

(No Model.)

2 Sheets—Sheet 1.

E. BERNINGHAUS.
BARBER'S CHAIR.

No. 585,502.

Patented June 29, 1897.

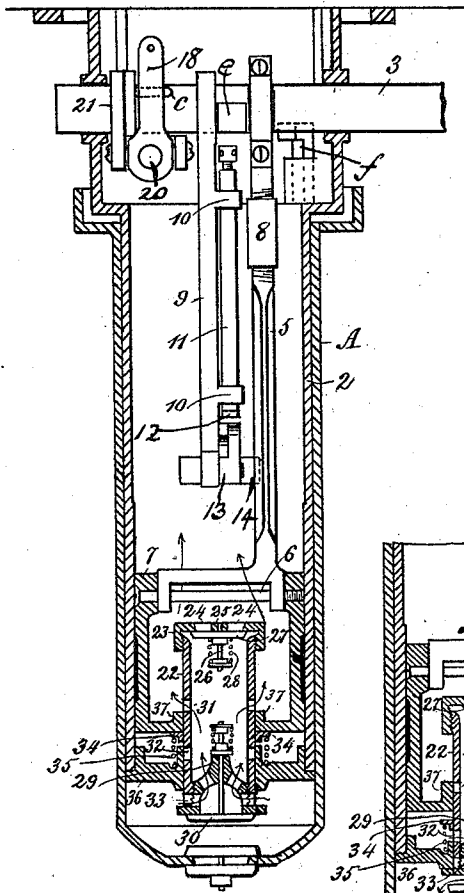


Fig. I.

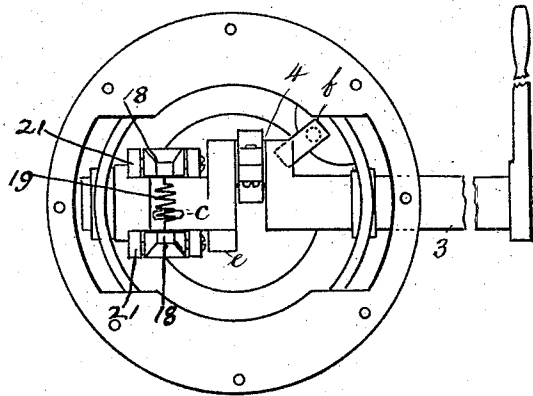


Fig. II.

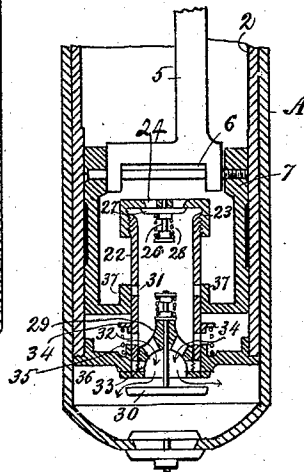


Fig. III.

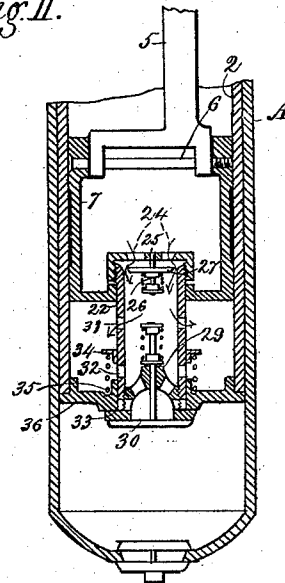


Fig. IV.

Witnesses,
R. S. Millar
Edward C. Rollins

Inventor
E. Berninghaus.

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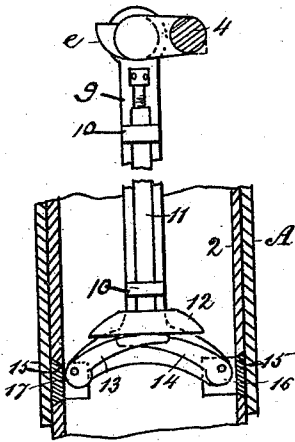


Fig. V.

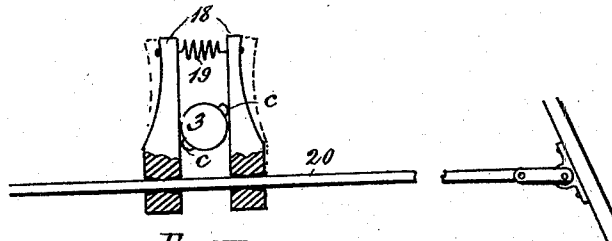


Fig. VI.

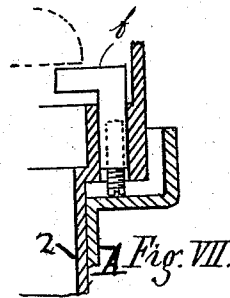


Fig. VII.

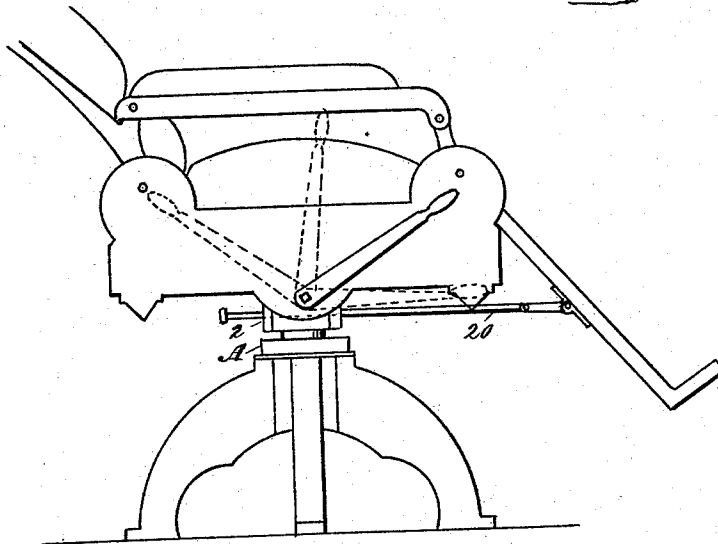


Fig. VIII.

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UNITED STATES PATENT OFFICE.

EUGENE BERNINGHAUS, OF CINCINNATI, OHIO.

BARBER'S CHAIR.

SPECIFICATION forming part of Letters Patent No. 585,502, dated June 29, 1897.

Application filed January 6, 1896. Serial No. 574,486. (No model.)

To all whom it may concern:

Be it known that I, EUGENE BERNINGHAUS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Barbers' Chairs, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of a chair constructed in accordance with my invention. Fig. 2 is a plan view of the same. Figs. 3 and 4 are longitudinal sectional views, the parts being shown in different positions. Fig. 5 is a detail sectional view showing the device for preventing the piston which carries the chair from rotating. Fig. 6 is a detail sectional view of the device for locking the brace-bar of the apron. Fig. 7 is a sectional view of the adjustable stop for the rock-shaft. Fig. 8 is a side view of the complete chair, showing different positions of the operating-lever.

My invention pertains to certain improvements in adjustable chairs in general, and more particularly to barbers' chairs. My purpose is to provide a reliable and durable device whereby they may be easily and noiselessly adjusted in height, inclination, and rotative position by a single lever controlled by the operator.

The peculiar feature of the invention will be apparent by referring to the accompanying drawings, in which—

A indicates a hollow cylinder open at the top and having its lower end securely fixed in the base of the chair. A tubular or shell piston 2, adapted to contain oil or other suitable liquid, is fitted to slide within the said cylinder and has an enlarged top, which is flanged and fastened to the seat of the chair. A rock-shaft 3 passes transversely through the said piston near its top and has a crank 4, which carries a pitman 5, connected by a cross-bar 6 to the vertically-reciprocating plunger 7. Said pitman is made in sections, which are provided with right and left threads to engage a coupler 8. An accurate and positive adjustment may thus be secured. An arm 9 is suspended on the rock-shaft and has perforated lateral projections 10 to receive a plunger-bar 11, (shown more clearly in Fig. 5,) having at its lower extremity a foot 12, adapted to engage a pair of cam-levers 13 and

14, pivotally secured to lateral extensions of the aforesaid depending arm 9. Apertures 15 are formed in the shell of the piston 2 to receive segmental plates 16 and 17, which bear directly against the inner wall of the hollow cylinder A. These plates are forced to a bearing by the action of the depressible cam-levers 13 and 14, as will be hereinafter noted. A pair of gripping-jaws 18 are normally drawn against the rock-shaft by a tension-spring 19. (See Fig. 6.) In the position here shown the apron-bar 20 is free to slide longitudinally; but when the rock-shaft is turned to bring the feather projections *c c* to bear against the jaws the latter are forced apart and their apertures take a lifting grip on the apron-bar. The said jaws are pivotally attached to a collar-block 21 on the rock-shaft.

An integral heel-cam *e* is formed on the rock-shaft adjacent to the crank, (see upper portion of Fig. 5,) the purpose of which is to engage and force the locking mechanism downward when the hand-lever is thrown rearwardly, as shown by dotted lines in Fig. 8. A stop *f* is set in an aperture formed in a thickened portion of the piston-shell. The purpose of this stop is to prevent the rock-shaft 3 from being turned too far, which would be liable to interfere with the proper working of the apparatus. It will be noticed (see Fig. 7) that the upper end of this stop is formed with an inwardly-projecting extension, against which the crank 4 of the rock-shaft will strike (see Fig. 2) when the lever is moved forward, and thus limit the movement of the rock-shaft.

22 indicates a vertically-playing valve-tube, the top of which is provided with a threaded cap 23, having openings 24, and from a central cross-bar 25 there is a depending stem 26, on which plays a valve 27, which is gently held in its seat by a coiled spring 28. The lower end of the valve-tube is provided with an apertured plug 29, which is fixedly threaded into the tube. The end of a bottom valve 30 extends through a central aperture in this plug, said valve being seated by the action of a spiral spring which encircles the upper portion of the stem. The body of the valve-tube is provided with upper openings 31, middle openings 32, and lower openings 33. Above the middle openings is fixed to said tube a collar-flange 34, against which abuts

the upper end of a spiral spring 35, which serves to elevate the tube and hold it in such position. The body of the valve-tube passes through the bottom of the piston-shell and the bottom of the plunger, which is vertically enlarged by a flange 37, the function of which will be hereinafter explained.

The operation is as follows: As seen in Fig. 1, the pitman, the plunger, and the tube are at the end of their downward stroke and the chair depressed to its lowest position, the operating-lever occupying the position shown in the central dotted lines, Fig. 8. Supposing now it is desired to elevate the chair, then the lever is pushed forward until it assumes the position shown in full lines, Fig. 8. The lever is now pulled backward and by means of the crank and connections the plunger is elevated, when the coiled spring 35, bearing against the flange 34, will elevate the tube and the openings 33 therein, and in the plug coming within the lower end of the piston will close communication between said plug and the space below the piston. At the same time the elevation of the plunger will tend to create a vacuum in the piston-shell below the plunger, which will cause valve 30 to close and the valve at the upper end of the tube to open, as seen in Fig. 4, so that the oil above the piston will escape into the tube through the openings in the top thereof and from thence into the piston-shell through the side openings 31. The oil will be retained in the piston-shell, as the spring of valve 30 is sufficient to overcome the pressure of the oil, holding the valve 30 closed. The movement of the lever is now reversed, depressing the plunger, closing the upper valve 27, and forcing the oil in the piston-shell back into the tube and thence through the openings 32 into the plug, opening valve 30 and forcing the oil out under the piston and raising the latter. (See Fig. 3.) These movements will be repeated, the lever being alternately moved back and forth, intermittently elevating the chair until the proper height has been reached. The lever is then given a slight further forward movement, when the heel-cam will depress the stem, which will force the cam-levers against the segmental plates and prevent the piston from rotating. To lower the chair, the lever is pulled backward to the position shown in the rear dotted lines, Fig. 8, when the plunger will strike the flange 34, which being fixed to the tube will depress the latter, so that the openings 33 in the lower end thereof and the coinciding openings in the plug which is fixed to the tube will come below the lower end of the piston, as seen in Fig. 1. Communication between the space below the piston and the tube will now be established, when the weight of the chair will cause the piston to descend, the oil in said space escaping into the tube and thence out through the openings 31 into the piston-shell.

What I claim is—

1. In a chair of the character described,

the combination with the hollow cylinder, the tubular piston located therein having an opening in its lower end, the vertically-movable tube working in said opening having openings intermediate its ends, the plug secured thereto having openings therein and provided with a downwardly-opening spring-actuated valve, the cap and valve at the upper end of said tube, the vertically-movable plunger and means for operating the same substantially as described.

2. In a chair of the character described, the combination with the hollow cylinder, the tubular piston located therein having an opening in its lower end, the seat carried by said piston, the vertically-movable tube working in said opening having openings intermediate its ends, the plug secured to said tube having openings in the sides and a downwardly-opening spring-actuated valve at the lower end, the annular flange secured to said tube and the coiled spring bearing against the same, of the cap and spring-actuated valve at the upper part of said tube, and the vertically-movable plunger, the pitman and rock-shaft, substantially as described.

3. In a chair of the character described, the combination with the hollow cylinder, the tubular piston located therein having an opening at its lower end, the vertically-movable tube working in said opening having openings intermediate its ends, the plug secured to said tube having openings in its sides and a downwardly-opening spring-actuated valve at the lower end, the annular flange secured to said tube, the coiled spring bearing against said flange, the cap and spring-actuated valve at the upper end of said tube, the vertically-movable plunger, the pitman, the driving-shaft, the crank and cam thereon, the downwardly-depending bar journaled in said shaft, the vertically-movable push-rod connected therewith, the shoe at the lower end thereof, the links pivoted to said bar, and the segments connected therewith projecting through openings in said piston, substantially as described.

4. In a chair of the character described, the combination with the vertically-movable piston, the chair having a pivoted apron, the rock-shaft provided with projections and the collar-block pivoted to said shaft, of the spring-actuated gripping-jaws with which said projections engage pivotally connected with said collar-block and said jaws having openings in the lower ends and the brace-bar pivoted to said apron and passing through the openings in said jaws, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand, this 17th day of December, 1895, in the presence of witnesses.

EUGENE BERNINGHAUS.

Witnesses:

GEO. W. HARDACRE,
CHAS. DOLLE.