July 3, 1928. 1,675,547

W. GRIMMICH

RECLINING CHAIR AND FOOT REST

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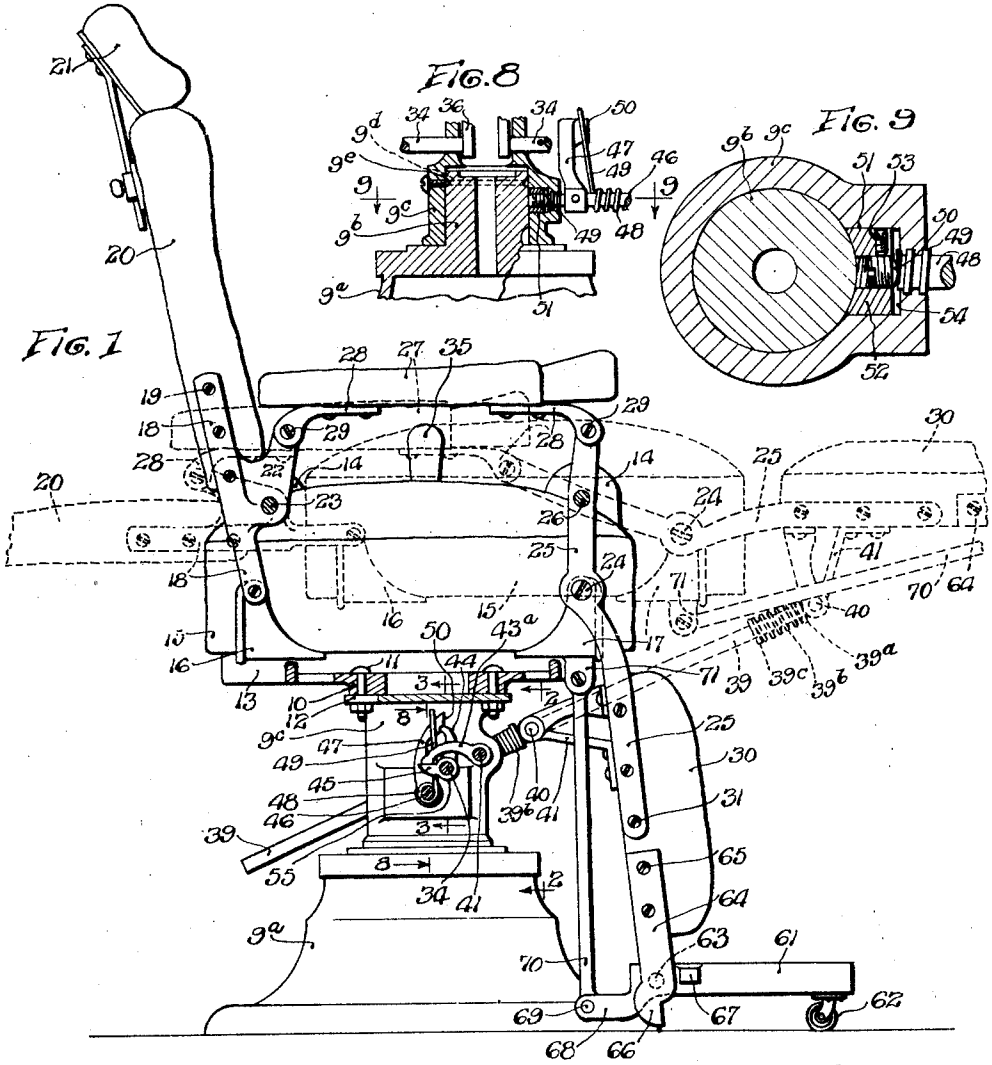


FIG. 1

FIG. 8

FIG. 9

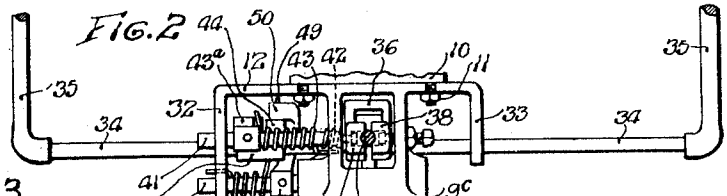


FIG. 2

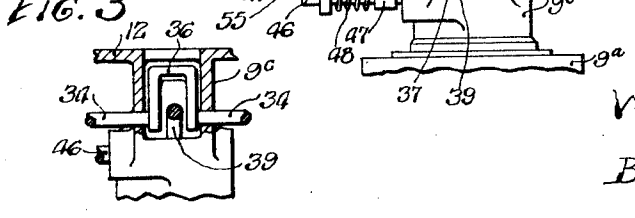


FIG. 3

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FIG. 4

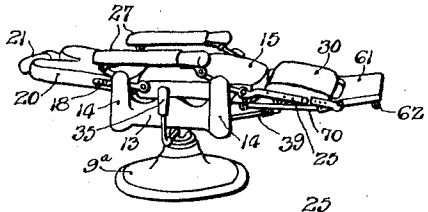


FIG. 5

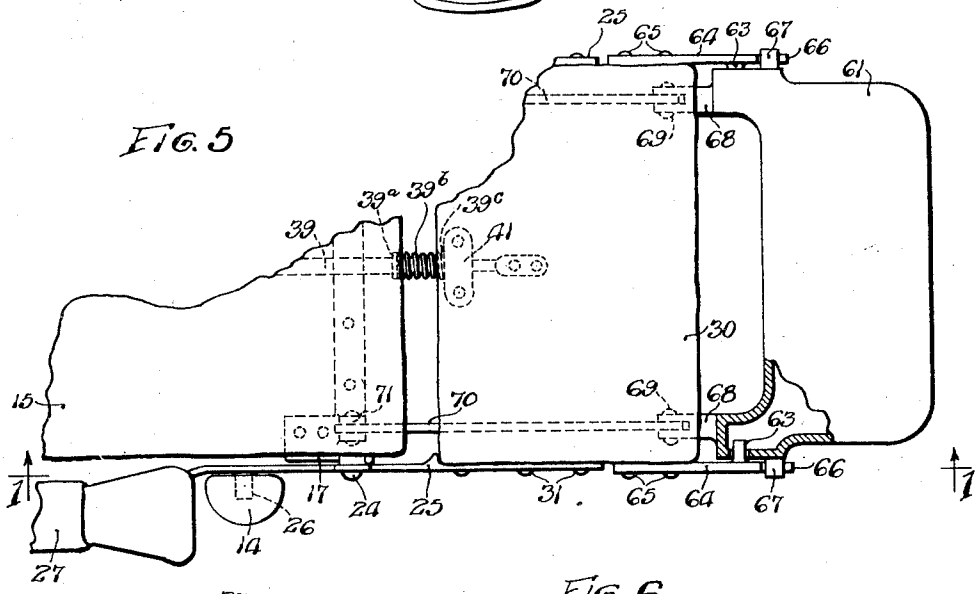


FIG. 6

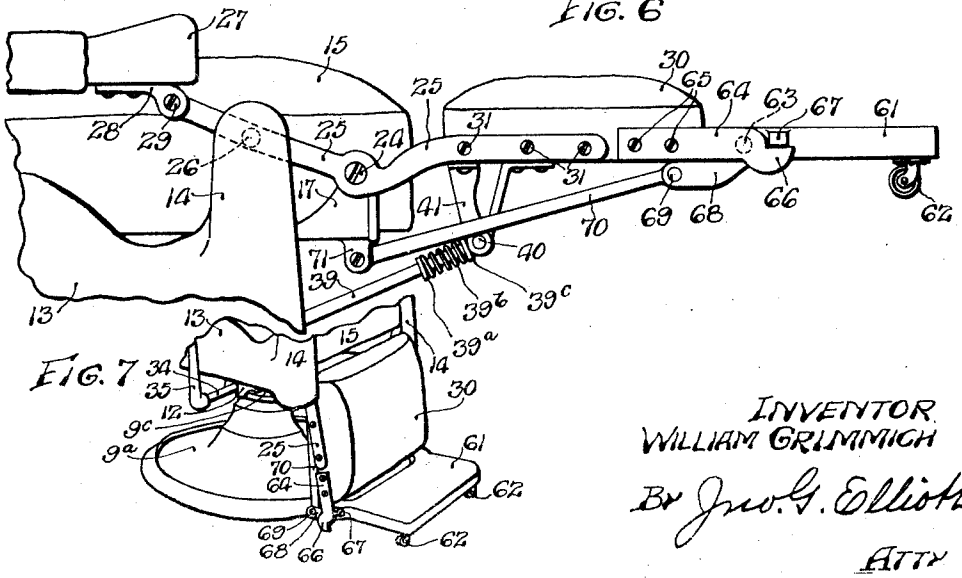


FIG. 7

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UNITED STATES PATENT OFFICE.

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RECLINING CHAIR AND FOOT REST.

Application filed July 9, 1925. Serial No. 42,340.

This invention relates to improvements in reclining chairs and foot-rests therefor, in which heretofore the seat has been fixed, the back, arms and leg rest or apron pivotally connected and adjustable by means of a hand lever located at one side of the chair, and the pivoted foot-rest therefor free to swing upon its pivot throughout the adjustment of the back, arms and leg rest.

The prime object of my invention, broadly stated, is to provide such a chair with an operating hand lever at both sides thereof, and to lift the seat concurrently with the adjustment of the chair from its upright to its inclined positions and thereby provide a means for automatically adjusting the foot-rest concurrently with the adjustment of the back, seat and leg rest to correspond at all times with the adjusted position of the chair and at an angle most comfortable to the occupant throughout said adjustments.

A further object of my invention is to provide a reclining chair with a single clutch device located axially of the chair and adapted to be operated by either one of two hand levers located at the opposite sides of the chair, and adapted for engaging an adjustable bar passing through the clutch and pivoted to the apron, for the adjustment of the apron or leg rest, and whereby the leg rest may be locked and at the same time braced in its adjusted position.

Another object of my invention is to have the foot-rest so connected with a movable seat that the movement of the seat will automatically adjust the foot-rest to a position corresponding with that of the chair in its upright and also throughout its adjusted positions.

More specifically stated, the object of my invention is to provide a reclining chair with a foot-rest which is not only pivotally suspended from the apron, but so connected with another moving part of the chair that it will be automatically moved and adjusted concurrently with the adjustment of the seat and apron of the chair.

A still further object of my invention is to have the leg rest provided with a stop, adapted to engage a lug on the foot-rest, forming a rigid support for the foot-rest when in its distended position throughout its adjustment, and particularly when in its horizontal position which the foot-rest occupies when the chair is at the lowest limit of its adjusted position.

With these ends in view, my invention finds embodiment in certain features of novelty in the construction, combination and arrangement of parts by which the said objects are attained, all as hereinafter fully described with reference to the accompanying drawings and more particularly pointed out in the claim.

In said drawings,—

Fig. 1 illustrates in side elevation a reclining chair embodying my invention, in which the frame posts are removed and the dotted lines indicate the position of the back, seat and leg rest when fully distended, on the line 1—1 of Fig. 5.

Fig. 2 is a vertical detail front elevation taken on the line 2—2 of Fig. 1, showing the location of the clutch and the relative position of the adjusting rod for the leg rest.

Fig. 3 is a detail vertical section taken on the line 3—3 of Fig. 1.

Fig. 4 is a perspective view showing the position of the back rest, seat, leg rest and foot-rest, when at the limit of its adjustment.

Fig. 5 is an enlarged plan view of the seat and the apron, with the foot-rest partly in section.

Fig. 6 is a detail side elevation of the chair, showing the position occupied by the foot-rest in its locked position with relation to the seat, arms and apron when in the position shown in dotted lines in Fig. 1.

Fig. 7 is a detail perspective, showing the position of the foot-rest supported by the floor when the chair is in its upright position.

Fig. 8 is a detail vertical section taken on the line 8—8 of Fig. 1; and

Fig. 9 is a transverse section taken on the line 9—9 of Fig. 8.

Similar characters of reference indicate the same parts in the various figures of the drawings.

9^a indicates the floor-supporting pedestal for the chair from which projects a post 9^b, upon which the chair is swiveled by means of a socket-piece 9^c, depending from the base-frame 10 of the chair, to which the socket-piece is secured by bolts 11 passing through a bracket 12 and through a flange 13 projecting from the socket-piece. The post 9^b (see Fig. 8) is provided towards its upper

end with an annular groove 9^d into which is projected the end 9^e of a set-screw projected through the socket-piece 9^c for preventing the vertical displacement of the socket-piece from the post.

The base-frame 10 is provided with side flanges 13 from which rise, adjacent the ends thereof, posts 14 between which posts the seat 15 is held against lateral movement and free to slide back and forth and to have a rising movement, as indicated in dotted lines in Fig. 1.

Secured to the ends of the seat 15, adjacent its front and rear edges, are brackets 16 and 17, to the bracket 16 of which is pivoted a bar 18 which projects upwardly and is secured by set-screws 19 to the chair back 20, provided with the usual adjustable head rest 21.

Bar 18 is provided with an inwardly projecting lateral extension 22, fulcrumed on a pivot 23, connecting the bracket with the rear post 14. Fulcrumed on the bracket 17, by means of a pivot 24, is a bar 25, which bar in turn is fulcrumed by means of a pivot 26, projecting inwardly from the front post 14.

27 indicates an arm rest to which are secured front and rear straps 28, respectively pivoted to the extension 22 of the bar 18 and to the upper end of the bar 25.

Bar 25 projects below the bracket 17 and is secured to the side edges of the apron or leg rest 30 by means of set-screws 31.

Bracket 12 (Fig. 2) is provided upon its ends with depending arms 32 and 33 which provide bearings for an operating rod 34 having handles 35—35 at its opposite ends. The rod 34 is provided midway of its length with a yoke 36 to provide clearance for an adjusting rod 39 which passes between a stationary clutch member 38 and a movable clutch member 37.

A shaft 41 is also journaled in the arm 32, the inner end thereof is rotatably anchored in the movable clutch member 37, and an intermediate portion is threaded in a depending rib on the bracket 12 as indicated at 42; an arm or dog 43^a is rigidly secured to the shaft 41. A coil spring 43 surmounts said shaft, one end of the spring being anchored to the rib on the bracket, while the other end engages the dog 43^a; the tendency of the spring 43^a is to rotate the shaft 41 for applying the clutch 37.

A second shaft 46 is journaled in the arm 32 and the inner end thereof is threaded in the socket 9^c for engaging an adjustable head 50^a in a brake shoe 51 which is positioned in a recess in said socket and frictionally engages the shaft 9^b. A set screw 53 engages the adjustable head 50^a in the brake shoe for locking the same in adjusted position. An arm 47 is rigidly secured upon the shaft 46 and is provided with an offset lug 50 which is engaged by one terminal 49 of a coil spring 48 surmounting said shaft 46. The other terminal of the spring 48 is anchored to the arm 32. The arm 49 of said spring normally rotates the arm 47 for applying the brake shoe 51 to the shaft 9^b.

The aforementioned operating rod 34 is provided with a pair of arms or dogs 44 and 45 which are adapted for respectively operating the dogs 47 and 43^a.

When the handles 35, 35 of the crank-rod are in the upright position shown in Fig. 2, the cams 44 and 45 will be in the position shown in Fig. 1, in which position the adjusting rod 39 is locked in the clutch, and the socket-piece 9^c to the post 9^b by the brake-shoe 51.

When the rod 34 is rotated forwardly, the dog 45 will actuate the arm 43^a for rotating the shaft 41 for releasing the clutch 37 whereby the rod 39 which is pivoted to the leg-rest as indicated at 40 may be shifted for reclining the chair. When the rod 34 is rotated in the opposite direction or rearwardly, the dog 44 will actuate the arm 47 for releasing the brake shoe 51 so that the chair may swivel. The springs 43 and 48 will automatically restore the brake shoe 51 and clutch 37 to operative positions when the dogs 45 and 44 respectively, release the arms 43^a and 47, that is, when the rod 34 is rotated to the neutral position shown in Fig. 1.

Adjusting rod 39 is provided with a bumper, consisting of a collar 39^c, fixed to the rod adjacent its pivot connection 40 with the bracket 41, a coiled spring 39^b abutting at one end against the fixed collar 39^a, and at its other end secured to a sliding collar 39^a for absorbing the shock and noise from the otherwise striking impact of the collar 39^a against the members 37 and 38 when lowering the leg rest 30 from its elevated adjusted position to the depending position it occupies when the chair is in its upright position, as shown in Fig. 1.

The construction of a reclining chair in which its seat is fulcrumed by and suspended from the posts or side frame, and by which the seat has an upward and sliding movement throughout the adjustment of the chair is an important feature of my invention in that it provides a means not only for automatically maintaining the parallelism between the seat and the arms, but a means by which, so far as I am aware, it is first made possible and practicable to automatically, simultaneously and concurrently adjust a foot-rest therefor to positions promoting the comfort of the occupant during a reclining adjustment the chair may have.

To these ends, the foot-rest 61 of my invention is provided with a floor roller 62 adjacent its forward end, and at its rear end is secured by a pivot 63 to a bar 64, secured to the side of the leg rest 30 by a

set-screw 65, which, when the seat rest is in the position shown in Fig. 1, projects beyond the pivot 63 and terminates in a foot-piece 66, adapted to engage a lug 67, projecting from the foot-rest when at the limit of its adjusted position; that is to say, when it is projected in a plane parallel with the leg rest.

Secured to, and projecting rearwardly from the foot-rest, is an arm 68 (see Figs. 1, 5 and 6) connected at its free end by a pivot 69 with a rod 70, the upper end of which is secured to lug 71, depending from the bracket 17.

When the chair is in its upright position, as shown in Fig. 1, its front end is supported from the floor by the floor roller 62 and its rear end suspended from the bracket 17 by the rod 70, in which position the foot-piece 66 of the bar 64 is out of engagement with the lug 67.

With the rising and forward movement of the seat 15, however, towards the position indicated in dotted lines, the roller 62 is first lifted from the floor and concurrently therewith the foot-rest is tilted in a forward and downward direction, the angle of the foot-rest changing, however, with that of the leg rest concurrently until it extends in a plane substantially that of the foot-rest, as shown in Fig. 6, and in which position the foot-piece 66 engages the lug 67 and detachably locks the foot-rest in the plane it occupies in Fig. 6, so that shortly before the chair reaches the limit of its outward adjustment, the foot-rest has receded from contact with the soles of the feet of the occupant of the chair and thereafter becomes a heel rest, as should be, while his body and legs occupy substantially a horizontal position on the chair.

It should now be understood that the frame-post 14, bars 18 and 25, the brackets 16 and 17, and their pivotal connections are duplicated at both sides of the chair, as is the bar 64 and rod 70, which are so shown in Fig. 5.

In conclusion, it is to be noted that, so far as I am now aware, my invention is the first to provide a barber's chair in which a seat, having an upward and forward sliding movement in its frame is so connected with the back, the arms and a pivoted foot-rest that the latter is operated by the movement of the seat to automatically adjust itself to and with relation to the adjusted position of the back, seat and leg rest; to provide a reclining chair with a clutch-adjusting mechanism adapted to be operated from both sides of the chair by a crank-arm so connected with a brake for the chair that the movement of the crank-arm operates to release the clutch from an adjusting rod and unset a chair brake of a swivel for the chair, furthermore, that my invention is not to be limited to the details of construction therefor other and further than is pointed out in the appended claim.

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

In a reclining chair, the combination with a swingable back, a leg rest swingable with said back, a foot rest pivoted intermediate its ends to said leg rest, a rod pivoted at one end to said chair and at its other end to said foot rest, said foot rest having a pair of lateral lugs and said leg rest having extending side members adapted for engaging said lugs when said leg rest is moved to horizontal position.

In witness whereof, I have hereunto set my hand this 25th day of June, 1925.

WILLIAM GRIMMICH.