No. 847,332. PATENTED MAR. 19, 1907.

J. T. HART.

ADJUSTABLE CHAIR.

APPLICATION FILED OCT. 13, 1905.

2 SHEETS—SHEET 1.

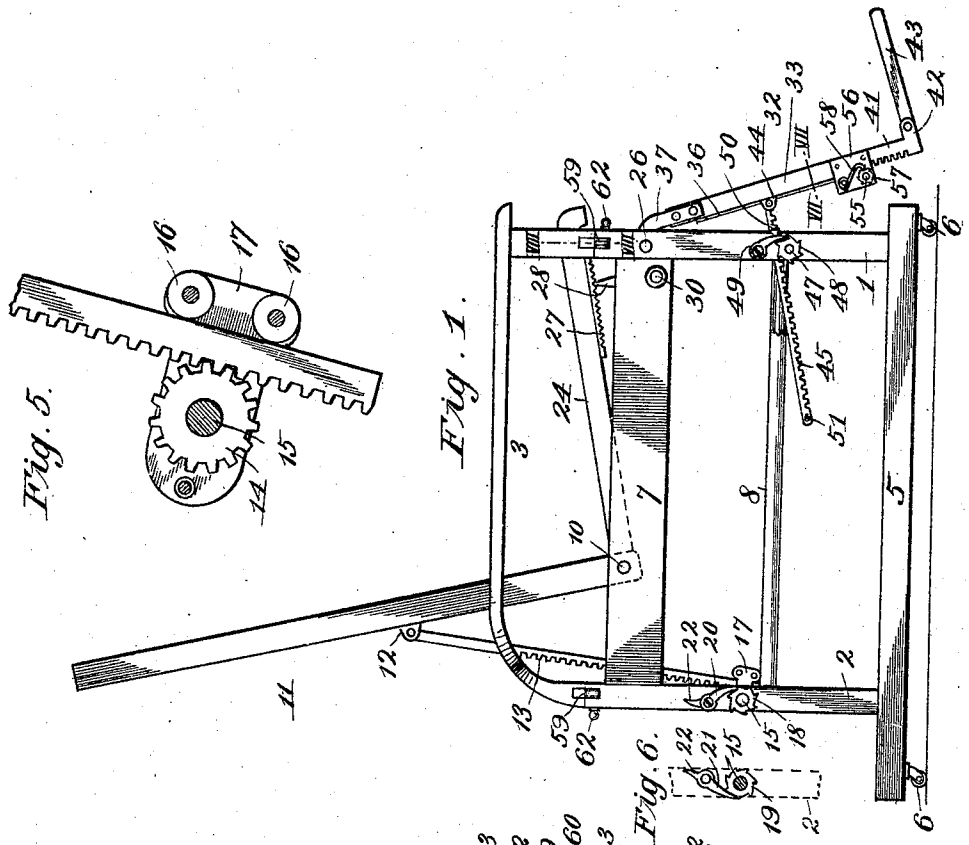

Fig. 1.

Fig. 5.

Fig. 6.

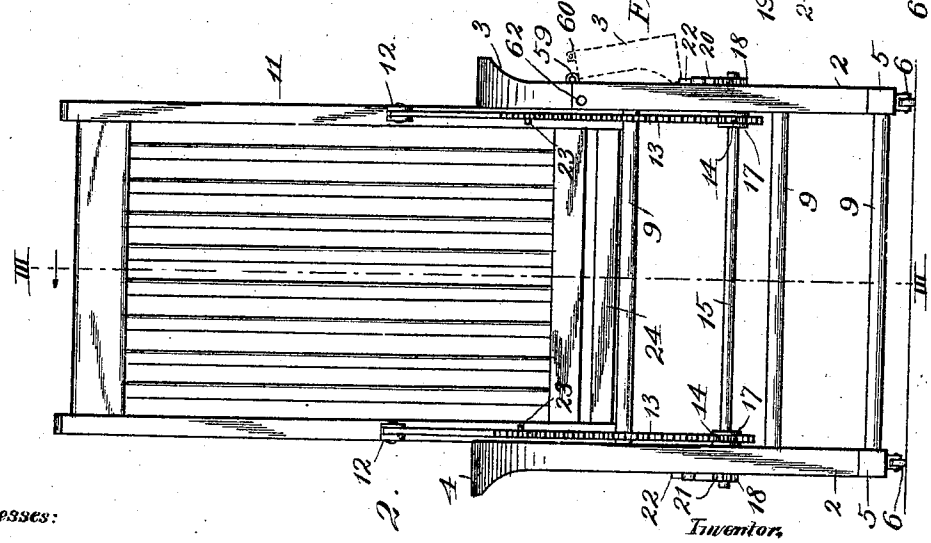

Fig. 2.

Witnesses:

R. E. Hamilton.

J. Moore

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2 SHEETS—SHEET 2.

Fig. 8.

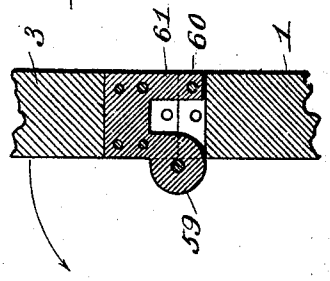

Fig. 4.

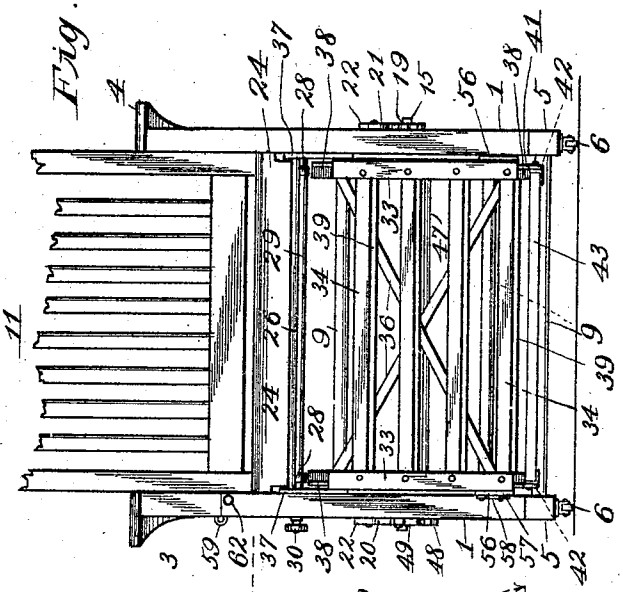

Fig. 7.

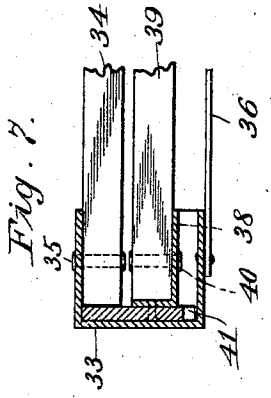

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

JOEL T. HART, OF INDEPENDENCE, MISSOURI.

ADJUSTABLE CHAIR.

No. 847,332. Specification of Letters Patent. Patented March 19, 1907.

Application filed October 13, 1905. Serial No. 282,586.

To all whom it may concern:

Be it known that I, JOEL T. HART, a citizen of the United States, residing at Independence, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Adjustable Chairs, of which the following is a specification.

My invention relates to improvements in adjustable chairs, and consists in the novel combination, arrangement, and construction of parts whereby independent adjustment of the back, seat, and foot-rest of the chair is obtained. By employing my invention the above-mentioned parts may be adjusted to any angle desired, or if necessary the chair may be readily converted into a couch by adjusting said parts to a horizontal position.

Another feature of the invention consists of a folding arm which permits the easy transfer of an invalid from a bed to said chair when the latter is placed beside the former.

Other features of the invention will hereinafter appear, and in order that it may be fully understood reference will now be made to the accompanying drawings, in which—

Figure 1 represents a side elevation of the chair. Fig. 2 is a rear elevation of the same with the foot-rest removed. Fig. 3 is a vertical central section of the chair, taken on line I II III of Fig. 2, showing the adjustment of the back, foot-rest, and footboard by dotted lines and arrows. Fig. 4 is a broken front elevation of the chair. Fig. 5 is an enlarged broken sectional view of the mechanism for holding the back of the chair at any point of its adjustment. Fig. 6 is a detail side elevation of a ratchet-wheel and pawl for assisting in controlling said mechanism. Fig. 7 is an enlarged broken transverse section of the adjustable foot-rest, taken on line VII VII of Fig. 1. Fig. 8 is an enlarged vertical section of a hinge, whereby one of the arms is secured to two of the legs of the chair, said sectional view being taken on line VIII VIII of Fig. 1.

In carrying out the invention I employ two front legs 1 and two rear legs 2, united in pairs at their upper ends by arms 3 4 and at their lower ends by connecting-bars 5, mounted upon casters 6, so the chair may be easily moved from place to place. The legs are securely braced by means of a pair of side rails 7, longitudinal rungs 8, and transverse rungs 9.

10 designates a transverse rod secured at its ends in the rear portions of side rails 7. 11 designates a back pivotally secured at its lower end to said rod and provided at its rear portion with a pair of ears 12, in which the upper ends of a pair of rack-bars 13 are pivotally secured.

14 designates a pair of pinions intermeshing with the rack-bars and fixed upon a shaft 15, journaled in the rear legs 2. The rack-bars are held in mesh with said pinions by means of a pair of antifriction-rollers 16, spaced from each other and mounted in frames 17, which are loosely mounted upon shaft 15 and loosely embrace the sides of the pinions and the rack-bars. I prefer to use two antifriction-rollers 16 at the back of the rack-bar and to space them from each other, so that the pinion 14 will stand opposite the space between them, for the reason that if there were but one roller and it stood opposite the pinion the rack-bar would be apt to bind between these members. Pinions 14 are normally held from rotating by means of a pair of reversely-disposed ratchet-wheels 18 19, fixed to the ends of shaft 15 and normally held from rotation by a pair of reversely-disposed pawls 20 21, respectively, provided with handles 22, so they may be disengaged from the ratchet-wheels by a person occupying the chair. By arranging these ratchet-wheels and pawls in the manner shown and described the pinions will be prevented from rotating in either direction, and consequently the chair may be moved around by grasping back 11, as the latter, of course, will be securely locked from independent movement on rod 10. When it is desired to adjust the back downwardly, pawl 21 is disengaged from ratchet-wheel 19, and when it is desired to adjust said back upwardly pawl 20 is disengaged from its ratchet-wheel 18. Rack-bars 13 are provided with stop-pins 23, adapted to contact with frames 17, and thus limit the downward movement of the back to the horizontal position shown by dotted line, Fig. 3.

24 designates a seat pivotally secured at its rear end to rod 10 and provided at its forward under side with blocks 25, adapted to rest upon a transverse rod 26, extending through the front legs 1, and thus support said seat in a horizontal position. The under portion of the seat is also provided at its opposite sides with a pair of serrated bars 27, adapted to be engaged by a pair of props 28, fixed upon a transverse shaft 29, mounted in the forward portion of side rails 7 and

provided at one end with a knob 30, so that when the front end of the seat has been elevated to the desired position the props may be readily turned upwardly into engagement with bars 27, and thus support said seat. By thus supporting the front end of the seat in an elevated position the occupant of the chair cannot slip forwardly in said seat. The free ends of the props are supported at their inoperative position by pins 31, extending inwardly from the side rails 7.

32 designates a foot-rest, which is both adjustable and extensible. The upper adjustable section of said foot-rest consists of a pair of channel-bars 33 and transverse slats 34, uniting said channel-bars. Slats 34 are secured to the inner surfaces of the front ribs of channel-bars 33 by rivets 35, and said channel-bars are held parallel to each other by a pair of crossed braces 36, riveted to their rear sides. The channel-bars are provided at their upper ends with a pair of hangers 37, pivotally secured at their upper ends to rod 26.

The lower extensible section of the foot-rest consists of a pair of angle-irons 38 and slats 39, secured at their ends to the angle-irons by rivets 40. Angle-irons 38 are secured to rack-bars 41, slidably arranged in and filling the width of the channels in the channel-bars and provided at their lower forwardly-projecting ends 42 with a foot-board 43, pivotally secured thereto, so that said footboard may be folded up against the foot-rest when not in use, as shown in Fig. 3.

44 designates a pair of ears secured to the rear sides of channel-bars 33.

45 designates a pair of rack-bars pivotally secured at their forward ends to said ears and intermeshing with a pair of pinions 46, fixed upon a shaft 47, journaled in the front legs 1. Said pinions are held from backward rotation after the foot-rest has been adjusted to the angle desired by means of a ratchet-wheel 48, fixed upon one end of shaft 47 and controlled by a pawl 49, provided with a knob 50, so that it may be readily disengaged from the ratchet-wheel when it is desired to lower the foot-rest to a perpendicular position.

The upward movement of the foot-rest is limited to the horizontal position shown by the dotted line in Fig. 3 by stop-pins 51, secured to the ends of the rack-bars and adapted to contact with frames 52, provided with antifriction-rollers 53, which hold the rack-bars in mesh with the pinions. This mechanism is the same as that employed for holding the back 11 at any point of its adjustment, with the exception that but one ratchet-wheel is employed, and consequently the foot-rest may be elevated without disengaging pawls 49 from said ratchet-wheel.

54 designates a pair of pinions intermeshing with rack-bars 41 and fixed upon a shaft 55, journaled in brackets 56, secured to the lower ends of the channel-bars. Said pinions are prevented from rotating forwardly by means of a ratchet-wheel 57, fixed upon one end of shaft 55 and controlled by a pawl 58. This mechanism prevents the lower section of the foot-rest and the footboard from being pushed forwardly until pawl 58 is disengaged from its ratchet-wheel. By making the foot-rest extensible it may be lengthened or shortened to accommodate persons of different heights.

Arm 3 is secured to one of the front and rear legs by a pair of knuckle-joint hinges 59, provided at their inner sides with lugs 60, having perforations adapted to register with each other, so as to receive pins 61, slidingly arranged within holes in the legs and provided with knobs 62. By withdrawing said pins from the perforations in the lugs the arm may be folded to the position shown by dotted lines, Fig. 2. If desired, both arms may be hinged.

From the above description it is apparent that I have produced a chair which is comparatively simple in construction and may be readily adjusted to any desired position or converted into a couch.

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

1. In a chair, the combination with the legs connected by side rails and having upright extensions above said rails, and a seat and a back adjustably mounted between said rails; of an outwardly-folding arm, knuckle-joint hinges between it and said extensions, perforated lugs on the hinges, and pins adapted to engage the perforations when they register, whereby the arm may be adjusted independently of the adjustments of the other members.

2. In a chair, the combination with the legs having holes, side rails connecting them, and ordinary chair members; of a chair-arm, knuckle-joint hinges connecting it with the legs at one side, lugs on the hinges having perforations adapted to register when the arm is raised, and pins in said holes in the legs and removably engaging the registering perforations in the hinges.

3. In a chair, the combination with upright legs, side rails connecting them in pairs, and a seat and back pivoted between said side rails; of an outwardly-folding arm mounted on upright extensions of the legs at one side, knuckle-joint hinges between said extensions and their legs, lugs adjacent the hinges having perforations adapted to register when each extension alines with its leg, and pins passing horizontally into the legs and removably engaging said registering perforations.

4. In a chair, the combination with a framework consisting of legs and side rails

connecting them, a seat and a back adjustably mounted within the framework, a footrest also adjustably mounted therein, and a footboard carried by the rest; of extensions on the legs above the side rails, the arms, knuckle-joints connecting them with the extensions and having lugs with perforations adapted to register with each other when the arms are upright, and pins adapted to engage the registering perforations, whereby the arms can be raised or lowered independently of each other and independently of the adjustments of the remaining members.

In testimony whereof I affix my signature in the presence of two witnesses.

JOEL T. HART.

Witnesses:
F. G. FISCHER,
J. MOORE.