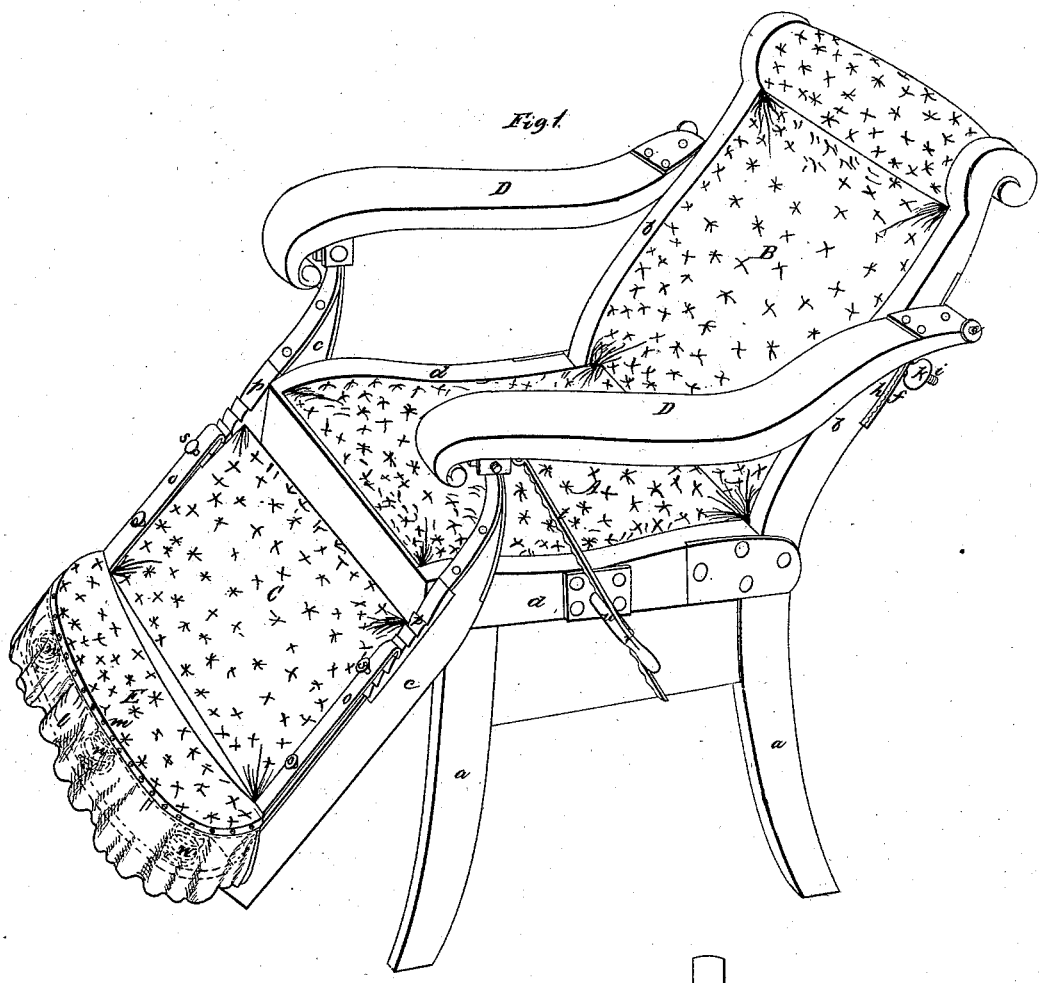


Fig. 3.

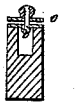


Fig. 4.

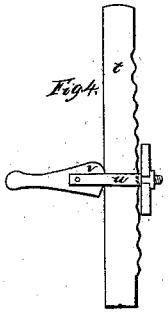
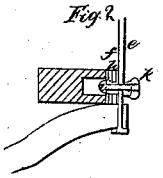


Fig. 2.



UNITED STATES PATENT OFFICE.

SOLOMON CHAPIN, OF ASHLAND, OHIO.

IMPROVEMENT IN EXERCISING-CHAIRS.

Specification forming part of Letters Patent No. **7,210**, dated March 26, 1850.

To all whom it may concern:

Be it known that I, SOLOMON CHAPIN, of Ashland, in the county of Ashland and State of Ohio, have invented a new and useful Exercising-Chair, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a view in perspective of my chair. Figs. 2 and 3 are sections, the former of the side piece of the back and the latter of that of the apron; and Fig. 4 is a view of the device for fixing the apron and back in any desired position.

Couches and chairs—such, for example, as those of Earles, Holmes, and Wood—have been constructed to support the body in various positions by means of a movable back and apron, which have been either connected with each other or have been made to act separately; but all these supports have been devoid of any means of adjustment by which they could at will be adapted equally well to persons of different forms and proportions. This deficiency it is the object of my invention to supply by rendering the hinged connection of the back and apron of the chair adjustable to different distances from their respective centers of motion, whereby either extremity of the body can be made to preponderate over the other, or the one can be made to counterbalance the other exactly, and thus a free and easy rocking motion can be obtained with but a slight exertion of muscular force.

My invention therefore consists in constructing a chair with an apron, to support the legs of the sitter, hinged to the front of the seat, and a back hinged to the hinder part of the seat, the back and apron being connected by adjustable arms in such manner that the pressure of the back of the sitter against the back of the chair is counterbalanced by the weight of his legs upon the apron, the two being in equilibrium, thus enabling the sitter to place himself in any position or to rock to and fro with but slight exertion, while the variation in the length of his limbs, caused by the flexure of the joints, is compensated by a spring foot-board. The apron and back may also be fixed in any desired position by a clamp of peculiar construction.

The chair, as represented in the drawings, is mainly composed of a stationary seat A, supported on legs *a*, a back B, hinged at its lower side to the frame of the seat, an apron C, similarly hinged to the seat, and the arms D D. The side pieces *c c* of the apron-frame are pivoted to the front extremities of the side pieces *d d* of the seat-frame. They are then prolonged above the seat to support the front extremities of the arms D, which are hinged thereto. The hinder extremities of the arms are united behind the back by a rod *e*, which also forms the pivot of the hinges by which they are connected with the side pieces of the back frame. These hinges *f f* are not rigidly secured to the side pieces *b b*, but are constructed in such a manner that they can be raised or lowered, as the legs or back of the sitter happen to preponderate, to adjust them to produce an equipoise between the upper and lower extremities of the body, without which an easy rocking motion is impossible. This is effected by fluting the inner faces of the hinge-plates and attaching corresponding fluted plates *h h* to the side pieces *b* of the back frame, the fluted hinge-plates being clamped to the fluted plates by screws *i i*. The heads of the screws slide against the inner faces of the fluted plates in a groove let into the side pieces, and their nuts are concealed in ornamental knobs *k* on the outer faces of the hinge-plates. When the knobs are screwed up, they force the fluted projections on the surfaces of the hinges into the indentations in the fluted surfaces of the plates, and thus clamp the hinges securely to the back. If the position of the rod is to be changed, the knobs are slacked to allow the hinges to be moved up or down at will. The apron is furnished with an adjustable self-adjusting foot-board E, on which the feet of the sitter are supported. This is formed of two pieces, the lower *l* stationary and the upper *m* movable and connected with the lower by springs *n*, to allow for the varying alteration in the length of the limbs of the sitter by the flexure of the joints. The lower or stationary piece of the foot-board is connected with the apron by two spring-plates *o o*, arranged to slide upon the side pieces *c c* of the apron-frame, and it is retained in any required position by the hooked upper extremities of

these spring-plates catching in rack-plates *p p*, secured to the side pieces. The spring-plates are held against the side pieces by clamp-screws *r*, arranged to slide in the same manner as those of the hinge-plates at the back of the chair. They are also each provided with a knob *s s* in reach of the sitter, by which he can raise or depress them to adjust the foot-board to the length of his limbs.

When a person seats himself in the chair, the foot-board is adjusted to the length of his legs and the hinder extremities of the hinged arms are moved either up or down, as may be required, until his back and legs balance each other, when they are secured in their positions by the clamp-screws. The sitter then pressing alternately with his back and feet can rock himself with a very slight exertion.

A device is attached to the side of the chair by which the back and apron can be secured at any desired angle of inclination, thus converting it into a couch or bed. This device is composed of a rack-plate *t*, hinged at its upper extremity to the arm of the chair, a slotted pivot *u*, through which the rack-plate is passed, and a cam *v*, by which the rack-plate is clamped in any desired position. When the sitter wishes to rock to and fro, the cam *v* is turned upright and the rack-plate is free to slide in the slot of the pivot, which turns to accommodate itself to the varying inclination of the rack-plate caused by the motion of the arms to which it is hinged. When the back and apron are to be fixed in any position in which they are placed, the handle of the cam is turned down, as seen in Fig. 4, thus forcing the toothed edge of the rack-plate against that part of the pivot which forms the inner end of the slot, and which entering the indentations of the rack-plate prevents it from moving, and thus fixes the movable portions of the chair in the positions which they occupy at the time.

I do not restrict myself to the application of this principle of adjustability to chairs alone, but intend to apply it to couches or other supports for the body of all descriptions.

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

1. Connecting the movable apron and back by means of adjustable arms, substantially as herein set forth, whereby the back and legs of the sitter can be so equally balanced that he can rock himself to and fro with the slightest exertion.

2. The adjustable self-adjusting foot-board, in combination with the movable apron, substantially in the manner and for the purpose set forth.

SOLOMON CHAPIN.

Witnesses:
E. L. BENWICK,
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