Aug. 11, 1964 J. P. LUNN 3,143,803

DENTAL LOUNGE UNIT

Filed May 11, 1962 2 Sheets-Sheet 1

FIG. 1

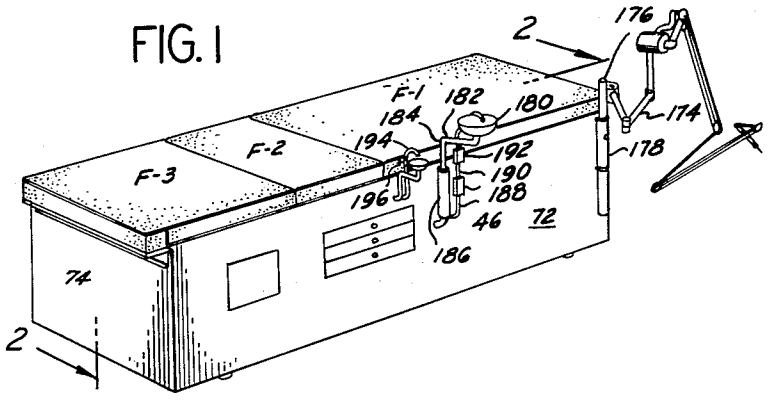


FIG. 4

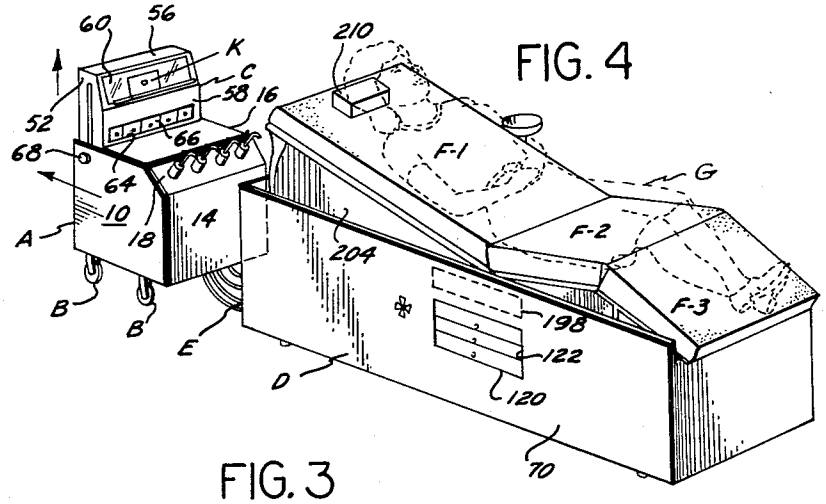


FIG. 3

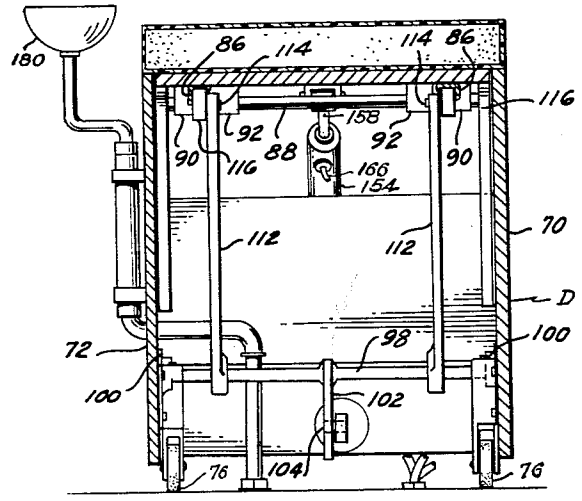
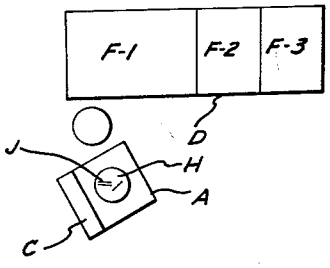


FIG. 6



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DENTAL LOUNGE UNIT

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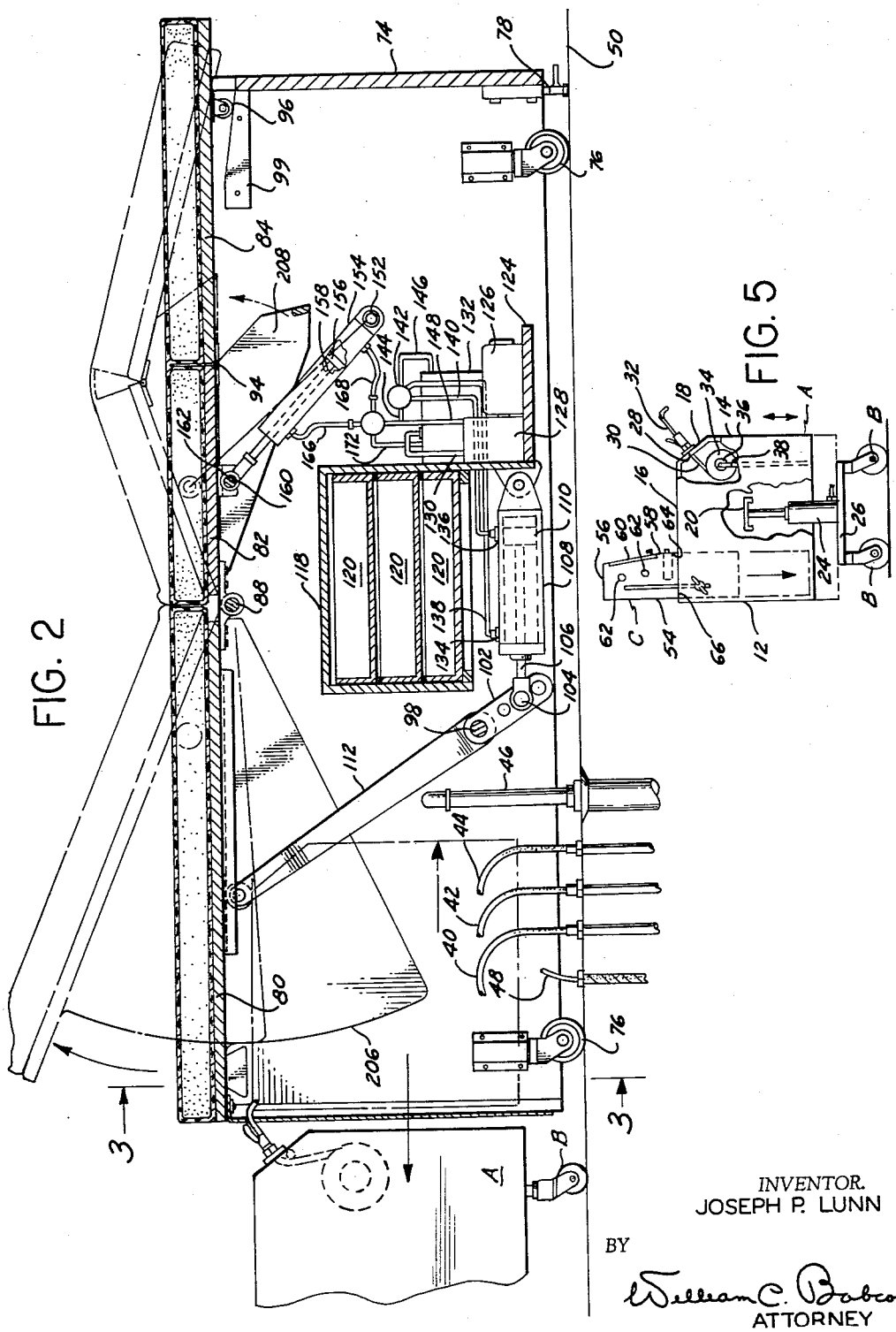


FIG. 2

FIG. 5

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DENTAL LOUNGE UNIT

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14 Claims. (Cl. 32—22)

The present invention relates generally to the field of dental office equipment, and more particularly to a two-piece dental lounge unit that is adapted for use in the practice of both general dentistry and oral surgery.

This application is a continuation-in-part of my co-pending patent application entitled Dental Lounge Unit, filed in the United States Patent Office on May 3, 1961, under Serial No. 107,510.

For many years the almost uniform equipment employed in dental offices has been an adjustable chair in which the patient is seated in a relatively upright position, one or more cabinets in which the dental instruments are kept, a drill assembly, coupled with an adjustable tray that may be moved to a convenient position forwardly of the seated patient. All of this equipment is prominently displayed when a patient enters the office, whereby the patient is immediately aware and becomes tensely apprehensive of the ordeal awaiting him as soon as he is seated in the chair.

Not only is the patient tense and apprehensive at the beginning of a session in a dental office furnished as described hereinabove, but he becomes easily fatigued in an attempt to sit comfortably in a dental chair of the character described. In most instances, this fatigue is more acute with respect to the tall or short individual, for the dental chair is, of necessity, designed for persons of average height.

A major object of the present invention is to provide a two-piece lounge unit for dental use, the psychological advantage of which is to reduce the normal apprehensiveness experienced by a patient upon entering a doctor's office in that he only see an attractive, compact piece of furniture in which all the dental instruments and accessories are concealed, and on which he is seated and adjustably placed in a comfortable, relaxed and orthopedically sound position, irrespective of his height.

Another object of the invention is to provide a two-piece dental lounge unit that may be used in an office having a relatively small floor area, which serves as a support for the dental drill assembly, as storage space for dental instruments, and also provides a source of gas, water and compressed air, all of which technical equipment is completely concealed until the dentist is ready to use the same.

A further object of the invention is to provide a dental lounge unit comprising a first cabinet which is adapted to be telescoped into a concealed position within a second cabinet, which first cabinet includes mobile sources of at least water, gas and compressed air, and an illuminable vertical panel against which dental roentgenograms can be disposed for inspection.

Yet another object of the invention is to provide a dental lounge unit in which the first cabinet is so movable relative to the second cabinet as to provide a support for the dental instruments in a position adjacent the dentist on the same side of the patient as that of the dentist, rather than on the opposite side as is necessary with the conventional dental chair available heretofore.

A further object of the invention is to provide a dental lounge unit which permits the dentist to sit while performing such operative dentistry as restoration work, including crown and bridge work, gold inlays, amalgams and gold foil.

Another object of the invention is to provide a dental lounge unit that is equally comfortable for all patients,

and one that allows a patient to rest in any desired position ranging between the fully prone to an upright seated position.

Yet a further object of the invention is to supply a dental lounge unit in which the first cabinet containing the syringes, medicine bottles, and the illuminable panel can be easily placed in full view of the patient reclining on the second cabinet when such a procedure is warranted.

These and other objects and advantages of the invention will become apparent from the following description of a preferred form thereof, and from the accompanying drawings illustrating this form in which:

FIGURE 1 is a perspective view of the invention showing the first cabinet telescoped into the second cabinet, with the elongate angularly adjustable support on which the patient rests being disposed in a horizontal plane;

FIGURE 2 is a vertical cross-sectional view of the dental lounge unit taken on line 2—2 of FIGURE 1;

FIGURE 3 is a vertical cross-sectional view of the unit taken on line 3—3 of FIGURE 1;

FIGURE 4 is a perspective view of the unit showing the first cabinet moved out of the confines of the second cabinet, with a patient angularly supported on the second cabinet;

FIGURE 5 is a side elevational view of the first cabinet; and

FIGURE 6 is a top plan view of the invention showing the first cabinet in an angular position relative to the second cabinet.

With continuing reference to the drawings for the general arrangement of the invention, it will be seen to include a first cabinet A that is movably supported on casters B and has a vertical panel C extending upwardly from the forward end portion thereof. A second cabinet D of substantially greater length than that of the first cabinet A is provided that has an open end E through which the first cabinet may be telescoped within the confines thereof.

The second cabinet D serves to hold three upholstered members F–1, F–2 and F–3 in patient-supporting positions, as may be seen in FIGURES 1 and 4. In FIGURE 1 the supporting members F–1, F–2 and F–3 are shown disposed in a substantially horizontal plane wherein the patient normally assumes a seated position. In FIGURES 2 and 4 the supporting members F–1, F–2 and F–3 are shown in angular juxtaposition to support the torso and head of the patient G on the member F–1, and his legs arched over members F–2 and F–3. When the patient G is resting on the supporting members, as shown in phantom line in FIGURE 2, the first cabinet A may be moved out of the confines of the second cabinet D and angularly positioned relative thereto (FIGURE 6), and the dentist may thereafter assume a seated position ready to perform operative dentistry on the patient.

It will be particularly noted in FIGURE 6 that a tray H may be supported on the upper surface of the cabinet A on which the instruments and implements J to be used by the dentist may be arranged. Thus, the instruments J are positioned on the same side of the patient G as that on which the dentist is seated, making it unnecessary for the dentist to constantly reach across the patient to select an instrument, as is common practice with conventional dental equipment utilized heretofore. The vertical panel C is preferably illuminable, against which dental roentgenograms K may be positioned and seen by both the patient and dentist when the first cabinet A is positioned as shown in FIGURE 6.

In detail, the first cabinet A, as may best be seen in FIGURES 4 and 5, comprises two identical side pieces 10, a back 12, a front 14 and a horizontal top 16. A downwardly and rearwardly extending wall 18 connects the rear edge of top 16 and the upper edge of the front 14.

A horizontal cross piece 20 is situated within the confines of cabinet A. A supporting rod 22 extends downwardly from cross piece 20 to a hydraulic cylinder 24, or other conventional means which may be used to raise or lower the rod 22. Cylinder 24 is supported on a horizontal base 26 having four identical casters B affixed thereto that movably support the cabinet.

The tapered wall 18 has a number of laterally spaced openings 28 formed therein, each of which has a hose 30 extending therethrough that terminates in a syringe 32 or other fluid flow control means. Each hose 30 extends to a spring-loaded reel 34 that is rotatably supported within the confines of cabinet A on a hollow shaft 36. A conduit 38 leads from shaft 36 to one of a number of supply conduits, as may best be seen in FIGURES 2 and 5.

The water supply conduit is identified in FIGURE 2 by the numeral 40, the compressed air supply conduit by the numeral 42, and the gas supply conduit by the numeral 44. As will be described hereinafter, electricity is supplied to panel C through conductors 48 that preferably extend upwardly through the floor 50 on which the unit rests. The means by which a fluid seal is effected between one of the hoses 30 and a particular conduit associated with the reel 34 on which that hose is mounted is conventional and need not be described in detail.

The panel C is preferably in the form of an inverted elongate box having identical side walls 52, a back 54, top 56 and a front wall that is defined by a lower portion 58 and an upper portion 60 which is translucent. The upper portion 60 may be frosted glass or one of the synthetic polymerized resin sheet materials available for this purpose. Two fluorescent bulbs 62 are situated within the confines of panel C, which when electrically energized through conductors 48 by means not shown, illuminate the portion 60 as well as any roentgenograms K that may be positioned thereagainst.

A number of rectangular openings 64 are formed in wall portion 58 in which a number of small drawers 66 may be slidably supported that may be used as storage space. The panel C, as may best be seen in FIGURE 5, is vertically adjustable relative to cabinet A, and if desired, may be lowered to a position in the cabinet where it is completely concealed. The sides 10 of cabinet A are provided with threaded rotatable clamping means 68 of conventional design that can be rotated to frictionally grip or otherwise hold a side 52 in non-movable relationship to the cabinet. Accordingly, panel C may be supported at any desired elevated position relative to cabinet A (FIGURE 4).

Second cabinet D, as can best be seen in FIGURES 1–4, includes a first side wall 70, a second side wall 72, and an end 74 that is oppositely disposed from the open end E. Cabinet D is movably supported on floor 50 by a second set of casters 76. End 74 movably supports a vertical brake 78, which when moved downwardly, frictionally engages the floor 50 to prevent movement of cabinet D thereon. The end E of second cabinet D is open (FIGURE 3), as previously described.

The supporting members F–1, F–2 and F–3 are affixed to rigid rectangular sheets 80, 82 and 84 respectively of substantially the same transverse cross section. Two laterally spaced, parallel rails 86 of inverted channel-shaped cross section are affixed to sheet 80. A shaft 88 extends transversely between the first and second side walls 70 and 72 respectively, as shown in FIGURE 2. The adjacent ends of sheets 80 and 82 have bearings 90 and 92 affixed to the under side thereof that rotatably engage shaft 88. The adjacent ends of sheets 82 and 84 are pivotally connected by a number of laterally spaced hinges 94 which permit sheets 82 and 84 to be angled upwardly relative to one another as shown. The lower rear surface of sheet 84 has two rollers 96 affixed to the side portions thereof, which rollers contact the upper surfaces of two lugs 99 affixed to the interior surfaces of side walls 70 and 72 respectively, also shown in FIGURE 2.

A second shaft 98 extends transversely between the side walls 70 and 72, and the ends of this shaft are journaled in bearings 100 affixed to the side walls. A first arm 102 extends downwardly from the second shaft 98, and a pin 104 extends transversely through shaft arm 102 to engage a forwardly disposed end of a piston rod 106. Rod 106 extends through the forward end of a horizontally positioned hydraulic cylinder 108 to engage a piston 110 that is slidably movable therein.

Two laterally spaced second arms 112 are rigidly affixed to second shaft 98 and project upwardly therefrom, as best seen in FIGURES 2 and 3. Each arm 112 supports a transversely positioned shaft 114 that has a roller 116 rotatably mounted thereon, and each roller engages one of the rails 86. An inverted U-shaped bracket 118 is situated within the confines of second cabinet D which serves to slidably support a number of drawers 120 that are transversely movable relative to the first side wall 70. An opening 122 is formed in side wall 70 through which drawers 120 may pass outwardly. A shelf 124 extends outwardly from bracket 118 that serves as a support for an electric motor 126 which drives a pump 128. A conduit 130 is connected to the discharge of pump 128 and extends to a closed reservoir 132. Two openings 134 and 136 are formed in the side walls of hydraulic cylinder 108 that are connected to two conduits 138 and 140 respectively, which lead to a valve 142. Valve 142 is connected to conduits 144 and 146, and conduit 144 is connected to a conduit 148 which extends to the suction side of pump 128. Conduit 146 is connected to the interior of reservoir 132.

When the valve 142 is in a first position, fluid is discharged from the reservoir 132 through conduit 140 to move the piston 110 to the left with concurrent rotation of the arms 102 and 112 in a clockwise direction. As fluid is discharged into cylinder 108 as above described, fluid is also discharged from cylinder 108 through conduit 138 to valve 142 and therethrough to conduits 144 and 146 to return to reservoir 132. As such rotation of the arms takes place, the rollers 116 move along the rails 86 to the right as seen in FIGURE 2, and pivot the sheet 80 and first supporting member F–1 upwardly to a desired position such as that shown in phantom line. When the valve 142 is placed in a second position, the flow of fluid to the cylinder is reversed, whereby piston 110 is caused to move to the right (FIGURE 2), with the arms 102 and 112 then being pivoted in a counter-clockwise direction, and the sheet 80 and supporting member F–1 in turn pivot downwardly to finally come to rest on a cross piece 150 extending between the side walls of the second cabinet D.

When the valve 142 is moved to a third position, fluid flow through the conduits 138 and 140 is completely obstructed, and hydraulic fluid in the cylinder 108 serves to lock the piston 110 at a fixed position therein whereby the sheet 80 and supporting member F–1 is held at a fixed angular position relative to the second cabinet D. A third shaft 152 extends transversely between the side walls of cabinet D, as shown in FIGURE 2. A second hydraulic cylinder 154 is provided that has a piston 156 slidably mounted therein, which in turn is connected to a piston rod 158 that projects through the upper end of cylinder 154. Piston rod 158 terminates in a bearing 160 through which a transversely positioned pin 162 extends. The ends of pin 162 are rigidly held in fixed position relative to sheet 82 by an inverted U-shaped bracket 164 affixed to the under side thereof.

Two openings are formed in the side walls of second cylinder 154 which are connected to two flexible conduits 166 and 168 leading to a second valve 170. A conduit 172 is also connected to valve 170 through which fluid from reservoir 132 is discharged to said valve, and a conduit 148 leads from valve 170 to the suction side of pump 128. When valve 170 is disposed in a fixed position, fluid is discharged to the second cylinder to force the piston 156 and piston rod 158 upwardly therein to pivot the second sheet 82 and supporting member F–2

mounted thereon in a counter clockwise direction (FIGURE 2). It will be obvious that as the second sheet **82** is so moved, the third sheet **84** is moved concurrently therewith, together with supporting member F–3 associated therewith. When valve **170** is in a second position, the fluid flow to second cylinder **154** is reversed and the piston **156** and piston rod **158** are moved downwardly in the second cylinder to cause the sheets **82** and **84** and supporting members F–2 and F–3 respectively to move downwardly toward cabinet D to assume the horizontal position shown in solid line in FIGURE 2.

When valve **170** is moved to a third position it obstructs communication between conduits **166** and **168**, and the fluid in second cylinder **154** serves to lock the piston **158** in a fixed position therein. With the piston so locked in cylinder **154**, the sheets **82** and **84** and supporting members F–2 and F–3 mounted thereon are held at a desired angular position such as shown in phantom line in FIGURE 2.

In FIGURE 1 is will be seen that a conventional motor-driven drill assembly **174** may be supported from a rod **176** that is vertically and rotatably movable in a cylinder **178** which is mounted by conventional means on the second side wall **72** of the second cabinet D. A waste bowl **180** having an opening (not shown) in the bottom thereof is also provided which has an L-shaped rigid tube **182** communicating with said opening that depends therefrom. A leg **184** of tube **182** is rotatably supported in a cylindrical shell **186** affixed to the second side wall **72**. The lower end of shell **186** is connected to drain **46**.

Drain conduit **46** is extended to a vacuum breaker **188** from which a line **190** leads to supply a constant flow of water to bowl **180**. A saliva evacuator **192** is provided that is energized by the flow of water through line **190** after it has passed through the vacuum breaker **188**. A line **194** extends upwardly out of the second side wall and is connected by means (not shown) to conduit **40**. When the patient G desires a drink of water, a cup **197** can be filled from the line **194**. Flow of water from line **194** is controlled by a valve **196** on the outer end thereof. Should it be desired, a drawer **198**, shown in phantom line, can be provided in second cabinet D to house an air-operated drill assembly (not shown).

Two arcuate side pieces **204** depend from the under sides of the sheet **80** adjacent the interior surfaces of the side walls of the second cabinet D. The curved forward ends of the side pieces **204** have an end piece **206** extending therebetween to prevent the interior of the cabinet from being seen when the sheet **80** is in the upwardly extending position, as shown in phantom line in FIGURE 2. Two side pieces **208** preferably extend downwardly from the lower edge portions of the sheet **82** to positions adjacent the interior surfaces of the side walls of second cabinet D to serve the same purpose as the side pieces **204**.

Operation of the dental unit is extremely simple. When the patient G enters the room, the unit is in the telescoped, inoperative position shown in FIGURE 1, and sits upon the upholstered supporting member F–2, with the members F–1, F–2 and F–3 thereafter being adjusted to the angular position shown in FIGURE 4. To assure maximum comfort for the patient, a small pillow **210** is provided which is held in proper position on the upper forward portion of supporting member F–1 by means not shown. Control of the positioning of the supporting members F–1, F–2 and F–3 is achieved by use of the valves **142** and **170** as previously described. After proper positioning of the patient G, the first cabinet A is withdrawn from the second cabinet D and moved to an angular position relative thereto (FIGURE 6) where the dentist can easily refer thereto while he is performing operative dentistry on the patient and is in a seated position.

Although the present invention is fully capable of achieving the objects and providing the advantages hereinbefore mentioned, it is to be understood that it is merely illustrative of the presently preferred embodiment thereof and I do not mean to be limited to the details of construction herein shown and described, other than as defined in the appended claims.

I claim:

1. In a dental lounge unit, the combination of:
   (*a*) a first cabinet;
   (*b*) a plurality of flow control first means for dispensing air, gas and water, which flow control means is normally positioned adjacent said cabinet;
   (*c*) a plurality of flexible hoses for supplying air, gas and water to said flow control means;
   (*d*) second means for movably supporting said hoses in said cabinet to permit said flow control means to be selectively moved outwardly away from said cabinet;
   (*e*) third means for supplying air, gas and water to said hoses;
   (*f*) fourth means for movably supporting said cabinet on a floor surface to permit said first cabinet to be moved to a desired location thereon;
   (*g*) a second cabinet supported on said floor, with the interior of said second cabinet being of greater volume than that of said first cabinet, which second cabinet has an opening formed in one side thereof to permit said first cabinet to be telescoped within the interior thereof;
   (*h*) a plurality of upholstered rectangular supporting members disposed on the upper portion of said second cabinet; and
   (*i*) fifth means for so adjustably maintaining said supporting members on the top of said second cabinet that a patient may rest thereon in any desired position ranging from the fully prone to a substantially upright seated position, with said first cabinet when said unit is in an operative condition being withdrawn from said second cabinet and moved to said desired position relative to said second cabinet.

2. A dental lounge unit as defined in claim 1 wherein said fifth means for adjustable maintenance of said supporting members comprise first, second and third rectangular rigid sheets, which when disposed in a horizontal plane define the top of said second cabinet.

3. A dental lounge unit as defined in claim 1 which further includes a plurality of drawers slidably mounted in said second cabinet wherein dental instruments are stored when not in use.

4. A dental lounge unit as defined in claim 1 which further includes a tray that rests on the upper surface of said first cabinet, which tray serves to support dental instruments in positions for use when said first cabinet is moved out of said second cabinet and disposed in a position adjacent thereto.

5. A dental lounge unit as defined in claim 2 wherein a plurality of laterally spaced hinges are provided that are affixed to the adjacent ends of said second and third members.

6. A dental lounge unit comprising:
   (*a*) a first rectangular cabinet;
   (*b*) means for movably supporting said first cabinet from a floor surface;
   (*c*) means on said first cabinet to supply gas, water and compressed air therefrom;
   (*d*) first, second and third juxtaposed rigid rectangular sheets;
   (*e*) a second cabinet above which said first, second and third sheets are disposed, with said second cabinet being of such structure as to permit said first cabinet to be moved to a position relative thereto wherein said first cabinet is situated under said first sheet;
   (*f*) first, second and third upholstered members of substantially the same cross section as that of said first, second and third sheets, which members are mounted on the upper surfaces of said sheets;

(g) means for pivotally supporting said first and second sheets for independent movement relative to said second cabinet;

(h) means for pivotally connecting the adjacent ends of said second and third sheets;

(i) means for supporting said third sheet from the upper portion of said second cabinet;

(j) first power-operated means for pivoting said first sheet and first supporting member mounted thereon to a desired angular position relative to said second cabinet and maintaining said first sheet and first member in said desired position; and

(k) second power-operated means for concurrently moving said second and third sheets with said second and third members mounted thereon, to desired angular positions relative to said second cabinet and maintaining the same in said desired positions.

7. A dental lounge unit as defined in claim 6 wherein a vertically adjustable panel is provided which is supported on said first cabinet, which panel includes illuminable means for use in inspecting roentenograms when disposed against the face thereof.

8. A dental lounge unit as defined in claim 7 wherein said means to supply gas, water and compressed air comprises a plurality of hoses and a plurality of reels rotatably supported in said first cabinet, which hoses are at least partially wound on said reels and connectable to sources of said gas, water and compressed air.

9. A dental lounge unit as defined in claim 8 wherein a plurality of openings are formed in said first cabinet through which said hoses extend, with a plurality of gas, water and compressed air control means being mounted on the end portions of said hoses that extend through said openings.

10. A dental lounge unit as defined in claim 8 wherein said first power-operated means comprises:

(a) a first transversely disposed shaft rotatably supported between the side walls of said second cabinet;

(b) a first arm extending downwardly from said shaft;

(c) a bracket disposed within said second cabinet;

(c) a first hydraulic cylinder, one end of which is pivotally connected to said bracket;

(e) a piston slidably mounted in said cylinder;

(f) a piston rod connected to said piston and extending outwardly from said cylinder;

(g) means for pivotally connecting the outwardly disposed end of said rod to said first arm;

(h) two laterally spaced second arms projecting upwardly from said first shaft;

(i) two rollers rotatably supported on the upper ends of said second arms;

(j) two parallel, laterally spaced rails affixed to the lower surface of said second sheet and adapted to be rollingly contacted by said rollers;

(k) means for supplying hydraulic fluid under pressure to said cylinder to move said piston and piston rod to pivot said first shaft and first and second arms to in turn pivot said first sheet and first supporting member into a desired position relative to said second cabinet; and

(l) valve means associated with said supply means

which control the flow of said hydraulic fluid to and from said cylinder for moving said first sheet and first member to a desired position relative to said second cabinet and holding said first sheet and first member at said desired position.

11. A dental lounge unit as defined in claim 6 wherein said second power-operated means comprises:

(a) a second hydraulic cylinder;

(b) a piston slidably movable in said cylinder;

(c) a piston rod affixed to said piston and extending outwardly and upwardly from one end of said second cylinder;

(d) means for pivotally supporting a lower end of said second cylinder from said second cabinet;

(e) means for pivotally connecting an upper end of said second piston rod to the under side of said second sheet;

(f) means for supplying hydraulic fluid under pressure to said second cylinder; and

(g) valve means associated with said means for supplying said fluid under pressure to control the movement of said second and third sheets and second and third supporting members in desired positions relative to said second cabinet and for holding said second and third sheets and second and third supporting members in said desired positions.

12. A dental lounge unit as defined in claim 10 wherein said means for movably supporting said third sheet comprise two rollers rotatably mounted on the under portion of said third sheet most distantly disposed from said second sheet, and two lugs that are affixed to the interior surfaces of said side walls of said second cabinet, which lugs define straight surfaces on which said rollers roll.

13. A dental supply unit as defined in claim 10 which further includes a plurality of drawers that are slidably supported in said second cabinet, and an air-operated drill assembly, which when not in use is concealed in one of said drawers.

14. A dental supply unit as defined in claim 10 that also includes a power-operated dental drill assembly, a dental waste bowl, and means for adjustably supporting said drill assembly and bowl to permit lowering thereof to positions below the upper edge of the side walls of said second cabinet when said drill assembly and bowl are not in use.

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