A headrest for a wheelchair or the like provides an attachment to permit lateral arcuate movement of a headrest as well as the more normal swivel movement provided by a ball and socket joint. A headrest attachment can be fitted by separating a regular ball and socket joint retaining a headrest pad to a wheelchair. The headrest attachment has an insert ball portion for fitting in the socket portion of the headrest pad, the insert ball portion extending from a curvilinear slidable member having restricted arcuate movement within an arcuate fixed guide member, the arcuate fixed guide member having an insert socket portion for fitting over the ball portion on an attachment arm for a wheelchair.
HEADREST ASSEMBLY FOR A WHEELCHAIR

TECHNICAL FIELD

[0001] The present invention relates to headrest assemblies for wheelchairs and the like and more specifically to a headrest assembly that permits lateral arcuate movement of a headrest support pad.

BACKGROUND ART

[0002] Headrests are typically mounted on wheelchairs to provide adequate support for the head and neck of a patient. Headrests are also provided in dental chairs and other chairs. It is preferable that headrests have some form of flexible connection to the wheelchair or the like to provide for people of different sizes or shapes. Many headrests are connected to wheelchairs, dentist chairs and the like by means of a ball and socket joint which in most cases has a damping mechanism to either immobilize movement of the headrest relative to the wheelchair or alternatively to permit restricted movement so that the headrest firmly supports the head of the patient. An example of a headrest is shown in U.S. Pat. No. 3,719,388 to Fortnam which discloses a support pad connected to an attachment arm by means of a ball and socket joint. Fortnam provides an arrangement wherein the ball and socket connection can be tightened thus locking the headrest to the attachment arm and also providing a variable setting to position the headrest on the attachment arm. Another ball and socket joint for a headrest is shown in U.S. Pat. No. 2,180,768 to Peterson. Both of these patents only disclose the concept of a ball and socket joint thus permitting a swivel connection but not one that provides any lateral arcuate movement of a headrest support pad.

[0003] One example of a headrest assembly that has a lateral curved movement is shown by Kerr in U.S. Pat. No. 3,159,426. As can be seen this patent discloses a headrest support pad which is moveable on a laterally disposed arcuate track to permit rotation of a patient’s head. U.S. Pat. No. 5,791,735 to Helman also discloses a headrest which has a ball and socket joint so that it may be swiveled to a desired position. The ball and socket joint is mounted on arms that permit a curved transverse movement of the headrest support pad. While both of these patents do provide curved transverse movement of a headrest support pad they are specific mechanisms for a chair and headrest but do not have the flexibility of being attached to different chairs used for different purposes and being sufficiently adaptable that they may be used with existing cushioned headrest pads.

[0004] It is an aim of the present invention to provide a headrest attachment for a wheelchair and the like that may be interposed between existing cushioned headrest pads and existing headrest attachment hardware to permit restricted arcuate movement of a cushioned headrest pad and also to permit rotation of the cushioned headrest pad about a swivel joint. It is a further aim of the present invention to provide a headrest insert for insertion in a swivel joint common to most types of wheelchairs that permits the headrest pad to have restricted arcuate movement so that the head of a patient can rotate about an axis that substantially coincides with the spinal column of the patient sitting in the wheelchair. It is still a further aim to provide a headrest insert that may be adapted to most types of wheelchairs having headrest pads particularly those that include a ball and socket joint between the wheelchair and the headrest pad, the insert being one that permits restricted arcuate movement about an axis representing the approximate center of a person’s head.

DISCLOSURE OF THE INVENTION

[0005] The present invention provides a headrest attachment for a wheelchair and the like, the headrest attachment provides for the attachment of a cushioned headrest pad with a first rotational connection, preferably a ball and socket joint that attaches to a first attachment arm which projects from a curvilinear slidable member with restricted arcuate movement within an arcuate fixed guide member, the fixed guide member has a second rotational connection, again preferably a ball and socket joint of the same type and size as the first ball and socket joint, attached to a second attachment arm for connection to the wheelchair.

[0006] The present invention also provides a headrest attachment for a wheelchair for insertion within a rotational connection between a headrest pad and the wheelchair, the rotational connection is a typical ball and socket joint that has a socket portion on the headrest pad and a ball portion on an attachment arm for the wheelchair. The headrest insert includes an insert ball portion for fitting in the socket portion of the headrest pad, the insert ball portion projecting from a curvilinear slidable member having restricted arcuate movement within an arcuate fixed guide member, the arcuate fixed guide member having a socket portion for fitting over the ball portion on the attachment arm of the wheelchair.

[0007] In a still further embodiment there is provided a headrest attachment for a wheelchair or the like comprising a cushioned headrest pad having a first rotational ball and socket joint to a first attachment arm, the first attachment arm projecting from a curvilinear slidable member having restricted arcuate movement within an arcuate fixed guide member, the curvilinear slidable member having first grooves on opposing sides, and the arcuate fixed guide member having a U-shaped cross section with second grooves on opposing inside faces, antifriction ball bearings fitting between the first grooves and the second grooves to retain the curvilinear slidable member within the arcuate fixed guide member and permitting the restricted arcuate movement, the arcuate fixed guide member having a second rotational ball and socket joint to a second attachment arm for mounting on the wheelchair.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a perspective view showing a typical headrest as known in the prior art

[0009] FIG. 2 is a perspective view of the headrest shown in FIG. 1 with the headrest attachment according to one embodiment of the present invention;

[0010] FIG. 3 is a front elevational view of the headrest and attachment shown in FIG. 2;

[0011] FIG. 4 is a side elevational view of the headrest and attachment shown in FIGS. 2 and 3

[0012] FIG. 5 is a cross-sectional view taken at line 5-5 on FIG. 3;

[0013] FIG. 6 is a partial cross-sectional view showing one embodiment of a curvilinear slidable member with
friction strips to dampen the movement between the slidable member and the fixed guide member;

[0014] FIG. 7 is a partial cross-sectional view showing another embodiment of the curvilinear slidable member illustrating another type of damping mechanism to dampen movement between the slidable member and the fixed guide member.

BEST MODE OF CARRYING OUT THE INVENTION

[0015] A typical headrest 10 as shown in FIG. 1 is known in the prior art and is used for attachment to wheelchairs, dental chairs and other chairs that require head supports. As can be seen the headrest 10 has a cushioned headrest pad 12 curved roughly to the shape of a human head and neck and having a ball and socket joint 14 to an arm attachment 16 for connection to a wheelchair and the like. As can be seen, the ball and socket joint 14 has a cage 18 and a plurality of adjustment screws 20 that permit pressure to be applied between the ball and socket thus damping the movement that can be obtained in the joint 14.

[0016] FIG. 2 shows a headrest attachment 24 positioned between the ball and socket joint 14 of the headrest 10 as shown in FIG. 1. As may be seen more clearly in FIGS. 3, 4 and 5. The headrest attachment 24 has a first attachment arm 30 having a ball 32 at its top which fits into the socket on the headrest pad 12 and held in place by the cage 18 and the screws 20. Restriction of movement in the ball and socket joint 14 is adjusted by the screws 20 pressurizing the cage 18 on the ball 32. The first attachment arm 30 projects from a curvilinear slidable member 34 which is curved so that the radius of curvature positions the center of a person's head to substantially coincide with the spinal column of that person seated in the wheelchair. As may be seen in FIG. 3 the curvilinear slidable member 34 has an arc of approximately 90°. Grooves 36 are supplied on each side of the curvilinear slidable member 34 and antifriction ball bearings 38 fit in these grooves 36 positioning the curvilinear slidable member 34 in an arcuate fixed guide member 40 which has a substantially U-shaped cross-section and has opposing grooves 42 on opposing faces of the arcuate fixed guide member 40. Thus the ball bearings 38 retain the curvilinear slidable member within the arcuate fixed guide member 40. As may be seen in FIG. 3 the antifriction ball bearings 38 are retained by bearing guides 44 to prevent the ball bearings 38 from separating and maintaining the bearings in a fixed position on the arcuate fixed guide member 40.

[0017] The arcuate fixed guide member 40 is attached to a mounting block 46 which has a socket 48 connecting to the ball 50 of the attachment arm 16. A cage 52 and adjustment screws 54 provide damping for the ball and socket joint.

[0018] As may be seen limit stops 60 are provided at both ends of the curvilinear slidable member 34 to engage with limit screws 62 inserted through the back of the arcuate fixed guide member 40. As can be seen in FIG. 4 a plurality of attachment holes 64 are provided in the arcuate fixed guide member 40 so that the limiting screws 62 can be moved to a different location and thus either increase or decrease the arcuate movement of the curvilinear slidable member 34 in the arcuate fixed guide member 40.

[0019] As shown in FIG. 6 a first friction strip 66 is shown attached to the back of the curvilinear slidable member 34 and engages on a second friction strip 68 attached on the inside surface of the arcuate fixed member 40. The friction strips, which in one embodiment may be Velcro (Registered Trademark), dampen the movement of the slidable member 34 in the fixed guide member 40.

[0020] In yet another embodiment shown in FIG. 7, the movement between the slidable member 34 and the fixed guide member 40 is dampened by a ball 70 pressed by a spring 72 inserted through the back of the fixed guide member 40 and held in place by a threaded member 74. By adjusting the threaded member 74 the amount of pressure applied by the ball 70 on the surface of the slidable member 34 changes the damping effect.

[0021] As can be seen the ball 50 on the end of the attachment arm 16 fits either into the socket 32 in the back of the headrest pad 12 or alternatively fits into the socket in the mounting plate 46 of the arcuate fixed guide member 40. Thus in order to insert the headrest attachment 24, it is merely necessary to remove the screws 20 around the cage 18 for the ball joint 14 and insert the ball 52 on the first attachment arm 30 into the headrest pad socket. Similarly the ball 50 on the end of the attachment arm 16 is inserted into the socket in the plate 46 attached to the arcuate fixed guide member 40 of the headrest attachment 24. By tightening the screws 20 and 54 for the two ball sockets one is able to either prevent movement of the ball joints or alternatively have restricted movement. Similarly the arcuate movement of the slidable member 34 in the fixed guide member 40 can be adjusted by means of the limiting screws 62 similarly the friction of this movement can also be adjusted.

[0022] Various changes may be made to the embodiments shown herein without departing from the scope of the present invention which is limited only by the following claims.

What is claimed is:

1. A headrest attachment for a wheelchair comprising:
   a cushioned headrest pad having a first rotational connection to a first attachment arm, the first attachment arm projecting from a curvilinear slidable member having restricted arcuate movement within an arcuate fixed guide member, the arcuate fixed guide member having a second rotational connection to a second attachment arm for mounting on the wheelchair.

2. The headrest attachment according to claim 1, wherein the first rotational connection and the second rotational connection each comprise a ball and socket joint having a frictional adjustment for damping movement between the ball and socket.

3. The headrest attachment according to claim 2, wherein the frictional adjustment can immobilize movement between the ball and the socket.

4. The headrest attachment according to claim 1, wherein stops are provided between the curvilinear slidable member and the arcuate fixed guide member adjustable to different positions to vary the restricted arcuate movement of the curvilinear slidable member within the arcuate fixed guide member.

5. The headrest attachment according to claim 1, wherein friction means are provided between the curvilinear slidable member and the arcuate fixed guide member to provide damping of the restricted arcuate movement.
6. The headrest attachment according to claim 5, wherein the friction means provides adjustable damping between the curvilinear slidable member and the arcuate fixed guide member.

7. The headrest attachment according to claim 5, wherein the friction means comprises a first friction strip attached to the curvilinear slidable member that engages a second friction strip attached to the arcuate fixed guide member.

8. The headrest attachment according to claim 5, wherein the friction means comprises a spring loaded element between the arcuate fixed guide member and the curvilinear slidable member with an adjustment screw to vary force applied between the arcuate fixed guide member and the curvilinear slidable member.

9. The headrest attachment according to claim 1, wherein the first rotational connection and the second rotational connection are substantially the same, and wherein the cushioned headrest pad may be connected directly to the second attachment arm.

10. The headrest attachment according to claim 1, wherein the curvilinear slidable member has first grooves on opposing sides and the arcuate fixed guide member has a U-shaped cross-section with second grooves on opposing inside faces, antifriction ball bearings fitting between the first grooves and the second grooves retaining the curvilinear slidable member to the arcuate fixed guide member but permitting the restricted arcuate movement.

11. The headrest attachment according to claim 10, wherein the arcuate fixed guide member has a plurality of holes at each side for inserting a limiting screw, the limiting screw forming a stop for the curvilinear slidable member to provide the restricted arcuate movement, and repositioning the limiting screw in another of the plurality of holes changing the restricted arcuate movement.

12. The headrest attachment according to claim 10, wherein a first friction strip is attached on the arcuate fixed guide member engaging with a second friction strip attached to the curvilinear slidable member to provide damping of the restricted arcuate movement.

13. The headrest attachment according to claim 10, wherein a spring loaded element is provided between the arcuate fixed guide member and the curvilinear slidable member having an adjustment screw to vary force applied between the arcuate fixed guide member and the curvilinear slidable member.

14. A headrest attachment for a wheelchair or the like comprising:

- a cushioned headrest pad having a first rotational ball and socket joint to a first attachment arm, the first attachment arm projecting from a curvilinear slidable member having restricted arcuate movement within an arcuate fixed guide member, the curvilinear slidable member having first grooves on opposing sides, and the arcuate fixed guide member having a U-shaped cross-section with second grooves on opposing inside faces, antifriction ball bearings fitting between the first grooves and the second grooves to retain the curvilinear slidable member within the arcuate fixed guide member and permitting the restricted arcuate movement, the arcuate fixed guide member having a second rotational ball and socket joint on a second attachment arm for mounting to the wheelchair.

15. The headrest attachment according to claim 14, wherein the first rotational ball and socket joint and the second rotational ball and socket joint each have a frictional adjustment for damping movement between the ball and the socket.

16. The headrest attachment according to claim 15, wherein the frictional adjustment can immobilize movement between the ball and the socket.

17. The headrest attachment according to claim 14, wherein the arcuate fixed guide member has a plurality of holes at each side for inserting a limiting screw, the limiting screw forming a stop for the curvilinear slidable member to provide the restricted arcuate movement, repositioning the limiting screw in another of the plurality of holes thereby changing the restricted arcuate movement.

18. The headrest attachment according to claim 14, wherein a first friction strip is attached on the arcuate fixed guide member engaging with a second friction strip attached to the curvilinear slidable member to provide damping of the restricted arcuate movement.

19. The headrest attachment according to claim 14, wherein a spring loaded element is provided between the arcuate fixed guide member and the curvilinear slidable member having an adjustment screw to vary force applied between the arcuate fixed guide member and the curvilinear slidable member.

20. A headrest attachment for a wheelchair for insertion within a rotational connection between a headrest pad and the wheelchair, the rotational connection having socket portion on the headrest pad and a ball portion on an attachment arm for the wheelchair, the headrest insert comprising:

- an insert ball portion for fitting in the socket portion of the headrest pad, the insert ball portion projecting from a curvilinear slidable member having restricted arcuate movement within an arcuate fixed guide member, the arcuate fixed guide member having a socket portion for fitting over the ball portion on the attachment arm for the wheelchair.

21. The headrest attachment according to claim 20 wherein stops are provided between the curvilinear slidable member and the arcuate fixed guide member adjustable to different positions to vary the restricted arcuate movement of the curvilinear slidable member within the arcuate fixed guide member.

22. The headrest attachment according to claim 20 wherein friction means between the curvilinear slidable member and the arcuate fixed guide member provide damping of the restricted arcuate movement.

23. The headrest attachment according to claim 22, wherein the friction means comprises a first friction strip attached to the curvilinear slidable member that engages a second friction strip attached to the arcuate fixed guide member.

24. The headrest attachment according to claim 22, wherein the friction means comprises a spring loaded element between the arcuate fixed guide member and the curvilinear slidable member with an adjustment screw to vary force applied between the arcuate fixed guide member and the curvilinear slidable member.

25. The headrest attachment according to claim 20, wherein the curvilinear slidable member has first grooves on opposing sides and the arcuate fixed member has a U-shaped cross-section with second grooves on opposing inside faces, antifriction ball bearings fitting between the first grooves and the second grooves to retain the first grooves and the second grooves to retain the curvilinear slidable member.
member within the arcuate fixed guide member and permitting the restricted arcuate movement.

26. The headrest attachment according to claim 25, wherein the arcuate fixed guide member has a plurality of holes on each side for inserting a limiting screw, the limiting screw forming a stop for the curvilinear slidable member to provide restricted arcuate movement, repositioning the limiting screw in another of the plurality of holes changing the restricted arcuate movement.

27. The headrest attachment according to claim 25, wherein a first friction strip is attached on the arcuate fixed guide member engaging with a second friction strip attached to the curvilinear slidable member to provide damping of the restricted arcuate movement.

28. The headrest attachment according to claim 25, wherein a spring loaded element is provided between the arcuate fixed guide member and the curvilinear slidable member with an adjustment screw to vary force applied between the arcuate fixed guide member and the curvilinear slidable member.

* * * * *

---

* * * * *