

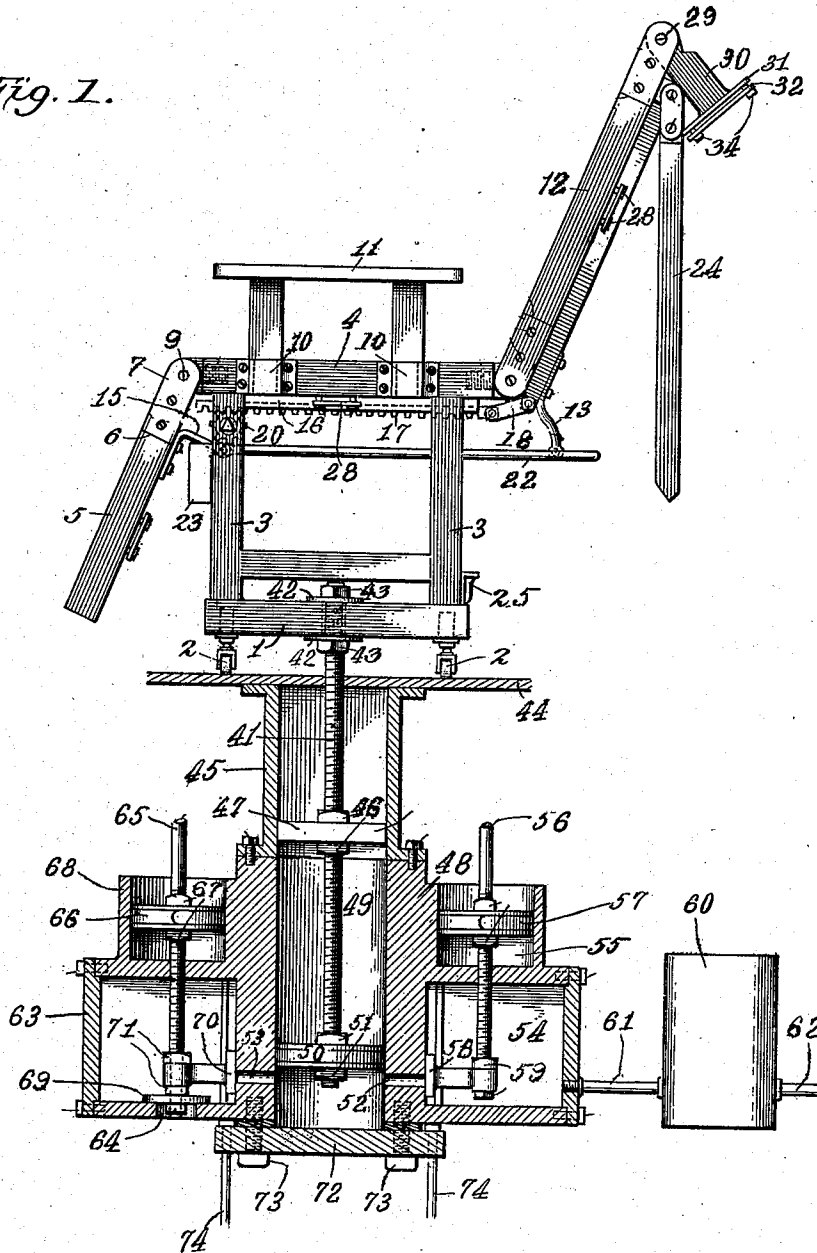
J. H. MILLS.
RECLINING CHAIR.
APPLICATION FILED MAR. 13, 1907.

900,945.

Patented Oct. 13, 1908.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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3 SHEETS—SHEET 2.

Fig. 2.

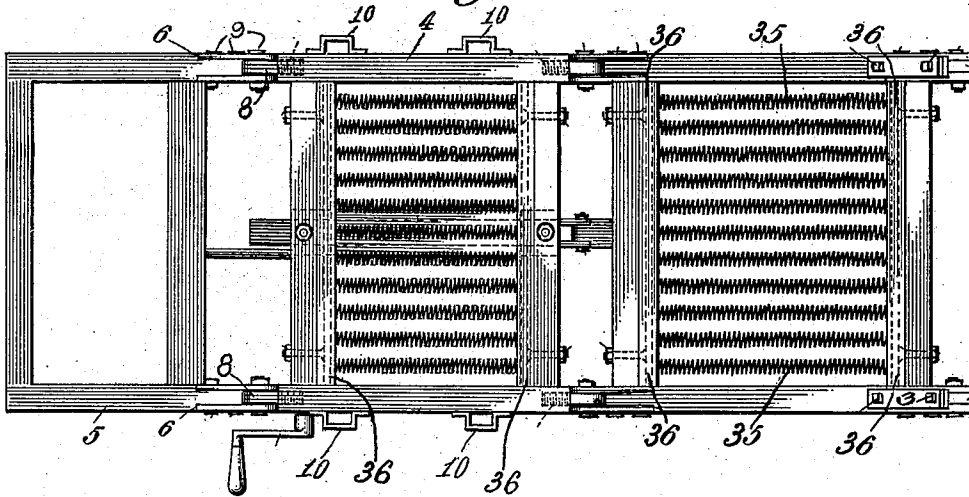


Fig. 3.

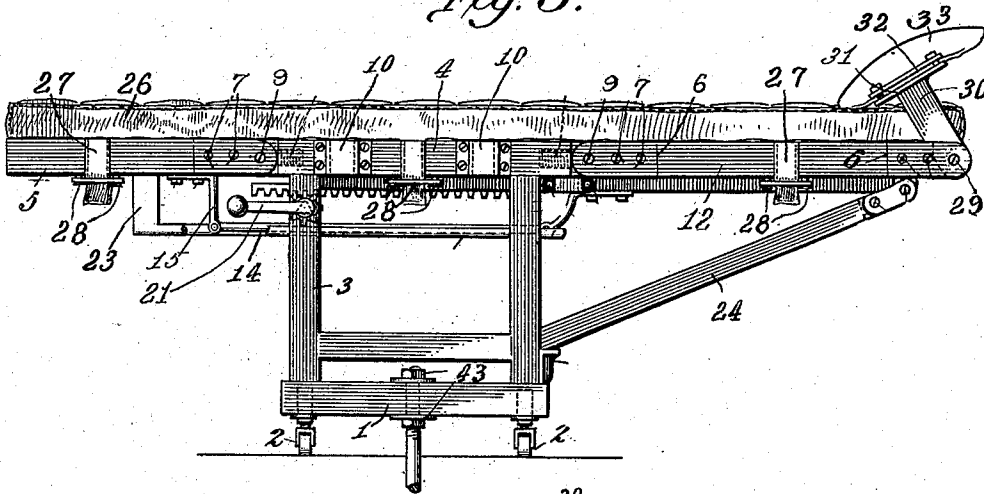
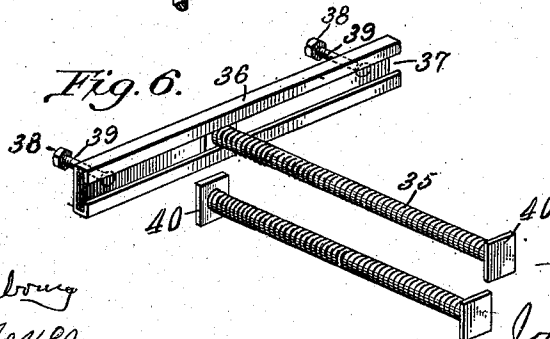


Fig. 6.



Witnesses:
Wm. A. Legumbray
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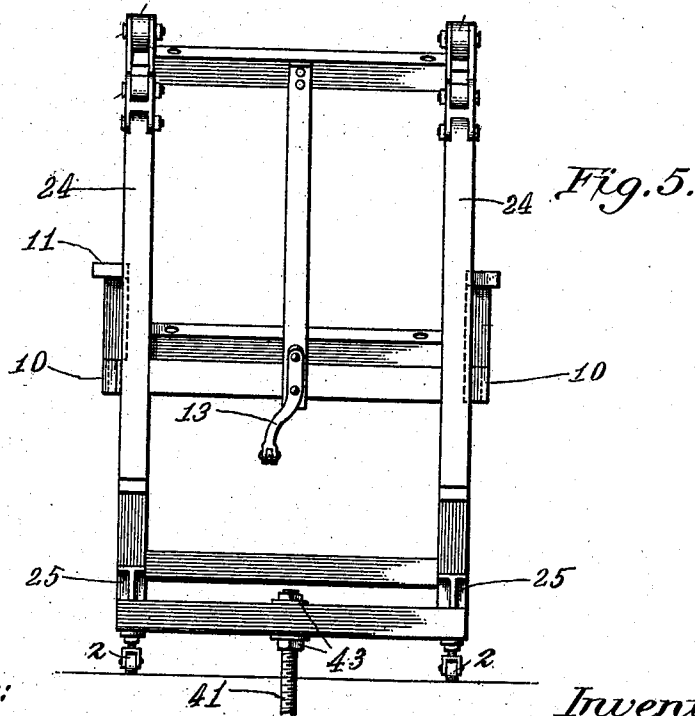
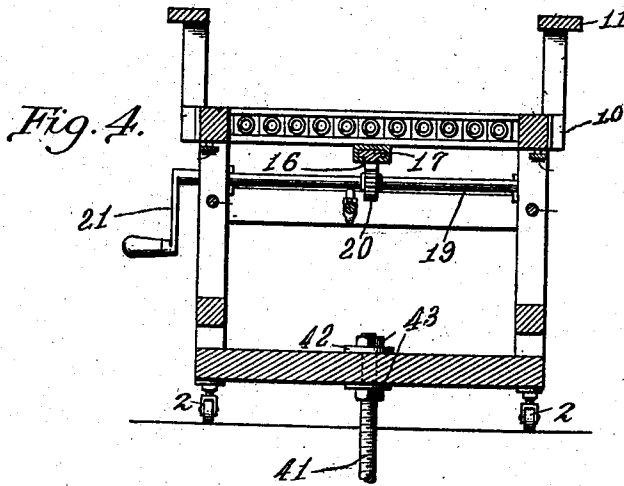
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3 SHEETS—SHEET 3.



Witnesses:
W. L. Meyer.

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UNITED STATES PATENT OFFICE.

JOHN H. MILLS, OF ST. LOUIS, MISSOURI.

RECLINING-CHAIR.

No. 900,945.

Specification of Letters Patent.

Patented Oct. 13, 1908.

Application filed March 13, 1907. Serial No. 362,246.

To all whom it may concern:

Be it known that I, JOHN H. MILLS, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented new and useful Improvements in Reclining-Chairs, of which the following is a specification.

This invention relates to certain new and useful improvements in chairs and has for its object to provide a chair of the reclining type with novel means for operating the same, whereby the parts may be caused to assume positions adapting the device to be used as a chair or as a couch, respectively. Connected with the chair is also novel mechanism by means of which it may be raised or lowered.

The invention has further relation to certain novel details of construction, combinations and operations of parts, all as hereinafter described and particularly pointed out in the claims.

In the drawings; Figure 1 is a view, partly in side elevation and partly in section, of a chair constructed according to my invention and showing associated therewith means for raising and lowering the chair bodily; Fig. 2 is a top plan view of the chair extended, the arm rests being removed; Fig. 3 is a view in side elevation of the extended chair, showing the mattress applied thereto; Fig. 4 is a cross-sectional view through the extended chair; Fig. 5 is a view in rear elevation of the chair; and Fig. 6 is a perspective view showing the spring construction and the manner of securing the springs in their frames.

Referring now to the drawings, 1 indicates the base of the chair, which is preferably rectangular and has secured near the four corners thereof casters 2. The legs of the chair are indicated by 3 and are suitably secured to the base 1 and support at their upper ends the seat 4.

5 indicates a leg rest, which is shouldered on opposite sides of its side-members, as indicated at 6, to receive plates 7, which in turn embrace a lug 8 at the front of each of the side-members of the seat 4, bolts 9 being passed through the members 7 and 8 to form a hinge connection.

The seat 4 has secured on each of its opposite sides two socket-members 10, which are adapted to removably receive arm rests 11.

12 indicates the back, which is hinged to the rear of the seat in the same manner as just described in reference to the leg rests. Secured on the rear side of the back at its

lower end is a bracket-arm 13, to which is pivotally connected one end of a rod 14. The opposite end of said rod is pivotally connected to a bracket-arm 15, which is secured to the under side of the leg rest 5 toward the upper end thereof. By means of this connection the back and leg rest are compelled to move in unison.

Secured on the under side of the seat 4 and extending longitudinally and centrally thereof, is a slide-way 16, in which is slidably mounted a rack 17. The rear end of this rack is pivotally connected by means of a link 18 with the lower end of the back 12, as clearly shown in Figs. 1, 2 and 3. Journaled at opposite ends in the front legs of the chair is a rod 19, having secured thereon a pinion 20, which meshes with the rack 17 and which rod is adapted to be turned by a crank handle 21, removably mounted on one end thereof.

Slidably mounted on each side of the chair in apertures provided in the legs thereof, are two supports 22, which, when the chair is extended to be used as a couch, are adapted to be pulled out to engage and support the leg rest 5. To this end each of the said supports has at its outer end a relatively wide projection 23, extending at right angles to the support, which normally are turned downward, as indicated at Fig. 1, but which, when the chair is extended and the supports 22 are pulled out, are adapted to be turned upward to engage the under side of the leg rest, as shown in Fig. 3.

Pivotally secured to the back of the chair at the upper end and at each side thereof, is a bar 24, the lower end of each of which bars is adapted to engage a cleat 25, mounted on the rear side of each rear leg of the chair near the bottom thereof. These bars support the back of the chair in a horizontal position, and when the back is raised to a reclining position, shown in Fig. 1, they depend therefrom with their free end unattached.

Assuming the chair to be in the position indicated by Fig. 1, if it be desired to convert the chair into a couch, as shown in Figs. 2 and 3, the operator places the crank handle 21 upon the end of the rod 19 and turns the same to the left, thereby moving the rack bar 17 outward from under the front of the chair and by means of the link connection 18 drawing the back of the chair downward. In this latter movement the bracket arm 13 will

push the rod 14 outward, and this rod being connected to the bracket arm 15 on the leg rest, the latter will be elevated. As the back descends, the operator grasps the bars 24 and pushes them inward so that their lower ends will engage the cleats 21. When the leg rest has been sufficiently elevated the operator grasps the supports 22, pulls them outward and at the same time turns them so that the projections 23 will engage under the sides of the leg rest and support the same.

26 indicates a mattress to be used when the chair is to be converted into a couch, said mattress being provided on each side, at its center and near its ends, with tabs 27, which are adapted to have their free ends inserted into clamp members 28, provided on opposite sides of the back seat and leg rest, whereby the said mattress will be held in a fixed position on the chair. When the chair is to be used as a couch, the arm rest 11 may be removed. When the mattress is to be removed, the clamping members 28 are unloosened and the tabs 27 withdrawn therefrom.

Pivotally mounted on the upper end of the back at each side thereof, as indicated at 29, are arms 30, each of which is provided with an extended stationary plate 31 and a movable plate 32, said plates forming a clamp between which opposite ends of a pillow 33 may be inserted and firmly retained by screwing up the bolts 34. The head-rest thus afforded may be swung into and out of position, as will be understood.

When used as a chair the pillow may be dispensed with if desired and the arms turned out of the way, as shown in Fig. 1.

The seat and the back of the chair have mounted therein springs 35. For this purpose I provide at opposite ends of the seat frame and back frame metal bars 36, each of which, as shown by Fig. 6, is provided with a dovetail groove 37, open at each end of the bar. The bars 36 may be moved toward and from their respective frame members by means of nuts 38 bearing against said frame members and mounted on the outer ends of bolts 39 which have their heads secured in the side of the metal bar 36. Each of the springs 35 has its opposite ends secured to a rectangular metal block 40, which are designed to be inserted in the dove-tail grooves 37. The opposite ends of a number of springs being so inserted in the corresponding bars 36 of the side and back the nuts 38 are screwed up to draw the said bars 36 toward their respective frame-members, and thereby put the springs under the desired tension.

In the drawings, the bars 36 are shown lying against the frame-members of the seat and back, or at the extreme limit of their adjustment. It will be seen that this construction permits the number of springs in the chair being varied at pleasure, and also the ready replacement of springs that have be-

come weakened by use. Referring to Fig. 1, I securely mount in the base 1, the upper end of a shaft 41, the securing means, being shown by clamping plates or washers 42, and nuts 43. The shaft 41 extends through the floor 44 and into a square housing 45. Intermediate its ends the shaft 41 has secured thereon, by means of nuts 46, a square guide-block 47, which is adapted to fit snugly into the housing 45 and to slide therein. Secured to the lower end of the housing 45 is a casting 48, in which is formed a cylinder 49. The shaft 41 also extends into this cylinder and has secured on its outer end a piston 50, held in position by means of nuts 51. The casting 48, which is also the casing of the cylinder, is provided near the lower end of said cylinder and on opposite sides thereof, with an inlet port 52 and an outlet port 53. The casting 48 also provides a valve-chamber 54, on top of which is mounted a cylinder 55. 56 indicates a piston-rod, which is provided intermediate its ends with a piston 57 working in the cylinder 55, and at its lower end with a slide-valve 58 secured in position by nuts 59, said slide-valve controlling the port 52. The rod 56 is adapted to extend through the floor 44 and to be operated by raising or lowering it to open or close the port 52.

60 indicates a compressed air reservoir connected to the housing 54 by a pipe 61, and which is adapted to be supplied by air under pressure through a pipe 62. On the opposite side of the casing 48 there is provided a housing 63, having in its bottom an escape-port 64.

65 indicates a piston-rod, having mounted thereon intermediate its ends a piston 66, secured in position by nuts 67, said piston working in a cylinder 68 located on the upper side of the housing 63. On the lower end of the piston is mounted a disk-valve 69, controlling the port 64, and above this valve a slide-valve 70 is secured on the rod 65 by means of nuts 71, said slide-valve controlling the port 53.

To raise the chair the operator grasps the rod 56 and pulls it upward, uncovering the port 52. The compressed air will then pass through said port into the cylinder 49 and acting on the piston will raise the same, and thereby the shaft 41 and the chair secured thereon. When the chair has been raised to the desired height, the rod 56 is pushed downward to cover the port 52. The pistons 57 and 66 are to prevent the escape of the compressed air. When it is desired to lower the chair, the rod 65 is raised, thereby uncovering the port 53 and permitting the compressed air to pass out through the said port and escape by way of the port 64. In the movement of the shaft 41 the guide-block 47 acts as cross-head to center the shaft and secure movement thereof in a right line.

The base or bottom of the cylinder 49 is

indicated at 72 and is secured to the casting 48 by bolts 73.

74 indicates rods passing through the base and resting against the bottom of the casting 48, which rods may serve to illustrate conventionally a means for supporting the casting 48 with its associated parts upon a suitable foundation.

The purpose had in view in providing means for raising and lowering the chair is to adapt the same for use as a couch when a number of the chairs are placed in relatively close proximity, as, for example, in a sleeping-car. In such arrangement each alternate chair would be raised and then its back and leg-rest moved to a horizontal position. The intermediate chairs can then be extended. In such arrangement, the couches will bear a staggered relation to each other.

I claim:

1. In a reclining chair, the combination with legs supporting a seat, a leg rest pivotally mounted at the front of said seat, a back pivotally mounted at the rear of said seat, a rod pivotally connecting said back and leg rest, a guide mounted on the underside of said seat, a rack bar reciprocating in said guide in a horizontal plane and wholly supported thereby, a link pivotally connecting one end of said rack bar with said back, a pinion mounted on the chair and meshing with said rack bar, and means adapted to support said leg rest and back when the chair is adjusted to bring the seat, leg rest, and back into horizontal alinement.

2. In a reclining chair, in combination with legs supporting a seat, a leg-rest pivotally mounted at the front of said seat, a back pivotally mounted at the rear of said seat, a rod pivotally connecting said back and leg rest, a rack-bar mounted on the under

side of said seat and movable in a right line horizontally, a link pivotally connecting one end of said rack-bar with the bottom of said back, a pinion mounted on the chair and meshing with said rack-bar, and means for turning said pinion.

3. In a reclining chair, in combination with legs supporting a seat, a leg-rest pivotally mounted at the front of the seat, a back pivotally mounted at the rear of the seat, means for supporting the back in a horizontal position, and supports slidably and loosely mounted in the legs of the chair, each of said supports having a projecting member at its forward end, whereby when the leg-rest is turned to the horizontal position said supports may be pulled outward and turned to bring said projecting members beneath and in contact with the under side of said leg-rest, whereby to support the latter.

4. A reclining chair comprising a seat, back and leg rest, the two latter members being adapted to be turned to a horizontal position to convert the chair into a couch, a rod pivotally connected to said back and leg rest whereby said parts are adapted to move in unison, a rack bar mounted on the underside of the seat, a link pivotally connecting said rack bar with said back, a pinion mounted on the chair and meshing with said rack bar and leg rest, supporting means slidably mounted on the legs of the chair and adapted to be projected beneath and support the leg-rest, and a back support pivotally connected to the back and adapted to engage a fixed part of the chair, substantially as described.

JOHN H. MILLS.

Attest:

J. W. KENNETT,
JOHN KINCADE.