(No Model.)

# H. H. ELBREG.

## DENTAL AND SURGICAL CHAIR.

No. 589,499. Patented Sept. 7, 1897.

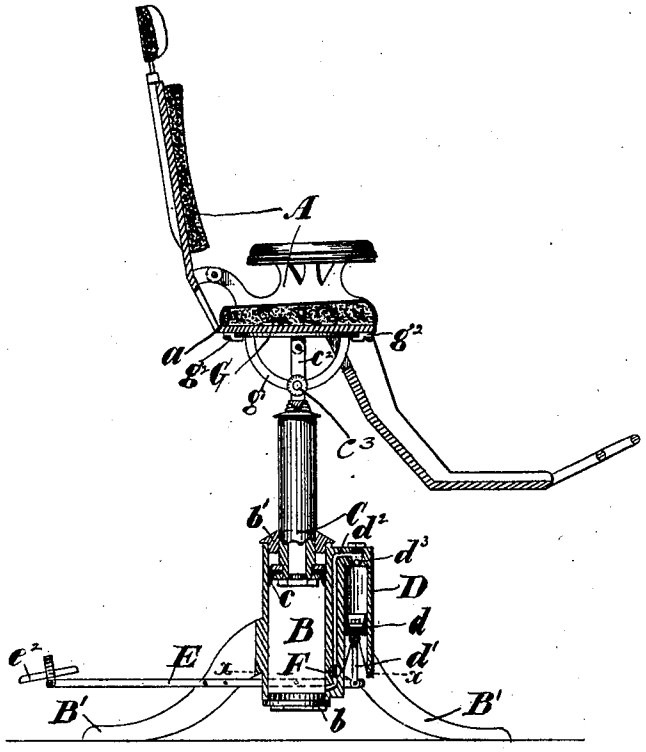



FIG. 1.

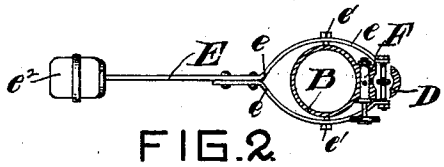



FIG. 2.

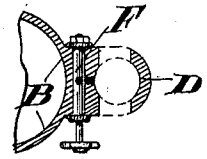



FIG. 5.

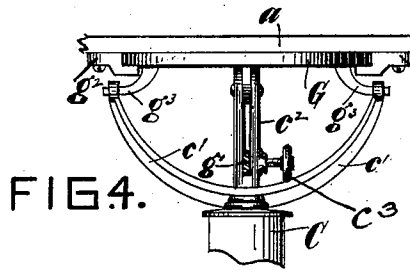



FIG. 4.

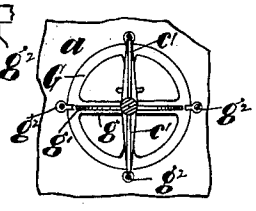



FIG. 3.

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# UNITED STATES PATENT OFFICE.

HENRY H. ELBREG, OF INDIANAPOLIS, INDIANA.

## DENTAL AND SURGICAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 589,499, dated September 7, 1897.

Application filed July 28, 1894. Serial No. 518,830. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY H. ELBREG, a citizen of the United States, and a resident of Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Dental and Surgical Chairs, of which the following is a specification.

My invention relates to dental and surgical chairs, and particularly to means for adjusting the frame to any desired position.

The invention will be first fully described in connection with the accompanying drawings, and then particularly referred to and pointed out in the claim.

Referring to the drawings, in which like parts are indicated by similar reference-letters wherever they occur throughout the various views, Figure 1 is a central vertical sectional view of a dental and surgical chair provided with my improvements, part of the chair-supporting column being shown in elevation. Fig. 2 is a transverse sectional view taken through line $x\,x$ of Fig. 1. Fig. 3 is an inverted plan view of part of the seat, illustrating the means for adjusting the chair-frame around its axis and at an inclination thereto. Figs. 4 and 5 are enlarged detailed views of some of the parts.

The chair-frame A is of ordinary construction, except the bottom board or support $a$, for an upholstered seat. The body of the base is made, preferably, of a single casting and comprises two cylinders and an intermediate air-duct communicating from one cylinder to the other. The larger cylinder B is bored out true to receive the column C, the lower end of which within the cylinder is a piston preferably formed by a cup-leather packing $c$ to fit air-tight within the cylinder. A smaller cylinder D is the barrel of an air-pump fitted with a piston $d$, the rod $d'$ of which extends below the barrel and is coupled by a hinged joint to the piston at its upper end, its lower end being pivoted on the pin in the ends of the bifurcated treadle or lever E. The arms $e$ of the lever are curved around upon opposite sides of the cylinder B and are fulcrumed upon pins $e'$, which pass through the lever-arms and are secured in the cylinder B. The lower end of the cylinder B is fitted with an air-tight cap or plug $b$. The legs B', which support the cylinder B, of which there are preferably four, may be either cast integral with said cylinder or secured to the outside thereof by bolts.

The upper end of the air-pump connects with the cylinder B near its lower end through the air-duct $d^2$, the passage from the air-pump to the duct being provided with a check-valve $d^3$, which is shown in the drawings as an ordinary ball-valve, but any well-known form of check-valve may be employed. The passage from the air-duct to the cylinder B is controlled by a three-way cock F, by means of which air is admitted from the pump to the cylinder B or discharged therefrom to the open air. The foot-piece $e^2$ is preferably hinged to the end of the lever E and provided with a toe-strap, by which the lever may be drawn up and piston $d$ of the air-pump retracted. The same result will be accomplished, of course, by a spring placed under the long arm of the lever E to exert an upward pressure upon it when the pressure of the foot is taken away.

The air-chamber is a well-known construction. The air is supplied to the pump-chamber through its lower open end. The piston of the air-chamber is a cup-rubber secured upon the plunger, which does not closely fit the pump-chamber. The upward pressure of the air will collapse the cup-rubber and supply the upper portion of the chamber with air, and when the treadle is pressed down the air in the upper portion will expand the rubber cup against the walls of the pump-cylinder and force the air through the upper channel down through the supply-cock and into the chamber B.

The upper end of the column C terminates in two curved arms $c'$ and a central vertical extension $c^2$ to support the chair-frame. To the under side of the chair-frame is secured a circular ring or plate G, the opposite sides of the ring being united by a diametrical transverse bar $g$, which has projecting down centrally from it a perforated lug to pass into the upper end of the slot in the extension $c^2$. A journal-pin passing through the ends of the extension $c^2$ and through the lug projecting down from the transverse bar serves as a pivot to unite the plate to the upper end of said extension. A semicircular segment $g'$,

uniting the opposite sides of the ring G, plays in the lower part of the slot in the extension $c^2$, and a set-screw $c^3$, tapped through one wall of the extension and bearing upon the side of the segment $g'$, locks the chair in whatever position it may be tilted. The ring G is secured to the under side of the seat-support $a$ by clips $g^2$, of which there may be any desired number, the clips being secured firmly to the platform $a$ and projecting over the face of the ring to permit the chair-frame to be turned around the column, the clips serving as seats or tracks for the ring G. In place of the clips $g^2$ a recessed outer ring could of course be employed.

The upper ends of the curved arms $c'$ have semicircular bearings to receive the journal-pins $g^3$, which are formed upon the ends of studs which project down from the ring G. The ring G, transverse bar $g$, the segment $g'$, and studs $g^3$ are all cast in a single piece. It will be seen that by this means the chair-frame can be turned around its axis in any desired position and tilted back, forward, or held vertically, as shown in the drawings, by simply loosening the set-screw $c^3$ and tightening it up again when the chair assumes the position desired.

To save metal, the column or follower C is cast hollow to near its upper end and is fitted to slide through an upper cap $b'$, which, with the cup-leather packing and the rings which keep it in place, serve as guides to insure a steady perpendicular movement of the follower.

While I have shown the piston-cylinder B and pump-cylinder D formed of a single casting, it is obvious that they may be formed separately and the pump secured in position by any suitable means, but the means I have shown I believe to be the safest and most effective. It is also obvious that the device may be changed in many minor details of construction without departing from the spirit or scope of my invention and hence without limiting myself to the specific details shown.

What I claim is—

In a dental and surgical chair, the combination of the base, the follower, having an upward slotted extension, the chair-seat, the ring, G, secured to the chair-seat and having a downwardly-projecting perforated lug to enter the slotted extension of the follower, downwardly-projecting studs having horizontal journal-pins extending from them, a downwardly-extending segment, $g'$, adapted to traverse the slot in said upward extension of the follower, curved arms extending upon opposite sides of said central extension and having bearings in their upper ends to receive the journal-studs, $g^3$, and a set-screw tapped through one of the slotted walls of said upper extension to bear upon the segment and hold it firm when adjusted, substantially as shown and described.

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