

No. 660,694.

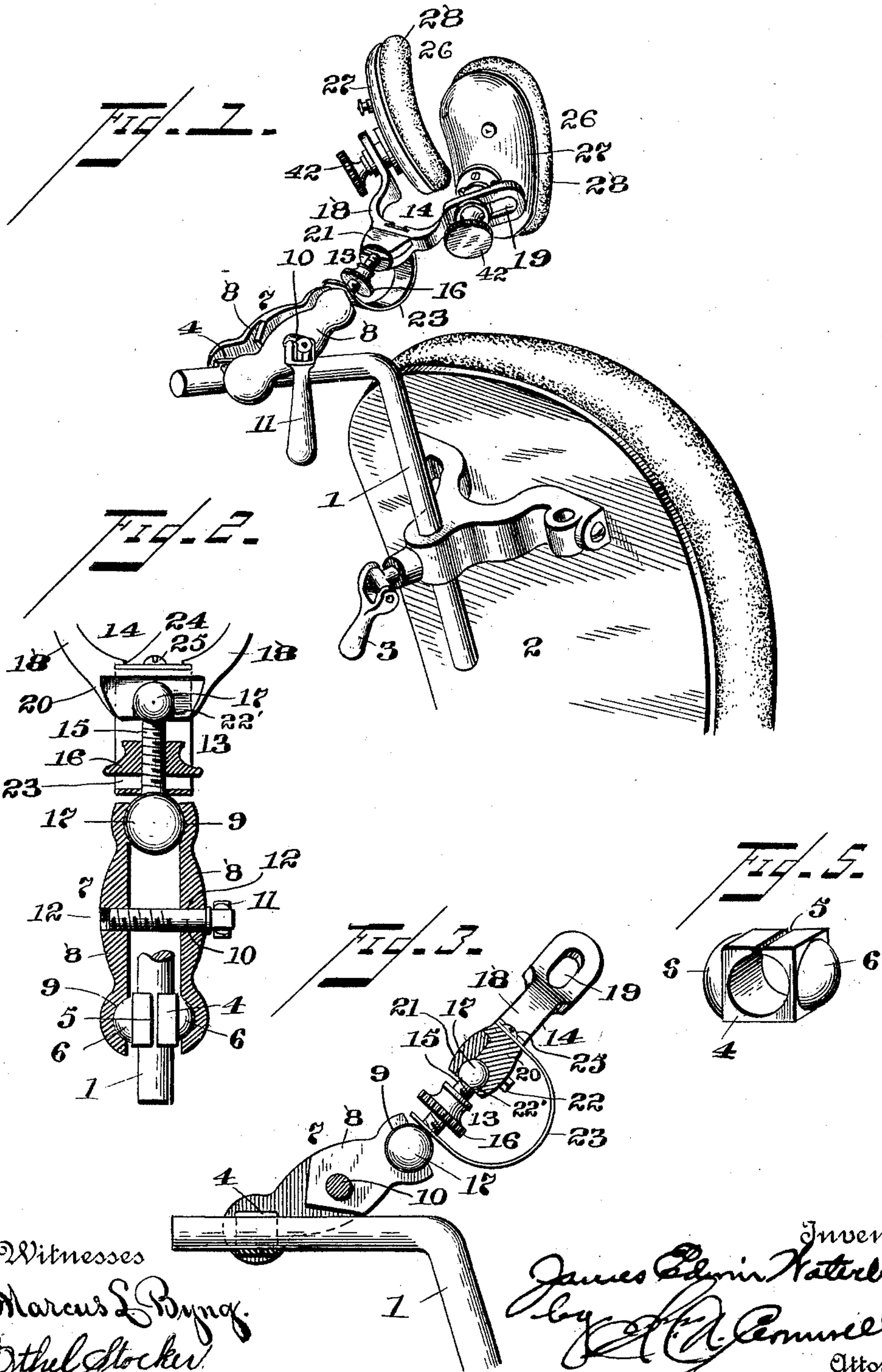
Patented Oct. 30, 1900.

J. E. WATERBURY.
ADJUSTABLE HEAD REST.

(Application filed Oct. 7, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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Inventor
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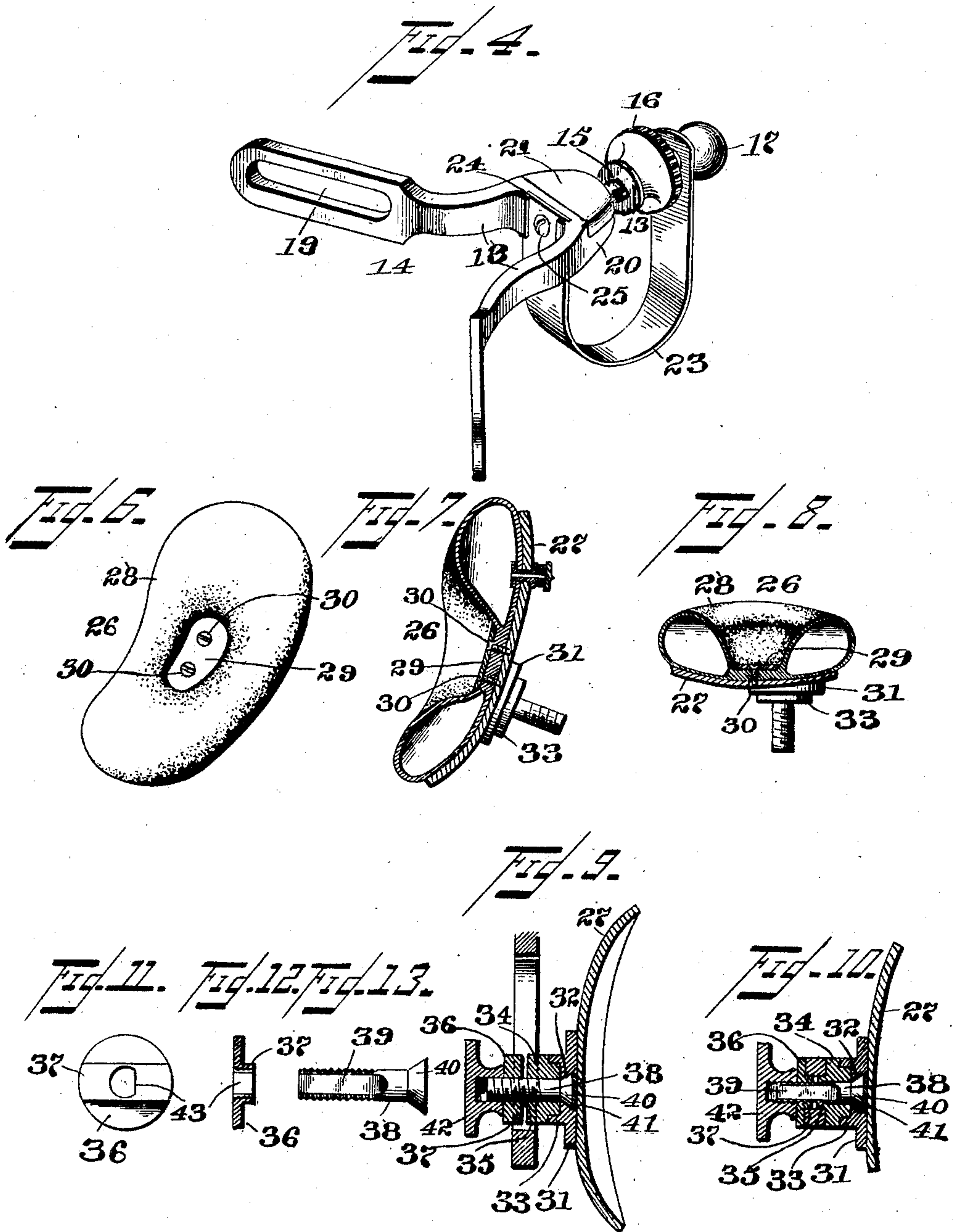
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UNITED STATES PATENT OFFICE.

JAMES EDWIN WATERBURY, OF HOLLEY, NEW YORK.

ADJUSTABLE HEAD-REST.

SPECIFICATION forming part of Letters Patent No. 660,694, dated October 30, 1900.

Application filed October 7, 1899. Serial No. 732,896. (No model.)

To all whom it may concern:

Be it known that I, JAMES EDWIN WATERBURY, a citizen of the United States, residing at Holley, in the county of Orleans and State of New York, have invented certain new and useful Improvements in Adjustable Head-Rests; 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 appertains to make and use the same.

This invention relates to improvements in adjustable head-rests, and more particularly relates to head-rests designed for application to dental chairs and the like.

The main and primary object of the present invention is to provide a head-rest of the character mentioned which is movable at the will of the patient or dentist while the head is being supported thereby and without the necessity of loosening screws, levers, &c., whereby the dentist is enabled to readily position the head in any desired direction and the patient relieved of that feeling of discomfort which becomes noticeable immediately upon the head being rigidly fixed in any one position, and, further, the invention contemplates in the construction of a head-rest the provision of means by which the head-rest becomes self-adjusting even to that numerous class of patients who are constantly slipping lower in the chair during the progress of dental operations.

A further object of the invention is to provide simple and efficient means for causing the head-rest to return to its normal position immediately upon the pressure of the head being removed therefrom in order that the same may readily receive the head when the latter is returned, and, again, the invention further aims to provide means for quickly and securely clamping the head-rest in its normal position, so as to render the same incapable of movement, as in certain forms of dental operations where rigidity is of advantage.

A further object is to provide an improved form of pad for the head-rest and in conjunction therewith suitable means for permitting angular and lateral adjustment of the pads, whereby the latter may be made to accurately and quickly conform to any sized or shaped head or to any style of coiffure worn.

With these and other objects in view, which will appear as the nature of the improvements is better understood, the invention consists, substantially, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a head-rest constructed in accordance with the present invention; Fig. 2, a sectional plan view thereof partly broken away; Fig. 3, a longitudinal sectional view; Fig. 4, a detail perspective view of the support for the pads and the connector; Fig. 5, a similar view of the binding-collar; Figs. 6 and 7, face and edge elevations, respectively, of one of the pads; Fig. 8, a transverse sectional view thereof; Fig. 9, a detail sectional view of the pad-securing means; Fig. 10, a similar view taken at right angles to Fig. 9; Figs. 11 and 12, detail views of one of the clamping-washers; Fig. 13, a similar view of the bolt employed with the pad-securing means.

Referring to the drawings, the numeral 1 designates the supporting-rod of a dental or similar chair 2, which rod is secured to the latter by a clamping-screw 3 or other suitable device. The rod 1, however, has its upper end bent at substantially an obtuse angle to its body portion, so as to lie in a horizontal plane and normally extend rearwardly from the chair, and mounted upon said upper end so as to slide therealong is a binding-collar 4. The collar 4 is split, as at 5, so as to readily yield to pressure, and formed at opposite sides of said collar are spheroidal bearing-surfaces 6, through the medium of which a sectional clamp 7 is attached to the collar 4. The clamp 7 comprises a pair of complementary members 8, each of which has its inner face flattened, and formed at the ends of the inner faces of said members 8 are semicircular recesses or depressions 9, which when the members of the clamp are secured together provide bearing-sockets. The recesses 9 at the rear ends of the members 8 are designed to receive the spheroidal bearing-surfaces 6 of the collar 4, so that said ends may work on said surfaces, and thereby provide a hinged connection between the collar 4 and the clamp 7, and in order that said members may be retained upon

said surfaces a clamping-screw 10, having a handle 11 pivoted thereto, is passed through openings 12, formed in the members 8 substantially midway the ends of the latter. The opening 12 of the member 8, which is remotest from the handle 11, is screw-threaded for engagement by the threads of the screw 10, the latter passing loosely through the opening of the other member, and it will thus be obvious that by rotating the screw 10 the members of the clamp 7 will be drawn toward each other and clamped upon the surfaces 6 of the collar 4, the degree of pressure being regulated by said screw. It is further apparent that by reason of the collar 4 being split the pressure exerted by the screw 10 upon the clamp 7 will be transmitted by the latter to said collar 4, and hence said collar is compressed, with a resultant binding of the same upon the rod 1. The collar 4 is thus secured firmly at any desired point along the upper end of the rod 1 and rendered incapable of movement thereon until the screw 10 is loosened and also provides a rolling connection between the clamp 7 and said rod.

Arranged at the forward end of the clamp 7 is a connector 13, designed for securing a pad-support 14 to the former, and said connector comprises a screw-threaded shank 15, upon which is mounted a thumb-nut 16, and bearing-heads 17, arranged at the ends of said shank. The heads 17 are in the form of balls, as clearly shown, and it will be observed that the head at the rear end of the shank 15 is larger than that at the forward end thereof. The rear head 17 fits within the socket formed by the recesses 9 at the forward end of the clamp 7, and it will also be observed that said recesses are open at the forward extremities of the members of the clamp 7, so as to permit the head 17 to freely work in said socket. The head 17 is securely clamped in said socket by the pressure of the screw 10, and since the clamp 7 is rigidly held by said pressure on the rod 1 the entire head-rest is rigidly supported in any position desired.

The pad-support 14 comprises a pair of diverging arms 18, which arms have their forward ends slotted, as at 19, and at the juncture of the arms 18 a neck 20 is formed. Fitting upon the neck 20 is a removable cap 21, which is secured to said neck by screws 22 or their equivalent, and said screws pass through the neck 20 and engage threads formed in the cap 21. The under side of the cap 21 and the adjacent portion of the neck 20 are shaped to provide a socket 22', and fitting within the latter, so as to work loosely therein, is the head 17, carried by the forward end of the shank 15. By reason of the cap 21 being removable it is evident that said head may be readily positioned within said socket and retained therein, and it will be seen that the ball-and-socket connection described provides a universal joint between the pad-support 14 and the connector 13. It is important, however, that the support 14 should be normally in a central

vertical position relative to the chair, and for accomplishing this end a bow-spring 23 is employed. The spring 23 has its rear end bearing against and rigidly fastened to the rear bearing-head 17, while its forward end lies within a vertically-extending groove or channel 24, at which point it is secured by a screw 25 or its equivalent, and by means of the construction described the support 14 always remains in the position above mentioned unless deflected by pressure of the head, in which latter event the support immediately resumes its normal position upon the pressure being removed. Thus it will be seen that the support follows the movements of the head and is self-adjusting with respect to the position of the latter; but should it be desired to retain the support in its normal position, as in certain forms of dental operations where rigidity is of advantage, the thumb-nut 16 is moved forwardly and brought into contact with the rear end of the neck 20, thereby rendering the latter incapable of movement on the forward bearing-head 17 and converting the previous universal joint into a stiff and rigid connection.

Mounted upon each of the arms 18 of the support 14 is a pad 26, each of which comprises a supporting-plate 27, upon which is arranged a pneumatic cushion 28. The plate 27 is preferably of cast aluminium, having an oval outline, and is of irregular concavity, being deeper in some portions than in others. The cushion 28 follows the outline and contour of the plate 27, the air-containing portions being arranged around the edges of said plate and gradually sloping toward the center thereof, and at the latter point and within the space between the air-containing portions of the cushion an attaching-plate 29 is arranged, by means of which, together with screws 30 or their equivalent, the cushion 28 is secured to the supporting-plate 27, the plate 29 clamping the inner edges of the air-containing portions. The pads 26 are designed to be capable of angular and lateral adjustment upon the arms 18 of the support 14, and to this end each of said pads has screwed or otherwise suitably fastened to its rear face and eccentric thereto an ear 31, provided at its center with a flared opening 32 and at its rear face with an annular rib 33. The latter forms a recess or depression, and fitting in said recess or depression is a clamping-washer 34, having a transversely-extending guide-rib 35 at its rear face. The rib 35 snugly fits and works within the slot 19 of the arm 18, said rib being approximately one-half as deep as said arm is thick, and arranged in rear of the arm 18 is a second clamping-washer 36, provided at its front face with a transversely-extending guide-rib 37, fitting and working within the slot 19 of said arm in a manner similar to the rib 35. It is thus obvious that each of the arms 18 is embraced by the washers 34 and 36, and passing through said washers is a bolt 38, having one of its sides flat-

tened, as at 39. The bolt 38 is provided with a tapering head 40, which fits the flared opening 32 of the ear 31, and thereby frictionally engages said ear, and interposed between the head of the bolt 38 and the supporting-plate 27 is a layer of suitable packing 41 for the purpose of imparting stability to the pads in their set positions. Mounted upon the threaded end of each of the bolts 38 is a thumb-nut 42, through the pressure of which the washers 34 and 36 are adapted to bind against the arms 18, and in order to prevent the bolts 38 turning, and thereby loosening the nuts 42, the openings of the washers 36 are each provided with a flattened side 43, adapted to be engaged by the flattened sides of said bolts 40.

The manner of adjustment and operation of the herein-described head-rest is as follows: By releasing the screw 10 the pressure exerted thereby is removed from the clamp 7 and the pressure of the latter in turn removed from the binding-collar 4 and the rear head 17 of the connector 13. Should it be required, the collar 4 may then be slid along the supporting-rod 1 to a new position, the head-rest raised or lowered, and the connector 13 given the desired angle of inclination, after which the screw 10 is again tightened and the binding-collar and connector thereby rigidly secured, or a greater range of vertical adjustment may be had by loosening the clamping-screw 3 and raising or lowering the rod 1. A side position of the rest may also be obtained by giving the rod 1 a quarter-revolution to the required side or a greater forward adjustment by turning said rod one-half of a revolution—i. e., so that its horizontal portion will project toward the front, the clamp 7 being instantly adjustable to any of these positions. If now it be necessary to adjust the pads 26 to fit the patient's head, the thumb-nuts 42 are slightly loosened, which allows the pads to be slightly rotated on the bolts 38 to any desired angle without permitting them to be moved laterally or along the arms 18; but if this lateral adjustment be required the same may be effected by loosening said nuts 42 to a greater degree, whereupon the binding action of the clamping-washers 34 and 36 is removed from the arms 18 and the pads become capable of the desired lateral adjustment. When this has been accomplished, the nuts 42 are again tightened, thereby maintaining the pads 26 in their new positions. The universal joint between the pad-support 14 and the connector 13 permits the pads 26 to follow every movement of the patient's head and allows the dentist to easily draw the head to one side to gain better light and facilitate operations in certain parts of the mouth without the trouble and loss of time required to loosen levers or other clamping devices, the extent of this movement being readily limited by advancing the nut 16 toward the forward head 17, or it may be instantly checked by screwing the nut 16 against the neck 20. In the event that the pressure

of the head is removed from the pads when the same are deflected the spring 23 immediately returns the pads to their normal position. 70

While the form of the invention herein described and shown is believed to be a preferable embodiment thereof, it will of course be understood that the invention is not limited to such embodiment; but inasmuch as changes in the form, proportion, and minor details of construction may be resorted to the right is therefore reserved to modify or vary the invention as falls within the spirit and scope thereof. 75 80

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A head-rest adjustably mounted and adapted to follow the movements of the head, means for returning the rest to its normal position when pressure is removed therefrom, and means for locking the rest in fixed position. 85 90

2. A head-rest adjustably mounted and adapted to follow the movements of the head, a spring for returning the rest to its normal position when pressure is removed therefrom, and means for locking the rest in fixed position. 95

3. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, and means for returning the rest to its normal position when pressure is removed therefrom. 100

4. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, means for returning the rest to its normal position when pressure is removed therefrom, and a nut for locking the rest in fixed position. 105 110

5. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, means for returning the rest to its normal position when pressure is removed therefrom, and means for locking the rest in fixed position. 115 120

6. A head-rest, comprising a pad-support, a sectional clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, and means for returning the rest to its normal position when pressure is removed therefrom. 125 130

7. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, suitable connections between said pad-support and the clamp, whereby the rest

is adapted to follow the movements of the head, and a spring for returning the rest to its normal position when pressure is removed therefrom.

5 8. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, said clamp comprising a pair of complementary members, and means for securing
10 between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, and means for returning the rest to its normal position when pressure is removed therefrom.

15 9. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, a connector between said pad-support and the clamp, whereby the rest is adapted to follow the movements of the head, said
20 connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the pad-support and the clamp, and a spring for returning the rest to its normal position when
25 pressure is removed therefrom.

10. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, a connector between said pad-support and the clamp, whereby the rest is adapted
30 to follow the movements of the head, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the pad-support and the clamp, and means for
35 returning the rest to its normal position when pressure is removed therefrom.

11. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, a connector between said pad-support and the clamp, whereby the rest is adapted
40 to follow the movements of the head, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the pad-support and the clamp, means for returning
45 the rest to its normal position when pressure is removed therefrom, and means for locking the rest in fixed position.

12. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, and a connector between said pad-support and the clamp, whereby the pad-support
50 is adapted to follow the movements of the head, said connector comprising a shank, bearing-heads arranged at the ends thereof and suitably connected to the pad-support and the clamp, and a nut mounted on said
55 shank and adapted to be brought into contact with the pad-support for locking the latter in fixed position.
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13. A head-rest, comprising a pad-support, a clamp for securing the same in operative position, a connector between said pad-support and the clamp, whereby the pad-support
65 is adapted to follow the movements of the head, said connector comprising a shank, bearing-heads arranged at the ends thereof

and suitably connected to the pad-support and the clamp, and a nut mounted on said shank and adapted to be brought into contact with the pad-support for locking the latter in fixed position, and means for returning
70 the pad-support to its normal position when pressure is removed therefrom.

14. A head-rest, comprising a pad-support, a supporting-rod for securing the same in operative position, a binding-collar mounted on said rod, a clamp connected to said collar and adapted to bind the latter on said rod, and
80 intermediate connections between said clamp and the pad-support, whereby the latter is adapted to follow the movements of the head.

15. A head-rest, comprising a pad-support, a supporting-rod for securing the same in operative position, a binding-collar mounted on said rod, a clamp connected to said collar and adapted to bind the latter on said rod, intermediate connections between said clamp and
85 the pad-support, whereby the latter is adapted to follow the movements of the head, and means for returning the pad-support to its normal position when pressure is removed therefrom.
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16. A head-rest, comprising a pad-support, a supporting-rod for securing the same in operative position, a binding-collar mounted on said rod and provided with bearing-surfaces, a sectional clamp connected to said collar and adapted to bind the latter on said rod, the members of said clamp being provided
95 with recesses adapted to receive the bearing-surfaces of the binding-collar, and a connector between said clamp and the pad-support, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said
100 bearing-heads being suitably connected to the clamp and the pad-support, whereby the latter is adapted to follow the movements of the head.

17. A head-rest, comprising a pad-support, a supporting-rod for securing the same in operative position, a binding-collar mounted on said rod and provided with bearing-surfaces, a sectional clamp connected to said collar and adapted to bind the latter on said rod, the
110 members of said clamp being provided with recesses adapted to receive the bearing-surfaces of the binding-collar, a connector between said clamp and the pad-support, said connector comprising a shank, and bearing-heads arranged at the ends thereof, said bearing-heads being suitably connected to the clamp and the pad-support, whereby the latter is adapted to follow the movements of the head, and means for returning the pad-support
115 to its normal position when pressure is removed therefrom.
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18. The head-rest, comprising a support suitably secured in operative position, and a pad carried thereby and comprising a supporting-plate, a pneumatic cushion arranged thereon and having its center concaved, and an attaching-plate arranged in the concaved center of said cushion and suitably secured
130

to the supporting-plate, whereby the cushion is clamped to said supporting-plate.

19. A head-rest, comprising a support suitably secured in operative position, and a pad 5 carried thereby and comprising a supporting-plate of substantially oval outline and irregular concavity, a pneumatic cushion arranged on said plate, the air-containing portions of said cushion lying at the edges of the plate 10 and sloping toward the center thereof, whereby a concavity is formed at the center of said cushion, and means arranged in said concavity and suitably connected to the supporting-plate for clamping the cushion to the 15 latter.

20. A head-rest, comprising a support suitably secured in operative position and provided with a slot, a pad carried by said support, a bolt carried by said pad and passing 20 through said slot, clamping-washers mounted on said bolt and arranged at opposite sides of the support, each of said washers being provided with a guide-rib fitting and working within said slot, and means for locking 25 the washers against said support for retaining the pad in adjusted position on the support.

21. A head-rest, comprising a support suitably secured in operative position and provided with diverging arms having slots, a pad 30

carried by each of said arms, a bolt carried by each of said pads and passing through the slot of the arm carrying said pad, clamping-washers mounted on said bolts and arranged at opposite sides of said arms, the clamping- 35 washers of each bolt being provided with a guide-rib fitting and working within the slot through which said bolt passes, and means for locking the washers against the arms for retaining the pads in adjusted position thereon. 40

22. A pneumatic cushion for head-rests, the air-containing portion of which is thickest at the edges and slopes toward the center, said cushion being provided with a valve for inflation, a supporting-plate of irregular concavity and substantially oval outline for said 45 cushion and upon which the latter fits, an attaching-plate for securing the cushion to the supporting-plate, said cushion lying between the supporting-plate and the attaching-plate, 50 whereby the latter clamps the cushion to the supporting-plate, and means for also securing said attaching-plate to said supporting-plate.

In testimony whereof I affix my signature 55 in the presence of two witnesses.

JAMES EDWIN WATERBURY.

Witnesses:

J. H. GRAHAM,
LENA GRAHAM.