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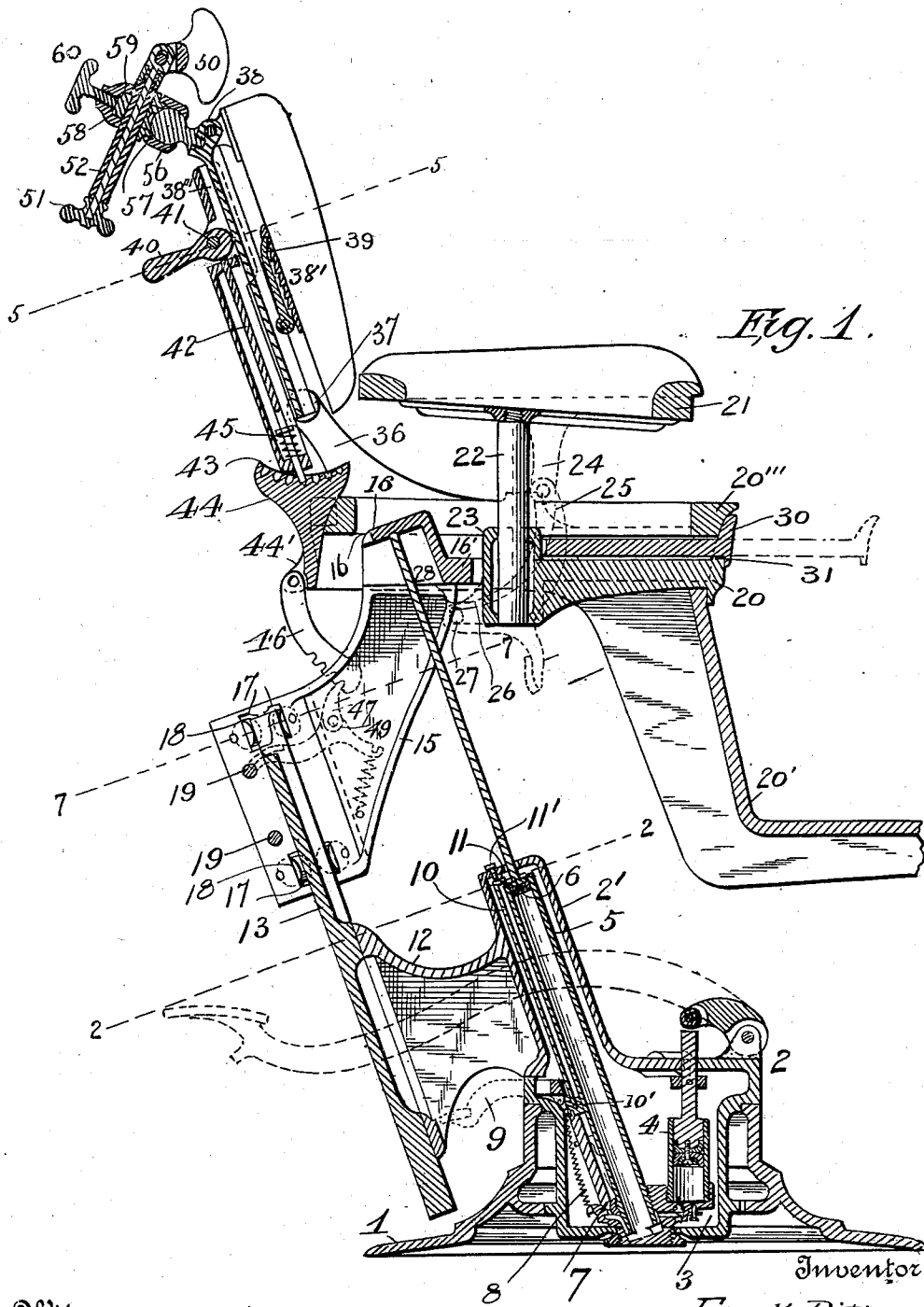
Patented Sept. 4, 1900.

F. RITTER.
DENTAL CHAIR.

(Application filed June 17, 1898.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
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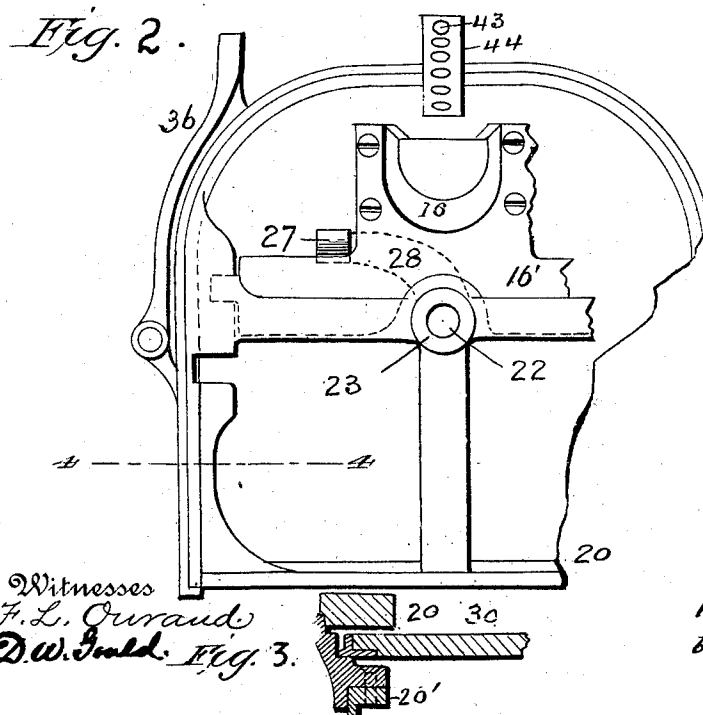
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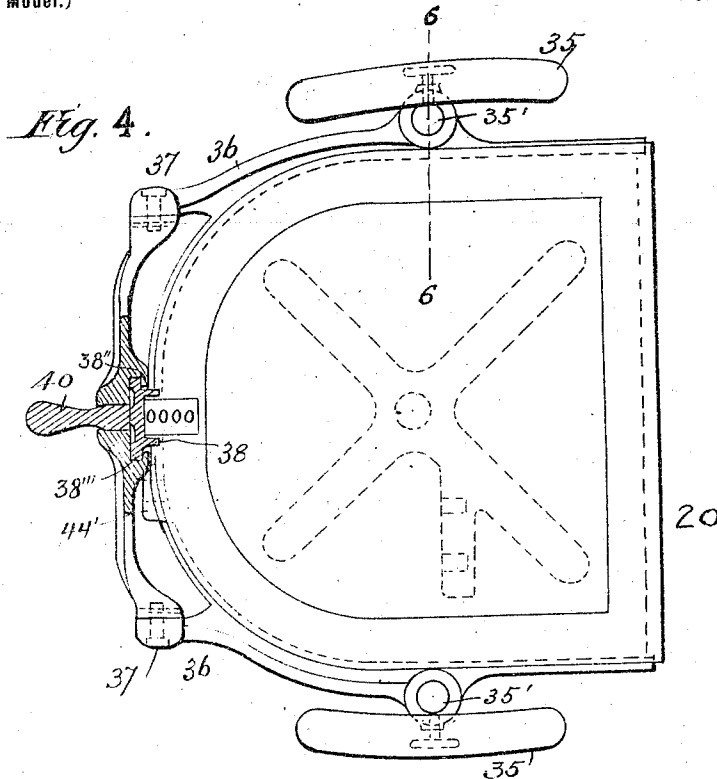
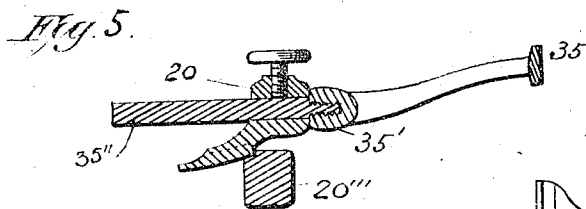
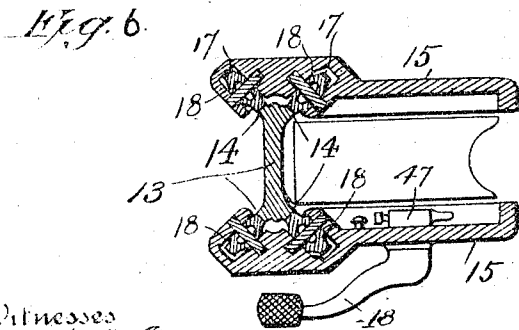
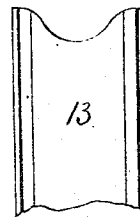
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4 Sheets—Sheet 3.



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Fig. 8.

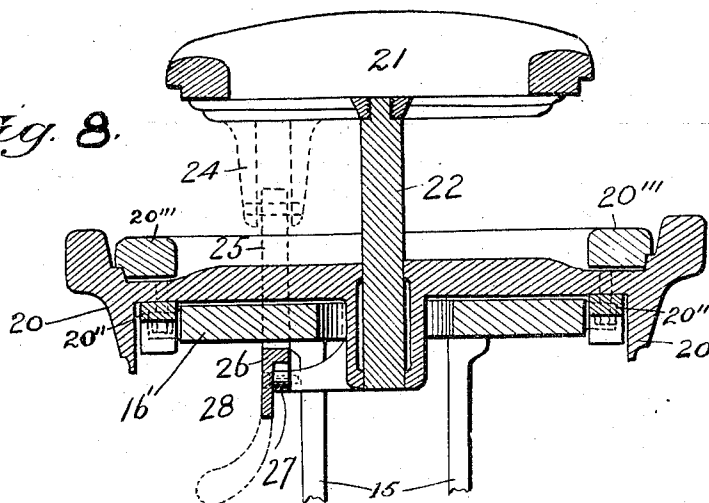
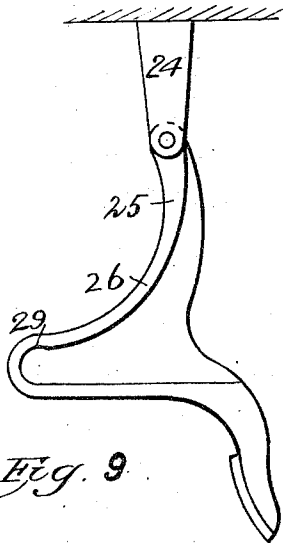


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANK RITTER, OF ROCHESTER, NEW YORK.

DENTAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 657,360, dated September 4, 1900.

Application filed June 17, 1898. Serial No. 683,712. (No model.)

To all whom it may concern:

Be it known that I, FRANK RITTER, a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Dental Chairs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

The invention relates to dental chairs, and has for its object to provide such chairs with improved devices for adjusting, guiding, and sustaining movable parts.

The invention consists in the construction hereinafter described and pointed out.

In the accompanying drawings, Figure 1 is a central vertical section. Fig. 2 is a broken plan, the seat and back being removed. Fig. 3 is a section on line 4 4 of Fig. 3. Fig. 4 is a section on line 5 5 of Fig. 1. Fig. 5 is a section on line 6 6 of Fig. 4. Fig. 6 is a section on line 7 7 of Fig. 1. Fig. 7 is a broken elevation of a detail. Fig. 8 is a vertical central section of the seat-frame and seat, the latter being shown in an elevated situation. Fig. 9 is an elevation of a lever for raising a supplemental seat.

Numerals 1 denotes the base, and 2 the pedestal, of the chair, which has a backwardly-inclined portion 2', as shown. 3 is an oil-reservoir, and 4 a pump. 5 denotes a plunger-tube, and 6 the seat-elevating plunger. 7 is the outlet-valve for discharging the hydrostatic column from the plunger-tube. This is normally held closed by a spring 8 and is opened at will by a foot-lever 9, which overcomes the spring and permits the valve to be opened by fluid-pressure. To automatically open this valve and relieve the pump from strain when the plunger has been raised to its upper limit, a rod 10 is attached to a block 10', held on the valve-stem by spring 8. The rod is provided at its upper end with a transverse piece 11, that overhangs the edge of the plunger-tube and extends into the path of the plunger-head. As the head approaches the upper end of its travel, it strikes said piece with the effect to lift rod 10 and block 10' and overcome spring 8, so that the valve may open if the pumping be continued inadvertently or otherwise. 11' denotes a set-screw where-

by to regulate the time of the automatic opening of the valve. It also determines the extent of the opening and is therefore a means of regulating the rate of the descent of the seat. These parts thus briefly described are not claimed herein, though they pertain to an operative claim embodying the invention.

12 denotes an arm, preferably integral with the pedestal-section 2', fixed to tank 3. 13 is a standard fixed to said arm. It has an inclination like that of the upper part of said pedestal-section. It is provided with bearing surfaces or ways 14, arranged in two pairs, the individual ways being inclined with respect to each other, as shown in Fig. 6.

15 denotes two wheel-carrying arms pendant from the seat-frame cross-bar 16', which is provided with an extension 16, that supports said arms and furnishes a bearing for the upper end of the plunger-rod, as shown in Fig. 1. The arms 15 have inclined slots 17, within which wheels 18 have each its bearings. 19 denotes screws connecting the arms and adapted to hold the wheels on the ways 14. When the seat is raised or lowered by the plunger, the wheels run upon the tracks. The construction is particularly well adapted to guide the seat-frame without lateral vibration and without binding or excessive friction. The attachment of the guiding-arms directly to the seat-frame contributes to this result, and particularly since the arms are connected to the frame at points considerably removed from each other. The inclination of the standard and its tracks also adds materially to the smooth and steady action, since the movable parts rest upon their tracks or ways by gravity and have therefore less tendency to wobble than if the ways were vertically disposed.

Since the guiding devices are situated outside the pedestal, its upper part can be made with a comparatively-small diameter, and as the guide is behind the pedestal the sides and front of the seat-support are made narrower than otherwise practicable and more room is afforded for an operator's limbs. At the rear the backward inclination of the chair-back results in its overhanging the guide and standard and the supporting-arms, and these parts are therefore out of the operator's way at that region. It will be understood that

the pedestal, together with all parts supported by it, rotates upon the base.

20 denotes the main seat-frame, and 21 a supplementary frame provided with a vertically-adjustable post 22. The post is held and guided laterally by a sleeve 23, fixed in the main seat-frame.

20'' is an intermediate frame, preferably of wood, to fill the space between the frames when frame 21 is in its lowest situation.

My improvement in respect to the seat as a whole is characterized by two seat-frames and an interposed frame combined, as shown and described, whereby an upholstered seat of a size suitable when elevated for a child's use and at such time suitably situated with respect to the chair-back can be used for adults when lowered upon the intermediate frame, which together with the main seat-frame provides dimensions for the seat as a whole suitable for an adult both with respect to the back and the main foot-rest. In prior constructions having vertically-adjustable seats no provision has heretofore been made in connection with a relatively small upholstered seat suitably disposed to the back and to a child's foot-rest for using the same in connection with frames adapted to virtually enlarge the seat for the use of adults.

The supplemental seat is designed for children and is made vertically-adjustable to enable a child to be supported with its head at the level of the head-rest. It extends rearwardly to the upholstered back, so that the latter can be used with the elevated supplemental seat. A foot-rest is provided in the plane of the main seat-frame, and therefore adapted to support a child's limbs clear of said frame.

To the supplemental seat-frame are fixed lugs 24, which pivotally support a lever 25, having a curved flange 26, adapted to run upon a roller 27, journaled in an extension 28 of the post-guiding sleeve or socket 23. 29 denotes a recess formed in the lower end of the flange to receive the roller when the lever has been swung to the front and the seat elevated, as indicated in Fig. 1. The sleeve 23 is fixed to the main seat-frame, and the roller is preferably journaled in the extension 28. An antifriction-bearing for the lever 25 is preferred, and a roller is conveniently employed.

30 denotes the child's foot-rest, and 31 a space between the main seat-frame and its support, adapted to receive the said rest. Its operative and inoperative situations are indicated in Fig. 1.

35 denotes vertically-adjustable arm-rests supported by bosses 35', from which extension-rods 35'' depend. The rods are secured by hand-screws.

36 denotes extensions of the main seat-frame 38', which supports the back-frame by means of trunnions 37. The frame has an extension 38, which supports the upholstered hinged back, provided with a rack, which cooperates with a holding-pawl 39 to hold said back un-

der various adjustments about its hinge. The back-frame extension 38 is movably held in ways 38'', situated behind the flanges 38'. (See Fig. 4.)

40 denotes the handle of an eccentric, the whole constituting a lever having its fulcrum at 41 and adapted to bear upon and move downwardly a rod 42 into engagement with one of the sockets 43 in the curved face of block or rack-bar 44. The eccentric bearing-face is so situated that when the handle 40 approaches a vertical line the rod 42 is free to be lifted a short distance by the spring 45. When the handle is moved to an approximately-horizontal position, the rod is forced down by the eccentric and engages one of the holes 43 in rack 44, so that the rod prevents the back-frame 38' from turning rearwardly about the trunnions 37. The eccentric is so formed and related to the back-frame extension 38 that when the rod is moved down to cause its engagement with the rack it bears upon said extension 38 and crowds it against flanges 38'' of the back-frame and holds the frame and its extension in fixed relation. By this construction any desired inclination can be given to the back, and it can be locked in such position by the means which locks the extension.

The seat-frame and the parts carried by it can be tilted on the cross-bar 16' and adjusted to different planes and can be locked by means of a rack-bar 46, engaged by a spring-held pawl 47, which can be disengaged by the treadle-lever 48, which has a fulcrum 49 in one of the pendent arms. This rack-bar is pivoted to the block 44, which is fixed to the seat-frame.

Having described my invention, I claim—

1. In a dental chair, the main seat-frame, the smaller supplemental seat-frame with upholstered seat, the intermediate frame supported upon the main frame to fill the space between the large and small seat-frames and support the latter, devices for elevating the supplemental seat-frame and seat, above the intermediate frame and means for supporting it in an elevated situation whereby the same upholstered seat can be conveniently used for a child or for an adult.

2. In a dental chair, the main seat-frame, the supplemental seat-frame and seat, devices for elevating the supplemental seat-frame and seat, means for supporting them in an elevated situation, said devices comprising a lever loosely connected to the supplemental frame and supported to move in contact with a part of the main frame, and said part.

3. In a dental chair, the main seat-frame, the supplemental seat-frame and seat, devices for elevating the supplemental seat-frame and seat, means for supporting it in an elevated situation, said devices comprising a lever loosely connected to the supplemental frame and supported to run on a roller supported by the main seat-frame, the lever hav-

ing a recess to receive the roller whereby it is held stationary, and the roller.

4. In a dental chair, the main seat-frame, a supplemental vertically-adjustable seat-frame and seat, and an extensible foot-rest, said main seat-frame having a recess to receive the rest when retracted and the walls of the recess adapted to support the rest when extended to an operative situation.

10 5. In a dental chair, a pedestal, a seat-frame, devices for raising and lowering the frame, rearwardly and downwardly inclined arms bearing on a part fixed to the pedestal to guide and steady the seat, said part, an
15 adjustable back-frame having trunnions supported in the seat-frame, a rack 46 connected to the seat-frame, a holding-pawl pivotally connected to a rearwardly and downwardly inclined arm, a plunger, and means for op-
20 erating the plunger, all substantially as set

forth whereby the seat-frame and parts supported by it may be tilted and supported in various positions.

6. In a dental chair, a back-frame having a pivotal support, a rack and pin coöperat- 25 ing to hold the frame under any adjustment about said support, a lengthwise-adjustable back-frame extension, and a lever having an eccentrically-formed end adapted to cause the pin to engage the rack to hold the back, 30 said lever-eccentric being also adapted to tighten the connection of the back and extension in the same operation.

In testimony whereof I have signed this specification in the presence of two subscrib- 35 ing witnesses.

FRANK RITTER.

Witnesses:

JOHN H. CHADSEY,
WILLIAM F. LYNN.