A. J. POLER.

ADJUSTABLE CHAIR BACK.

APPLICATION FILED MAY 10, 1915.

1,182,855.

Patented May 9, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

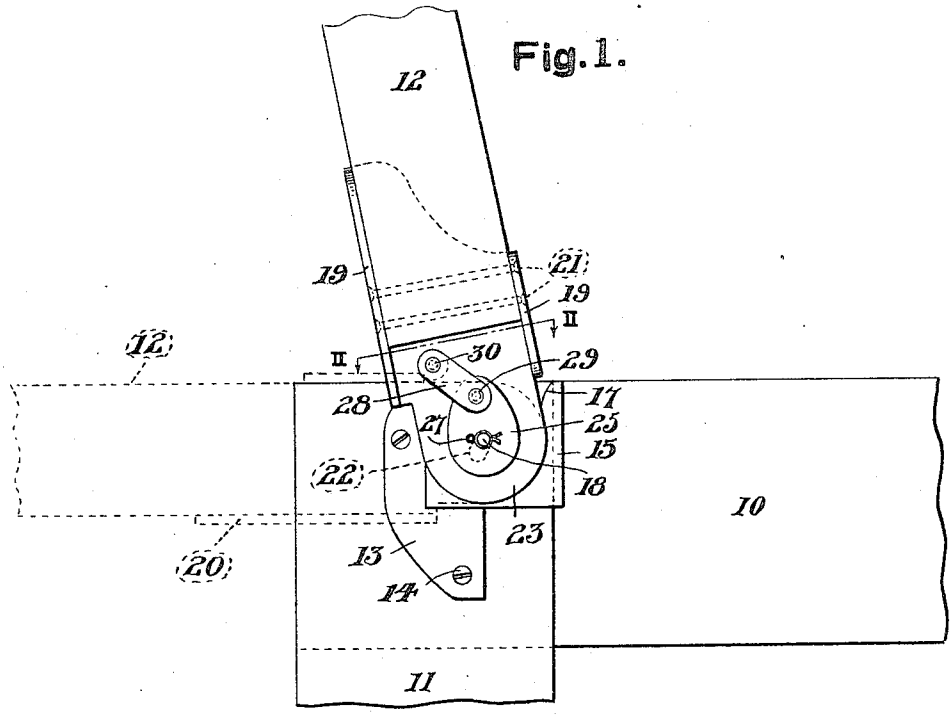


Fig. 2.

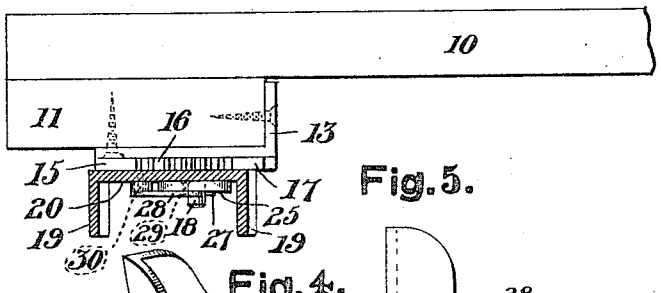


Fig. 5.

Fig. 4.

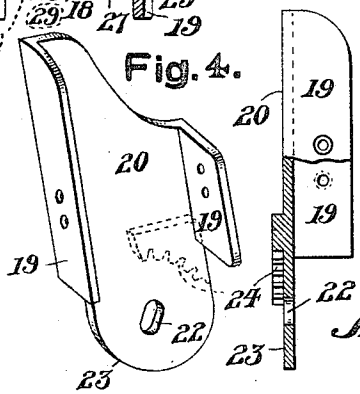


Fig. 6.

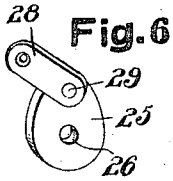
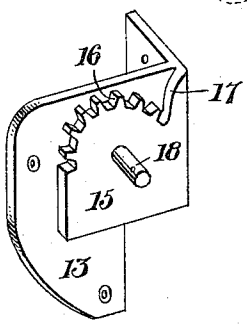


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 7.

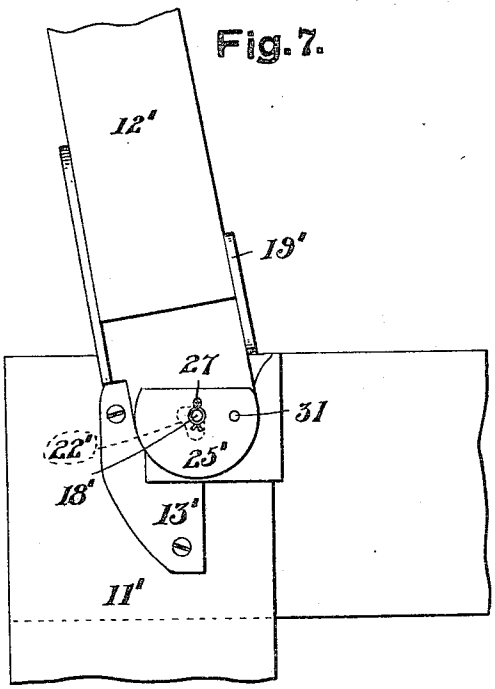


Fig. 8.

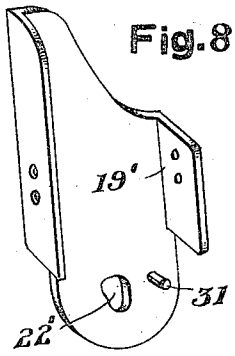


Fig. 9.

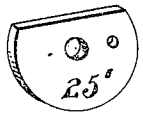


Fig. 10.

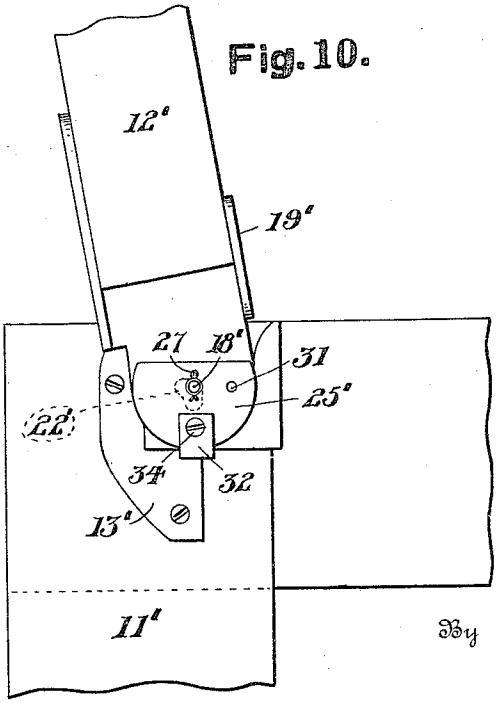
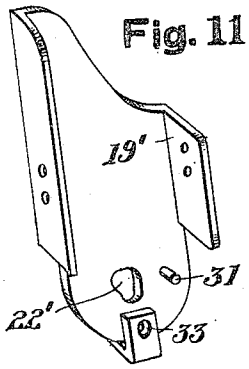


Fig. 11.



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UNITED STATES PATENT OFFICE.

ALTON J. POLER, OF MEDINA, NEW YORK, ASSIGNOR OF ONE-HALF TO ALBERT J. COE, OF MEDINA, NEW YORK.

ADJUSTABLE CHAIR-BACK.

1,182,855. Specification of Letters Patent. Patented May 9, 1916.

Application filed May 10, 1915. Serial No. 27,018.

To all whom it may concern:

Be it known that I, ALTON J. POLER, a citizen of the United States, residing at Medina, in the county of Orleans and State of New York, have invented certain new and useful Improvements in Adjustable Chair-Backs, of which the following is a specification.

This invention relates to certain new and useful improvements in adjustable chair back.

The primary object of the invention is to provide an exceedingly strong tilting adjustment for a chair back, the same being easy and cheap to manufacture and capable of being readily shifted for positioning the back at the desired inclination.

A further object of the invention is to provide inter-engaging locking hinges for a chair back whereby the same may be readily tilted without the employment of any adjusting rods, screws or bolts and which will securely retain the chair back at the desired angle of adjustment.

A still further object is to provide a locking hinge adapted for heavy chairs and having adjustable take-up means for steadying the operating parts while also having a protecting pivoted washer means.

It is understood that the means for accomplishing these results resides in the form of hinge connections between the chair back to be adjusted and the rear supporting legs of the chair frame and that a change in adjustment is readily effected by slightly elevating the chair back and tilting the same as desired and allowing the back to return by its own weight to its locked adjusted position.

With these general objects in view and others that will appear as the nature of the invention is better understood, the same consists in the novel combination and arrangement of parts to be hereinafter more fully described, illustrated in the accompanying drawings and set forth in the appended claims.

In the accompanying drawings forming a part of this application and in which like designating characters refer to corresponding parts throughout the several views:—

Figure 1 is an elevational view of the inner side of portions of a chair back connected to the left side rear leg of the chair by the present adjustable hinge device, the reclining position of the back member being illustrated in dotted lines. Fig. 2 is a top plan view thereof partially in section upon line II—II of Fig. 1. Fig. 3 is a perspective view of the leg carried bracket of the hinge detached. Fig. 4 is a similar view of the co-operating hinge portion or bracket detached from the carrying back rail. Fig. 5 is a side elevation of the bracket shown in Fig. 4, partially illustrated in central longitudinal section. Fig. 6 is a perspective view of the washer and link detached. Fig. 7 is a view similar to Fig. 1 showing a modified form of construction. Figs. 8 and 9 are perspective views of the back rail-carried hinge portion and the washer respectively, both being detached. Fig. 10 is a view similar to Fig. 7 but designed for heavier chairs, and, Fig. 11 is a perspective view of the chair back rail-carried hinge portion detached.

Referring more in detail to the drawings, the invention residing in a hinge connection between a chair frame and the chair back, a rear portion of the chair frame 10 is illustrated being provided with the usual rear supporting legs, the upper portion of one of such legs 11 being illustrated, and to which one of the side rails 12 of the chair back is adjustably connected by means of the present device, only the lower hinge-carrying portion of such rail being illustrated and the rear left leg and rail being shown as an example of the structure, it being understood that the opposite right hand rear leg and rail have correspondingly-arranged coöperating connections.

A bracket 13 of the form best illustrated in Fig. 3 is secured to the upper inner face of the rear leg 11 by means of such devices as screws 14. A segment rack 15 is flatly secured to the inner face of the bracket 13 and may be formed integral therewith if desired, and has a segmental toothed rack 16 positioned with the upper margin thereof slightly spaced below the upper edge of the said bracket, a projecting stop 17 being pro-

vided at the inner end of the rack and extending substantially to the upper inner corner of the bracket. A pivoting axle 18 is carried by the segment rack 15 being positioned concentrically respecting the toothed portion thereof. The said axle may be either integral with the segment rack or may have a screw-threaded connection therewith. A corresponding hinge bracket 19 is provided with a U-shaped shank 20 for fitting over the outer lower end of the side rail 12 of the chair back, the same being secured thereto by means of bolts 21. An oval slot 22 is provided through the disk-shaped lower extension 23 of the rail bracket 19 and is pivotally received upon the leg axle 18 while a concave gear section 24 is carried by the outer side of the bracket 19 and adapted for seating engagement with the teeth 16 of the segment rack when the hinge brackets are in their adjusted positions. A controlling washer 25 of cam-shape has a circular perforation 26 therethrough by means of which the washer is journaled upon the said axle 18 and is retained thereon by means of a cotter pin 27, thus holding the hinge brackets in their operative relations. A link 28 is pivotally connected to the upper portion of the washer by means of a pin 29 and to the rail bracket 19 by means of a similar pin 30. By this arrangement of hinge, it will be seen that with the chair back connected to the frame by means of oppositely-arranged similar hinges, the back may be positioned substantially vertical and perpendicularly to the chair bottom and with the segment rack teeth 16 in mesh with the concave rack 24, the latter being positioned in contact with the segment stop 17 as illustrated in Fig. 1. When it is desired to alter the inclination of the chair back, the same is manually elevated, thus disconnecting the rack concave teeth 24 from the segment teeth 16 whereupon the back may be inclined to the desired angle and then allowed to re-seat with the said teeth in mesh with each other, which will retain the chair back at such angle. The back may be swung to a horizontal position as illustrated in dotted lines in Fig. 1 and at this last-named position, the outer end of the perforation 22 will seat upon the axle 18. During the adjusted positions of the back, the entire weight of the back is supported by the toothed engagement between the hinge brackets excepting when the back is in the reclining position, and at which latter time, the axles 18 assist to support the same in the manner above noted.

In Fig. 7, the construction is substantially identical with that described in connection with the form of the device shown in Fig. 1, and has hinge members 13′ and 19′ for attachment to the rear leg 11′ and back rail 12′ respectively. The axle 18′ however, is provided with a governing washer 25′ pivoted directly to the bracket 19′ by means of a pin 31, the said washer 25′ being journaled upon the axle 18′ and retained thereon by means of a cotter pin 27. The journaling opening of the rail bracket 19′ differs from the aforesaid opening 22, this form being substantially a rectangular slot and is of the form shown at 22′, the opening 22′ being substantially right-angular in form. The operation of this form of the device is identical to that heretofore set forth, the washer in the present case however, more firmly governing the relative movement of the rail bracket and the journaling axle as the said washer 25′ is positively journaled upon the axle 18′ but allows the axle to move from one end to the other of the slot 22′ for the adjusting of the chair back.

In the further modified form shown in Fig. 10, it is noted that the only change over the elements of Fig. 7 consists in the upturned bracket 32 carried by the lower end of the rail bracket 19′ and provided with a perforation 33 for receiving a set screw 34 which may be adjusted to lightly bear against the face of the washer 25′, and thus take up the wear between the parts and render the hinge more stable in use with heavy chair structures.

A serviceable construction of chair back hinge is thus arranged and whereby the back may be readily tilted and retained at the desired inclination with respect to the chair bottom or even in horizontal alinement therewith, and without the necessity of removing or adjusting separate bars, bolts or similar means, it being only necessary to manually elevate the chair back and bring the same to the adjusted position.

What I claim as new is:—

1. A device of the class described, comprising a support, a hinge bracket secured thereto, a chair back leg, a projecting bracket at the lower end of the leg, a loose pivotal connection between the said two brackets, inter-engaging toothed members carried respectively by the separate brackets, an elongated journal disposed centrally of the toothed member on the support and a washer mounted on the journal, and pivotal link connections between the said washer and the adjacent bracket.

2. A device of the class described, comprising in combination with a chair frame and back, oppositely-arranged hinges comprising a supporting bracket, a segment rack upon the inner face of said bracket and having its toothed portion extending below the top of the bracket, a stop projection at the inner end of the said toothed portion, an axle concentric with the said toothed portion and carried by the said rack, a hinge

bracket projecting from the lower end of the adjacent back rail and having an elongated perforation through which the said axle extends, said bracket and axle providing an elongated journal, the journal being disposed centrally of the toothed member on the rack, a concave toothed segmental portion carried by the said rail bracket in meshing engagement with the teeth of the said segment rack, a washer having a circular opening and journaled upon the said axle, and pivotal connections between the said washer and adjacent bracket.

In testimony whereof I affix my signature.

ALTON J. POLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."