

No. 677,234.

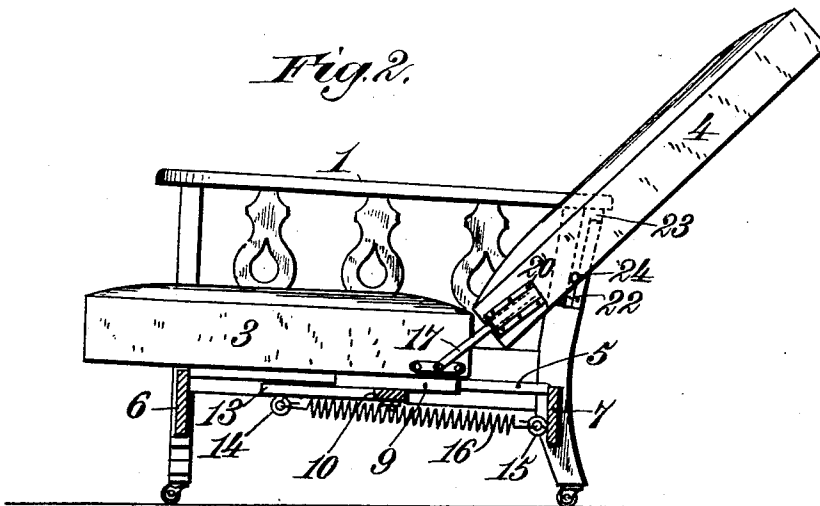
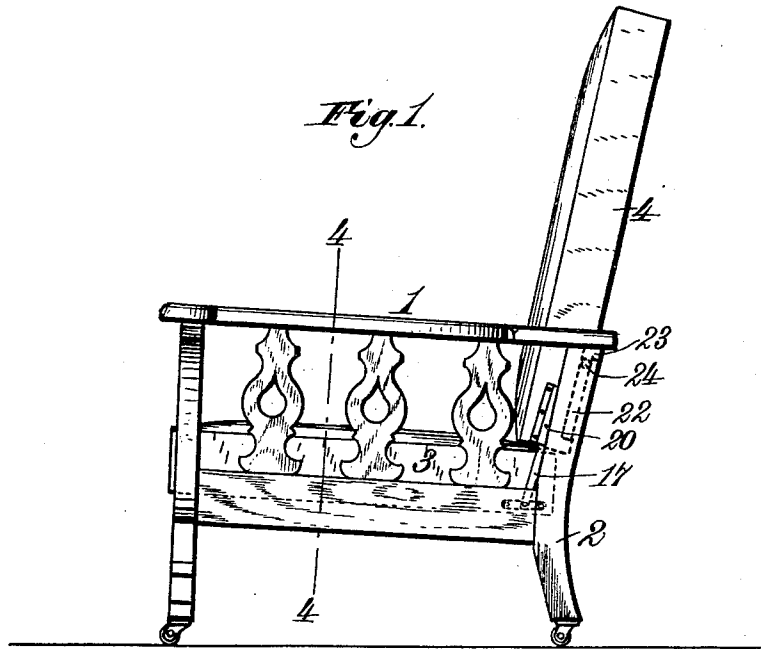
Patented June 25, 1901.

W. J. KELLY.
ADJUSTABLE RECLINING CHAIR.

(Application filed Jan. 23, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 3.

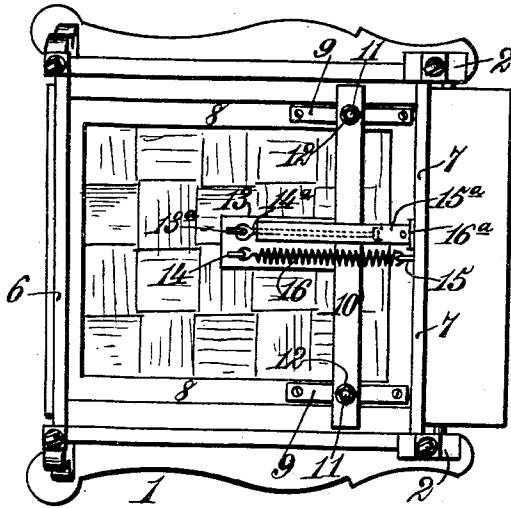


Fig. 4.

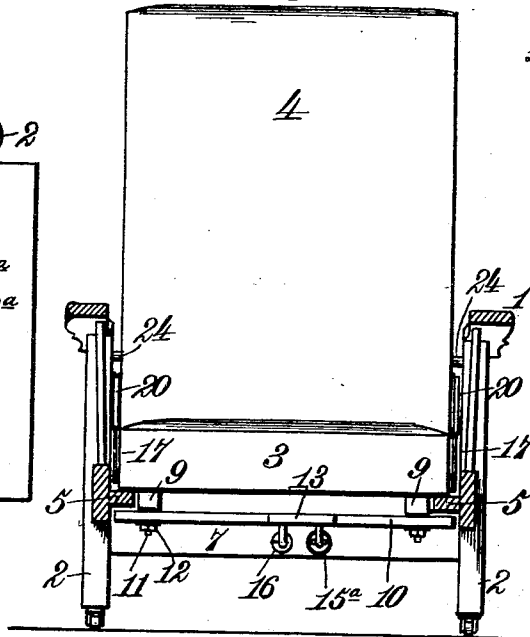


Fig. 5.

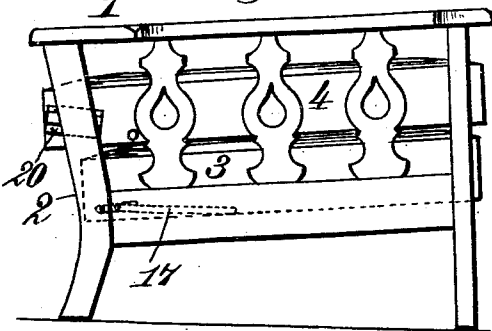


Fig. 6.

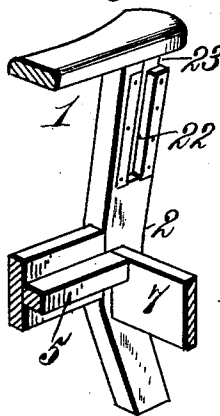


Fig. 7.

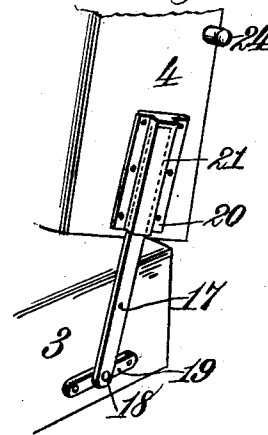
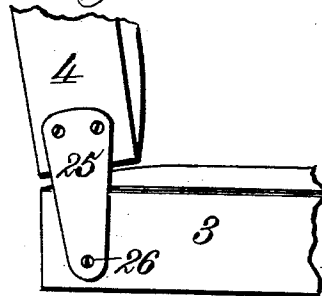


Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM J. KELLY, OF CLINTON, IOWA, ASSIGNOR TO J. A. KELLY & BROS.,
OF SAME PLACE.

ADJUSTABLE RECLINING-CHAIR.

SPECIFICATION forming part of Letters Patent No. 677,234, dated June 25, 1901.

Application filed January 23, 1901. Serial No. 44,472. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. KELLY, a citizen of the United States, residing at Clinton, in the county of Clinton and State of Iowa, have invented new and useful Improvements in Adjustable Reclining-Chairs, of which the following is a specification.

My invention relates to certain new and useful improvements in adjustable reclining-chairs of the type in which the seat and back are hinged together, the seat sliding horizontally on ways in the chair-frame and the back being pivotally and slidably mounted in vertical uprights of the chair-frame.

One of the objects of the invention is to render the chair "knockdown" by providing means whereby the seat and back may be readily removed from the frame and shipped separately.

A further object of the invention relates to the manner of hinging the back to the seat, so that in the operation of the chair the back may be swung upon the seat as a pivot and the lower end or edge of the back move over the rear portion and edge of the seat without thereby causing a separation of the meeting surfaces of the back and seat.

A still further object of the invention relates to the provision of a detachable hinge connection between the back and seat whereby the back may be readily removed from the chair by simply lifting it out of its connection with the seat and with the frame and without the necessity of loosening or unscrewing any nuts, bolts, or screws.

In addition to the above further objects of the invention relate to details of construction and to combinations and operations of parts, all of which will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, illustrating the invention, Figure 1 is a side elevation of the chair with the back and seat in their normal position. Fig. 2 is a central vertical section with the seat and back in the reclining position. Fig. 3 is a bottom plan view. Fig. 4 is a transverse section taken on the line 4 4 of Fig. 1. Fig. 5 is a side elevation showing the back detached and resting upon the seat. Fig. 6 is a detail perspective view

of one of the rear uprights. Fig. 7 is a detail perspective view of the detachable hinge connection, and Fig. 8 is a view of a modified form of hinge connection.

Referring now to the drawings, the numeral 1 indicates the chair-frame having the rear vertical uprights 2, 3 the seat, and 4 the back. The seat 3 is slidably supported upon rails 5 at opposite sides of the frame, said rails having their upper edges flush with or slightly above the upper edges of the front and rear frame-pieces 6 7, so that the seat is free to slide back and forth in operation to the extent intended. Secured on the under side of each side frame member 8 of the seat is a cleat 9, which cleats bear against the inner edges of the rails 5 and serve as guides and braces to cause the seat to move uniformly in right lines.

The numeral 10 indicates a slide-bar which extends transversely across the frame and has its opposite ends extending beneath the rails 5. Said slide-bar is held in place by means of bolts 11, carried by the cleats 9, passing through apertures near the ends of said slide-bar and having screwed thereon nuts 12. In the movement of the seat back and forth the ends of the slide-bar slide upon the under sides of the rails 5 and by engagement therewith prevent the seat from rising from the frame. Located centrally of the slide-bar 10 and projecting forward from the front edge thereof is a block 13, having screwed therein a screw-eye 14. A similar screw-eye 15 is screwed in the rear frame-piece 7. A coiled spring 16, having its opposite ends detachably secured in these screw-eyes, operates to return the seat 3 to its normal position on the frame whenever the person using the chair in the reclining position leaves the same or otherwise removes the pressure from the back of the chair, as hereinafter explained. In order to cushion the return movement of the seat, so that it will not strike heavily against or jar the frame, I provide a pneumatic check device similar in construction to an ordinary bicycle-pump—that is to say, I secure in any suitable manner to the block 13 at 13^a one end of a piston-rod 14^a, the other end having a piston-valve working in a cylinder 15^a, secured, as indicated at 16^a, to the

rear frame-piece 7. Said cylinder at its rear or closed end will be provided with a small vent, as will be understood. As the seat is pushed forward the piston-valve will be drawn out toward the front or open end of the cylinder, and as the seat is released and is drawn back by the spring the air will be cushioned between the piston-valve and the rear end of the cylinder, escaping slowly through the small vent in the cylinder, and thus insuring a gradual return of the seat to its normal position. By using this pneumatic check device I can employ a very strong spring for controlling the movement of the seat without thereby causing the seat to be suddenly retracted when released, which would not only be injurious to the chair, but disagreeable to the person using the same.

The connection between the back and seat will now be described.

The numerals 17 indicate lever-arms, each of which has its lower end pivotally mounted upon a stud 18, carried by a plate 19, mounted on each side of the seat near the rear end and lower edge thereof. On each side of the back and at the lower end thereof is secured a metal keeper 20, having an elongated recess 21 for receiving the lever-arms 17, the bottom of said recess being open and the top closed. When the lever-arms are in the keepers, their upper ends engage the upper closed ends of said recesses, and thus support the back and hold it out of engagement with the seat or from resting too firmly thereon. On the inner side of each of the rear uprights 2 I provide a longitudinal groove 22, having at its upper end a cross-groove 23, passing through the rear edge of the upright. At corresponding points at each side of the back and below the center thereof I provide a stud 24, which studs are adapted to engage and work in the grooves 22. This engagement is effected by first passing the studs through the cross-grooves 23, as will be understood. When the back is in position on the chair, as described, the engagement of the lever-arms 17 in the keepers is substantially a rigid engagement, so that the back moves as a whole upon the pivot points or studs 18. In this movement the lower edge of the back circles over the rear portion and upper edge of the seat substantially at a uniform distance therefrom, the upholstered surfaces of said back and seat remaining in contact, so that no space at any time is made between the two.

The operation will be readily understood.

The chair may be used with the back in an upright position in the same manner as an ordinary chair. The person using the chair desiring to assume a recumbent or reclining position presses backward with the head or upper portion of the body against the back of the chair, keeping the feet on the floor or some stationary object or grasping the arms of the chair, or both, to assist in this pushing

operation. As the back is thus pushed backward it acts as a lever to push the seat forward against the resistance of spring 16, the stud 18 operating jointly as a fulcrum as well as pivots for the back. As the back continues to move backward the studs 18 descend in the grooves 22 until they strike the bottoms thereof, which limits the movement in this direction. By throwing the body forward the back may be readily and easily brought to a less-inclined or to an upright position through the force of the spring 16. While the power of this spring is sufficient to immediately retract the seat when the person occupying the chair rises from the same or exerts a slight forward pressure while in the chair, this power is not sufficient to require the exercise of any force by the occupant of the chair to hold the back in any given inclined position. This is partly due to the fact that the weight of the body naturally exerted against the back will to some extent overcome the resistance of the spring, but more to the fact that the weight of the body on the seat causes a frictional engagement between the bottom of the seat and the rails sufficient in itself to hold the seat in any extended position against the power of the spring tending to withdraw it. The slightest pressure of the feet upon the floor, however, will release this frictional engagement sufficiently to permit the back to be easily moved in either direction. This pressure is almost unconsciously exerted in any attempt to throw the body backward or forward while in the chair. Owing to this fact the back may be easily moved to any desired inclination by the occupant of the chair and will remain in the adjusted position, with no tendency to move in either direction so long as the occupant remains in the chair. The backward movement of the seat is limited by engagement of the rear ends of the cleats 9 with the rear frame-piece 7.

In order to remove the back when shipping, said back is lifted to carry the keepers 20 out of engagement with or off of the lever-arm 17 and to bring the studs 24 opposite the cross-grooves 23, when it may be disengaged from the frame and shipped as a separate package or be laid upon the seat in packing to make a more compact article of shipment.

In Fig. 8 I have shown a modification of the invention, the hinge connection between the back and seat being formed by means of plates 25, rigidly secured to the lower end of the back at opposite sides thereof and pivotally secured at their lower ends to the seat, as indicated at 26. The operation of the chair is the same as with the construction first described. In the modified construction, however, when shipping, the back and seat are both removed, and this is done by unscrewing the nuts 12 and removing the slide-bar 10, spring 16, piston-rod 14^a, and cylinder 15^a.

The seat can now be lifted out of the frame and the back be removed in the manner previously described.

5 Having thus fully described my invention, what I claim as new is—

1. In an adjustable reclining-chair, in combination with a frame having a slidable seat, a back pivotally connected to opposite sides of said seat at points below the vertical center thereof and pivotally and slidably mounted
10 in said frame.

2. In an adjustable reclining-chair, in combination with a frame having a slidable seat, lever-arms pivotally connected to said seat, and a back pivotally mounted in said frame
15 and having keepers removably receiving free ends of said lever-arms.

3. In an adjustable reclining-chair, in combination with a frame having a slidable seat, lever-arms pivotally connected at their lower ends to opposite sides of said seat, and a back pivotally mounted in said frame and having
20 on opposite sides keepers adapted to removably receive the free ends of said lever-arms.

25 4. In an adjustable reclining-chair, in combination with a frame having a slidable seat, lever-arms pivotally connected to said seat,

and a back pivotally and removably mounted in said frame and having keepers removably receiving free ends of said lever-arms. 30

5. In an adjustable reclining-chair, in combination with a frame having a slidable seat, lever-arms pivotally connected to said seat, and a back pivotally mounted in said frame and having keepers removably receiving free
35 ends of said lever-arms, said lever-arms engaging said keepers and supporting the vertical weight of the back.

6. In an adjustable reclining-chair in combination with a frame having at opposite sides
40 supporting-rails, a seat slidably mounted on said rails, a slide-bar detachably connected to said seat and engaging at opposite ends, beneath said rails, and a back pivotally connected to said seat and pivotally, slidably and
45 removably mounted in said frame.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM J. KELLY.

Witnesses:

JNO. BRENNAN,
FRANK LAWLER.