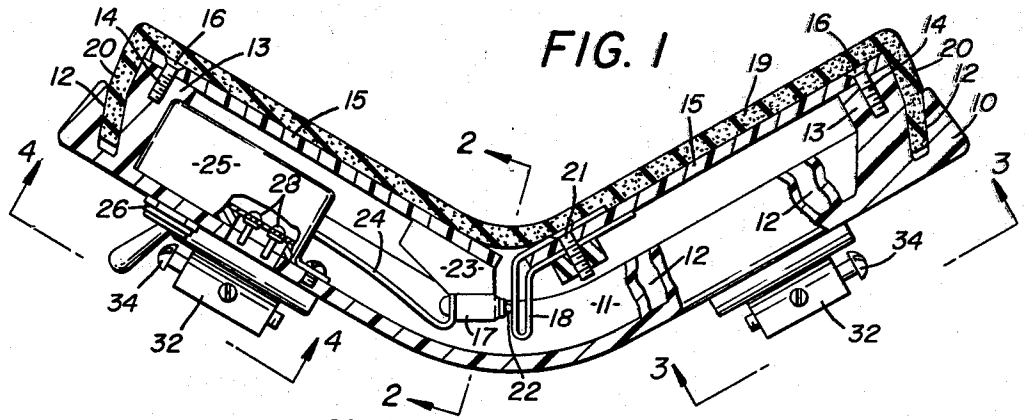
March 2, 1965 J. D. CHESSROWN 3,171,689

HEADREST FOR A DENTAL CHAIR INCORPORATING ELECTRICAL SWITCH MEANS

Filed Aug. 28, 1964

FIG. 1



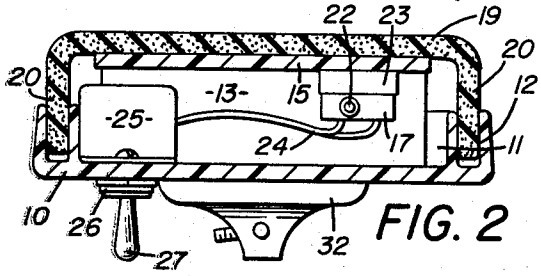


FIG. 2

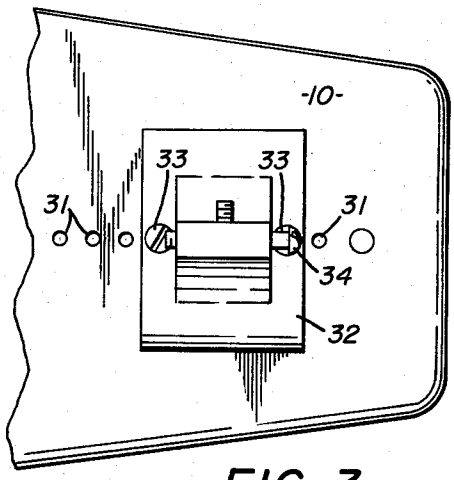


FIG. 3

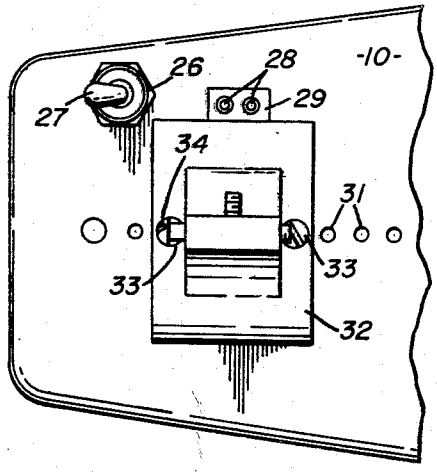


FIG. 4

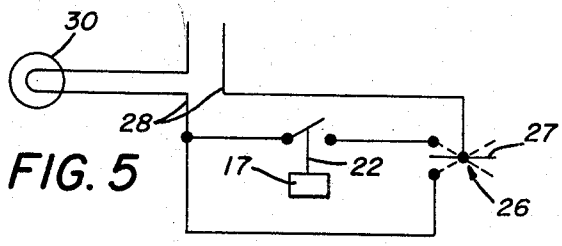


FIG. 5

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HEADREST FOR A DENTAL CHAIR INCORPORATING ELECTRICAL SWITCH MEANS

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4 Claims. (Cl. 297—391)

This invention rotates to dental chairs and more particularly to an improved headrest comprising that portion of the dental chair against which the patient's head rests when the dentist is working.

The principal object of the invention is the provision of a headrest for a dental chair incorporating an improved positive acting electrical switch means responsive in operation to pressure of the patient's head against any portion of the headrest.

A further object of the invention is the provision of a headrest for a dental chair incorporating an improved electrical switch and means for actuating and mounting the same in the headrest and providing a cushioned, flexible construction.

A further object of the invention is the provision of a headrest formed of simple, easily assembled parts arranged so that the weight supporting parts also comprise the electric switch actuating parts of the headrest.

A still further object of the invention is the provision of a headrest in which the weight supporting and switch actuating portions of the headrest are completely enclosed by a self-securing resilient cushioning cover.

A still further object of the invention is the provision of a headrest which may be universally applied to various dental chairs by adjusting the location of mounting brackets on the headrest.

The headrest for dental chairs disclosed herein comprises an improvement with respect to my prior Patent No. 2,583,817 in which a dental chair light with a controlling switch on the headrest support is disclosed. The present invention relates to an improvement in the headrest itself and the manner of incorporating an electrical circuit controlling switch therein. Those skilled in the art will be familar with the arrangement of a a dentist's operating chair in conjunction with water fonts, lights, air and water lines and other devices 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 a dentist's chair and generally the controlling of these facilities constitutes a bothersome task of the dentist attending the patient. Some of the facilities, for example, the dental lights, are uncomfortable to the patient and are preferably turned off when their use is not actually required during the treatment period. My earlier patent provided a simple pressure-operated switch in conjunction with the headrest for controlling such a dental light. The present invention relates generally to the same type of device, but more particularly to a novel headrest construction which more adequately and properly supports the patient's head in a more comfortable manner than the prior devices, and at the same time incorporates a positive acting electrical switch which is positioned so that it is actuated by the pressure of the patient's head against any portion of the headrest. Additionally, a manual switch is incorporated which permits the dentist to overcontrol the automatically actuated switch in the headrest when he so desires. The headrest disclosed herein also incorporates a novel means of rendering it adaptable to all dental chairs as will be seen in the description proceeding.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described

and claimed, it being the intention to cover all changes and modifications of the example of the invention herein chosen for purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

The invention is illustrated in the accompanying drawing, wherein:

FIGURE 1 is a horizontal section through the headrest incorporating a novel switch mounting means.

FIGURE 2 is an enlarged transverse section on line 2—2 of FIGURE 1.

FIGURE 3 is an enlarged view of a portion of the back of the headrest seen in FIGURE 1.

FIGURE 4 is an enlarged view of another portion of the back of the headrest seen in FIGURE 1 of the drawing.

FIGURE 5 is a symbolic wiring diagram.

By referring to the drawings and to FIGURE 1 in particular, it will be seen that the improved headrest for a dental chair comprises a longitudinally bowed base member **10**, which is preferably of molded plastic, defining an elongated cavity **11** therein and having a continuous channel **12** in the edge portion thereof. The cavity **11** and channel **12** are open to the front of the base member **10**. Elevated transversely extending bosses **13, 13** are positioned in the cavity **11** adjacent the channel **12** and on the opposite ends of the longitudinally bowed base member **10** and have tapped openings **14, 14** therein. A pair of oppositely disposed wide, flat resilient body members **15, 15** are secured by fasteners **16, 16** to the bosses **13, 13**. The oppositely disposed wide, flat resilient body members **15, 15** are arranged in angular relation to one another with their free ends in spaced relation to one another and respectively mount a micro-switch **17** and a switch engaging member **18**.

Still referring to FIGURE 1 of the drawings, it will be seen that the wide, flat resilient body members **15, 15** comprise the yieldable means for supporting a patient's head and more directly a soft flexible cushioning cover **19** which has a depending flange **20** thereabout and is preferably formed of rubber-like material so that its shape renders it self-positioning with respect to the base **10** and more particularly the channel **12** in which the flange **20** is continuously engaged.

By referring to FIGURE 1 of the drawings, it will be seen that the micro-switch engaging member **18** comprises an angular extension positioned on one end of one of the wide, flat resilient body members **15** and in its preferred embodiment comprises a section of metal doubled upon itself in a modified U-shape with the arms of the U-shape bent at an angle and secured to the end of the resilient body member **15** by means of a fastener **21**. The micro-switch actuating member **18** extends rearwardly from the free edge of the wide, flat resilient body member **15** to which it is attached and is positioned with one side thereof in engagement with an actuating plunger **22** of the micro-switch **17**. The microswitch **17** is of the type arranged to close an electrical circuit when the plunger **22** moves outwardly with respect to the switch **17**. The micro-switch **17** is itself mounted on a rearwardly extending portion **23** on the free end of the other one of the wide, flat resilient body members **15** as best seen in FIGURES 1 and 2 of the drawings.

It will occur to those skilled in the art that when a patient's head rests against the cushioned cover **19** and therethrough against the wide, flat resilient body members **15, 15**, one or both of the same will move responsive to such pressure in a direction toward the rear portion of the headrest which is defined by the longitudinally bowed base member **10** (or downwardly as seen in FIGURE 1 of the drawings). When this occurs, the micro-

switch **17** and the micro-switch actuating member **18** will move apart whereupon the resultant outward motion of the plunger **22** will close the micro-switch and the electrical circuit therethrough.

It will thus be seen that the most minute pressure applied to the headrest will result in motion of one or both of the wide flat resilient body members **15, 15** and the immediate operation of the micro-switch **17** as the hereinbefore described action takes place responsive thereto.

In FIGURES 1 and 2 of the drawings, circuit wires **24, 24** lead from the micro-switch **17** into a switch housing **25** which is mounted within the cavity **11** on the base member **10** of the headrest. The housing **25** encloses a manually operated switch **26** having an operating lever **27** extending exteriorly of the base member **10** so that it may be moved to open or close the circuit normally controlled by the micro-switch **17**. Terminal prongs **28, 28** provide terminals for the wires **24, 24** so that a suitable extension can be plugged into an opening **29** in the back of the base member **10** of the headrest as seen in FIGURE 4 of the drawings, and the electrical circuit extended so that dental lights may be controlled thereby as well as other equipment if the dentist so desires.

In FIGURE 5 of the drawings, a symbolic drawing of the circuits may be seen, and it will be observed that the dental light is illustrated and indicated by the numeral **30**. FIGURE 5 shows the complete circuit including a power supply, the dental light **30**, the micro-switch **17**, and the manually operated control switch **26** with its lever **27**. The terminal prongs **28** are illustrated as part of the circuit connecting the power supply and the dental light **30** with the switch means as will be understood by those skilled in the art.

By now referring to FIGURES 1, 3 and 4 of the drawings, it will be observed that the back of the base **10** has a plurality of drilled and tapped openings **31, 31** therein arranged for the selective mounting of brackets **32, 32** which are secured thereto by fasteners **33, 33** and which brackets **32, 32** are provided with hinge pins **34, 34** so that the headrest can be mounted thereby on any one of a number of conventional bifurcated supports on a dental chair.

The brackets **32, 32** may be moved relative to one another by repositioning the fasteners **33, 33** in the several tapped openings **31, 31** so as to match the particular location of the brackets **32, 32** to the particular configuration and arrangement of the bifurcated headrest supporting bracket on a dental chair.

It will thus be seen that an improved headrest for a dental chair has been disclosed which incorporates novel resilient constructions and convenient and comfortable enclosures therefor and at the same time mounts a micro-switch in an unusually sensitive arrangement so that the pressure of the patient's head on any part of the headrest may be used to control one or more dental accessories, such as the dental lights.

It will thus be seen that a headrest meeting the several objects of the invention has been disclosed and having thus described my invention, what I claim is:

1. A headrest for a dental chair and comprising an elongated arcuate base member defining a cavity open to the front thereof, a continuous channel in said base member adjacent the edge thereof and a pair of oppositely disposed resilient body members secured to said base member within said cavity in spaced relation to said base member and having their free ends positioned adjacent one another in a central area of said cavity, a micro-switch on one of said resilient body members and a switch engaging extension on the other of said resilient body members, said switch and said switch engaging extension normally engaged and arranged to actuate said switch when said resilient body members are moved relative to one another, a flexible cover for said headrest having a resilient flange thereabout normally engaged in said continuous channel in said base and overlying said resilient body members and forming a closure for said cavity in said base.

2. The headrest for a dental chair set forth in claim 1 and wherein the base includes elevated transversely extending bosses adjacent its opposite ends and wherein said resilient body members are secured to said bosses.

3. The headrest for a dental chair set forth in claim 1 and wherein the continuous channel in said base member partially underlies portions of said base supporting said resilient body members and is arranged to receive said resilient flange of said flexible cover in partially underlying relation to said portions of said base supporting said resilient body members.

4. A headrest for a dental chair comprising a base member having a forwardly facing flange thereabout defining a cavity in the area enclosed thereby, a resilient cover forming a closure for said cavity, support structures on said base in the opposite ends of said cavity, wide flat resilient body members secured to said supporting structures in oppositely disposed relation and extending toward one another with respect thereto and having their free ends in closely spaced relation, a switch member carried on the free end of one of said wide flat resilient body members, a secondary switch member on the free end of the other of said wide flat resilient body members, said switch member and secondary switch member arranged to control an electric circuit in connection therewith when said wide flat resilient body members are moved so as to increase the degree of separation of their adjacent end portions, and mounting brackets on said base member for securing the same to the headrest mounting bracket on a dental chair.

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