Jan. 29, 1952 J. D. CHESSROWN 2,583,817

DENTAL CHAIR LIGHT WITH SWITCH ON HEADREST SUPPORT

Filed Jan. 31, 1946 2 SHEETS—SHEET 1

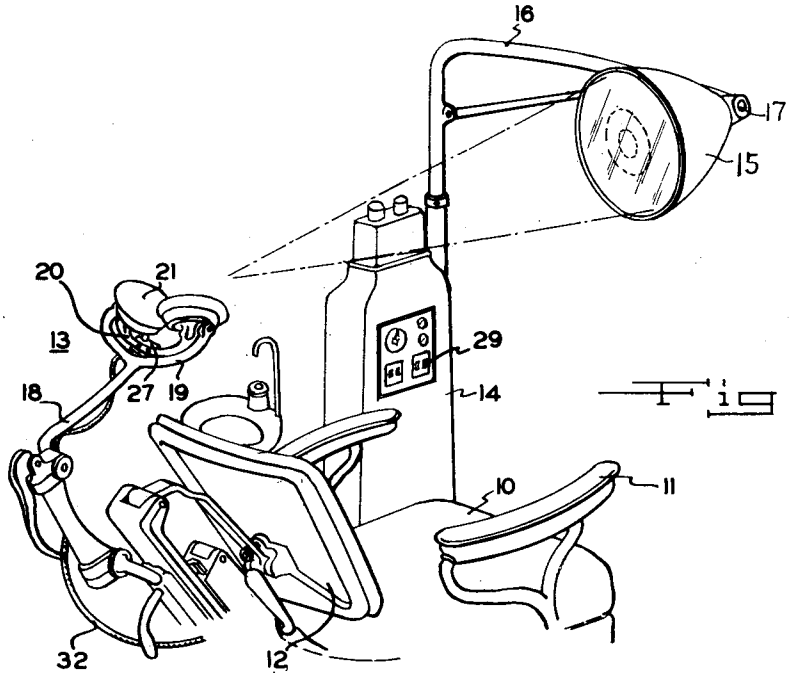


Fig 1.

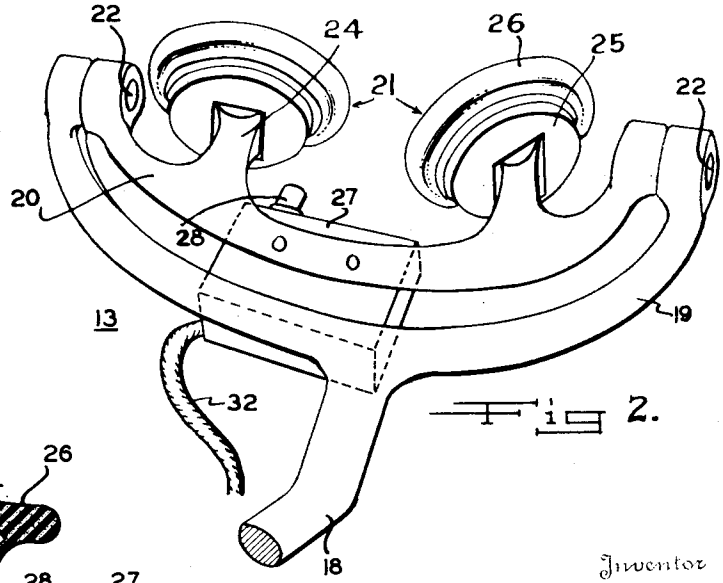


Fig 2.

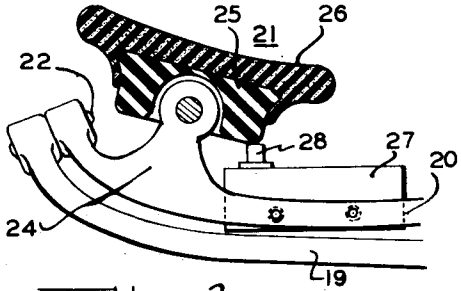


Fig 3.

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DENTAL CHAIR LIGHT WITH SWITCH ON HEADREST SUPPORT

Filed Jan. 31, 1946 2 SHEETS—SHEET 2

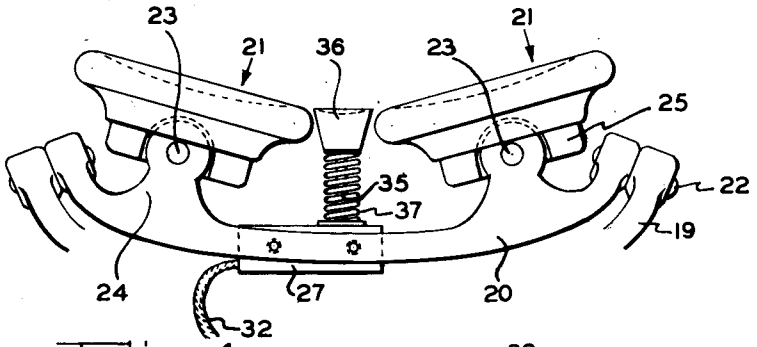


Fig 4.

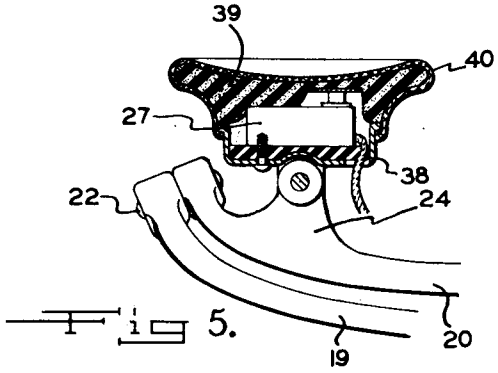


Fig 5.

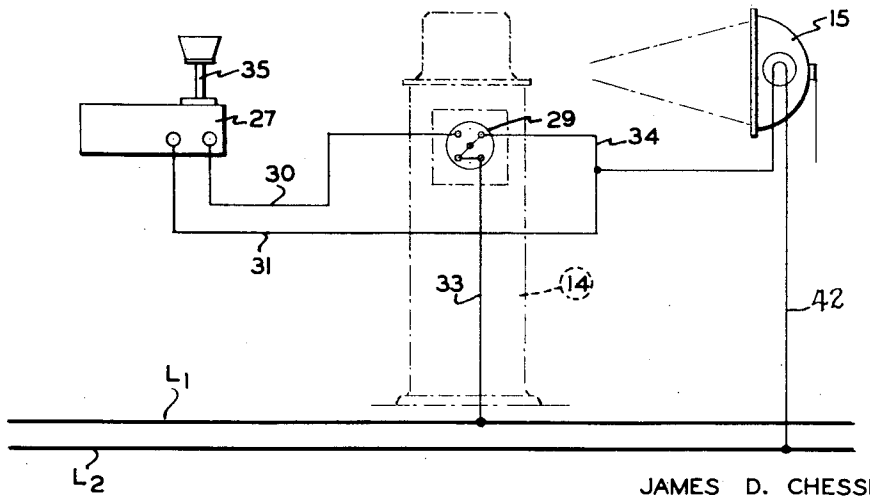


Fig 6.

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DENTAL CHAIR LIGHT WITH SWITCH ON HEADREST SUPPORT

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3 Claims. (Cl. 240—1)

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This invention relates to dental office equipment and more particularly to an attachment for a dentist's operating chair. It is common practice to associate with such equipment water fonts, spotlights, air and water lines, and other adjuncts normally required in the practice of dentistry. Certain of these facilities are operative or conditioned for use preferably only when a patient is seated in the chair and heretofore the controlling of these facilities was a time-consuming and bothersome task of the doctor or nurse standing about the chair. Further, some of these facilities as, for example, the spotlight are uncomfortable to the patient and are preferably rendered inoperative when their use is not actually required during the treatment period. Thus it is desirable that the operation of such adjunct facilities be controlled at least partially by the cooperative effort of the patient and it is the primary object of the invention to provide an attachment for a dental operating chair whereby the presence and cooperative position of a patient in the chair may automatically control in a wittingly or unwittingly manner certain of the facilities provided in complete dental office equipment.

Another object of the invention is to incorporate a control member in the head rest of a dental operating chair whereby the use of such rest by a patient will condition for immediate benefit and use certain facilities normally associated with such chair, particularly if and when the patient places his head in proper cooperative position. The thus witting assistance of the patient is psychologically advantageous and this is particularly true in the case of juveniles. To enhance juvenile patient cooperation such control member may be utilized to condition entertaining picture projectors, phonographs, etc., as will be understood.

A further and more specific object of the invention is to provide a new and improved control system for a dental operating spotlight. Dental light projectors are necessarily powerful and the concentrated light beams emitted are necessarily directed into the patient's face thus making it highly desirable that the lights be shut off or turned away execpt for the short periods of time that their use is actually required. Moreover, it is desirable that such control be automatic and I accomplish these objects, in accordance with the present invention, by incorporating a controlling switch in the head rest of the chair in such manner that the patient may readily open the switch simply by moving his head

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slightly in substantially any direction from optimum operating position. With such cooperative patient control the doctor is relieved from his otherwise normal obligation of guarding his patient's comfort by attending to the spotlight. Further, the arrangement facilitates the vertical adjustment of the chair (normally provided with raising and lowering means) to accommodate patients of varying stature since the elimination of any need to handle the projector or to turn it "off" enables the beam therefrom to be permanently adjusted to the individual requirements of the doctor and to serve thereafter as a guide in raising or lowering the chair. Upon the patient seating himself in the chair and placing his head against the head rest the light will automatically be turned on and vertical adjusted movement of the chair stopped when the patient's mouth comes into the beam.

The above and other objects and advantages of the invention will become apparent upon consideration of the following detailed specification and the accompanying drawing wherein there is disclosed a representative use of the invention as applied to the control of the light projector used to furnish intense local illumination of the patient's mouth.

In the drawing:

Figure 1 is a perspective view of a dental surgery spotlighting system constructed in accordance with the principles of the invention;

Figure 2 is a perspective view, on an enlarged scale, of the head rest utilized in the assembly of Figure 1;

Figure 3 is a partial section through the head rest of Figure 2;

Figure 4 is a plan view of a modified form of head rest which may be utilized in the assembly of Figure 1;

Figure 5 is a partial section through another modified form of head rest; and

Figure 6 is a schematic wiring diagram of the spotlight energizing and control circuit utilized in the assembly of Figure 1.

Referring first to Figure 1, the chair shown is a conventional dental operating chair having a seat 10, arm rests 11, an adjustable back rest 12, and an adjustable head rest designated generally by the reference numeral 13. Such chair may have associated with it a pedestal structure 14 mounting the engine, air and water lines, heaters, lights, and other adjuncts normally required in the practice of oral surgery. Reference numeral 15 indicates a light projector of the concentrating beam type which may be utilized to

provide intense illumination of the patient's mouth and while such light projector may be adjustably mounted on any suitable support I preferably mount the same on a bracket 16 which is telescopically anchored in the pedestal 14. Bracket 16 is adjustable about a vertical axis and by means of pin 17 the light projector 15 is adjustable on the bracket 16 about a horizontal axis extending across the front of and above the chair 10—13. In this manner the light beam from the projector 15 may be directed toward and into the mouth of the patient sitting normally in the chair.

The head rest 13 comprises a supporting arm 18 having a forked outer end 19 in which is pivotly mounted a curved strut 20 carrying the head rest pads 21. Strut 20 is cradled in the fork 19 on the pivot pins 22 for adjustment about a generally horizonlal axis as is shown more clearly in Figures 3, 4 and 5. The pads 21 are carried by the strut by being pivotly connected at 23 with bosses 24 formed integral with the strut.

Pads 21 may each comprise a metal or plastic carrier disc 25 over which is snapped a skirted resilient pad member 26 formed of sponge rubber or other suitable resilient material. It will be understood that the adjustable mounting of the pads 21 enables the pads to conform comfortably to the back of the patient's head and, in practice, the dentist will adjust the general position of the head rest assembly so that when the patient's head is resting against the pads the patient's head and mouth will be in optimum operating position.

Rigidly secured to the strut 20 is a small precision type of switch 27 having a plunger type of operator 28.

Switch 27 is preferably of the low pressure snap acting type of a capacity sufficient to handle the commercial 110 volt circuit normally used to energize the light projector. Such switch, normally termed a "micro-switch," is readily available commercially in a variety of sizes and shapes. Switch 27 is so positioned that the operator 28 is engaged by the rear edge of the inner portion of one of the discs 25 and the projection of operator 28 is such that when the pad is not engaged and the switch is open the pad has a slightly flatter position then it does have when engaged by the back of the user's head. This fact, together with the further fact that such switch operates with a few ounces pressure enables the switch to be closed immediately upon the patient resting his head on the supporting pads and this is accomplished without noticeable effort whatever on the part of the patient. Now simply by turning his head slightly to one side or the other the patient may readily open the switch and, as explained above, this is advantageous in enabling the patient to reduce to a minimum the discomfort caused by the strong rays of the light emitted by the projector 15—assuming of course, that the switch 27 is utilized to control the energization of the project 15.

I provide a three-position switch 29 on the pedestal 14 which may be electrically coupled with the switch 27, projector 15, and the source of current in the manner illustrated in Figure 6. In this figure, the conductors 30 and 31 are the conductors which are contained in a cord 32 shown as leading from the head rest in the other figures and conductors L1 and L2 are line conductors. Line conductor L2 is connected with one of the terminals of the lamp in projector 15 by means of conductor 42 while the common terminal of switch 29 is connected with the conductor L1 through conductor 33. Conductor 31 interconnects one of the terminals of switch 27 with the other terminal of lamp 15 while conductor 30 interconnects one of the other terminals of the manual switch 29 with the other terminal of switch 27. The said other terminal of the lamp is connected with the second of the other terminals of the switch 29 by means of conductor 34. Thus, when switch 29 is in a central or neutral position the circuit L1, 33 is opened and the lamp can not be energized. When the operator of switch 29 is moved in one direction as represented in Figure 6, the lamp is continuously energized regardless of the opening or closing of switch 27. If now the switch is moved to its opposite limiting position conductors 33 and 30 will be interconnected and the lamp will be energized solely under the control of the switch 27. In this manner, the dentist may readily effect the control of the light 15 in any manner desired.

In the modification of the invention illustrated in Figure 4 the switch 27 is shown mounted on the strut 20 so that its plunger type of operator projects outwardly directly between the two pads 21 and, as shown, this operator is elongated as shown at 35. To the outer end of the operator 35 is secured a padded knob 36 for engagement with the back of the user's head. Between the knob 36 and the switch 27 is a coil spring or other resilient sleeve 37 to assist in supporting the knob 36 in an outer position. As in the case of the embodiment first described the switch 27 in the arrangement of Figure 4 is operative to close immediately upon the patient or other user resting his head comfortably in the pads 21 as will be understood.

In the further modification of the invention illustrated in Figure 5 one of the head supporting pads is specially constructed by replacing the disc 25 with a cup-shaped metal case 38 in which is mounted the switch 27. A recessed body 39 of sponge rubber or other resilient material is positioned over and about the switch 27 and an outer soft casing 40, preferably of leather, encases the block 39 and is secured to the assembly by engaging over an annular flange formed on the case 38. Upon any appreciable pressure being applied to the central portion of the concaved head receiving base of the pad the switch will be closed, and thus the general mode of operation is the same as in the other embodiments described above.

It should now be apparent that I have provided a dental operating chair attachment which accomplishes the objects initially set out. By simply incorporating an easily operated controlling switch in the head rest of the chair it is possible to bring lighting arrangements and other adjunct facilities under the automatic control of the position of the patient in the chair which, as explained above, is desirable for a number of purposes. Thus it is possible to provide semi-automatic control over the operation of spotlights, entertainment devices, and any other desired facility. The control is of particular utility in connection with the spotlight since it enables the patient to very readily turn off the light when it is not required, provides a guiding means to assist the doctor in adjusting the position of the patient, and relieves the doctor from the normally attendant bother of manually controlling the light.

The above specifically described embodiments

of the invention should be considered as illustrative only as obviously many changes may be made therein without departing from the spirit or scope of the invention. Reference should therefore be had to the appended claims in determining the scope of the invention.

What I claim is;

1. Apparatus of the character described comprising in combination a dental operating chair of the type having a head rest and means to raise and lower the chair, said head rest comprising a support mounted for universal adjustment, a spotlight and means to mount the spotlight in an elevated position forwardly of the chair for intense local illumination of the mouth of the patient seated in said chair, a switch for controlling the energization of said spotlight, an operator for said switch projecting forwardly on said support, and a pad of deformable material carried by said support and overlying said operator, said pad being adapted to actuate said operator to turn on said spotlight when the head of the patient is resting squarely on said head rest.

2. Apparatus of the character described comprising in combination a dental operating chair of the type having a head rest and means to raise and lower the chair, said head rest comprising a support mounted for universal adjustment, a spotlight and means to mount the spotlight in an elevated position forwardly of the chair for intense local illumination of the mouth of the patient seated in said chair, a switch for controlling the energization of said spotlight, an operator for said switch projecting forwardly on said support, and a head rest pad mounted on said support and adapted to act

upon said operator to cause energization of said spotlight when the head of the patient is resting squarely on said head rest.

3. Apparatus of the character described comprising in combination a dental operating chair of the type having a head rest and means to raise and lower the chair, said head rest comprising a support mounted for universal adjustment, a spotlight and means to mount the spotlight in an elevated position forwardly of the chair for intense local illumination of the mouth of the patient seated in said chair, a switch for controlling the energization of said spotlight, an operator for said switch, said operator being supported on said head rest and being adapted to be actuated to cause energization of said spotlight by the head of the patient resting squarely on said head rest.

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