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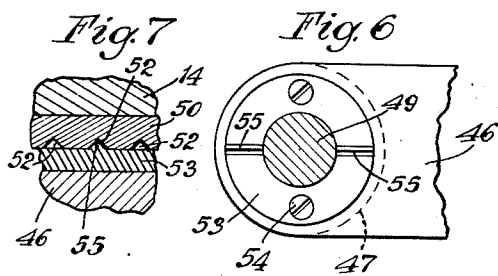
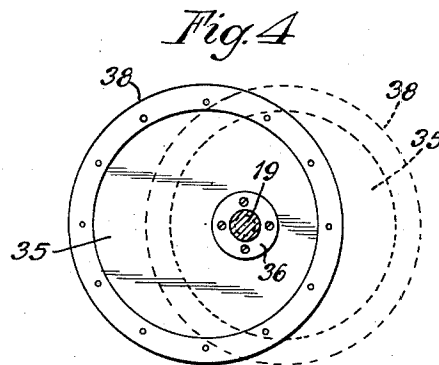
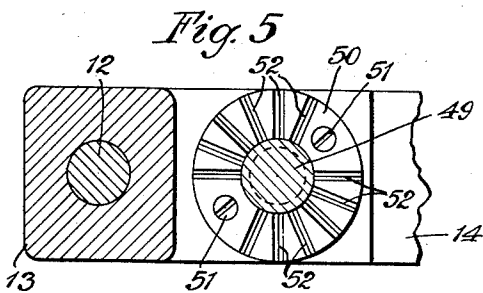
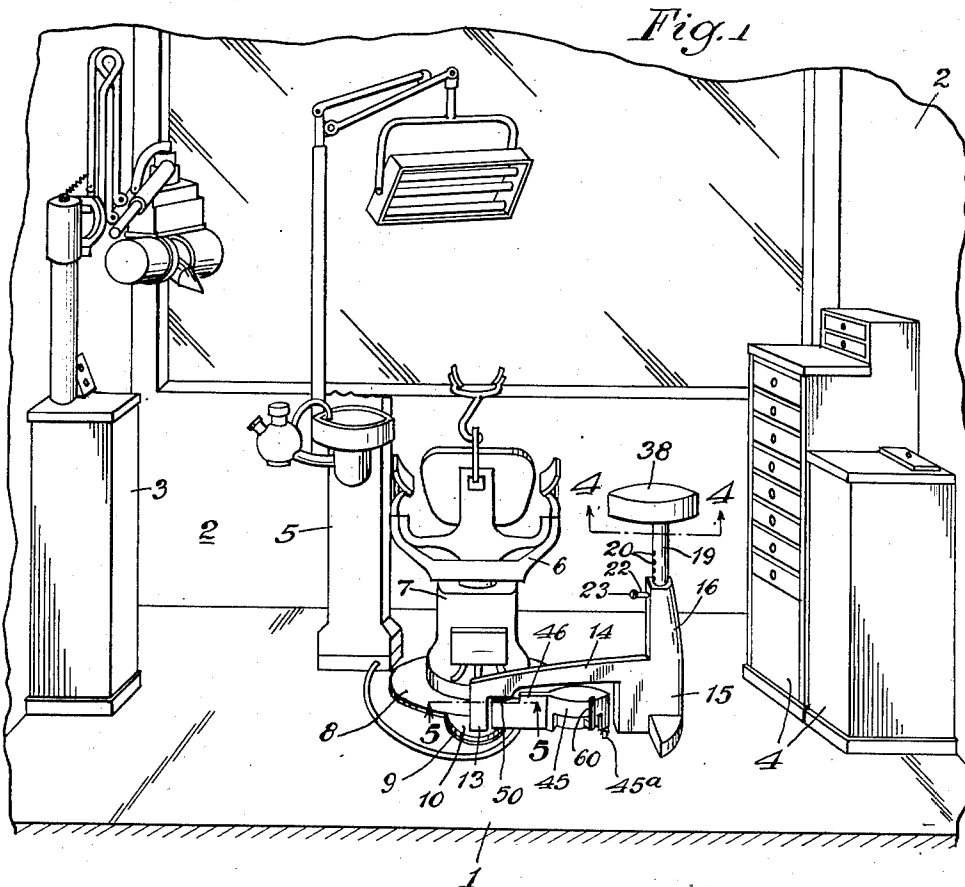
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2,596,561

AUXILIARY SEAT SUPPORT FOR USE WITH DENTAL CHAIRS

Original Filed March 8, 1947

2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

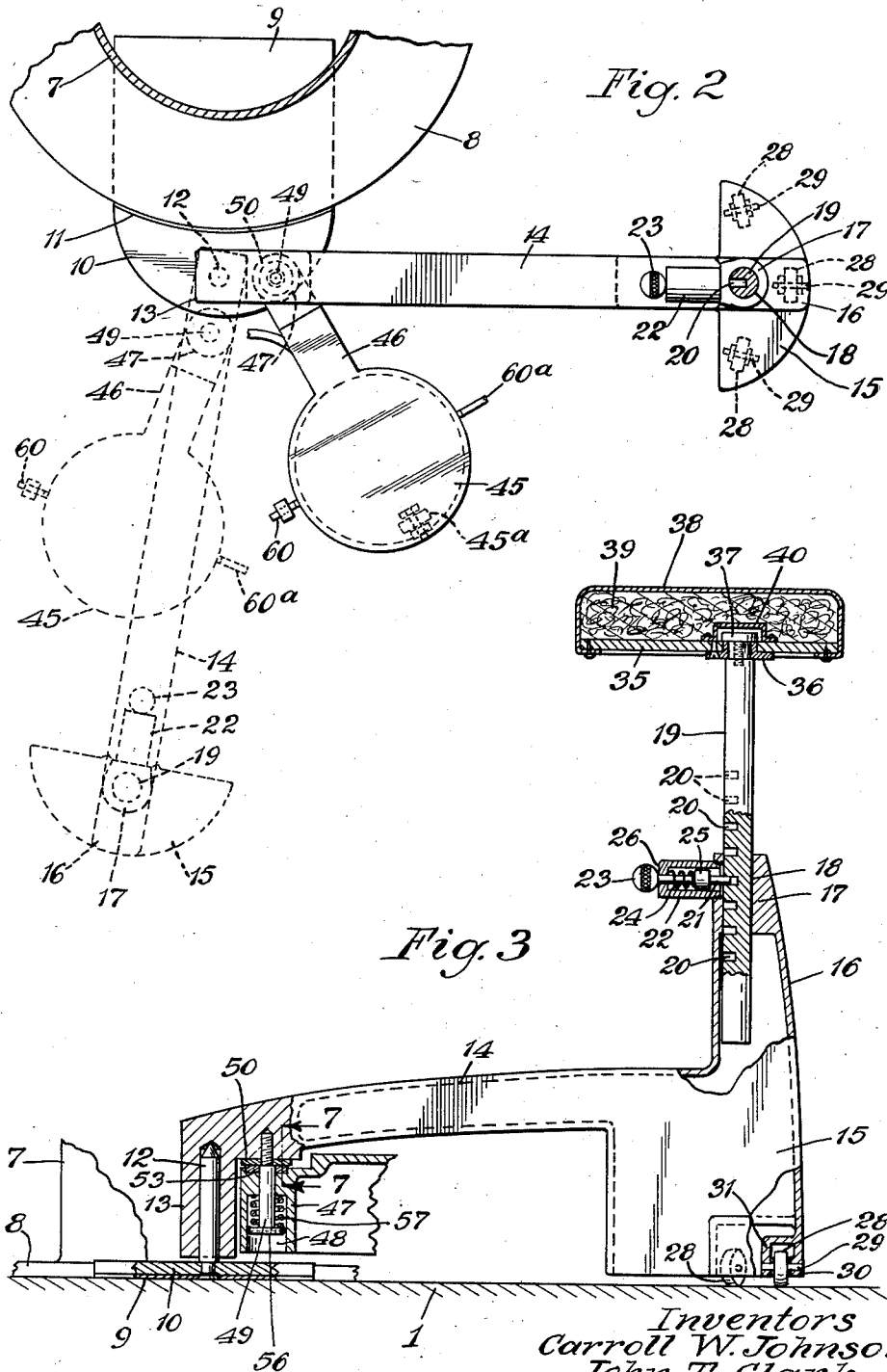


Fig. 3

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UNITED STATES PATENT OFFICE

2,596,561

AUXILIARY SEAT SUPPORT FOR USE WITH
DENTAL CHAIRSCarroll W. Johnson, Chicago, and John T. Clark,
Cicero, Ill.Original application March 8, 1947, Serial No.
733,340. Divided and this application January
18, 1950, Serial No. 139,192

8 Claims. (Cl. 155—81)

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This invention relates to an improvement in operator supports for use with chairs in which a patient or subject is seated.

One purpose is to provide a support upon which an operator, such as a dentist, may rest his weight or be seated while he is working upon a patient.

Another purpose is to provide such a support in which the dentist or other operator may readily change his position in relation to the patient, while operating on the patient.

Another purpose is to provide an improved base and support associated, for example, with a dentist chair.

Another purpose is to provide such a support which is readily adjustable about and toward and away from such a chair.

Another purpose is to provide such a support which has associated with it efficient control means for operating mechanisms; for example, electrically operated mechanisms used in dentistry.

Another purpose is to provide an improved support which may be used in any situation where a patient or subject is seated or positioned at a generally fixed point, and where the operator, for example, a dentist, surgeon or barber, may freely move himself in relation to the patient or subject, with a minimum of effort, and with a continuous control of various mechanisms employed upon the patient or subject.

Another purpose is to provide an improved assembly or layout in which the operator has ready access both to the patient or subject in a chair, and to other mechanisms, or adjacent furniture.

Another purpose is to provide an improved means for adjusting a seat toward and away from a dental chair.

Another purpose is to provide an improved supporting connection for a dental seat and control assembly, whereby it may be readily adjusted toward and away from the dental chair on which the patient sits.

Other purposes will appear from time to time in the course of the specification and claims.

The present application is a division of our copending application Serial No. 733,340, filed March 8, 1947, which issued on February 21, 1950 as Patent No. 2,498,550.

The invention is illustrated more or less diagrammatically in the accompanying drawings wherein:

Figure 1 is a perspective view illustrating the invention in position in a dentist's office;

Figure 2 is a partial horizontal section on an

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enlarged scale, illustrating the structure of the invention;

Figure 3 is a view of the structure shown in Figure 2, with parts in elevation and parts in vertical section;

Figure 4 is a section on the line 4—4 of Figure 1, on an enlarged scale, illustrating the seat in different positions;

Figure 5 is a section on the line 5—5 of Figure 1, on an enlarged scale;

Figure 6 is a detail; and

Figure 7 is a section, on an enlarged scale, on the line 7—7 of Figure 3.

Like parts are indicated by like symbols throughout the specification and drawings.

Referring to the drawings, 1 generally indicates the floor of a room, such as a dental office, and 2 indicates walls. 3 and 4 indicate various dental equipment, cabinets and the like. 5 indicates a support for dental equipment, located adjacent the dental chair, generally indicated as 6. The dental chair has a pedestal 7 which rests on or includes a base 8 which may have a generally circular bottom contour, as shown in Figure 2.

Adapted for insertion beneath the base 8, and adapted to be held in position by the weight of the base 8, is a base plate 9, the contour or the plane of which is illustrated in Figure 2. The plate 9 preferably has an outer enlargement 10 which may have an arcuate edge 11, conforming generally to the arc or curvature of the exterior edge of the base flange 8 of the chair. The members 8 and 10 may, if desired, have substantially the same elevation above the floor. It is clear from the drawings that the base plate 9 is of such size and shape with respect to the chair pedestal that when the chair is tilted about the edge of the pedestal as a fulcrum at a point substantially diametrically opposed to the position of the enlargement 10 on the plate, said edge of the pedestal will engage the floor or other supporting surface on which the pedestal rests, thereby freeing the plate for adjustment or removal, since it is important in applying or adjusting the device that it can be adjusted about the dental or barber chair base by merely tilting the chair slightly. The operator or assistant can then readily move the plate 9 with its enlargement 10, about the periphery of the chair base.

Upstanding from the portion 10, we illustrate a pivot pin 12. Rotatable about the pin is a seat and control supporting assembly which includes the hub 13, the connecting arm 14 and the seat

support 15. The parts 13, 14 and 15 may constitute a single piece, such as a die casting. The arm 14 connects the upper parts of the elements 13 and 15. The hollow end enlargement 15 has an upward projection 16 which terminates in a sleeve 17 having an internal bore 18. Adjustable in the bore 18 is the vertical seat supporting rod 19. The rod is provided with a plurality of notches or apertures 20, which are vertically aligned along the rod and which are adapted to receive a locking pin 21. The pin 21 is mounted for endwise manual movement in the sleeve 22. 23 indicates an external manual control member whereby the pin 21 may be outwardly drawn against the compression of the coil spring 24. The spring 24 may be compressed between the pin abutment 25 and the outer end 26 of the sleeve 22. It is effective normally to urge the pin into the locking position in which it is shown in Figure 3. The rod 19 may be raised to any desired height, within the range of the apertures or notches 20, and may be held locked in the desired position of adjustment, as illustrated in Figure 3. The lower portion of the enlargement 15 carries a plurality of ground-engaging rollers 28. Each roller may have a pin 29, the ends of which are mounted or journaled, in suitable wall or supporting portions, as at 30 and 31. Thus the outer end of the seat supporting assembly is movably supported by the rollers 28 upon the floor surface 1. It will be understood, however, that any suitable antifrictional supporting means may be employed, rollers constituting a satisfactory solution of the problem.

Mounted at the upper end of the rod 19 is an eccentrically positioned seat disc 35, merely shown as mounted on or secured to a rotatable fitting 36 which is held in position by any suitable screw or bolt 37. 38 is any suitable flexible seat covering, secured about the edges of the disc 35. 39 indicates any suitable upholstery padding, and 40 a protecting covering to prevent access of the upholstery to the bearing connection between the fitting 36 and the recessed or offset top of the rod 19. It will be understood, as shown in Figure 4, that the user can adjust the effective distance of the seat from the dental chair by merely rotating it about the rod 19.

We find it desirable to provide a control box which is mounted in a position convenient to the foot of the operator, and which may rotate with and still be adjustable in relation to the above-described seat assembly. We illustrate, for example, the control box 45 mounted on an arm 46 which includes an inner hub portion 47 in the form of a sleeve having a cylindrical hollow 48. 49 is a pivot pin, shown as secured to an upper portion of the member 13, or an adjacent part of the arm 14. Secured to the lower surface of the arm 14 is an abutment plate, shown in Figures 5 and 7 and indicated at 50. It may be held in position, for example, by screws 51 and is provided with a plurality of generally radially extending concavities or notches 52. In the upper exterior surface of the sleeve 47 is an opposed plate 53, shown in Figure 6 as held in position by screws 54. It is provided with a pair of diametrically continuous ridges 55. The pin 49 terminates in a lower head 56 which serves as a lower abutment for a coil spring 57. The coil spring tends normally to urge the sleeve 47 upwardly against the plate 50. However, the compression is sufficient to prevent the user from imparting an adjusting rotation to the arm 46 and the control box 45. It will be understood that in

practice it is important that unintended movement of the control box 45 be prevented, but that it may be fairly easily moved by an intended movement or thrust of the foot. The box 45 may carry any suitable actuating members or levers, as at 60, the details of which do not of themselves form part of the present invention. It will be understood, however, that any suitable control switches and connections may be employed. For example, the box 45 may, if desired, be provided with supporting means, such as the roller 45a, or such supporting means may be omitted.

It will be realized that whereas a practical and operative device is herein described and illustrated, nevertheless many changes in size, shape, number and disposition of parts may be made without departing from the spirit and intent of the invention. We therefore wish our description and drawings to be taken as in a broad sense illustrative or diagrammatic, rather than as limiting us to our precise showing.

The use and operation of the invention are as follows:

In dentistry, the dentist ordinarily works while standing on his feet. This involves a serious physical strain and frequently results in corns, fallen arches and other troubles of the feet, leg joints and spine. However, if the dentist employs a seat, the problem of shifting the seat in the course of his work necessitates the use of a movable seat. Whereas dentistry is now an old art, and dental equipment has reached a high degree of specialization, it has not, up to now, been possible for the dentist to find any available readily movable seat which can be practically used during his work. The present invention fills this gap and provides a seat upon which the dentist may rest a substantial part of his weight, without any sacrifice of his mobility during the work he does on his patients. With reference, for example, to Figures 1 and 4, the seat 38 may be swung at will, to adjust it toward or away from the dental chair. This adjustment may allow for differences in the position of the patient on the chair, for the size of the dentist, and for different tasks or jobs on which the dentist is working.

The seat supporting assembly, as a whole, may be swung at will, by the feet of the dentist, to render available all of the equipment which a dentist normally uses, including the drill and tray, not herein shown, the cabinet 4 and the extra equipment 3. The dentist can move readily about the patient throughout an arc of sufficient extent to give him complete access to the mouth of the patient from all the angles from which he normally works. The controls of the chair are within reach of the dentist at all times, as are the controls on the readily adjustable control box 45. Thus the dentist has available at all times all of the equipment he uses, and is able to maintain a seated posture without any loss of control and without any perceptible restriction of his movements. The mechanism may be set or adjusted for the size of the dentist, the location and shape of the dental chair and the needs of the particular case. Ordinarily, an initial adjustment in relation to the size of the chair and the habits and convenience of dentists is enough. This adjustment includes the adjustable, eccentric center about which the support rotates, the distance of the support from the center about which it rotates, and the height of the seat 38 upon which the dentist sits.

Whereas we have described our invention as

applied to a dental office, it will be understood that it will also apply, with slight changes, to the offices of oral surgeons and, in general, to offices of eye, ear, nose and throat specialists. It may also be employed by barbers and in any other situation wherein a dentist, surgeon, barber or investigator does his work upon a patient or subject seated in a predetermined position, where it is necessary for the operator to move about the patient in the course of investigation, treatment or service.

The eccentric pivoting of the seat 38, in relation to the chair, is highly advantageous, and permits complete mobility and ready access to the patient. It will be understood, of course, that the seat 38 may readily be adjusted at any desired height.

One advantage of the assembly herein shown is that the plate 9 is thin enough to slip under the pedestal flange 8, where it will firmly be held at any desired position of adjustment. The operator, however, can adjust it about the chair, by slightly tilting the pedestal of the chair. The center of rotation of the seat assembly, as established by the pin 12, is eccentric in relation to the center of rotation of the dental chair itself. If the operator wishes to vary the distance between the center of the dental chair and the pin 12, he merely has to tilt the chair pedestal slightly and pull the plate 9 slightly outwardly away from the center of the dental chair. We thus provide a simple but readily adjustable assembly, with a minimum of complications, and a maximum flexibility in use.

Our invention may be applied not only to dental chairs, barber chairs or the like, but to machine tools, such as lathes, where an operator has to sit as he controls machinery with which he works.

An important feature of the invention is the employment of adequate means for supporting the feet during work. The user may set the control box 45 at the desired position and may rest his foot on the top. It will be understood that the control 60 extends upwardly to a level above the top of the control box 45. Thus the user, by a sideward movement of his foot, may control a rheostat in the control box 45 and thereby control his drill or other equipment. The use of the roller 45a permits the control box 45 to support the entire weight of the operator, when necessary. On the other hand, if the operator moves the control box into the dotted line position of Figure 2, and prefers to stand, the control 60a, which moves unitarily with the control 60, can be used, since the control 60a may be located at the ground level.

The end horns of the member 15, as shown in Figures 2 and 3, are also available to support the feet of the operator, when the operator is resting his weight on the seat.

We may find it desirable to put the middle of the three rollers 28 at a slight angle, with its axis non-radial. This permits it to serve as a slight brake. It will also be noted that the three rollers are so positioned as to constitute a tripod or triple support which is ample to support the weight of the heaviest user.

We claim:

1. In a seat attachment adapted for use with dental chairs and the like having heavy pedestals which rest by gravity upon a supporting surface, a base plate for supplemental seats, such plate having a relatively thin blade portion at one edge adapted for insertion beneath the edge of such a pedestal and formed and adapted to be held by the weight of such pedestal in frictional contact

with the pedestal and with the surface upon which the pedestal rests, said base plate having abutment means adapted, when the seat attachment is applied to the pedestal of a dental chair, to engage the edge of the pedestal and to maintain the supplemental base in predetermined relation to the pedestal, the base plate having a portion which, when the thin plate portion of the base plate is positioned beneath a pedestal and the abutment means engages the edge of the pedestal, extends radially outwardly from the pedestal and is adapted to receive a seat support.

2. The structure of claim 1 in which that part of the base plate exterior to the pedestal, when the blade portion is beneath the pedestal, is substantially thicker than said blade portion and has an edge portion opposable to the edge of the pedestal, adapted to serve as said abutment means.

3. In a seat assembly for use with a vertically axised rotatable dental chair having a normally fixed floor engaging base of substantial weight and having a generally circular lower, outer edge, a supplemental base adapted when in use, to be freely adjustable about the periphery of said dental chair base said supplemental base including an abutment portion which when in use is adapted to be located exteriorly to the base of the dental chair and in engagement with an edge thereof, said supplemental base including a relatively thin portion adapted to extend beneath the edge portion of said floor engaging base to a distance substantially less than the radius of said dental chair base when said abutment portion is in engagement with the edge of said dental chair base, whereby the pedestal may be tilted on its edge, opposite the supplemental base as a fulcrum to free the supplemental base for removal or adjustment about the chair base, a horizontally extending arm member located adjacent the floor and pivoted to said supplemental base for rotation about a center which, when the seat assembly is in use, lies adjacent the edge of said dental chair base, a stool supported on the outer end of said arm, said supplemental base being readily shiftable about the axis of the dental chair base to adjust the center of rotation of the arm about the center of the dental chair base, to vary the location of the arc of swing of said stool in relation to the dental chair base and the dental chair positioned thereon, the portion of said supplemental base which is adapted to extend beneath the dental chair base being formed and adapted for simultaneous engagement with the floor and with the lower surface of the floor engaging base, whereby the weight of the dental chair base is effective to prevent unintended movement of said supplemental base during normal use of the dental chair and seat assembly.

4. In a seat assembly for use with a vertically axised rotatable dental chair having a normally fixed floor engaging base of substantial weight, a supplemental base freely adjustable about the periphery of said dental chair base and including a relatively thin portion adapted to extend beneath the edge portion of said floor engaging base, abutment means carried by said supplemental base and adapted to engage the edge of the chair base, a horizontally extending arm member adapted to be located adjacent the floor and pivoted to said supplemental base for rotation about a center located adjacent to but situated radially outwardly beyond the edge of said dental chair base when the seat assembly is

in use with said abutment means in engagement with the edge of the pedestal, a stool supported on the outer end of said arm, said supplemental base being readily shiftable about the axis of the dental chair base to adjust the center of rotation of the arm about the center of the dental chair base, to vary the location of the arc of swing of said stool, the portion of said supplemental base which is adapted to extend beneath the dental chair base being formed and adapted for simultaneous engagement with the floor and with the lower surface of the floor engaging base, whereby the weight of the dental chair base is effective to prevent unintended movement of said supplemental base during normal use of the dental chair and seat assembly.

5. In a supplemental seat base adapted for use with dental chairs and the like having heavy pedestals which rest by gravity upon a supporting surface, a base plate having a relatively thin portion at one edge, said thin portion having a length less than the diameter of the chair pedestal and adapted for insertion beneath the edge of such a pedestal and formed and adapted to be held by the weight of the pedestal in contact with the pedestal and with the surface upon which the pedestal rests while being free for adjustment and removal when the chair pedestal is tilted on its edge as a fulcrum at a point opposite to the plate, the base plate having also a thickened abutment portion formed and adapted to engage the edge of the pedestal to limit the extent of insertion of the base plate beneath the pedestal to a distance substantially less than the diameter of the pedestal and to maintain the supplemental base plate in predetermined relation to the pedestal.

6. In a seat attachment adapted for use with dental chairs and the like having heavy pedestals which rest by gravity upon a supporting surface, an adjustable and removable base plate for supplemental seats, such plate having a relatively thin blade portion having a length less than the diameter of such a pedestal and adapted for insertion beneath the edge of such a pedestal and formed and adapted to be held by the weight of such a pedestal in frictional contact with the pedestal and with the surface upon which the pedestal rests while being free for adjustment and removal when the chair pedestal is tilted on the edge as a fulcrum at a point substantially diametrically opposite to the plate, said base plate also having abutment means which, when the blade portion is inserted beneath the pedestal is adapted to engage the edge of the pedestal to

limit the extent of insertion of the base plate beneath the pedestal to a distance substantially less than the diameter of the pedestal when the abutment is so engaged to maintain the base plate in predetermined relation to the pedestal, the base plate having a portion disposed radially outwardly of the edge of the pedestal when the abutment means is engaged therewith, which portion is adapted to receive a seat support.

7. In a seat attachment adapted for use with dental chairs and the like having heavy pedestals which rest by gravity upon a supporting surface, an adjustable and removable base for supplemental seats, such base having a relatively thin blade portion adapted for ready insertion beneath the edge of such a pedestal when such pedestal is slightly tilted upwardly from the floor, and formed and adapted to be held by the weight of such a pedestal in frictional contact with the pedestal and with the supporting surface upon which the pedestal rests, said base also having abutment means which, when the blade portion is inserted beneath the pedestal, is adapted to engage the edge of the pedestal to maintain the base in predetermined relation to the pedestal, the supplemental base having a portion which is adapted to receive a seat support, the thin blade portion of said base being substantially less in length and in width than the diameter of the pedestal so that with the abutment means in engagement with the edge of the chair pedestal, the edge of the pedestal may be fulcrummed on said supporting surface at a point remote from said abutment means when an opposite edge portion of the pedestal is raised out of frictional contact with the base to thereby free said base for adjustment or removal.

8. The structure of claim 7 characterized by and including a rotatable connection between the seat support and the base adapted to permit the rotation of the seat support in relation to the base about a generally vertical axis.

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JOHN T. CLARK.

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