

Nov. 29, 1938.

R. S. VOORHEES, JR

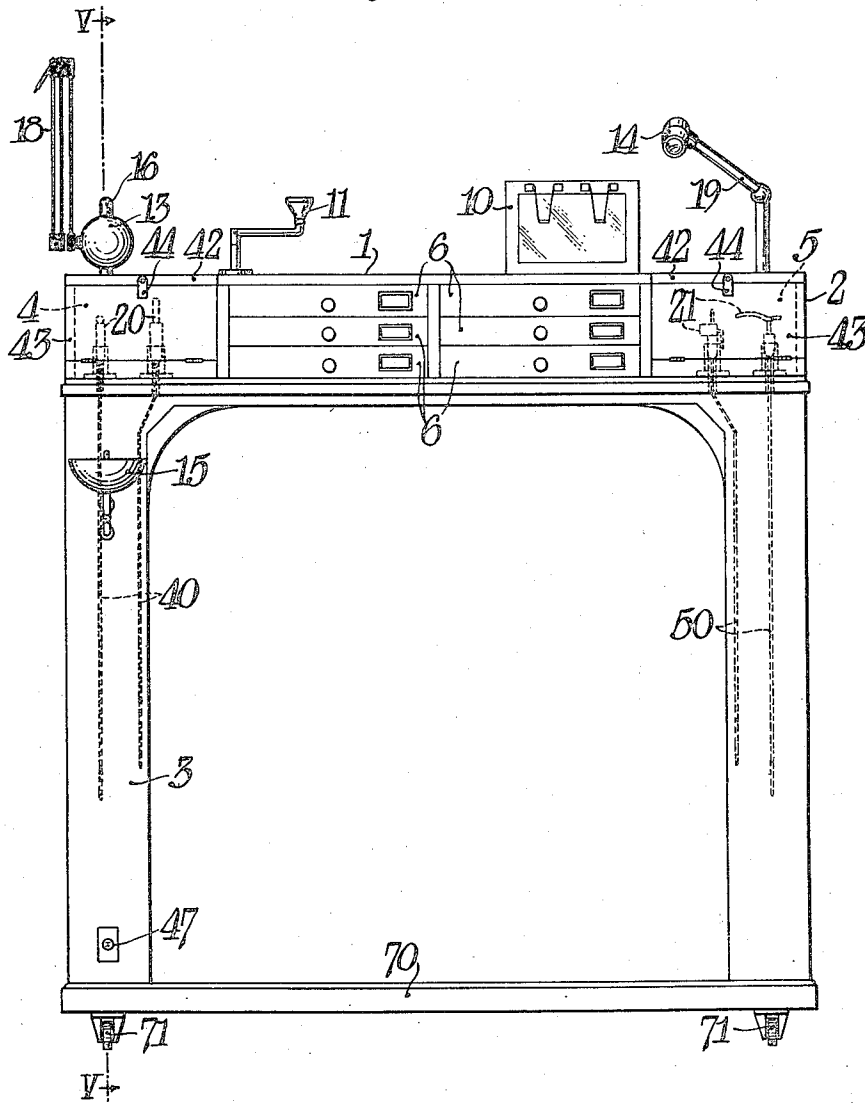
2,138,563

DENTAL OPERATING UNIT

Filed Dec. 10, 1934

4 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

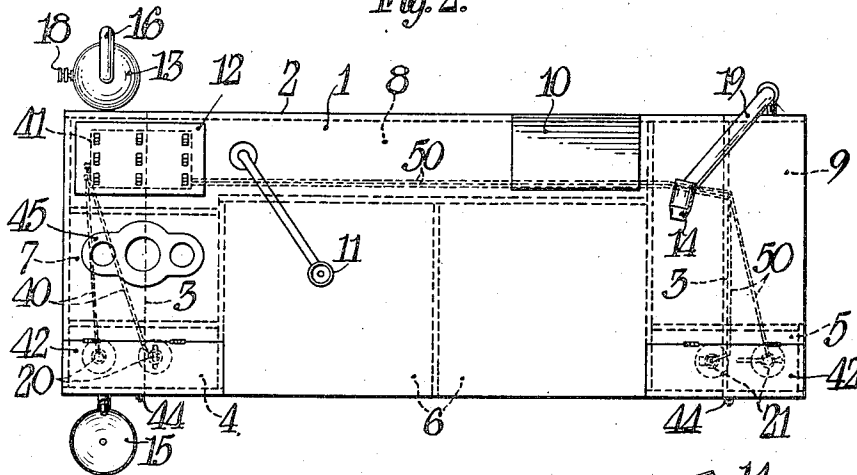


Fig. 3.

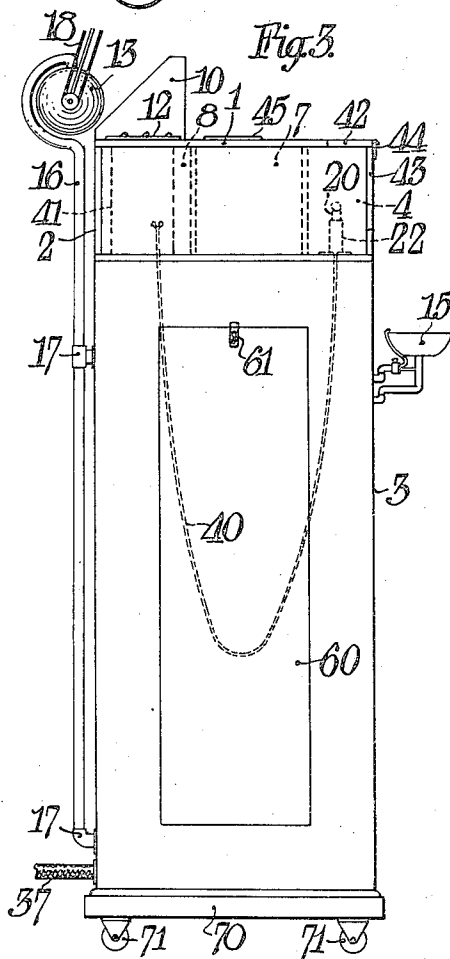
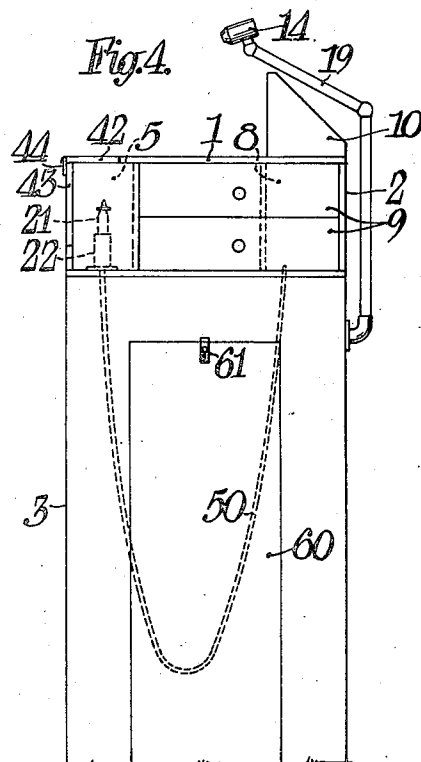


Fig. 4.



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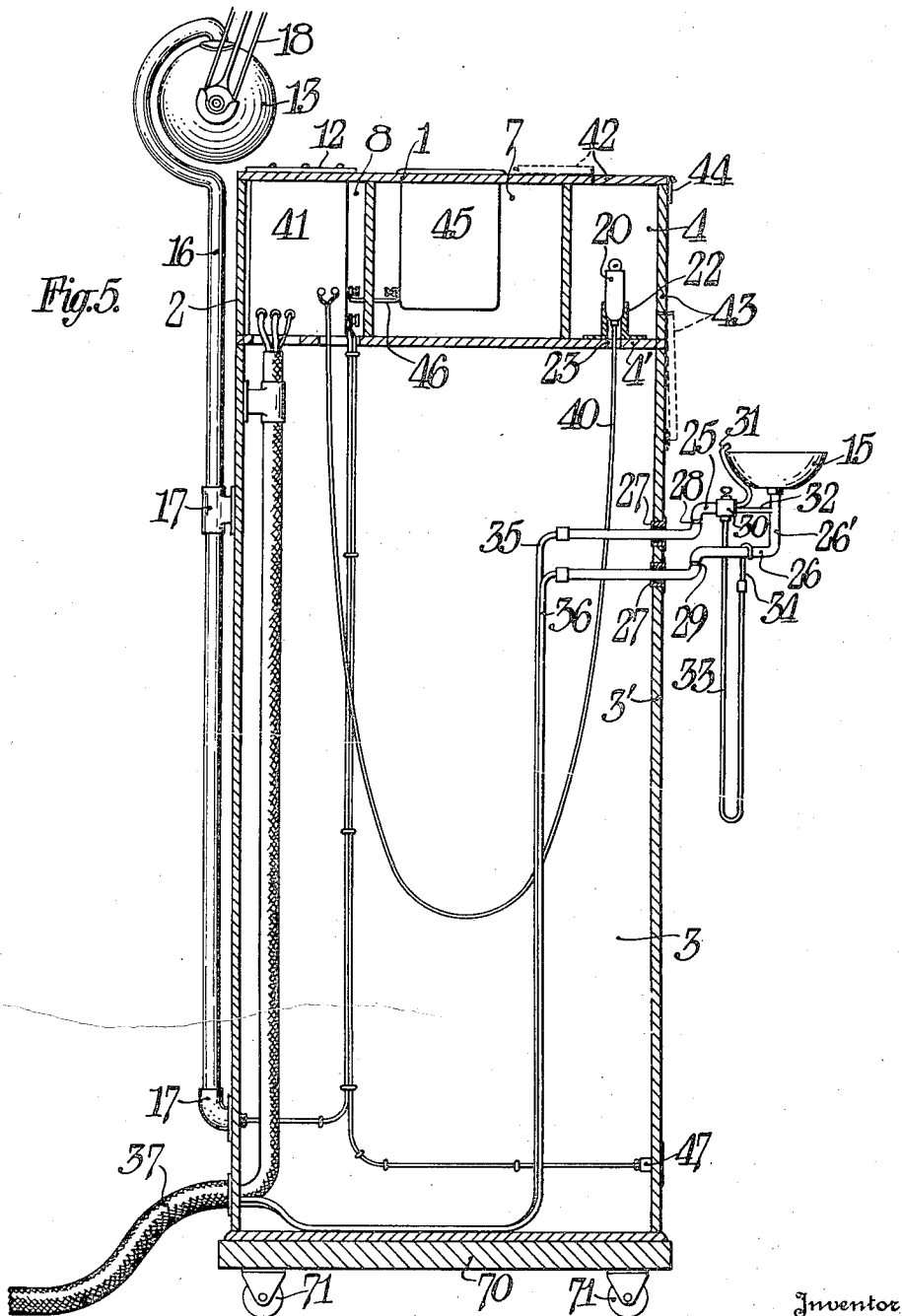
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Fig. 6.

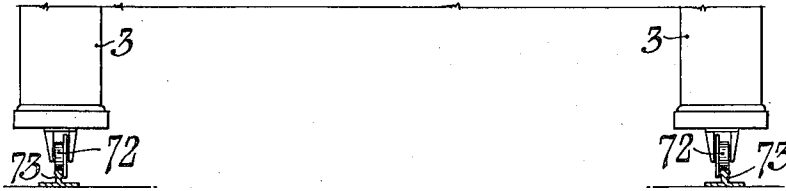


Fig. 7.

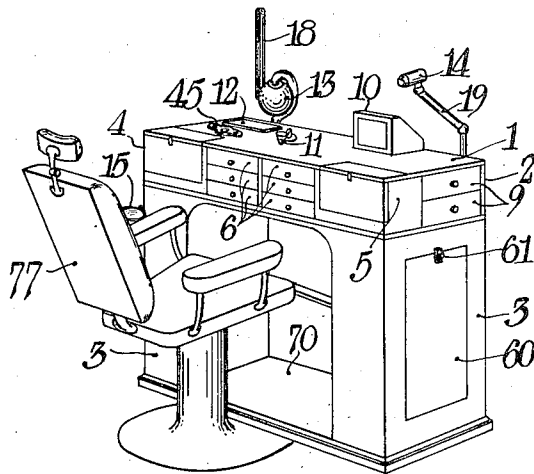
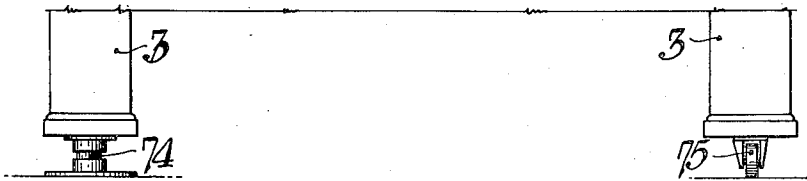


Fig. 8.

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UNITED STATES PATENT OFFICE

2,138,563

DENTAL OPERATING UNIT

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Application December 10, 1934, Serial No. 756,813

8 Claims. (Cl. 32—22)

My invention relates to dental apparatus and particularly to a combined dental operating table and dental instrument supporting structure.

The dental apparatus currently in use is bulky, cumbersome and inconvenient. It generally includes a small round operating platform and dental engine on one support, a dental cuspidor on another support, and the other necessary apparatus and tools located on other supports or in separate cabinets. By having the various instruments and apparatus so located and supported the dentist has been required to waste considerable time, effort, and space, which, of course, would cause a similar discomfort to his patient. I have overcome these defects with my invention and it is my primary object to provide a complete, compact, and efficient dental apparatus that includes all of the necessary operating instruments and apparatus in a single structure. It is also an object of my invention to arrange such a structure so that it has an attractive appearance.

Another object of my invention is to provide a complete dental operating apparatus in one unit that may be moved to a position that is convenient for operation, but may be moved to a remote position, out of the way, when not in use.

Still another object of my invention is to provide a dental operating unit having a compact and unique design whereby the supporting structure cooperates in housing the apparatus.

A still further object of my invention is to provide a unique supporting structure upon and in which a dentist's own equipment and apparatus may be mounted.

The foregoing objects, and others relating thereto, are accomplished in the preferred embodiment of my invention which comprises an operating platform mounted on a relatively large compartment, that is subdivided into a plurality of smaller compartments, which is in turn supported by hollow legs. Dental instruments are mounted within and on the various compartments and the operating platform with portions of the instruments, and the conduits attached thereto, extending within the hollow legs to permit a more compact and efficient structure. The whole structure is arranged so that it can be moved to a position in which it straddles the dental chair to promote more convenient and efficient operation.

The novelty characteristic of my invention is set forth in the appended claims but the invention itself may best be understood from the following description thereof when read in con-

nection with the accompanying drawings in which

Fig. 1 is a view of the front elevation of my dental operating unit

Fig. 2 is a top plan view of my dental operating unit

Fig. 3 is a view of the elevation of one end of my dental operating unit

Fig. 4 is a view of the elevation of the other end of my dental operating unit

Fig. 5 is a cross-sectional view taken along the line V—V of Fig. 1 to show the interior structure of the hollow legs and the manner in which they cooperate in supporting and housing the dental instruments and apparatus.

Fig. 6 is a fragmentary view showing one form of rotatable mountings for the legs of my dental operating unit.

Fig. 7 is a fragmentary view showing another form of mountings, having both a pivotal and rotatable movement, for my dental operating unit, and

Fig. 8 is a perspective view of my dental operating unit in juxtaposition with a dental operating chair.

The preferred embodiment of my invention, as illustrated in Fig. 1, comprises an operating platform 1 mounted on a relatively large compartment 2 which is supported at each end by legs 3 that extend completely across the ends of the large compartment 2. The compartment 2 is subdivided into a plurality of smaller compartments, as shown in Fig. 2, such as the compartments 4 and 5 at the front of each end of the large compartment 2, the drawers 6 in the front central portion thereof, a compartment 7, at one end, a compartment 8 in the rear, and the drawers 9 in the other end thereof.

A number of instruments and pieces of apparatus may be mounted on the operating platform 1 such as the X-ray film viewing box 10, a gas burner 11 and a switch panel 12 for controlling the various instruments. Although the switch control panel 12 is shown in this disclosure, it is not considered necessary as the controls may be mounted individually on the instruments. Other instruments and devices may be mounted on the platform 1, if desired of course, but it is not considered necessary to show more, in this disclosure, as they are incidental to the invention.

Some pieces of apparatus may be more conveniently mounted on the legs 3 such as a dental engine 13, a spot lamp 14, and a dental cuspidor 15. The dental engine 13 is supported by a tube 16 which is mounted in bearings 17 that are at-

tached to one of the legs 3. Electric conductors may run from a main source housed within the leg 3 through the supporting tube 16 to the dental engine 13. The dental engine 13 is adapted to support and to drive a handpiece 18 as is well known in the art. The spot lamp 14 is provided with a hollow, substantially universally adjustable support 19 that is also adapted to house electric conductors for supplying the lamp with current.

The dental cuspidor 15 comprises a unique and efficient design that is best shown in Fig. 5. The cuspidor 15 is supported by a rigid supply conduit 25 and a rigid drain conduit 26. These rigid conduits 25 and 26 are mounted in ball bearings 27 which are supported by the front wall 3' of the leg 3. Any desired type of bearings may be used but the ball bearings 27 permit a smooth movement of the rigid conduits 25 and 26 so that the cuspidor may be freely adjusted to and from the front wall 3' of the leg 3. The rigid conduits 25 and 26 are horizontally supported, one above the other, in a vertical plane and portions of the conduits are bent at right angles to form vertical sections that are provided with pivotal joints 28 and 29, whereby the cuspidor 15 may be swung in an arcuate path on a vertical axis extending through the joints 28 and 29.

The rigid supply conduit 25 terminates in a valve 30 that is adapted to direct the flow of water either to a small goose neck pipe 31 that fountains the water into the cuspidor 15, or to a small pipe 32 that extends to a vertical extension 26', of the rigid drain conduit 26, upon which the cuspidor 15 is seated. When the water is passed, by the valve 30, to the pipe 32 extending to the drain conduit 26', a suction is caused in a flexible conduit 33 extending from the valve 30 to a saliva remover 34 that may be hooked over the patient's lower jaw during a dental operation. This valve 30, and associated parts, are well known in the art and are described herein merely to show its adaptation to this type of dental cuspidor.

The free ends of the rigid conduits 25 and 26, that extend within the leg 3, have flexible conduits attached thereto, such as a flexible supply conduit 35 and a flexible drain conduit 36. The flexible conduits 35 and 36 connect the cuspidor 15 with a main conduit 37 and are slightly longer than the distances therebetween, to provide a loose slack in the flexible conduits 35 and 36 that will permit the adjustment of the cuspidor 15 to and from the leg 3. The main conduit 37 enters the leg 3 at the bottom of the rear wall thereof and comprises a flexible casing containing a plurality of flexible conduits adapted to transport water, air, gas, and electricity, so that there will be only one connection between the unit and the wall outlets in the operating room, whereby the unit may be moved more freely.

Other instruments and pieces of apparatus are mounted within the subcompartments 4, 5, 7, and 8 of the top compartment 2. Within the front compartment 4, for instance, may be mounted a plurality of electric instruments 20. The instruments 20 may include a small lamp that may be positioned within a patient's mouth to illuminate cavities and the like, and/or any other devices that may be desirable. Within the other front subcompartment 5 a plurality of air instruments 21 may be similarly mounted. These air instruments may include an atomizer nozzle and a small blower nozzle or the like. The electric instruments 20 and the air instruments 21

may be segregated in the separate compartments 4 and 5 as described above or they may be mixed together so as to best suit the individual operator.

The electric and air instruments 20 and 21 may all be supported and connected to their respective sources of power in substantially the same manner, as is best shown in Fig. 5, in which an electric instrument 20, such as a small lamp, is shown in detail. This electric lamp instrument 20 may be seated in a hollow socket 22 that is mounted on the bottom 4' of the compartment 4 in juxtaposition with an aperture 23 through said bottom 4' and in communication with the interior of leg 3.

A flexible electric conduit 40 is attached to the electric lamp 20 and passed through the socket 22 and aperture 23 into the interior of the leg 3 and thence up to a switch box 41 that is positioned in the rear compartment 8 and associated with the switch panel 12. The electric conduit 40 is provided with slack so that it hangs in a U formation within the leg 3 and will permit the electric instrument 20 to be moved a substantial distance from its socket 22.

The air instruments 21 are mounted in a like manner with the exception that flexible air conduits 50 pass from the switch box 41, through the rear subcompartment 8, into and through the interior of the other leg 3, where it is permitted to hang in a like U formation, and then to said air instruments 21.

An operator may have access to the electric and air instruments 20 and 21 by opening the compartments 4 and 5, as indicated by broken lines in Fig. 5, by lifting up and back the hinged top 42 thereof and pulling forward the hinged front 43 thereof. The hinged top 42 and the hinged front 43 may be held in closed position by any desired means such as a latch 44. Any other desired type of entrance to the subcompartments 4 and 5 may be provided, the hinged top 42 and the hinged front 43 merely being shown as one means of access.

Within the subcompartment 7 in one end of the top compartment 2 may be positioned an electric heating device 45 which may be connected to the switch box 41 by conduits 46. This electric heating device is adapted to heat spray bottles and their contents and are well known in the art.

The switch box 41, mounted within the subcompartment 8, in association with the switch control panel 12 may be eliminated if separate controls are desired on the individual instruments as previously mentioned. Some means such as a distributor, however, should be provided for directing the air and electricity from the main source to the various individual conduits.

An electric wall plug 47 may be mounted in the front wall 3' of one of the legs 3. This plug 47 may be operatively connected with the dental engine 13 and may be adapted to receive a connection from a foot control therefor, as is well known in the art.

The drawers 6 in the front of the top compartment 2 and the drawers 9 in one end thereof may contain any desired instruments or other articles such as drugs or the like.

The legs 3 may be provided with hinged panels 60 to permit access to the interior thereof, and the panels 60 may be held in closed position by any desired means such as the latches 61.

The legs 3 may stand on a base board 70 which is provided with casters 71, as shown in Fig. 1, to permit a free movement of the unit, or, as shown in Fig. 6, rollers 72 may be attached di-

rectly to the bottoms of the legs 3. Various types of mountings may be provided to permit movement of the unit with respect to a dental chair such as the ordinary casters 70, shown in Fig. 1, rollers 72 having flanges on one side and adapted to cooperate with tracks 73, as shown in Fig. 6, or, as shown in Fig. 7, one leg 3 may be supported by a pivotal bearing 74 and the other leg 3 may be supported by rollers 75 so that the unit may be swung about one end. These methods of mounting the unit are shown as examples but any other desired method may be used.

The operation of the unit is very simple and requires a minimum effort from the operator. After a patient has been seated in a dental chair 77, the unit may be moved to straddle the chair 77, as shown in Fig. 8, the subcompartments 4 and 5 may be opened to permit ready use of the electric and air instruments 20 and 21, and the cuspidor 15 may be adjusted with respect to the leg 3 to suit the patient, whereupon all of the various instruments and apparatus will be immediately at hand and ready for use.

The valve 30 may be adjusted to fountain water into the cuspidor 15 or to create a suction in the saliva remover 34 as desired. When any one of the electric or air instruments 20 or 21 are needed, the instrument 20 or 21 may be removed from its socket 22, pulling its conduit 40 or 50 thereafter, applied to its particular operation, and then, permitting the conduit 40 or 50 to pass back again into the interior of one of the legs 3, the instrument 20 or 21 may be resealed in its socket 22.

As may be readily seen, from the above description and attached drawings, my dental operating unit is very compact and efficient. The instruments and apparatus, and their connections, are inclosed as much as is advisable to increase the protection thereto, to promote the efficiency thereof and to better the appearance of the unit as a whole.

Although I have shown and described certain specific embodiments of my invention, I am fully aware that many modifications thereof are possible and the present disclosure should be construed only in an illustrative sense. My invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claims.

What I claim as novel and desire to secure protection thereof by Letters Patent is:

1. A combination of a dental operating platform including a top compartment, hollow legs supporting said top compartment, said hollow legs being spaced from each other to adapt the unit to straddle an operating chair, instruments removably and adjustably supported by said top compartment and said hollow legs, flexible conduits connected to said instruments, said conduits having slack therein to permit said removal and adjustment of said instruments and being housed by said hollow legs.

2. A combination of a dental operating platform including a top compartment, hollow legs supporting said top compartment, said legs being spaced from each other to adapt the unit to straddle an operating chair, water, air, and electric instruments removably and adjustably supported by said top compartment and said hollow legs, flexible conduits connected to said water, air, and electric instruments, said conduits having slack therein to permit said removal and adjustment of said water, air, and electric instruments and being housed by said hollow legs.

3. A combination of a dental operating platform including a top compartment, hollow legs supporting said top compartment, said legs being spaced from each other to adapt the unit to straddle an operating chair, a water instrument adjustably supported by one of said legs, conduits connected to said water instrument, said conduits having slack therein to permit said adjustment of said water instrument and being housed by said one hollow leg.

4. A combination of a dental operating platform including a top compartment, hollow legs supporting said top compartment, said legs being spaced from each other, a water instrument connected to and supported by rigid conduits which are adapted to be adjustably supported by bushings mounted in a wall of one of said hollow legs, flexible conduits connected to said rigid conduits, said flexible conduits including slack therein to permit said adjustment of said rigid conduits, and being supported within and housed by said one hollow leg.

5. A combination of a dental operating platform including a top compartment, hollow legs supporting said top compartment, said hollow legs being spaced from each other, one of said hollow legs having rotatable mountings and the other of said hollow legs having pivotable mountings to permit said top compartment and hollow legs to be moved to and from a position in which said top compartment and hollow legs straddle an operating chair, instruments removably and adjustably supported by said top compartment and said hollow legs, flexible conduits connected to said instruments, said conduits having slack therein to permit said removal and adjustment of said instruments and being housed by said hollow legs.

6. The combination of a support including a hollow compartment, a water instrument, rigid conduits connected to and supporting said water instrument, bushings mounted in a wall of said support to adjustably support said rigid conduits, flexible conduits connected to said rigid conduits, said flexible conduits including slack therein to permit said adjustment of said rigid conduits, and being supported within and housed by said hollow compartment.

7. The combination of a support including a hollow compartment, a water instrument, rigid conduits connected to and supporting said water instrument, adjustable connections in said rigid conduits to permit adjustment of said water instrument, bushings mounted in a wall of said support to adjustably support said rigid conduits, flexible conduits connected to said rigid conduits, said flexible conduits including slack therein to permit said adjustment of said rigid conduits, and being supported within and housed by said hollow compartment.

8. A combination of a dental operating platform including a top compartment, hollow legs supporting said top compartment, said legs being spaced from each other, a water instrument connected to and supported by rigid conduits which are adapted to be adjustably supported by bushings mounted in a wall of one of said hollow legs, said rigid conduits having joints therein to permit a pivotal movement of said water instrument, flexible conduits connected to said rigid conduits, said flexible conduits including slack therein to permit adjustment of said rigid conduits, and being supported within and housed by said hollow leg.

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