Sept. 25, 1951 W. B. CHILDS 2,568,988

DENTIST'S CHAIR

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FIG. 1.

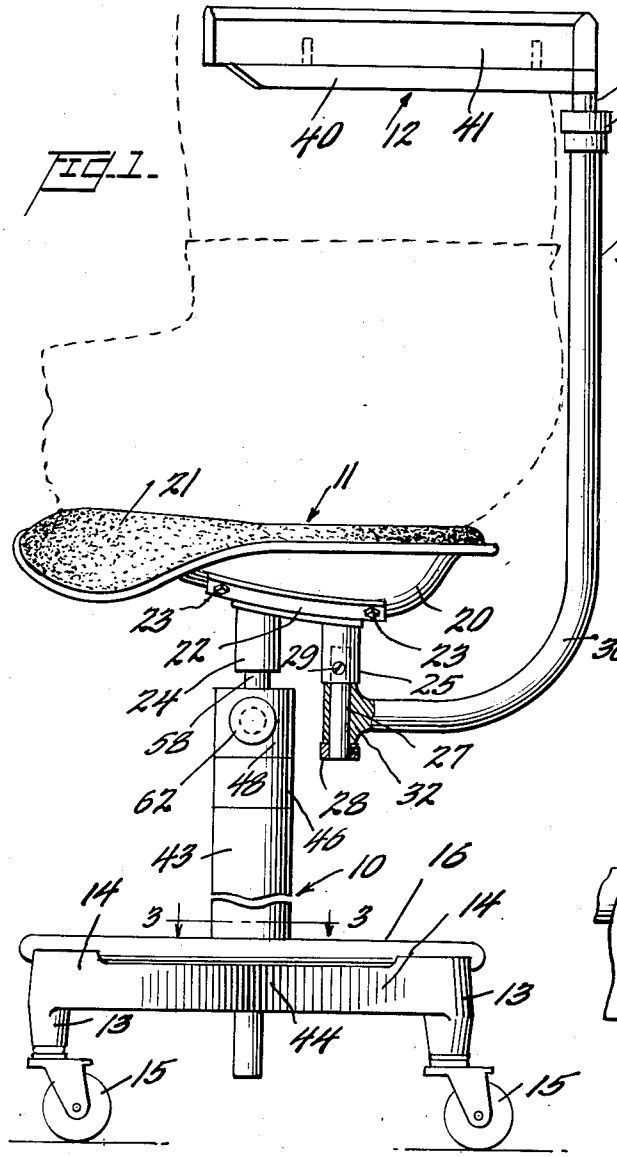


FIG. 4.

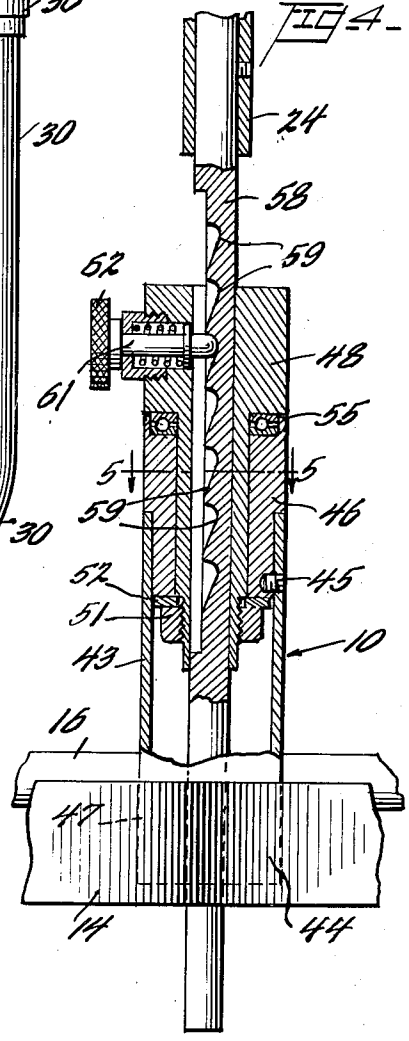


FIG. 7.

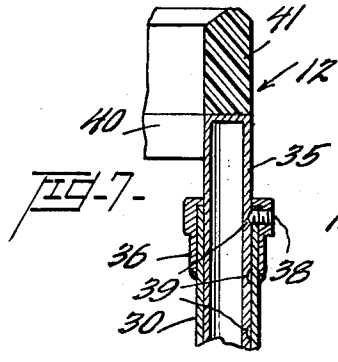
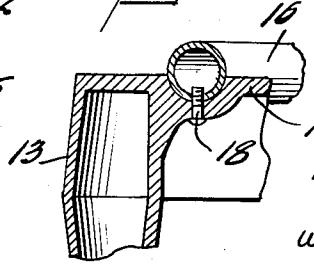


FIG. 8.



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FIG. 2.

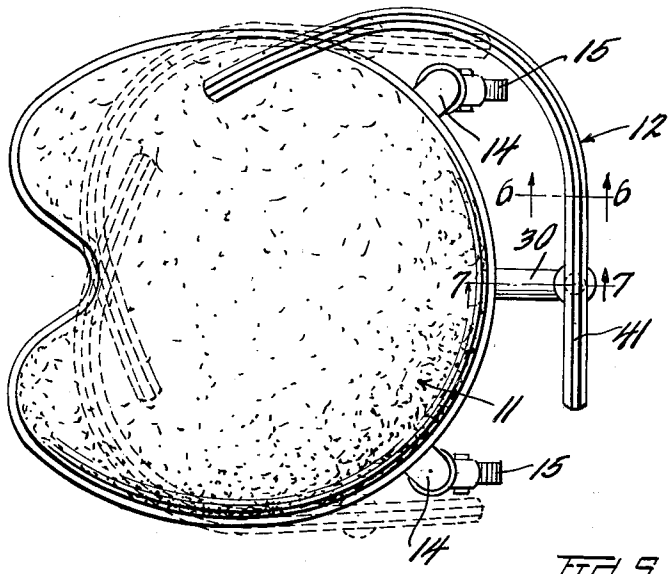


FIG. 3.

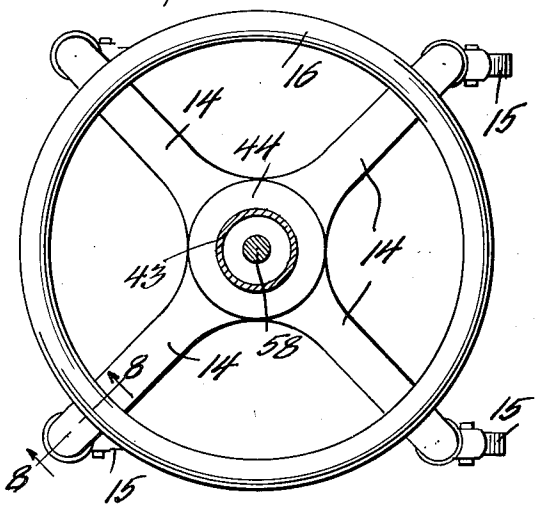
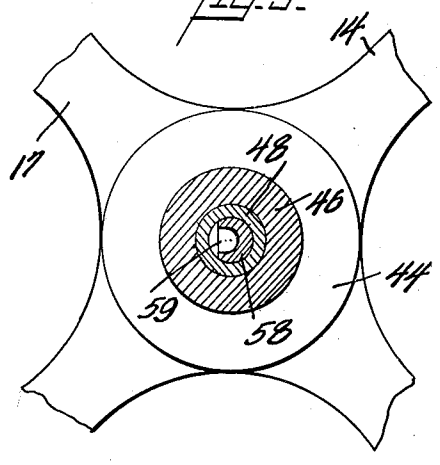


FIG. 5.



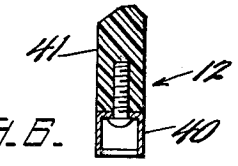


FIG. 6.

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DENTIST'S CHAIR

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Application October 2, 1950, Serial No. 187,987

7 Claims. (Cl. 155—157)

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This invention relates to improvements in dentists' chairs and has for an object the provision of a chair which will afford adequate support for the body in the various positions assumed in the treatment of patients and in the manipulation of dental equipment, thereby minimizing muscular strain.

The present application is a continuation-in-part of my co-pending application, Ser. No. 45,270, filed August 20, 1948, now abandoned.

Until comparatively recent years practically all the progress in the design and manufacture of dental operative equipment has centered on the idea of providing ultra comfort for the patient. No thought, apparently, has been given to the comfort of the dentist while engaged in operating.

The conventional type of rest stool with heavy base, adjustable only vertically, is quite heavy and must be moved from one operating position to another by hand, which entails awkward, cumbersome movements of the dentist while operating. In addition, this type of rest stool does not provide any horizontal support to the back or body, while the operator, of necessity, must work in a leaning or strained position.

Other efforts to solve these problems have not proved satisfactory. Equipment that is attached to the patient's chair, as well as equipment which is fastened or attached to the dental chair base, are extremely inflexible and limit the range of operative procedures necessary in the dental operating room. As a result, dentists are forced to work in an abnormal postural position at the dental chair, forcing the vital abdominal organs into a cramped position, which in turn results in circulatory disturbances, hypertension, cardiovascular changes, sacroiliac strain, scoliosis or curvature of the spine, leg, ankle and foot pains, impinged nerves, muscle strain, and other complications.

It is therefore an object of the invention to provide a dentist's chair having a body rest supported on the chair for generally horizontal swinging movement, so that the rest may readily be positioned to engage and support the chair occupant at the back or at either side. In the preferred embodiment of the invention, the chair is provided with a seat of the saddle type, supported for rotation on the chair base about a generally vertical axis, whereby with appropriate adjustment of the relative positions of the seat and the rest, the rest may be caused to engage and support the occupant at the front, as well as at the back or the sides.

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More specifically, it is an object of the invention to provide a dentist's chair having a caster supported base, provided with an annular foot rest, a seat support rotatably mounted on said base, a seat rotating with said support, and a body rest mounted on said seat support for horizontal swinging movement, the body rest having an arcuate configuration so as to embrace partially the body of the occupant, whereby support may be afforded in any direction in which the occupant leans.

Further objects and features of the invention will be apparent from the following description taken in connection with the accompanying drawings in which

Figure 1 is a side elevation of a dentist's chair embodying the principles of the invention;

Figure 2 is a plan view of the chair shown in Figure 1;

Figure 3 is a horizontal section on the line 3—3 of Figure 1;

Figure 4 is a fragmentary enlarged view, partly in section, of part of the structure shown in Figure 1;

Figure 5 is a horizontal section on the line 5—5 of Figure 4;

Figure 6 is a section on the line 6—6 of Figure 2;

Figure 7 is a section on the line 7—7 of Figure 2; and

Figure 8 is a section on the line 8—8 of Figure 3.

In order to facilitate an understanding of the invention, reference is made to the referred construction shown in detail in the drawings, and specific language is employed to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such modifications and alterations of the illustrated embodiment being contemplated as would normally occur to those skilled in the art.

Referring first to Fig. 1, it will be observed that the chair consists essentially of a pedestal 10, a seat 11 and a body rest 12, the seat 11 being of the saddle type commonly used in cycle saddles, and the body rest 12 being curved in a horizontal plane to partially embrace the body. The pedestal is supported on the floor by a plurality of radially extending legs 14 rigid therewith, each leg being provided with a conventional caster 15, mounted in the outer, downwardly-directed portion 13 of the leg. An annular foot rest 16 preferably encircles the pedestal base, being received in an arcuate recess

formed in the upper surface of each leg 14 and being secured rigidly therein by a threaded element 18. By means of this arrangement, the chair may readily be propelled about the floor by the occupant to any convenient position, displacement of the chair by pushing with the feet being facilitated by the shape of the seat, the horn portion of the seat extending between the occupant's legs.

As hereinbefore explained, the body rest 12, and preferably the seat 11, are supported on the pedestal 10 for rotation about generally vertical axes. The axes of pivotal movement of the seat and the body rest are adjacent and may be coincident, but are preferably slightly displaced laterally, as illustrated in the drawing. The word "adjacent," as employed herein, is used to define either coincidence or offset relation of the two axes as in the preferred and illustrated embodiment of the invention.

Thus, as shown in Figure 1 of the drawing, the seat 11 may comprise a supporting metal plate 20, curved as shown in the drawing to facilitate the shaping of the seat proper 21, which may be formed of suitable padding covered by leather in a conventional manner, and is carried on a plate 22, shaped to conform to the central portion of the plate 20 and bolted thereto as shown at 23. Tubular bosses 24 and 25 are united with plate 22 to form therewith an integral structure, for instance by welding. Boss 24 is rotatably mounted on the pedestal 10 in manner hereinafter more fully described, so as to permit rotation of seat 11 about a vertical axis, while boss 25 serves as a mounting for the body rest and defines the vertical axis about which the rest may be rotated as hereinbefore mentioned.

For this latter purpose, a spindle 27 provided at its lower end with a collar 28 is received within and secured to boss 25 by a set-screw 29, and a bracket 32, integral with an arm 30 which supports the body rest 12, is journalled for rotation on spindle 27 intermediate boss 25 and collar 28, the arm 30 extending laterally and upwardly from its axis of rotation, as illustrated in Figures 1 and 3. Arm 30 may be formed, throughout the major portion of its length, of metal tubing, welded or otherwise integrally secured adjacent its lower end to the bracket 32. Within the upper end of arm 30 is received with a sliding fit a tubular spindle 35. A collar 36 embraces the arm 30, being shrunk or otherwise secured on the upper end of the latter. A set-screw 38, threaded within collar 36, is arranged to engage selectively with any one of a series of recesses or indentations 39 in the outer surface of spindle 35, whereby the spindle may be adjusted vertically with respect to arm 30 and retained in vertically adjusted position. In lieu of recesses or indentations of the nature shown, spindle 35 may be provided with a series of spaced annular grooves, whereby the body rest may be adjusted in a horizontal plane about the axis defined by the upper end of arm 30, although such rotary adjustment of the rest is ordinarily not necessary and may be undesirable.

The body rest 12 may comprise an arcuate metal base 40, welded to spindle 35 adjacent the upper end of the latter, on which is mounted an arcuate member 41 of plastic material such as Lucite, to give to the body rest adequate depth and to improve the appearance thereof without unduly increasing its weight, the member 41 being bolted or otherwise rigidly secured to the base 40. The rest 12 may, alternatively, comprise a unitary structure of metal, wood, or plastic. The configuration of the rest 12 is preferably that shown in Figure 2, the curvature being such as to afford maximum and comfortable support to the body when the rest is adjusted vertically so as to engage the body somewhat below the arm pits. In the structure shown, the arm 30 may be rotated through an angle of nearly 180° so that the body rest may be positioned to engage and support the operative at the back, one side, or at the front, these several positions of the rest being indicated in Figure 1 of the drawing by the full and dotted line representations. Since the arm 30 is supported for pivotal movement on the seat, slightly to the rear of the vertical axis of the seat, this swinging movement of the rest is limited only by engagement of the arm 30 with the edge of the seat at either side of the latter.

The base 10 of the chair may be formed as hereinbefore described, the legs 14 merging into a hub 44 which is apertured at 47 to receive a sleeve 43 forming part of the pedestal on which the sleeve is mounted. Received within the upper end of the sleeve, and secured thereto by set-screw 45, is the reduced end of an annular element 46, which receives in turn the reduced lower end of a further annular element 48, the dimensions being such that element 48 may rotate in element 46. At its lower end, element 48 is threaded to receive a nut 51 which bears against a washer 52, whereby vertical displacement of element 48 is prevented, and an antifriction bearing 55, interposed between the upper end of element 46 and the opposed annular shoulder presented by element 48 may be provided to transmit the load between the seat and the base.

A spindle 58 is received within and suitably secured to the seat boss 24, and projects downwardly through the pedestal structure just described, being slidably received therein. At one side, the spindle 58 is recessed to form a series of ratchet teeth 59, and a cooperating spring-pressed pawl 61 is urged into engagement with the teeth. Preferably the teeth 59 are so shaped that spindle 58 may readily be raised by lifting the seat proper, but can be lowered only by withdrawing the pin 61, the pin 61 being provided with a knob 62 for this purpose. Thus, the seat may be raised to a position in which maximum comfort is afforded the operative, and will be retained in the elevated position; lowering of the seat is readily effected by withdrawing the pawl 61.

It will thus be observed that in the illustrated embodiment of the invention, there is provided a seat structure rotatable on the base of the chair about a generally vertical axis, and a body rest mounted for swinging movement on the seat structure, the body rest being located laterally of and remote from the axis on which it swings, whereby the seat and body rest may rotate together on the chair base, or the body rest may be rotated through a wide angle with respect to the seat, so that the body rest may embrace the occupant at the back, at either side, or at the front, the body being thus adequately supported in any direction in which the occupant may lean. Furthermore, the structure is such as to provide for vertical adjustment of the seat, independent vertical adjustment of the body rest, and a foot rest so mounted on the base as to prevent loosening or displacement.

The invention contemplates such further additions and alterations as would normally occur to

those skilled in the art to which it relates. Various features of the invention may be separately employed, and combinations of these features, or of any of them, with known structures are comprised within the invention.

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

1. A dentist's chair, comprising, in combination, a base, a seat structure supported on said base for rotation about a generally vertical axis, and a body rest supported on said seat structure, said rest extending upwardly from said seat structure and including a body engaging portion, means mounting said body rest on said seat structure for pivotal movement about a generally vertical axis adjacent said first-named axis, said body engaging portion being remote from the rest axis, whereby said body engaging portion may be swung through a substantial arc to engage with either side or with the back of an occupant of the chair without rotating said seat structure.

2. A dentist's chair, comprising, in combination, a base, a saddle seat and a body rest supported on said base, said body rest extending upwardly from said seat and including a horizontally curved body embracing portion, and means mounting said body rest for pivotal movement about a generally vertical axis adjacent the central portion of said seat, said body engaging portion being remote from said axis, whereby said body rest may be swung through a substantial arc to engage with either side or with the back of an occupant of the chair, and means mounting said seat for rotation on a generally vertical axis.

3. A dentist's chair, comprising, in combination, a base, a seat support mounted on said base for rotation about a generally vertical axis, a seat and a body rest carried on said support, said rest extending upwardly from said seat and including a body engaging portion, and means mounting said rest on said seat support for pivotal movement about a generally vertical axis displaced laterally of but adjacent to said first named axis, said body engaging portion being remote from the rest axis, whereby said body engaging portion may be swung through a substantial arc to engage with either side or with the back of an occupant of the chair without rotating said seat, and whereby said body engaging portion may be rotated with said seat about said first named axis.

4. A dentist's chair, comprising, in combination, a base, a seat support mounted on said base for rotation about a generally vertical axis, a saddle seat carried on and rotating with said support, and a body rest carried on said seat support, said rest extending outwardly of and upwardly from said seat and including a body engaging portion of arcuate configuration in a horizontal plane, and means mounting said rest on said seat support for pivotal movement about a generally vertical axis displaced laterally of but adjacent to said first named axis, said body engaging portion being remote from the rest axis, whereby said body engaging portion may be swung through a substantial arc to engage with either side or with the back of an occupant of the chair without rotating said seat, and whereby said body engaging portion may be rotated with said seat about said first named axis.

5. A dentist's chair, comprising, in combination, a base, a seat and a body rest supported on said base, means mounting said seat on said base for vertical adjustment and rotation on a vertical axis with respect to said base, said body rest including an arm extending laterally and upwardly from the central portion of said seat, and a body engaging portion curved in a horizontal plane, said body engaging portion being mounted on said arm for vertical adjustment with respect thereto, and means mounting said arm for pivotal movement about a generally vertical axis offset from the axis of rotation of said seat, whereby said body engaging portion may be swung through a substantial arc to engage with either side or with the back of an occupant of the chair.

6. A dentist's chair, comprising, in combination, a base, a seat journalled for rotation on said base about a vertical axis, and a body rest supported on said base, said body rest including an arm extending laterally and upwardly from the central portion of said seat, and a body engaging portion curved in a horizontal plane, said body engaging portion being mounted on said arm for vertical adjustment with respect thereto, means mounting said arm on and beneath said seat for pivotal movement about a generally vertical axis adjacent the central portion of said seat and on an axis displaced from the axis of said seat, whereby said body engaging portion may be swung through a substantial arc to engage with either side or with the back of an occupant of the chair.

7. A dentist's chair, comprising, in combination, a base, a seat structure supported on said base for rotation about a generally vertical axis, and a body rest supported on said seat structure, said rest extending upwardly from said seat structure and including a body engaging portion, means mounting said body rest on said seat structure for pivotal movement about a generally vertical axis, whereby said body engaging portion may be swung through a substantial arc to engage with either side or with the back of an occupant of the chair without rotating said seat structure, said base comprising a hub portion, a plurality of legs extending laterally from said hub portion, and an annular foot rest secured to said legs, said legs being recessed to receive and partially embrace said foot rest.

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