

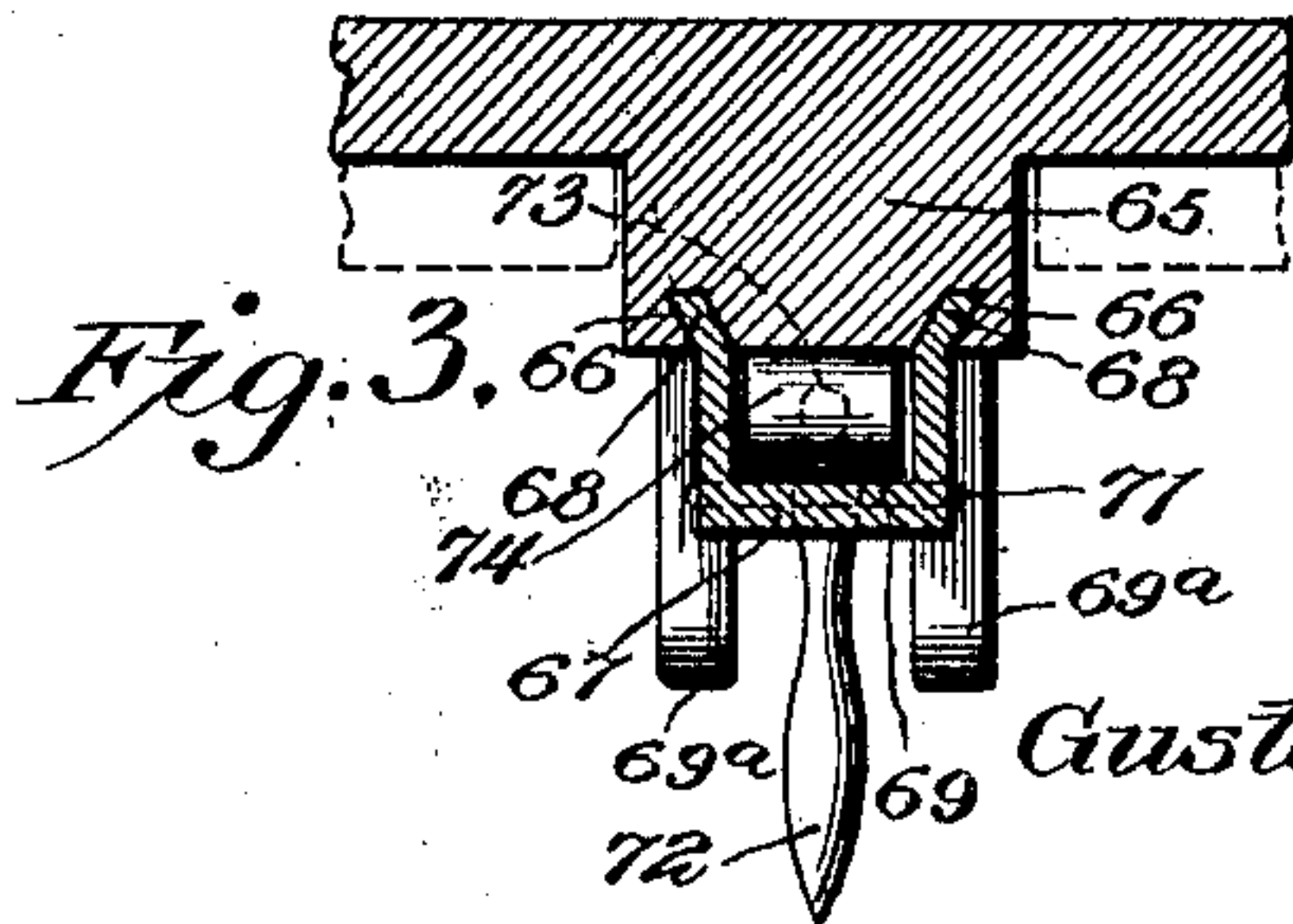
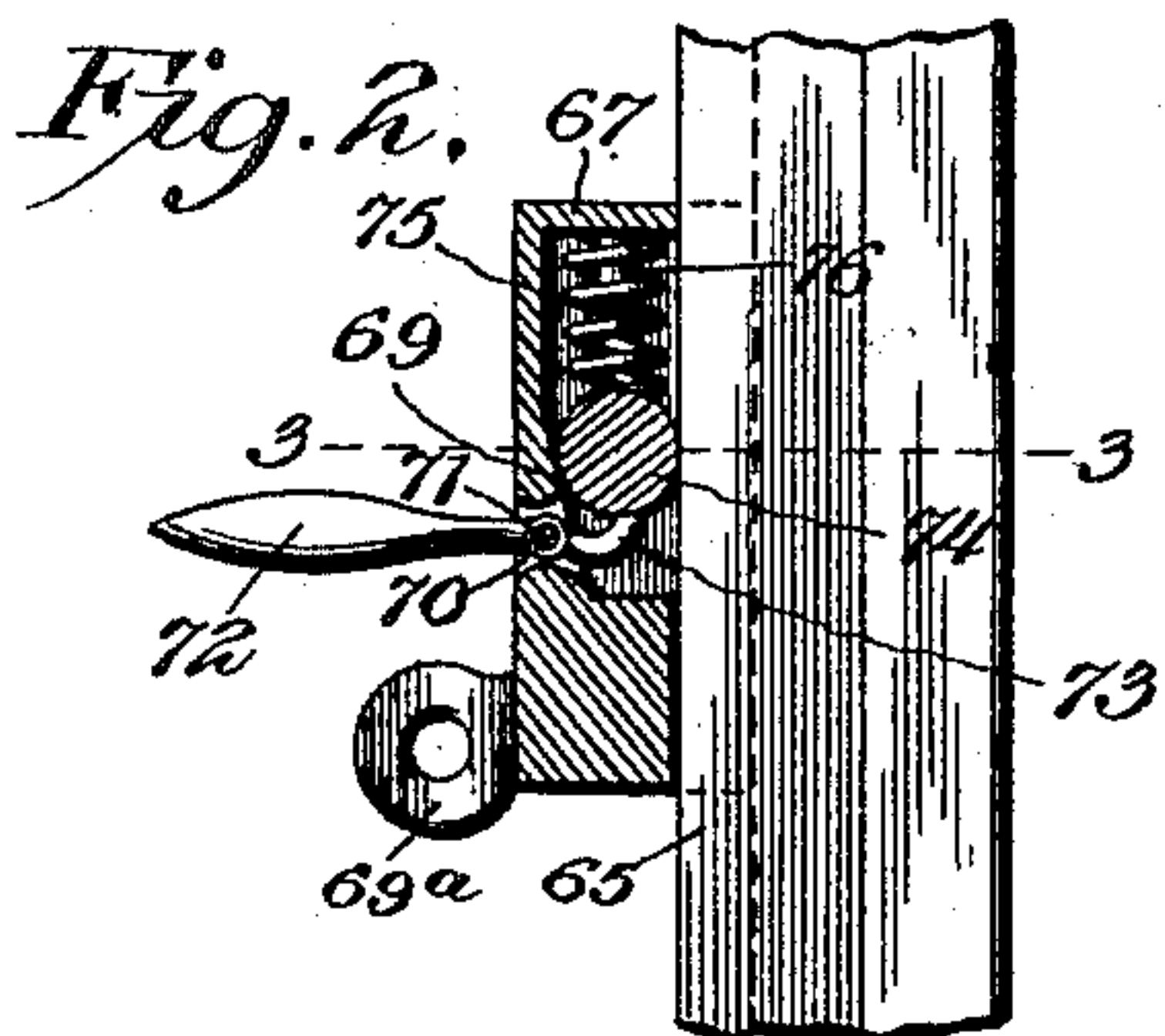
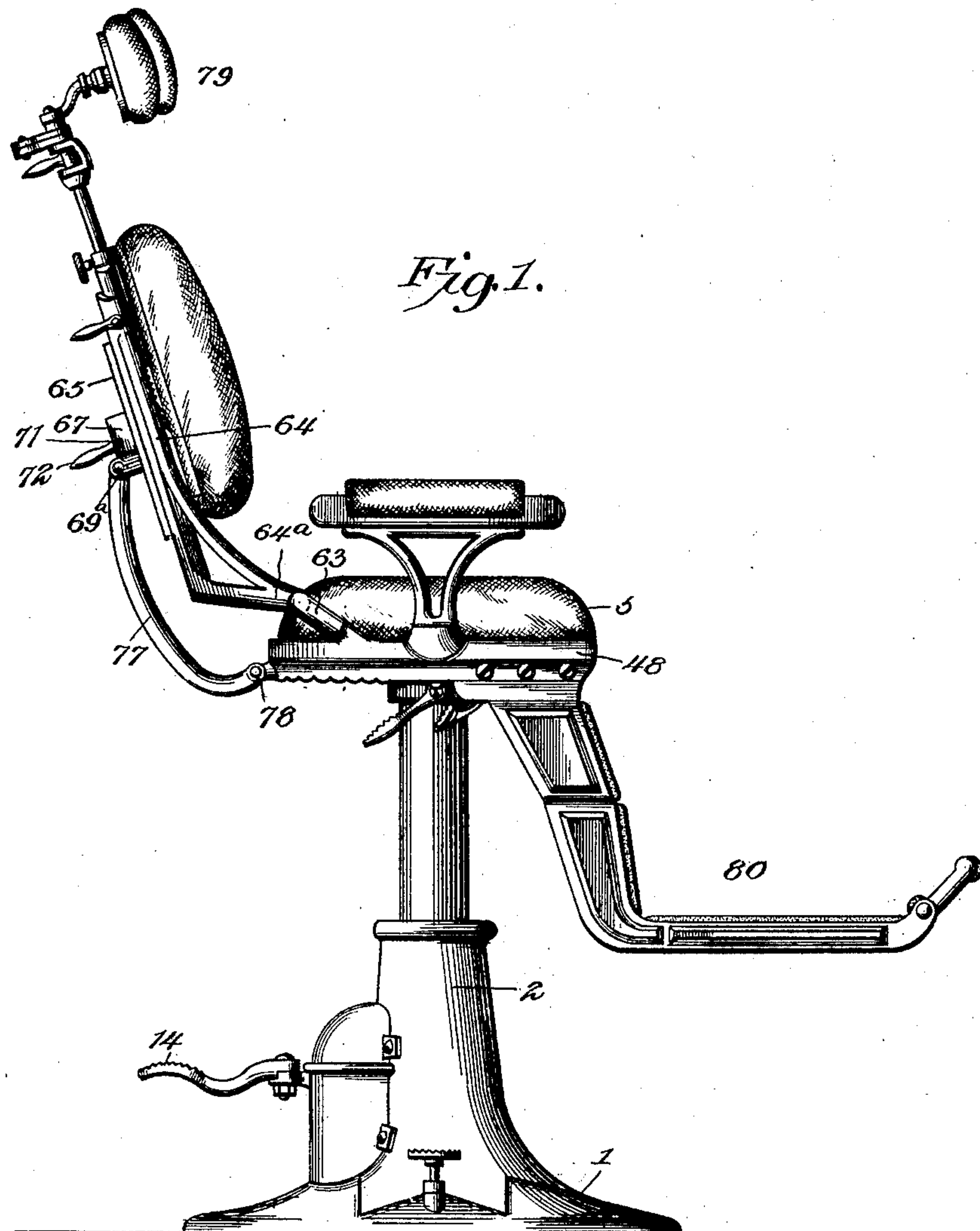
No. 688,088.

Patented Dec. 3, 1901.

G. HOLTZ.  
DENTAL OR SURGICAL CHAIR.

(Application filed Jan. 21, 1898.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## DENTAL OR SURGICAL CHAIR.

SPECIFICATION forming part of Letters Patent No. 688,088, dated December 3, 1901.

Application filed January 21, 1898. Serial No. 667,470. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAV HOLTZ, a citizen of the United States, residing at Jamesburg, in the county of Middlesex and State of New Jersey, have invented a new and useful Dental or Surgical Chair, of which the following is a specification.

My invention relates to improvements in adjustable chairs designed to be used by dentists or surgeons; and it is more particularly intended as an improvement in that class of chairs embracing a vertically-adjustable seat and a back which may be raised or lowered independently of the vertically-adjustable seat, said back being carried by and movable vertically with the seat.

To this end the main object of the invention is to provide an automatic or self-locking contrivance operating in conjunction with a hinged or pivoted back and a link which is pivotally attached to the back and the chair-seat frame, such automatic locking contrivance providing for the expeditious raising of the pivoted back, but operating to securely hold the back in its adjusted position against the pressure or weight of the occupant of the chair.

With these ends in view my invention consists in the novel combination of elements and in the construction and arrangement of parts which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the same in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation of a dental or surgical chair constructed in accordance with my invention, the chair being shown in its raised position. Fig. 2 is an enlarged detail sectional view of a part of the chair-back frame and the adjustable shoe carrying the automatic or self-locking device for the adjustable back. Fig. 3 is a horizontal sectional plan view on the plane indicated by the dotted line 3 3 of Fig. 2 looking in the direction of the arrow.

Like numerals of reference denote corresponding parts in all of the several figures of the drawings.

1 designates the base, and 2 the upright col-

umn or standard thereon. In practice the base and column are cast in a single piece of metal, and said base is constructed exteriorly to the column 2 with a chamber adapted to contain the liquid to be supplied to a pump and forced under pressure into the lifting mechanism for the purpose of raising the chair-seat 5 to the desired elevation in a manner well understood in the art, the operation of the lifting mechanism being controlled by the usual footpiece 14.

The chair-seat frame 48 is provided on its rear side with the projecting lugs 63, to which are pivoted the forward extensions 64<sup>a</sup> of the adjustable back 64. This adjustable back consists of a suitable metallic frame, and in the structure of the metallic frame of said back I provide a vertical central bar 65, which is constructed to produce a dovetailed guide-way 66.

67 designates an endwise-movable locking-shoe made in the form of a casting, having the flaring edges 68, which are shaped to fit snugly in the dovetailed guideways 66 of the chair-back frame. This slidable shoe 67 is chambered or hollowed out to accommodate a locking device, and the lower end of said shoe has an integral perforated eye 69<sup>a</sup>. The back wall of the chambered slidable shoe is inclined or curved inwardly toward the guideway in the bar 65, such inclined face of the shoe being indicated at 69 in Fig. 2, and the shoe is furthermore provided with a transverse opening or slot 70, in which is fulcrumed, as at 71, an operating-lever 72, the toe 73 of which projects into the chamber of the slidable shoe. The locking-lever is thus arranged to be conveniently reached by the operator when it is desired to release the locking mechanism from engagement with the bar 65 of the back-frame, and in the preferred embodiment of my locking mechanism I so construct and arrange its parts that it is active to restrain the back 64 from movement on its pivotal connection with the chair-frame under the weight of the occupant of the chair, and at the same time the locking mechanism provides for the ready elevation of the chair-back 64 without manipulation of the locking-lever 72.

As represented by Figs. 2 and 3, my locking mechanism consists of a roller 74, which



is fitted loosely in the chamber of the slidable shoe to bind between the inclined wall 69 and the straight rear face of the central rail 65, in which the guideway for the shoe is produced, and against said locking-roller 74 bears a spring 75. This spring is preferably of the coil form shown by Fig. 2, and it is held or confined in place within the chambered shoe by means of a pintle or stud 76, one end of the spring being seated against the shoe 67 and its other end against the locking-roller 74. The locking-roller is normally forced by the recoil or tension of the spring to bind firmly against the inclined wall 69 of the shoe and the straight face of the rail 65, and said roller rests upon the toe-piece 73 of the locking-lever, so that by depressing the free end of the lever its toe-piece will lift the locking-roller sufficiently to clear it from contact with the inclined wall 69 of the shoe, thus enabling the roller to ride freely against the chair-back rail 65.

The chair-back, which is pivoted to the chair-seat frame, is sustained in its adjusted position by a link or frame 77, the upper end of which is pivoted to the eyes 69<sup>a</sup> of the slidable locking-shoe, while the lower end is pivoted to the chair-seat frame 48 at the point indicated by the numeral 78.

The chair-seat frame and the chair-back frame are upholstered or finished in any suitable manner, and the back 64 may be constructed to carry a suitable head-rest, (indicated at 79.) No novelty, however, is claimed in this application for the head-rest, and it may be of any suitable or preferred construction.

The chair-seat frame 48, carrying the foot-rest 80, is pivotally mounted, and therefore the seat and the parts thereon may be tilted to any position convenient to the operator, and the seat may be held or locked in its tilted position by any desired means.

To lower the back 64, it is only necessary to move the lever 72 to throw the locking-roller 74 from engagement with the inclined shoe-wall 69, after which the back may be lowered to the desired position and the lever released to permit the spring to force the locking-roller 74 into engagement between the shoe and the chair-back rail 65. The chair-back may be raised simply by lifting the same by hand, and in either of its positions the chair-back is sustained by the link 77, which is attached to the shoe and the seat-frame.

I am aware that slight changes in the form and proportion of parts may be made without departing from the spirit or sacrificing any of the advantages of the invention, and I therefore reserve the right to make such alterations and modifications as come within the scope of the invention.

Having thus described the invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a dental or surgical chair, the combination with a seat-frame, and a hinged back, of a supporting-link pivoted to said seat-frame, a slidable shoe pivotally connected to the link and slidably fitted on the chair-back to travel thereon when it is raised or lowered, an automatic locking device movable with the shoe and engaging the chair-back to lock the latter against the weight imposed thereon when the chair is occupied, and a releasing device mounted on the shoe; said locking device permitting an unrestrained upward movement of the chair-back relatively to the shoe and link, substantially as described.

2. In a dental or surgical chair, the combination with a seat-frame, a hinged back and a supporting-link pivoted to said seat-frame, of a cam-formed shoe pivoted to the supporting-link and slidably fitted to the hinged back to travel thereon when it is raised or lowered, an automatic locking-dog confined within said cam-formed shoe for frictional engagement with said back to lock the latter firmly in place, and a releasing device mounted on said shoe and engaging operatively with the locking-dog, substantially as described.

3. In a dental or surgical chair, the combination with a seat-frame, a hinged back and a supporting-link pivoted to said seat-frame, of a locking-shoe pivoted to said link, slidably fitted on the back, and having a cam-shaped bearing-face opposed to that portion of the back on which the shoe is slidably fitted, a locking-roller arranged in said shoe for frictional engagement with the cam-shaped face thereof and with the back, a pressure-spring acting against said roller, and a releasing device for said roller and connected to the shoe, substantially as described.

4. In a dental or surgical chair, the combination with a seat-frame, a hinged back and a supporting-link pivoted to the seat-frame, of a vertical guide-rail fixed to the hinged back and having a slideway, a box-like shoe pivoted to the link and fitted to said slideway to travel on the guide-rail longitudinally, a locking-dog confined within said shoe to have frictional engagement with the guide-rail of said back, and a releasing device mounted on the shoe and engaging operatively with the dog, the whole combined and arranged for service, substantially as described and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GUSTAV HOLTZ.

Witnesses:

ALBERT ULBRICH,  
CHARLES ULBRICH.