

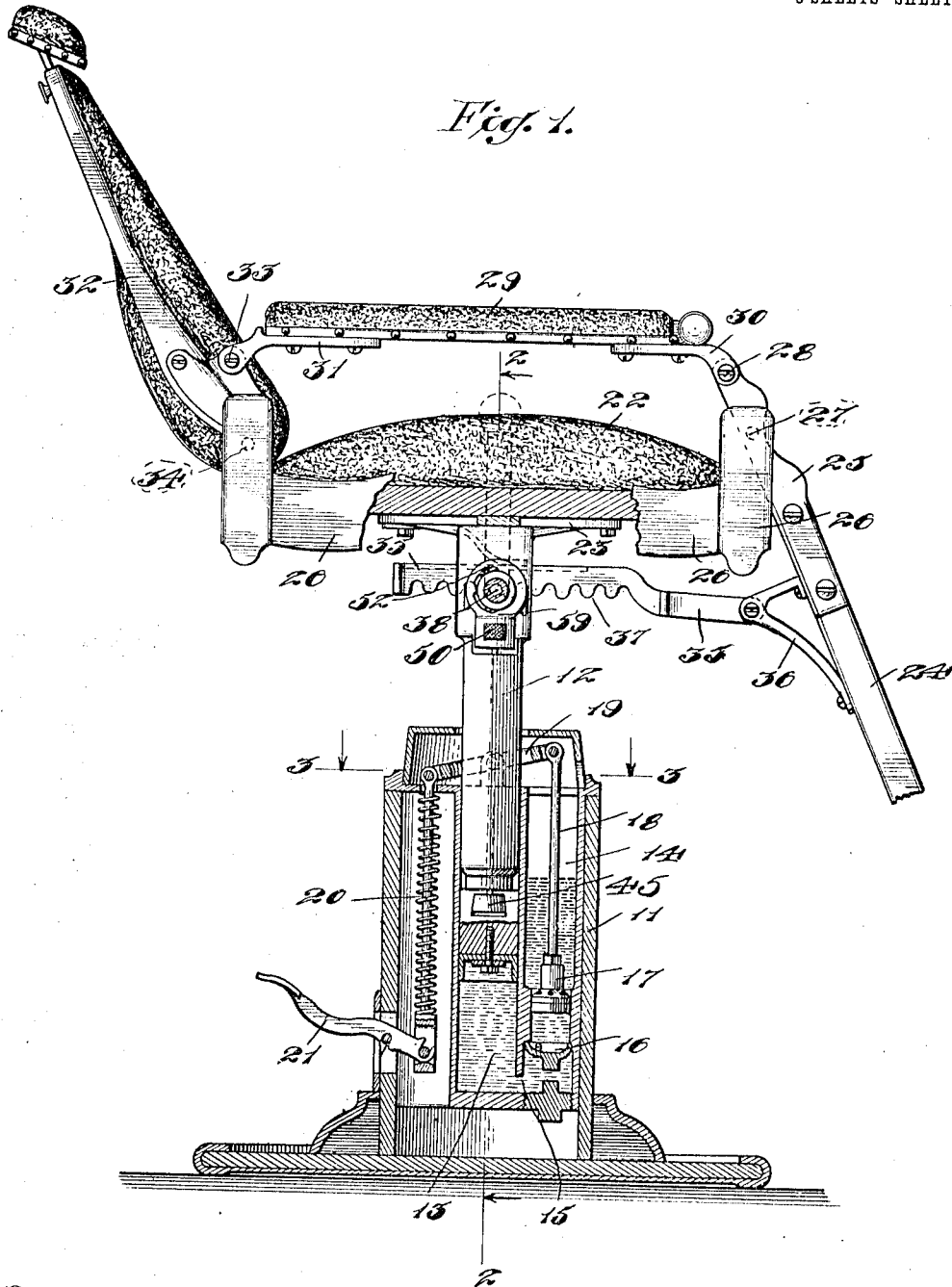
C. W. FISCHER & C. ZIMMERMAN.
BARBER'S CHAIR.

APPLICATION FILED MAR. 21, 1904.

947,380.

Patented Jan. 25, 1910.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 2.

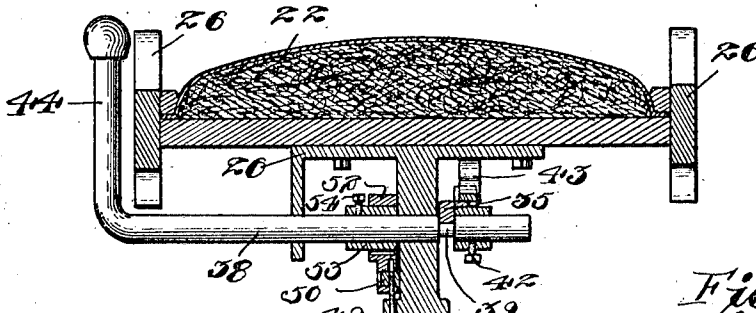


Fig. 4.

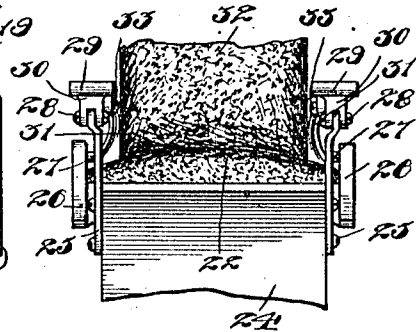


Fig. 5.

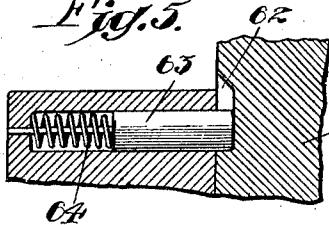


Fig. 3.

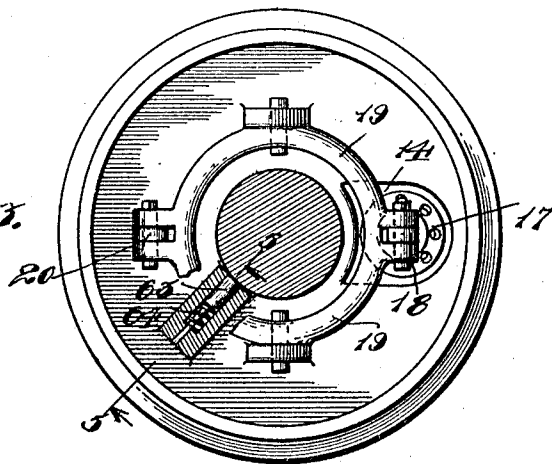


Fig. 12.



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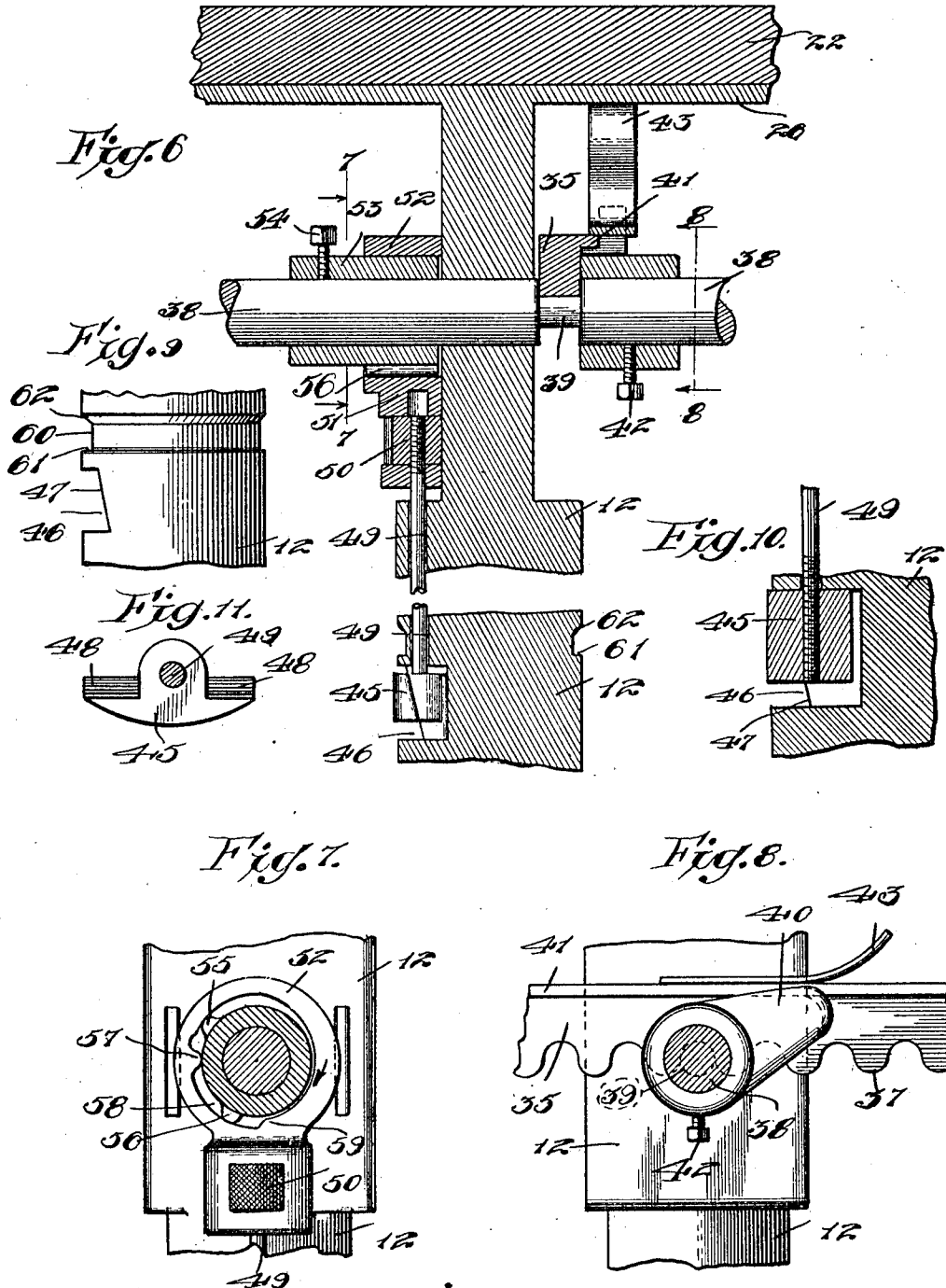
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8 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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BARBER'S CHAIR.

947,380.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed March 21, 1904. Serial No. 199,073.

To all whom it may concern:

Be it known that we, CHARLES W. FISCHER and CHARLES ZIMMERMAN, citizens of the United States, and residents of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Barbers' Chairs, of which the following is a specification, reference being had to the accompanying drawings.

Our invention relates to barbers' chairs, and has especially to do with the mechanism for controlling the various adjustments common to such chairs,—that is to say, the rotation of the chair about a vertical axis and the adjustment of the back, arms, and foot-rest.

It also has to do with the vertical adjustment of the chair, in that it provides for preventing the plunger which supports the chair-seat from being driven up out of the base.

The objects of our invention are to provide a new and improved barbers' chair, by which the rotation of the chair and the position of the back, arms, and foot-rest may be controlled by a single lever; to provide improved locking-devices for securing the chair-seat against rotation; and also to provide means by which accidental excessive upward movement of the chair-seat plunger may be prevented. We accomplish these objects as illustrated in the drawings and as hereinafter described.

What we regard as new is set forth in the claims.

In the accompanying drawings,—Figure 1 is a side elevation of our improved chair, the base and some parts of the seat being in section; Fig. 2 is a partial section on line 2—2 of Fig. 1; Fig. 3 is a horizontal section on line 3—3 of Fig. 1; Fig. 4 is a partial front elevation of the chair; Fig. 5 is a section on line 5—5 of Fig. 3; Fig. 6 is an enlarged sectional view,—also taken on line 2—2 of Fig. 1, some parts being in elevation; Fig. 7 is a section on line 7—7 of Fig. 6,—showing the cam-mechanism for operating the locking devices; Fig. 8 is an enlarged detail,—being a section on line 8—8 of Fig. 6; Fig. 9 is a partial side elevation of the plunger; Fig. 10 is a central vertical section of a part of the plunger,—also taken on line 2—2 of Fig. 1; Fig. 11 is a plan view of the locking-block,—the operating-rod

thereof being in section, and Fig. 12 is a perspective view of the locking block.

Referring to the drawings,—11 indicates the base of the chair, which contains the mechanism for raising and lowering the plunger 12 which carries the chair-seat.

The general construction of the base, so far as it relates to the mechanism for vertically adjusting the plunger, is substantially like that shown in patent to Anton J. Rollert, No. 598,877, dated February 8, 1898,—in which the plunger is operated by hydraulic mechanism.

As illustrated in Fig. 1, there is a central cylindrical chamber 13, in which the plunger fits closely, and a second chamber 14 at one side of said intermediate chamber, which communicates therewith by a port 15. A check-valve 16 prevents the return of the fluid—preferably oil—from the chamber 13 to the chamber 14 except when said check-valve is depressed by means of a piston-valve 17 carried at the lower end of a valve-stem 18. The valve-stem 18 is connected at its upper end to a crosshead 19, suitably mounted on trunnions at the upper portion of the base 11 and connected by a connecting-rod 20 with a foot-lever 21. The arrangement is such that by operating the lever 21 by short strokes oil is forced from the chamber 14 past valve 16, through port 15 to chamber 13,—thereby forcing the plunger up in said chamber. To lower the plunger the lever 21 is depressed to its fullest extent,—thereby moving the piston-valve 17 down until it engages the valve 16 and moves it off its seat; whereupon the oil in the chamber 13 is forced by the weight of the plunger back into the chamber 14. This construction is fully illustrated and described in the Rollert patent above referred to, and consequently further description thereof at this time is believed to be unnecessary.

22 indicates the chair-seat, which, as shown in Figs. 1 and 2, is mounted on a frame 23 at the upper end of the plunger. 24 indicates the foot-rest, which, as shown in Figs. 1 and 4, is provided with upwardly-extending side-bars 25 at opposite sides thereof,—said bars being pivotally connected to the front of the seat-frame 26 by pivots 27, best shown in Fig. 4. The upper ends of the bars 25 are connected by pivots 28 with the arms 29 through short straps 30 which pro-

ject forward from the arms 29, as shown in Fig. 1. The rear ends of the arms 29 are connected by straps 31 to the back-frame 32 by means of pivots 33. The back-frame 32 is pivotally connected at its lower end to the rear portion of the seat-frame 26 by pivots 34, shown in dotted lines in Fig. 1. By this construction the back, arms, and foot-rest swing together,—that is to say, when the foot-rest is thrown forward into reclining position, the back-frame is thrown backward and the arms 29 descend. Reverse movement of the foot-rest raises the back to a more nearly vertical position, and correspondingly elevates the arms. It will be evident, therefore, that by controlling the position of the foot-rest, the position of the other parts may also be controlled.

For controlling the position of the foot-rest a rack-bar 35 is provided, pivotally connected at its lower end with the foot-rest 24, preferably by means of a bracket 36, as shown in Fig. 1. The teeth 37 of the rack-bar 35 are on the lower edge thereof, and said rack-bar projects across a rock-shaft 38, best shown in Figs. 1 and 6. Preferably, as shown in Fig. 6, that portion of the rock-shaft 38 which lies under the rack-bar 35 is reduced, as shown at 39,—thereby admitting of the use of smaller teeth, and securing finer adjustment. Normally the rack-bar 35 rests upon the shaft 38,—thereby holding the foot-rest and the parts connected therewith in a fixed position. By raising the rack-bar 35 out of engagement with the shaft 38, however, the parts are released, and may be adjusted at pleasure. For thus raising the rack-bar, the shaft 38 is provided with a crank-arm 40 which extends under a marginal flange 41 carried by the rack-bar 35, as shown in Figs. 6 and 8. Accordingly, by rocking the shaft 38, the arm 40, through its engagement with the flange 41, operates to lift the rack-bar 35 out of engagement with the shaft 38. The arm 40 may be adjusted upon the shaft 38, and is held in position by a set-screw 42, shown in Figs. 6 and 8. 43 indicates a spring, secured to the seat-frame 26 and engaging the upper surface of the rack-bar 35, so that it operates to hold the rack-bar down in operative position. The shaft 38 is rocked by means of a lever 44, which projects up at one side of the chair, as shown in Fig. 2, and is preferably formed integral with said shaft.

The plunger 12 normally is free to rotate in the chamber 13,—resting on the body of oil therein; but it may be locked against rotation by means of a locking-block 45 mounted in a recess 46 in one side of the plunger and adapted to engage the inner wall of the chamber in which the plunger moves. As best shown in Figs. 6 and 9, the sides of the recess 46 are inclined downward and inward, as shown at 47, and the block 45 is provided

with correspondingly-inclined end-portions 48, as shown in Figs. 6 and 11. Accordingly, when the block 45 moves upward in the recess 46, it is forced outward into frictional engagement with the inner wall of the plunger-chamber, and by its engagement therewith operates to prevent rotation of the plunger. Said block is carried at the lower end of an operating-rod 49, which, at its lower end, is screwed into the block 45, and at its upper end is screwed into an adjusting nut 50,—the latter being mounted in a suitable recess in the downwardly-projecting portion 51 of a collar 52 mounted on a cam-sleeve 53, as best shown in Figs. 6 and 7. The sleeve 53 is mounted upon and secured to the shaft 38, preferably by means of a set-screw 54, as shown in Fig. 6, and is provided with two projections 55—56, best shown in Fig. 7. The projection 55 lies above a projection 57 carried by the collar 52, which serves as a stop to limit movement of the sleeve 53 and shaft 38 in one direction. The other projection 56 normally moves in a depressed portion 58 of the collar 52, but is adapted, when moved far enough to the right, as shown in Fig. 7, to ride up on an elevated portion 59 of said sleeve,—thereby depressing said sleeve, and with it the operating-rod 49 and locking-block 45. When the shaft 38 is rocked in the opposite direction,—that is to say, in the direction indicated by the arrow in Fig. 7,—the projection 55 engages the upper inner surface of the collar 52,—thereby raising said collar, and with it the locking-block 45, which is accordingly projected beyond the surface of the plunger 12 into engagement with the inner wall of the chamber 13, thereby locking the plunger against rotation.

It will be observed from a comparison of Figs. 7 and 8 that the direction in which the shaft 38 is rotated to lock the plunger against rotation is the same as that in which it is rotated to unlock the foot-rest and connected parts. It follows that the movement of the lever 44 in one direction releases the foot-rest and connected parts to permit of their adjustment while the chair is still locked against rotation, and that upon the movement of the lever in the opposite direction the foot-rest and connected parts are locked against adjustment while the chair is free to rotate. When the lever is in its intermediate position, the chair is locked both against rotation and against adjustment of the foot-rest.

It will be observed from an inspection of Fig. 6 that when the locking-block 45 is in locking-position it projects beyond the surface of the plunger 12, and the extent to which it projects may be varied by adjusting the operating-rod 49 through the nut 50, since the extent to which said block 45 is raised upon the inclined surfaces 47 of the

plunger may be controlled by vertically adjusting the operating-rod by means of said nut.

In order to prevent the plunger from being accidentally forced out of the chamber 13, we provide the plunger with an annular groove 60, the lower margin of which is perpendicular or otherwise suitably arranged to form a shoulder, as shown at 61 in Fig. 9, while its upper margin is beveled, as shown at 62 in said figure. A locking-pin 63 is fitted in the upper portion of the base, as shown in Fig. 3, and is adapted to enter said groove when the plunger rises to a sufficient height. Inasmuch as the lower margin of the groove is perpendicular, as above stated, the pin 63, when in said groove, prevents further upward movement of the plunger. Downward movement thereof, however, is permitted, since the beveled margin 62 of said groove acts to force the pin 63 back into its recess. A spring 64 is provided for pressing the pin 63 inward against the plunger 12, as shown in Fig. 5.

That which we claim as our invention and desire to secure by Letters Patent is,—

1. In a chair, the combination of a base, a hydraulic chamber therein, a plunger mounted in said chamber, means for moving said plunger vertically in said chamber, a seat-frame mounted on said plunger, a locking-block carried by said plunger and having inclined bearings therein, whereby vertical movement of said block operates to move said block toward and from the wall of said chamber, an operating-rod connected at its lower end with said block, a rock-shaft, a collar mounted thereon, cam-mechanism adapted by the rocking of said rock-shaft to reciprocate said collar, and an adjusting-nut mounted in a recess in said collar, said adjusting-nut being screw-threaded upon the upper end of said operating-rod.

2. In a chair, the combination of a base, a hydraulic chamber therein, a plunger mounted in said chamber, means for moving said plunger vertically in said chamber, a seat-frame mounted on said plunger, a locking-block carried by said plunger and having inclined bearings therein, whereby vertical movement of said block operates to move said block toward and from the wall of said chamber, an operating-rod connected with said block and mounted in said plunger, a

rock-shaft, a sleeve mounted on said rock-shaft, said sleeve having a plurality of projections, and a collar mounted on said sleeve, said collar being connected with said operating-rod and being arranged to reciprocate by the rocking of said sleeve, substantially as described.

3. In a chair, the combination of a base, a hydraulic chamber therein, a plunger mounted in said chamber, means for moving said plunger vertically in said chamber, a seat-frame mounted on said plunger, a locking-block carried by said plunger and having inclined bearings therein, whereby vertical movement of said block operates to move said block toward and from the wall of said chamber, an operating-rod connected with said block and mounted in said plunger, a rock-shaft, a sleeve mounted on said rock-shaft, said sleeve having a plurality of projections, a collar mounted on said sleeve, said collar being connected with said operating-rod and being arranged to reciprocate by the rocking of said sleeve, and means between said collar and said operating-rod for adjusting said parts relatively to one another, substantially as described.

4. In a chair, the combination of a base having a plunger-chamber, a plunger mounted in said chamber, hydraulic-mechanism for vertically adjusting said plunger, said plunger having an annular groove, the lower margin of which forms a shoulder and a pin carried by the base and adapted to project into said groove and engage said shoulder when the plunger rises to a certain point, substantially as described.

5. In a chair, the combination of a base having a plunger-chamber, a plunger mounted in said chamber, hydraulic-mechanism for vertically adjusting said plunger, said plunger having an annular groove, the upper margin of said groove being beveled and the lower margin thereof being shouldered, a pin carried by the base and adapted to project into said groove and engage said shoulder when the plunger rises to a certain point, and a spring for pressing said pin against said plunger, substantially as described.

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