Jan. 24, 1967 L. M. SCHNEIDER 3,300,249

HEADREST FOR DENTAL OPERATING CHAIR

Filed Oct. 4, 1965 3 Sheets-Sheet 1

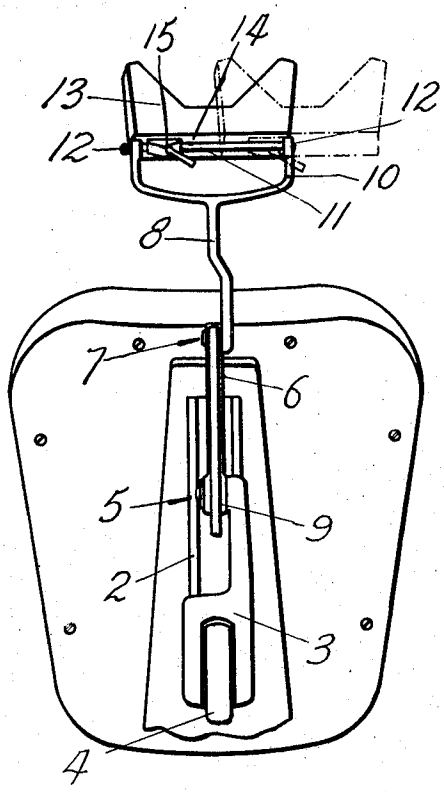


Fig. 1

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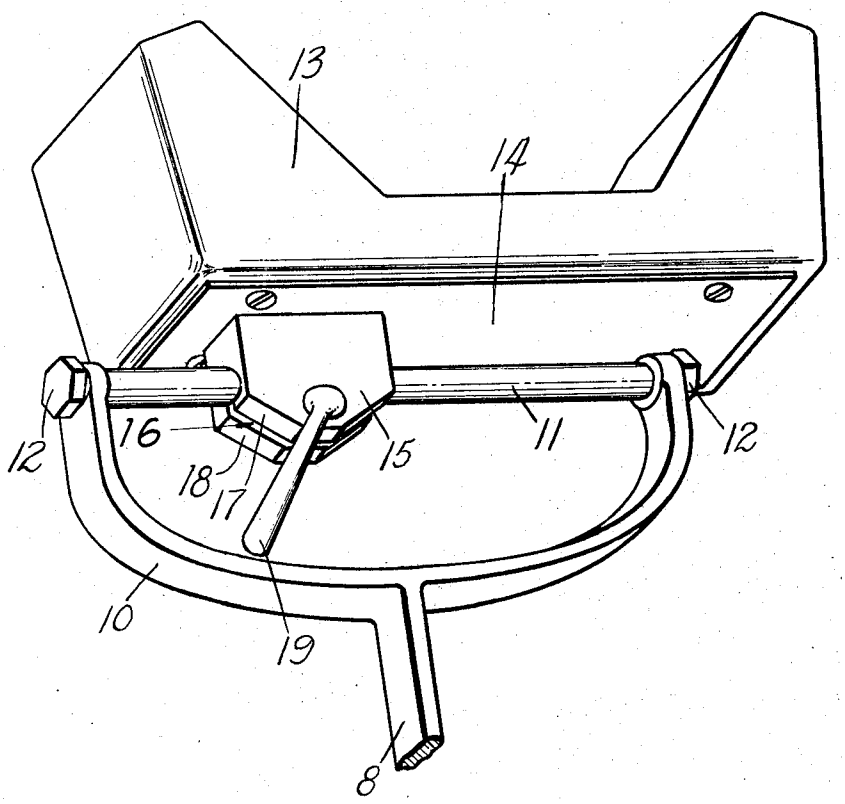


Fig. 2

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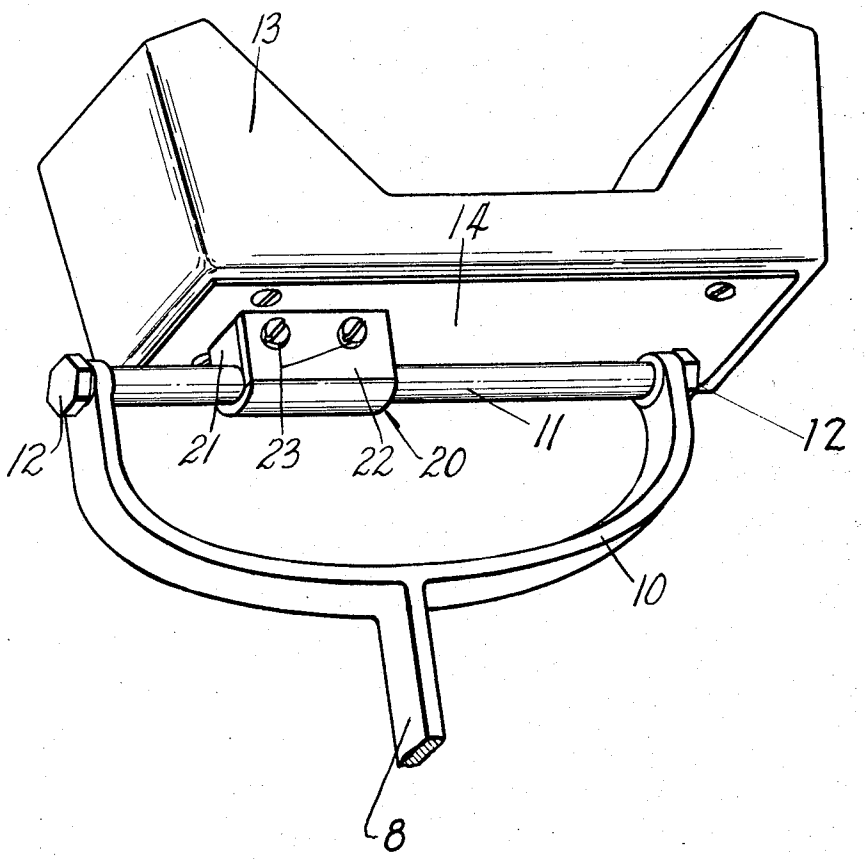


Fig.3

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HEADREST FOR DENTAL OPERATING CHAIR

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7 Claims. (Cl. 297—408)

This invention relates to a headrest for a dental operating chair and particularly to such a chair with a support aligned along the longitudinal axis of the back of the backrest, the support terminating at its upper end in a fork slidably supporting the headrest.

The usual headrests of dental operating chairs which carry the headpad swivelling around a horizontal axis, are provided with devices permitting height adjustment on a substantially vertical plane and swivelling of the pad in a vertical plane. The lower end of the headrest support has in the past been designed to slide along its longitudinally axis and may be locked in selected adjusted positions on a rail guide on the back of the backrest. Between the rail guide and headrest, the support often has included several joints with horizontal axes running substantially parallel to the plane of the backrest. This well-known design of a headrest permits height and swivel adjustment of the headrest pad to the patient's size and according to the treatment requirements. Such a headrest is also suitable for operating chairs in which treatment is made in the reclining position.

For the dentist or his assistant there is one considerable disadvantage in all such known headrests. Depending on the operating field the dentist or other treating person is often forced to manipulate in an inclined position injurious to health or else viewing of the area to be treated is not possible. This disadvantage is also prevailing when the dentist is sitting for treatment. It is well-known in the dental profession that, after a relatively short time of such professional activity damage occurs to the backbone, the meniscus and the like which are caused by continuous bad posture due to forwardly inclined and sidewardly bent working positions. A more upright and less sidewardly distorted carriage would very much ease the dentist's work and lessen the damages to his health resulting from his bad posture.

It is one object of this invention to provide a headrest for a dental operating chair which by way of lateral sliding of the headpad relative to the headrest support yoke permits convenient movement of the patient's head laterally to the side where the dentist usually stands or sits during treatment.

A further object of this invention is to provide means intermediate the headrest support yoke and headrest for lateral adjustment of the headrest. This provides the most convenient location for the dentist to make lateral adjustments of the headrest since the dentist is always working at the patient's head. Moreover, at this location there is no adverse movement of force acting on the sliding connection which would otherwise occur at points along the support distal from the headrest and yoke, any attendant pivotal motion of the headrest during slidable adjustment at this location is desirable because it permits pivotal positioning of the headrest simultaneously with slidable adjustment.

According to one embodiment of this invention described in detail hereinafter, a headrest of the aforementioned type includes a guide rod placed between both opposing ends of the headrest yoke or fork in substantially horizontal arrangement and parallel to the backrest plane. There is a holding or clamping device on the headrest pad for locking the headrest in lateral adjustment along the

guide rod. Therefore this construction permits the headrest to be moved laterally out of the symmetrical position it usually has in relation to the backrest over to a side position adjacent to where the dentist is standing or sitting, thus bringing the patient's head into a position which is more comfortable and more convenient for the dentist, and which avoids fatigue damage to his body.

In a preferred and the illustrated embodiment of this invention, the guide rod is designed with a circular cross-section, and the holding or clamping device of the headrest has a slide which is provided with a means for locking the headrest in selected positions lengthwise and pivotally with relation to the guide rod.

In another embodiment, the guide rod itself may be pivotally hinged in the opposing ends of the yoke or fork prongs whereas the head pad holding device is designed so as to slide laterally but cannot be rotated. For this purpose the guide rod may, for example, have a longitudinal slot for receiving and guiding a stud or orienting pin of the headrest. The guide rod may also be designed with square or hexagonal cross-section and may on both ends be provided with cylindrical bearing studs. With such a construction the set screws **12** may be used for locking the noncylindrical rod in selected adjusted rotational positions.

It will be further understood that a reversal of the locking parts may be accomplished without departing from the spirit of this invention, i.e., the headrest carries a guide rod and the clamping mechanism being mounted on the yoke of the support.

Preferably the headrest pad is designed in one piece and screwed to its back, it has a rectangular metal plate on which the headrest slide is fixed. Together with the slide, this metal plate forms the headrest pad locking device. Preferably the slide is mounted to the metal plate in asymmetric alignment to the headrest pad near the left or right lateral edge of the metal plate. The asymmetric alignment only allows displacement to one side, but for a correspondingly larger amount depending on the yoke width. This does not usually present any disadvantage, because during treatment, the dentist is usually always standing on the same side of the operating chair. Moreover, the guide rod and the slide may be constructed such that the slide is removable from and reversible relative to said guide rod thereby to position the locking device asymmetrically on the opposite side of the slide when received on the guide rod. It will also be understood that when the locking device is constructed on the yoke and extends the full length between the opposing ends of the yoke and the guide rod is carried on the headrest, that the extent of lateral sliding motion of the headrest in both directions is limited only by the length of the guide rod.

In a preferable embodiment (FIG. 2), the slide is designed as a clamping chuck, slotted on one side of the bore and provided with two jaw clamps aligned on both sides of the slot. A threaded bolt with projecting handle, passes freely through one of the jaw clamps and screwed into the threaded bore of the other. Rotation of the handle compresses the chuck and locks the slide and headrest against lateral displacement and swivelling.

Another embodiment (FIG. 3) includes a self-locking slide consisting of a metal block of which one lateral longitudinal face is milled away to provide a recess extending into the bore of the slide. It further consists of a metal plate fixed with screws to the metal block and covering the recess of the metal block and the part of the bore hole. By means of the screws, this metal plate is pressed against the guide rod carried in the bore and by friction locks the described slide in any selected position along the rod. The clamping effect may be adjusted by simply adjusting the screws on the metal plate.

Other objects and advantages of this invention will be

particularly set forth in the claims and will be apparent from the following description, when taken in connection with the accompanying drawings, in which:

FIG. 1 is a schematically simplified and partially perspective back view of the backrest of a dental operating chair with one embodiment of this headrest invention;

FIG. 2 is an enlarged partial perspective view of the FIG. 1 embodiment of this invention; and

FIG. 3 is an enlarged perspective view of a second embodiment of this invention.

Along the central longitudinal or vertical axis of the backrest of a dental operating chair, there is a guide rail **2** rigidly mounted thereon. A slide **3** slidably mounted on rail **2** is adjustable in height along the rail and may be locked in any selected height position desired by actuation of a locking lever **4** in a known manner.

This headrest slide **3** is connected by a swivel joint **5** with a lower swivel post **6** which in turn, is connected with an upper swivel post or bracket **8** extending above the chair by a swivel joint **7**. The two joints **5** and **7** are provided with a common means for simultaneous locking thereof, which locking means are selectively controlled by a common locking lever **9**. The common locking means, not being a part of the invention claimed hereinafter, is not described in detail.

The upper free end of the swivel post **8** carries a yoke or fork **10**. The upper ends of the legs of yoke **10** carry a round guide rod **11** rigidly mounted therebetween by way of screws **12**. A headrest or pad **13** designed in one piece in the embodiment illustrated here is screwed at its back to a metal plate **14** of corresponding size which in turn rigidly carries a slide **15** which is slidably mounted on the guide rod **11** for lateral adjustment of the headrest.

The lockable slide **15** of the FIGS. 1 and 2 embodiment, provided with the hand operated locking mechanism, consists essentially of a metal block with a longitudinal or horizontal bore receiving the rod **11**. The side on this block opposite to the metal plate **14** to which it is affixed has a slot **16** communicating with the horizontal bore thereof. The slot **16** defines a chuck comprising a pair of locking clamps **17** and **18**. The clamps **17** and **18** are provided with coaxial transverse or cross bores in which a set screw (not shown) is inserted. The cross bore in clamp **17** is smooth and its section is greater than that of the set screw. The cross bore of clamp **18** has a worm bore threaded to receive a threaded end of the set screw. At the end opposite the threaded end the set screw has a small lever **19** by which it may be screwed into clamp **18**. By tightening the set screw in a clockwise direction as viewed in FIG. 2, clamps **17** and **18** apply compressional locking force to the guide rod, thereby to fasten the slide **15** and headrest **13** in selected adjusted positions lengthwise of the guide rod.

As shown in FIG. 2, the slide **15** is fixed near the left-hand side edge of the metal plate **14** in asymmetrical lateral relationship thereto. When pad **13** is in symmetrical position to the yoke **10**, the slide **15** is in asymmetrical lateral position at the left-hand end of the guide rod. This position of the slide is meant for right-handed treatment relative to the back of the chair and permits lateral displacement of the headrest to the right until the slide **15** engages the right hand leg of the yoke in the broken line position illustrated in FIG. 1. Therefore, this arrangement is suited for arranging equipment for treatment of the patient from the right side of the chair. By way of simple mechanical modifications it is, however, possible to change the device in such a way that from the central position of the headrest, it is slid to the left for left-handed treatment. The asymmetric position of the slide **15** on the metal plate **14** permits greater lateral displacement of the pad than symmetrical positioning would do. Of course the slide can also be symmetrically fixed to the metal plate **14** which is equally appropriate for

right and left-handed treatment. But then a correspondingly shorter lateral displacement of the pad must be accepted unless the yoke **10** is enlarged to a corresponding degree or a lock being permanently mounted on the yoke and extends the width of the yoke as described at the beginning of this description.

The embodiment illustrated in FIG. 3, also arranged for right-handed treatment, differs from the FIG. 2 embodiment only in the construction of the lockable slide, which in this embodiment is generally indicated by the numeral **20**. This slide **20** also consists of a metal block **21** provided with a horizontal or longitudinal bore for the reception of the guide rod **11**. One longitudinal face of the metal block is milled or otherwise cut away to provide a recess intersecting the bore to such an extent that the guide rod **11** protrudes into the cut away recess. A close fitting metal plate **22** is constructed to be received in the recessed face of the metal block **21**. Plate **22** is attached to the block by means of a pair of screws **23**. By tightening of the screws **23**, the metal plate **22** is passed into strong friction locking relationship with the guide rod so that the headrest **13** is fixed in selected adjusted positions lengthwise of the rod **11**. The strength of the clamping effect can be adjusted by respective tightening of the screws **23**.

For left-handed treatment with this embodiment, the slide **20** merely needs to be fixed on the right-hand side of the metal plate **14**.

While I have shown and described the preferred form of mechanism of my invention, it will be apparent that various modifications and changes may be made therein particularly in the form and relation of parts, without departing from the spirit of the invention as set forth in the appended claims.

What is claimed is:

1. In combinatiin with an operating chair or the like:
(a) a headrest support bracket mounted substantially at the top of said chair;
(b) a headrest laterally slidably mounted on said support for lateral adjustment thereon;
(c) means intermediate said headrest and bracket for locking said headrest in selected ajusted positions laterally of said bracket including a locking element mounted in asymmetrical lateral relationship on said headrest.

2. In combination with an operating chair or the like:
(a) a headrest support connected to and extending above said chair;
(b) a headrest laterally slidably mounted on said support for lateral adjustment thereon;
(c) means intermediate said headrest and support for locking said headrest in selected adjusted positions laterally of said support including a locking element mounted in asymmetrical lateral relationship on said headrest.

3. In combination with an operating chair or the like:
(a) a headrest support yoke member mounted substantially at the top of said chair;
(b) a headrest member;
(c) straight lateral guide means on one of said members permitting lateral sliding motion of said headrest member on said support member; and
(d) locking means mounted on the other of said members and being coactive with said guide means for locking said headrest in selected adjusted positions laterally of said yoke.

4. An operating chair or the like in accordance with claim **3** in which said lateral guide means comprises an elongated straight rod mounted between the legs of said yoke and said locking means comprises a locking device for locking said headrest along said rod, said locking device being mounted in asymmetrical lateral relationship on said headrest.

5. In combination with an operating chair or the like:
(a) a headrest support yoke member mounted substantially at the top of said chair;
(b) a headrest member;
(c) straight lateral elongated guide rod on one of said members permitting lateral sliding motion of said headrest member on said support member; and
(d) a compressional locking device for applying compressional locking force to said guide rod and mounted on the other of said members and being coactive with said guide rod for locking said headrest in selected adjusted positions laterally of said yoke.

6. An operating chair or the like in accordance with claim 5 in which said rod extends between the legs of said yoke and said locking device is mounted in asymmetrical lateral relationship on said headrest.

7. An operating chair in accordance with claim 6 in

which said locking device comprises a chuck having two clamp elements embracing said rod and means for compressing said elements on said rod.

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