No. 625,425. Patented May 23, 1899.

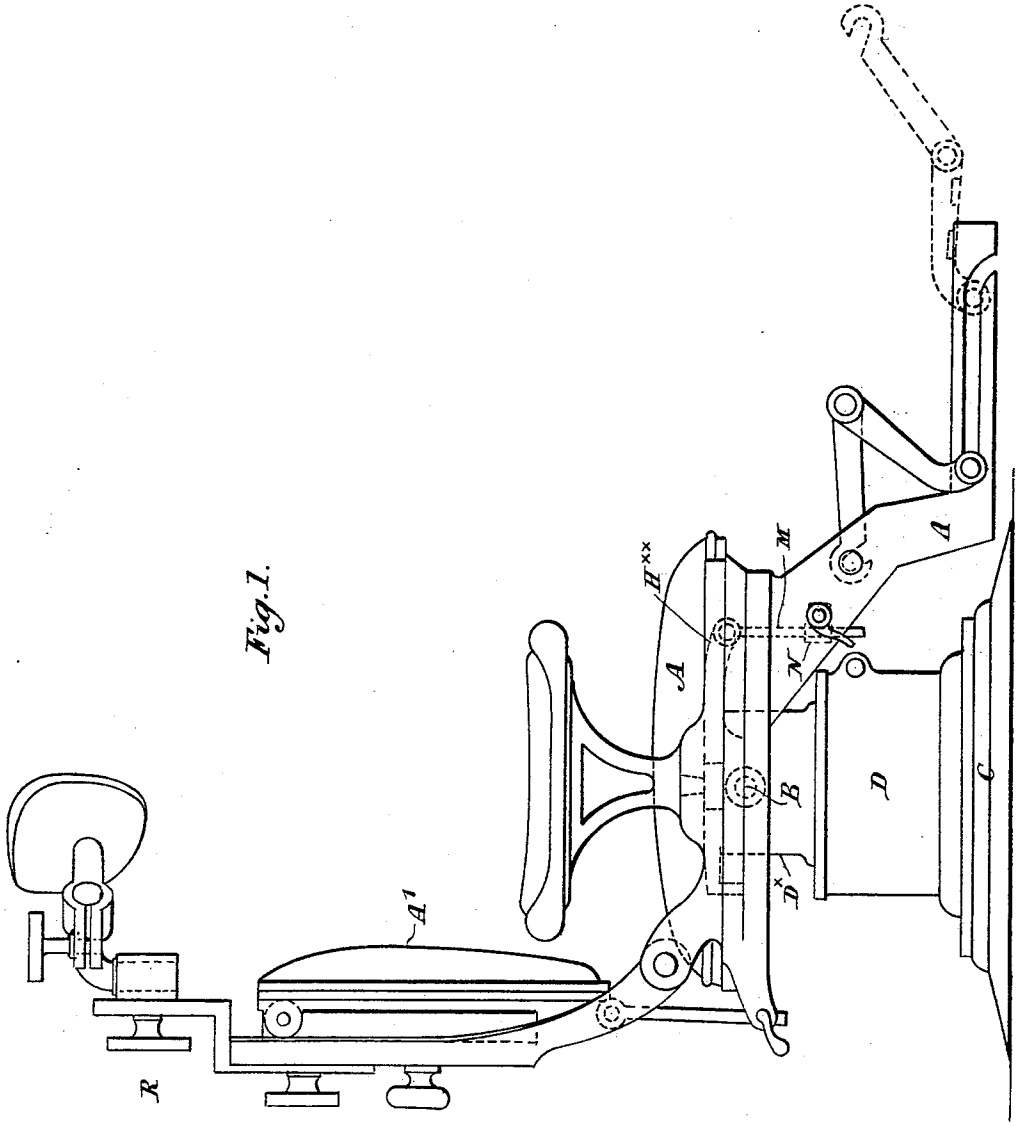
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DENTAL CHAIR.

(Application filed May 23, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

Fig. 2.

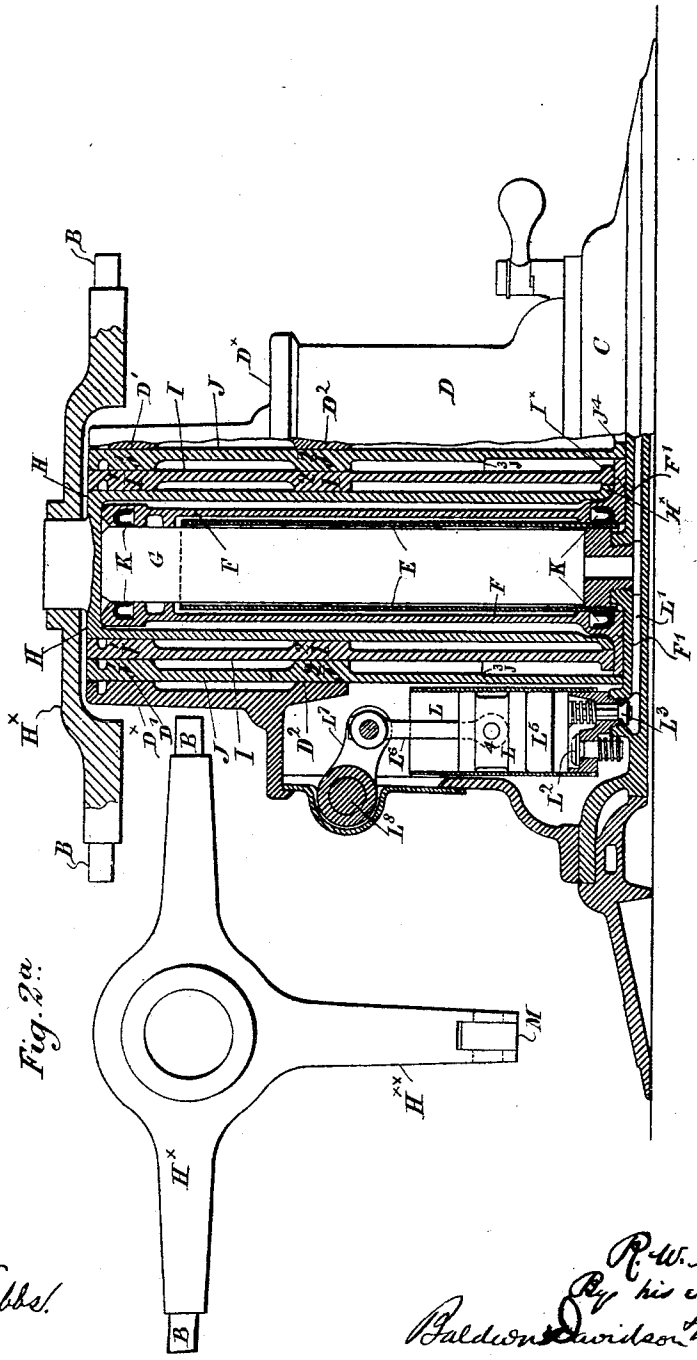


Fig. 2a.

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(No Model.) 3 Sheets—Sheet 3.

Fig. 3.

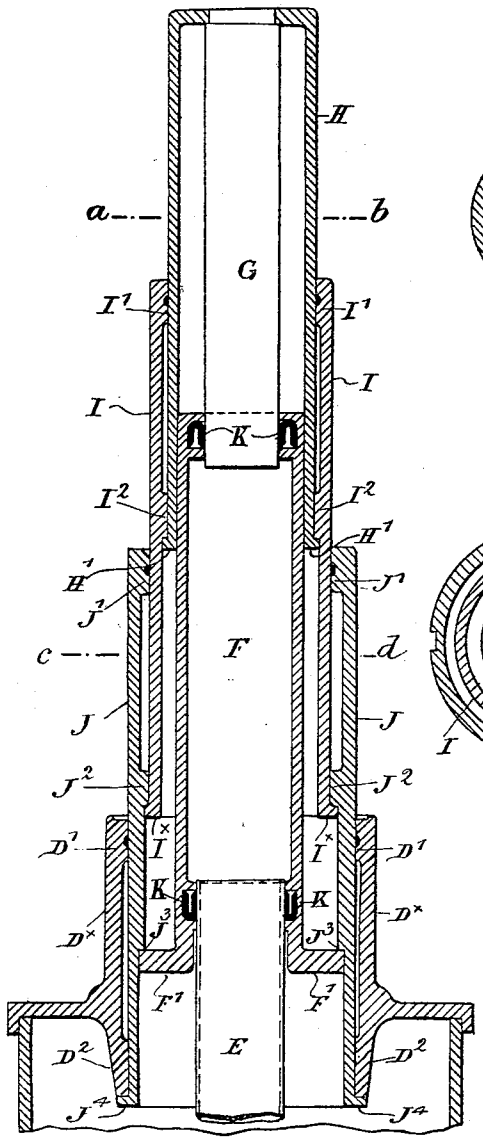


Fig. 3a.

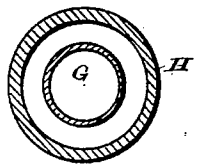
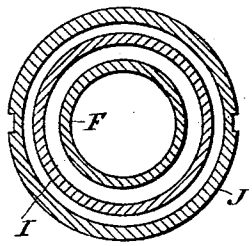


Fig. 3b.



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UNITED STATES PATENT OFFICE.

RICHARD WILLIAM SONNEX, OF BARNET, ENGLAND, ASSIGNOR TO THE DENTAL MANUFACTURING COMPANY, LIMITED, OF LONDON, ENGLAND.

DENTAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 625,425, dated May 23, 1899.

Application filed May 23, 1898. Serial No. 681,453. (No model.)

To all whom it may concern:

Be it known that I, RICHARD WILLIAM SONNEX, engineer, a subject of the Queen of Great Britain, residing at 13 Thornton road, Barnet, county of Herts, England, have invented certain new and useful Improvements in Dental Chairs, of which the following is a specification.

My invention relates to means for raising and lowering the body of a dental chair.

My improvements are illustrated in the accompanying drawings.

Figure 1 is a side elevation of a dental chair embodying my improvements in their preferred form. Fig. 2 is a vertical section of the hydraulic mechanism for raising or lowering the body of the chair, the parts being shown in their lowest position. Fig. 2^a is a plan of the cross-head fixed to the top of the lifting-ram. Fig. 3 is a vertical section of the telescopic ram and telescopic guides when extended. Fig. 3^a is a cross-section through the line *a b*, Fig. 3; and Fig. 3^b, a cross-section through the line *c d*.

For raising and lowering the chair-body I provide a telescopic hydraulic ram, together with telescopic guide-tubes which serve to support the telescopic ram and which when the ram is lowered all fit concentrically one within the other and within an outer casing or pedestal.

A is the chair-seat, A′ the back, and A^2 an extension carrying the foot-rest, these parts together forming the chair-body, which can be tilted on pivots B on a cross-head fixed to the top of the lifting-ram.

C is a base-plate to which is secured a vertical cylindrical casing D, forming a pedestal.

$D^\times$ is a cap or cover for the pedestal.

E is a hollow ram fixed to the base-plate C.

F is a cylinder fitting at its lower end around the exterior of the fixed ram E and at its upper end around a movable ram G.

H I J are outer guiding-cylinders. The cylinder H is closed at the top, and the top of the cylinder F and ram G can bear against it.

$H^\times$ is a cross-head fixed to the top of the cylinder H and having the pivots B formed on its ends.

The cylinder I fits at I′ I^2 around the exterior of the cylinder H, and the cylinder J fits at J′ J^2 around the exterior of the cylinder I. Guide-surfaces D′ D^2 on the cap $D^\times$ of the pedestal similarly fit around the exterior of the cylinder J.

K are cup-leather packings to avoid leakage.

The pedestal forms, as usual, a reservoir for containing liquid.

L is a pump for forcing liquid from the pedestal through a passage L′ to the bottom of the interior of the fixed ram E.

L^2 is the suction-valve, L^3 the delivery-valve, and L^4 the piston, with a cup-leather packing L^5 on its lower end.

L^6 is a connecting-rod coupling the piston to an arm L^7 on a spindle L^8, which can be rocked by the action of a treadle or otherwise in the ordinary manner.

When liquid is forced by the pump into the interior of the hollow ram E, it passes up through the interior of this ram and into the moving cylinder F, causing this cylinder and the ram G to both rise. A flange F′, which extends outwardly from the bottom of the cylinder F, at the same time lifts the guide-cylinders H I, and this continues until the outer part of the flange F′ comes against a shoulder J^3 on the interior of the guide-cylinder J, and this guide-cylinder will then be lifted also until the cylinder F has completed its rise and is arrested by a flange J^4 on the exterior of the bottom of the guide-cylinder J coming against the bottom of the lower guide-surface D^2, carried by the cap $D^\times$ of the pedestal. Afterward the ram G and guide-cylinders H and I continue to rise until a flange $I^\times$ on the bottom of the guide-cylinder I comes against the bottom of the projection J^2, whereby the guide-cylinder I is arrested, and the ram and cylinder H continue their movement until a flange H′ on the bottom of the guide-cylinder H comes against the bottom of I^2 and is thereby arrested.

The guiding-cylinders H I J are splined, and feathers are fitted to same to prevent them from turning in the pedestal. The cylinders and rams can be lowered in the ordinary way by allowing liquid to pass back from the passage L′ through a valve into the interior of the pedestal.

To allow of the chair-body being tilted to

any desired angle and retained in whatever position it is tilted into, the cross-head $H^{\times}$ is formed with an arm $H^{\times\times}$, extending forward from it. (See Fig. 1.) To the forward end of the arm is jointed a rod M, which extends downward and passes through a friction-clip N on the chair-body, by which it can be held fast.

The head-rest is shown at R. This may be of any suitable construction.

What I claim is—

1. The combination of the base-plate, the pedestal rising from it, a hollow ram fixed to the base-plate, a movable cylinder whose lower end fits around the exterior of the hollow ram, a second ram of smaller diameter than the fixed hollow ram passing through the upper end of the cylinder, and vertically-movable, telescopic, cylindrical guides fitting concentrically one within the other, within the interior of the pedestal and around the exterior of the movable cylinder and provided with bearing-surfaces which contact with and support both ends of the cylinder.

2. A chair-support, consisting of the combination of a pedestal or base, a hollow ram fixed thereto, a vertically-movable cylinder which fits fluid-tight around the hollow ram, a ram which moves vertically, fluid-tight, through the top of the said vertically-movable cylinder and which also moves vertically in the said hollow ram, vertically-movable telescopic cylindrical guides fitting concentrically one within the other within the interior of the pedestal and around the exterior of the movable cylinder, and provided with bearing-surfaces which contact with and support both ends of the cylinder.

3. The combination of the fixed hollow ram, the movable cylinder fitting at its lower end around this ram, the ram passing through the upper end of this cylinder the three telescopic guide-cylinders and the outer pedestal or casing all fitting concentrically one within the other and surrounding the rams and cylinder, the flange on the bottom of the cylinder extending below the lower ends of the two innermost guide-cylinders and the flanges and stops on the several guide-cylinders and on the casing by which the upward movement of the guide-cylinders is limited.

RICHARD WILLIAM SONNEX.

Witnesses:
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