A portable, detachable headrest for easy attachment to a soft back or fully padded chair without a need for exposed framework. When the back of the chair is received between a fixed jaw and a moveable jaw of the headrest, the moveable jaw firmly compresses the back of the chair between the moveable jaw and the fixed jaw, mounting the headrest stably to the back of the chair. The headrest is adjustable in a vertical direction and an anterior and posterior direction, such that the user's shoulders and/or back have contact with the chair back in which the headrest is connected to.
Fig. 12
Fig. 28
Fig. 33
HEADREST FOR SOFT BACK CHAIRS

BACKGROUND OF THE INVENTION

0001 1. Field of the Invention
0002 The invention pertains to the field of headrests. More particularly, the invention pertains to a portable headrest for a soft back chair.
0003 2. Description of Related Art
0004 Headrests are used with numerous chairs. The headrests are often integral with the chairs and therefore cannot be removed and placed on other chairs as needed, especially padded backed chairs in which no framework and/or specific device for headrest mounting is exposed.

SUMMARY OF THE INVENTION

0005 A portable, detachable headrest for easy attachment to a soft back or fully padded chair without a need for exposed framework. When the back of the chair is received between a fixed jaw and a moveable jaw of the headrest, the moveable jaw firmly compresses the back of the chair and provides for attachment of the headrest stably to the back of the chair. The headrest is adjustable in a vertical direction and an anterior and posterior direction, such that the user’s shoulders and/or back have contact with the chair back to which the headrest is connected to.

BRIEF DESCRIPTION OF THE DRAWING

0006 FIG. 1 shows side view of a headrest with a sliding bar clamp of a first embodiment with a side cover of the sliding bar clamp removed.
0007 FIG. 2 shows an isometric view of a headrest with a sliding bar clamp of a first embodiment.
0008 FIG. 3 shows a back view of a headrest with a sliding bar clamp of a first embodiment.
0009 FIG. 4 shows a sectional view along line A-A of FIG. 3 of a headrest with a sliding bar clamp of a first embodiment.
0010 FIG. 5 shows a side view of a headrest with a c-clamp of a second embodiment.
0011 FIG. 6 shows an isometric view of a headrest with a c-clamp of a second embodiment.
0012 FIG. 7 shows a back view of a headrest with a c-clamp of a second embodiment.
0013 FIG. 8 shows a side view of a headrest with a strap clamp of a third embodiment.
0014 FIG. 9 shows an isometric view of a headrest with a strap clamp of a third embodiment.
0015 FIG. 10 shows a back view of a headrest with a strap clamp of a third embodiment.
0016 FIG. 11 shows a side view of a headrest with a pivoting ratchet clamp of a fourth embodiment.
0017 FIG. 12 shows an isometric view of a headrest with a pivoting ratchet clamp of a fourth embodiment.
0018 FIG. 13 shows a back view of a headrest with a pivoting ratchet clamp of a fourth embodiment.
0019 FIG. 14 shows a sectional view along line A-A of FIG. 13 of a headrest with a pivoting ratchet clamp of a fourth embodiment.
0020 FIG. 15 shows a sectional view along line B-B of FIG. 13 of a headrest with a pivoting ratchet clamp of a fourth embodiment.
0021 FIG. 16 shows a side view of a headrest with a parallel gripper clamp of a fifth embodiment.
0022 FIG. 17 shows an isometric view of a headrest with a parallel gripper clamp of a fifth embodiment.
0023 FIG. 18 shows a front view of a headrest with a parallel gripper clamp of a fifth embodiment.
0024 FIG. 19 shows a sectional view along line A-A of FIG. 18 of a headrest with a parallel gripper clamp of a fifth embodiment.
0025 FIG. 20 shows a side view of a headrest with a parallel gripper clamp and a wedge of a sixth embodiment.
0026 FIG. 21 shows an isometric view of a headrest with a parallel gripper clamp and an adjustable wedge of a seventh embodiment.
0027 FIG. 22 shows a front view of a headrest with a parallel gripper clamp and an adjustable wedge of a seventh embodiment.
0028 FIG. 23 shows a sectional view along line A-A of FIG. 22 of a headrest with a parallel gripper clamp and an adjustable wedge of a seventh embodiment.
0029 FIG. 24 shows a side view of a headrest with a parallel gripper clamp and an adjustable wedge of a seventh embodiment.
0030 FIG. 25 shows an isometric view of a headrest with linkage clamp of an eighth embodiment.
0031 FIG. 26 shows a front view of a headrest with linkage clamp of an eighth embodiment.
0032 FIG. 27 shows a sectional view along line A-A of FIG. 23 of a headrest with linkage clamp of an eighth embodiment.
0033 FIG. 28 shows a side view of a headrest with screw linkage clamp of a ninth embodiment.
0034 FIG. 29 shows an isometric view of a headrest with screw linkage clamp of a ninth embodiment.
0035 FIG. 30 shows a front view of a headrest with screw linkage clamp of a ninth embodiment.
0036 FIG. 31 shows a sectional view along line A-A of FIG. 27 of a headrest with screw linkage clamp of a ninth embodiment.
0037 FIG. 32 shows an isometric view of a headrest of the present invention mounted to a soft back chair.
0038 FIG. 33 shows a front view of a headrest of the present invention mounted to a soft back chair.
0039 FIG. 34 shows a sectional view along line A-A of FIG. 33 headrest of the present invention mounted to a soft back chair.
0040 FIG. 35 shows an isometric view of a headrest of a tenth embodiment.
0041 FIG. 36 shows another isometric view of a headrest of a tenth embodiment.

DETAILED DESCRIPTION OF THE INVENTION

0042 The invention is for a portable, detachable headrest for easy attachment to a soft back or fully padded chair without a need for exposed framework and/or specific device for headrest mounting. The front surface of the back of the chair is the surface that receives a user’s back when sitting upright in the chair. A pad receives the user’s head. The back surface of the back of the chair is the surface opposite the front surface of the back of the chair. The detachable headrest is adjustable in a vertical direction along a y axis and an anterior and posterior direction along a z axis, such that the user’s shoulders and/or back have contact with the chair back to which the headrest is connected to. The detachable headrest attaches to the chair with substantial force to compress the pad against the frame existing within the chair and attach/hold the headrest in use without significant deflection and without
allowing the headrest to fall off of the chair. The pressure exerted on the soft back of the chair the headrest is attached to is at a level that avoids permanently deforming, cutting, tearing, or puncturing the chair cover material or the chair padding as shown in FIGS. 32-34.

[F0043] FIGS. 1-4 show a headrest with an attachment means of a first embodiment. A first arm 18 of the headrest has a first end mounted to a pad 10 and a second end slidably received by a hole 11 defined by the first end of a second arm 12, and perpendicular to the second arm 12. A channel 17 extends a length between the first end and the second end of the arm 18. A first threaded adjustment knob 20 is received by a nut 46 within the first arm 18, passing through and engaging the channel 17 of the first arm 18. By rotating or turning the first threaded adjustment knob 20 in a first direction, the threaded portion 19 of the knob engages the nut 46 and locks the position of the first arm 18 relative to the second arm 12 along the z axis, and thus in an anterior/posterior direction relative to the chair to which the headrest is attached. By rotating or turning the first threaded adjustment knob 20 in a second direction, opposite the first direction, the first arm 18 can be slid within the hole 11 of the second arm 12, adjusting the position of the pad 10 in an anterior/posterior direction relative to the chair to which the headrest is attached.

[F0044] The second arm 12 has a second end that is an open bore 15 and slidably receives a first end of a base 14. The second arm 12 has a channel 13 extending between the first end and the second end of the arm 12. The first end of the base 14 has a corresponding channel 37 that is aligned with the channel 13 of the second arm 12 when the first end of the base 14 is received by the open bore 15 of the second arm 12.

[F0045] A second threaded adjustment knob 22 is received by a nut 44 within the base 14 and engages the channel 13 of the second arm 12 and the preferably present channel 37 of the base 14. Alternatively, the channels 13, 37 may also be holes. Spacer(s) 42 is preferably present between the base 14 and the open bore 15 of the second arm 12. By rotating or turning the second threaded adjustment knob 22 in a first direction, the threaded portion 35 of the knob 22 engages the nut 44 and locks the position of the second arm 12 relative to the base 14 along the y axis, and thus vertically relative to the chair to which the headrest is attached. By rotating the second threaded adjustment knob 22 in a second direction, opposite the first direction, the second arm 12 slides on the base 14, adjusting the height of the pad 10 in a vertical direction (along the y-axis) relative to the chair to which the headrest is attached.

[F0046] The second end of the base 14 has a first leg 16 that forms a fixed jaw of the attachment means of the headrest to a soft backed chair and a second leg 24 that acts as a slide bar and is slidably received within a slot 21 that passes through a handle assembly 26. The handle assembly 26 includes a body 34 through which the slot 21 passes, a cavity 23, a handle grip 25, and an integrally formed moveable jaw surface 27 on the body 34 opposite the handle grip 25. The handle grip 25 has a grip cavity 29 in which to receive a trigger handle 32. The trigger handle 32 is coupled to an index plate 40 which is received within the cavity 23. The index plate 40 is suspended on the second leg 24 or slide bar of the base 14. An index spring 36 is compressed between the index plate 40 and a surface 31 of the cavity 23 urging the index plate 40 against an upper end of the trigger handle 32. A release trigger 28 is suspended from the second leg 24 or slide bar of the base 16. One end of the release trigger 28 is pivotably captured in a recess 33 within the body 34 such that the release trigger 28 may pivot within constraints defined by the surfaces of the recess 33. A spring 36 within the recess 33 biases the release trigger 28 towards the trigger handle 32. A clamp stop 30 is preferably present on the end of the second leg 24 or slide bar to prevent the handle assembly 26 from being removed from the slide bar or second leg 24.

[F0047] To adjust the position of the moveable jaw surface 27 relative to the fixed jaw 16 and attach the headrest to a soft back chair, the back of the soft back chair is fitted between the second leg 16 forming the fixed jaw and the moveable second jaw surface 27 such that the headrest is placed on the top of the back of the chair with the fixed jaw 16 placed over and on the front surface of the back of the chair receiving a user’s back and/or shoulders and the moveable jaw surface 27 is placed over and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, the trigger handle 32 is pivoted away from the fixed jaw 16, indexing the moveable jaw surface 27 on the second leg 24 towards the fixed jaw 16 with release trigger 28 acting as a ratcheting device until the moveable jaw surface 27 firmly compresses the back of the chair with the fixed jaw 16 and the headrest is fastened to the chair. It should be noted that once the headrest is tightened onto the chair, both the front surface of the chair and the back surface of the chair are preferably compressed, such that a user’s shoulders and back preferably do not contact the fixed jaw 16.

[F0048] To remove the headrest from the back of the chair, a user would pull the release trigger 28 away from the fixed jaw 16 and slide the handle assembly 26 away from the back surface of the back of the chair.

[F0049] FIGS. 5-7 show a headrest with an attachment means of a second embodiment. A first arm 18 of the headrest has a first end mounted to a pad 10 and a second end slidably received by a hole 11 defined by the first end of a second arm 12, and perpendicular to the second arm 12. A channel 17 extends a length between the first end and the second end of the arm 18. A first threaded adjustment knob 20 is received by a nut 46 within the first arm 18, passing through and engaging the channel 17 of the first arm 18 as in the first embodiment. By rotating or turning the first threaded adjustment knob 20 in a first direction, the threaded portion 19 of the knob engages the nut 46 and locks the position of the first arm 18 relative to the second arm 12 along the z axis, and thus in an anterior/posterior direction relative to the chair to which the headrest is attached. By rotating or turning the first threaded adjustment knob 20 in a second direction, opposite the first direction, the first arm 18 slides within the hole 11 of the second arm 12, adjusting the position of the pad 10 in an anterior/posterior direction relative to the chair to which the headrest is attached.

[F0050] The second arm 12 has a second end that is an open bore 15 and slidably receives a first end of a base 14. The second arm 12 has a channel 13 extending between the first end and the second end of the arm 12. The first end of the base 14 has a corresponding channel 37 that is aligned with the channel 13 of the second arm 12 when the first end of the base 14 is received by the open bore 15 of the second arm 12.

[F0051] As in the first embodiment, a second threaded adjustment knob 22 is received by a nut 44 within the base 14 and engages the channel 13 of the second arm 12 and the channel 37 of the base 14. Spacer(s) 42 is preferably present between the base 14 and the open bore 15 of the second arm
12. By rotating or turning the second threaded adjustment knob 22 in a first direction, the threaded portion 35 of the knob 22 engages the nut 44 and locks the position of the second arm 12 relative to the base 14 along their axis, and thus vertically relative to the chair to which the headrest is attached. By rotating the second threaded adjustment knob 22 in a second direction, opposite the first direction, the second arm 12 slides on the base 14, adjusting the height of the pad 10 in a vertical direction relative to the chair to which the headrest is attached.

The second end of the base 14 has a first leg 16 that forms a fixed jaw of the attachment means of the headrest to a soft backed chair and a second leg 58 that has a threaded hole 53 and receives a threaded screw 52 with a third adjustment knob 56 at one end and a flat surfaced swivel pad 50 on the opposite end and forms an adjustable C-clamp.

To adjust the position of the moveable jaw or flat surfaced swivel pad 50 relative to the fixed jaw 16 and attach the headrest to a soft back chair, the back of the soft back chair is fitted between the second leg 16 forming the fixed jaw and the moveable flat surfaced swivel pad 50 such that the headrest is placed on the top of the back of the chair with the fixed jaw 16 placed over and on the front surface of the back of the chair receiving a user's back and/or shoulders and the moveable flat surfaced swivel pad 50 is placed over and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, the third adjustment knob 56 is rotated until the moveable flat surfaced swivel pad 50 firmly compresses the back and/or front of the chair with the fixed jaw 16, and thus the headrest is fastened to the chair.

To remove the headrest from the back of the chair, a user would rotate the third adjustment knob 56 in direction opposite of that to tighten the headrest onto the chair.

FIGS. 8-10 show a headrest with an attachment means of a third embodiment. A first arm 18 of the headrest has a first end mounted to a pad 10 and a second end slidably received by a hole 11 defined by the first end of a second arm 12, and perpendicular to the second arm 12. A channel 17 extends a length between the first end and the second end of the arm 18. A first threaded adjustment knob 20 is received by a nut 46 within the first arm 18, passing through and engaging the channel 17 of the first arm 18 as in the first embodiment. By rotating or turning the first threaded adjustment knob 20 in a first direction, the threaded portion 19 of the knob engages the nut 46 and locks the position of the first arm 18 relative to the second arm 12 along the z-axis, and thus in an anterior/posterior direction relative to the chair to which the headrest is attached. By rotating or turning the first threaded adjustment knob 20 in a second direction, opposite the first direction, the first arm 18 slides within the hole 11 of the second arm 12, adjusting the position of the pad 10 in an anterior/posterior direction (z-axis) relative to the chair to which the headrest is attached.

The second arm 12 has a second end that is an open bore 15 and slidably receives a first end of a base 14. The second arm 12 has a channel 13 extending between the first end and the second end of the arm 12. The first end of the base 14 has a corresponding channel 37 that is aligned with the channel 13 of the second arm 12 when the first end of the base 14 is received by the open bore 15 of the second arm 12. Alternatively, the channel 13, 37 may be a hole.

As in the first embodiment a second threaded adjustment knob 22 is received by a nut 44 within the base 14 and engages the channel 13 of the second arm 12 and the channel 37 of the base 14. Spacers(s) 42 is preferably present between the base 14 and the open bore 15 of the second arm 12. By rotating or turning the second threaded adjustment knob 22 in a first direction, the threaded portion 35 of the knob 22 engages the nut 44 and locks the position of the second arm 12 relative to the base 14 along their axis, and thus vertically relative to the chair to which the headrest is attached. By rotating the second threaded adjustment knob 22 in a second direction, opposite the first direction, the second arm 12 slides on the base 14, adjusting the height of the pad 10 in a vertical direction relative to the chair to which the headrest is attached.
[0062] The second end of the base 14 has a first leg 16 that forms a fixed jaw of the attachment means of the headrest to a soft backed chair and a second leg is formed with a moveable jaw 66 at one end and a pivoting rack 71 at the other end received within a cavity 63 of the base 14. The pivoting rack 71 is split to receive a lever arm 70 and both the lever arm 70 and the pivoting rack 71 are pivotably mounted to a pin 68. A pawl 74 is spring 76 biased into contact with the teeth 61 of the pivoting rack 71. A pawl release 64 is integrally formed with the pawl 74, such that when the pawl 74 is moved, spring 76 is compressed and the moveable jaw may be released. Attached to the lever arm 70 is a lever arm pawl 72 engaged with the pivoting rack 71. The rack teeth 61 of the pivoting rack 71 are shaped such that the movable jaw 66 of the attachment means is a one-way ratchet. The hole 78 of the lever arm 70 to which the pivot pin 68 is received is slightly larger than the pivot pin 68 to allow the lever arm 70 to be moved to a position to which the lever arm pawl 72 disengages the pivoting rack 71 and the lever arm 70 and lever arm pawl 72 may be freely moved along the pivoting rack 71 to a position of choice.

[0063] To adjust the position of the moveable jaw 66 relative to the fixed jaw 16 and attach the headrest to a soft back chair, the back of the soft back chair is fitted between the second leg 16 forming the fixed jaw and the moveable jaw 66 such that the headrest is placed on the top of the back of the chair with the fixed jaw 16 placed over and on the front surface of the back of the chair receiving a user's back and/ or shoulders and the moveable jaw surface 27 is placed over and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, the lever arm 72 is ratcheted until the moveable jaw 66 of the attachment means firmly compresses the back of the soft back chair with fixed jaw 16 and the headrest is fastened to the chair.

[0064] To release or remove the headrest from the back of the soft back chair, a user would engage the pawl release 64 to allow the pivoting rack 71 to move freely and thus move the moveable jaw 66 away from the back surface of the back of the soft back chair.

[0065] FIGS. 16-19 show a headrest with an attachment means of a fifth embodiment. A first arm 18 of the headrest has a first end mounted to a pad 10 and a second end slidably received by a hole 11 defined by the first end of a second arm 12, and perpendicular to the second arm 12. A channel 17 extends a length between the first end and the second end of the arm 18. A first threaded adjustment knob 20 is received by a nut 46 within the first arm 18, passing through and engaging the channel 17 of the first arm 18. By rotating or turning the first threaded adjustment knob 20 in a first direction, the threaded portion 19 of the knob engages the nut 46 and locks the position of the first arm 18 relative to the second arm 12 along the z axis, and thus in an anterior/posterior direction relative to the chair to which the headrest is attached. By rotating or turning the first threaded adjustment knob 20 in a second direction, opposite the first direction, the first arm 18 slides within the hole 11 of the second arm 12, adjusting the position of the pad 10 in an anterior/posterior direction relative to the chair to which the headrest is attached. Alternatively, the channel 13, 37 may be a hole.

[0066] The second arm 12 has a second end that is an open bore 15 and slidably receives a first end of a base 14. The second arm 12 has a channel 13 extending between the first end and the second end of the arm 12. The first end of the base 14 has a corresponding channel 37 that is aligned with the channel 13 of the second arm 12 when the first end of the base 14 is received by the open bore 15 of the second arm 12.

[0067] A second threaded adjustment knob 22 is received by a nut 44 within the base 14 and engages the channel 13 of the second arm 12 and the channel 37 of the base 14. Spacer(s) 42 is preferably present between the base 14 and the open bore 15 of the second arm 12. By rotating or turning the second threaded adjustment knob 22 in a first direction, the threaded portion 35 of the knob 22 engages the nut 44 and locks the position of the second arm 12 relative to the base 14 along they axis, and thus vertically relative to the chair to which the headrest is attached. By rotating the second threaded adjustment knob 22 in a second direction, opposite the first direction, the second arm 12 slides on the base 14, adjusting the height of the pad 10 in a vertical direction relative to the chair to which the headrest is attached.

[0068] The second end of the base has a first leg 16 that forms a fixed jaw of the attachment means of the headrest to a soft backed chair and a second leg 80 that is the moveable jaw and is moveably attached to a threaded screw 84. The threaded screw 84 is received within a hole 83 that runs the entire length of the base 14 in a direction of the z axis. The threaded screw 84 is prevented from moving in an axial direction by an axial screw constraint 86 placed on an end of the threaded screw 84 received by the first leg 16 of the base 14 forming the fixed jaw of the attachment means. The opposite end of the threaded screw 84 is received by an adjustment knob 82. Rotation of the adjustment knob 82 rotates the moveable jaw 80 relative to the threaded screw 84, moving the moveable jaw 80 towards and away from the fixed jaw 16.

[0069] To adjust the position of the moveable jaw 80 relative to the fixed jaw 16 and attached the headrest to the soft back chair, the back of the soft back chair is fitted between the second leg 16 forming the fixed jaw and the moveable jaw 80 such that the headrest is placed on the top of the back of the chair with the fixed jaw 16 placed over and on the front surface of the back of the chair receiving a user's back and/or shoulders and the moveable jaw 80 is placed over and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, the adjustment knob 82 is rotated until the moveable jaw 80 of the attachment means firmly compresses the back of the chair with the fixed jaw 16 and the headrest is fastened to the chair.

[0070] To remove the headrest from the back of the chair, a user would rotate the adjustment knob 82 in a direction opposite of the direction to tighten the headrest onto the chair.

[0071] FIG. 20 show a headrest with an attachment means of a sixth embodiment. The difference between the headrest shown in FIG. 20 and the headrest shown in FIGS. 16-19 is the addition of a wedge 90 mounted to the moveable jaw 80 of the attachment means.

[0072] As in the fifth embodiment, a first arm 18 of the headrest has a first end mounted to a pad 10 and a second end slidably received by a hole 11 defined by the first end of a second arm 12, and perpendicular to the second arm 12. A channel 17 extends a length between the first end and the second end of the arm 18. A first threaded adjustment knob 20 is received by a nut 46 within the first arm 18, passing through and engaging the channel 17 of the first arm 18. By rotating or turning the first threaded adjustment knob 20 in a first direction, the threaded portion 19 of the knob engages the nut 46 and locks the position of the first arm 18 relative to the second arm 12 along the z axis, and thus in an anterior/posterior direction relative to the chair to which the headrest is
attached. By rotating or turning the first threaded adjustment knob 20 in a second direction, opposite the first direction, the first arm 18 slides within the hole 11 of the second arm 12, adjusting the position of the pad 10 in an anterior/posterior direction relative to the chair to which the headrest is attached.

[0073] The second arm 12 has a second end that is an open bore 15 and slidably receives a first end of a base 14. The second arm 12 has a channel 13 extending between the first end and the second end of the arm 12. The first end of the base 14 has a corresponding channel 37 that is aligned with the channel 13 of the second arm 12 when the first end of the base 14 is received by the open bore 15 of the second arm 12. Alternatively, the channel 13, 37 may be a hole.

[0074] A second threaded adjustment knob 22 is received by a nut 44 within the base 14 and engages the channel 13 of the second arm 12 and the channel 37 of the base 14. Spacer(s) 42 is preferably present between the base 14 and the open bore 15 of the second arm 12. By rotating or turning the second threaded adjustment knob 22 in a first direction, the threaded portion 35 of the knob 22 engages the nut 44 and locks the position of the second arm 12 relative to the base 14 along they axis, and thus vertically relative to the chair to which the headrest is attached. By rotating the second threaded adjustment knob 22 in a second direction, opposite the first direction, the second arm 12 slides on the base 14, adjusting the height of the pad 10 in a vertical direction relative to the chair to which the headrest is attached.

[0075] The second end of the base has a first leg 16 that forms a fixed jaw of the attachment means of the headrest to a soft backed chair and a second leg 80 that is the moveable jaw and is moveably attached to a threaded screw 84. Mounted to the moveable jaw 80 is a wedge 90. The threaded screw 84 is received within a hole 83 that runs the entire length of the base 14 in a direction of the z axis. The threaded screw 84 is prevented from moving in an axial direction by an axial screw constraint 86 placed on an end of the threaded screw 84 received by the first leg 16 of the base 14 forming the fixed jaw of the attachment means. The opposite end of the threaded screw 84 is received by an adjustment knob 82. Rotation of the adjustment knob 82 rotates the moveable jaw 80 relative to the threaded screw 84, moving the moveable jaw 80 towards and away from the fixed jaw 16.

[0076] To adjust the position of the moveable jaw 80 relative to the fixed jaw 16 and attached the headrest to the soft back chair, the back of the soft back chair is fitted between the second leg 16 forming the fixed jaw and the moveable jaw 80 such that the headrest is placed on the top of the back of the chair with the fixed jaw 16 placed over and on the front surface of the back of the chair receiving a user’s back and/or shoulders and the moveable jaw 80 is placed over on and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, the adjustment knob 82 is rotated until the wedge 90 of the moveable jaw 80 of the attachment means is firmly compresses the back of the chair with the fixed jaw 16 and the headrest is fastened to the chair.

[0077] To remove the headrest from the back of the chair, a user would rotate the adjustment knob 82 in a direction opposite of the direction to tighten the headrest onto the chair.

[0078] FIGS. 21-23 show a headrest with an attachment means of a seventh embodiment. The difference between the headrest shown in FIGS. 21-23 and the headrest shown in FIGS. 16-19 is the addition of an adjustable or tiltable wedge 91 mounted to the moveable jaw 80 of the attachment means.

[0079] As in the fifth embodiment, a first arm 18 of the headrest has a first end mounted to a pad 10 and a second end slidably received by a hole 11 defined by the first end of a second arm 12, and perpendicular to the second arm 12. A channel 17 extends a length between the first end and the second end of the first arm 18. A first threaded adjustment knob 20 is received by a nut 46 within the first arm 18, passing through and engaging the channel 17 of the first arm 18. By rotating or turning the first threaded adjustment knob 20 in a first direction, the threaded portion 19 of the knob engages the nut 46 and locks the position of the first arm 18 relative to the second arm 12 along the z axis, and thus in an anterior/posterior direction relative to the chair to which the headrest is attached. By rotating or turning the first threaded adjustment knob 20 in a second direction, opposite the first direction, the first arm 18 slides within the hole 11 of the second arm 12, adjusting the position of the pad 10 in an anterior/posterior direction relative to the chair to which the headrest is attached.

[0080] The second arm 12 has a second end that is an open bore 15 and slidably receives a first end of a base 14. The second arm 12 has a channel 13 extending between the first end and the second end of the arm 12. The first end of the base 14 has a corresponding channel 37 that is aligned with the channel 13 of the second arm 12 when the first end of the base 14 is received by the open bore 15 of the second arm 12. Alternatively, the channel 13, 37 may be a hole.

[0081] A second threaded adjustment knob 22 is received by a nut 44 within the base 14 and engages the channel 13 of the second arm 12 and the channel 37 of the base 14. Spacer(s) 42 is preferably present between the base 14 and the open bore 15 of the second arm 12. By rotating or turning the second threaded adjustment knob 22 in a first direction, the threaded portion 35 of the knob 22 engages the nut 44 and locks the position of the second arm 12 relative to the base 14 along they axis, and thus vertically relative to the chair to which the headrest is attached. By rotating the second threaded adjustment knob 22 in a second direction, opposite the first direction, the second arm 12 slides on the base 14, adjusting the height of the pad 10 in a vertical direction relative to the chair to which the headrest is attached.

[0082] The second end of the base has a first leg 16 that forms a fixed jaw of the attachment means of the headrest to a soft backed chair and a second leg 80 that is the moveable jaw and is moveably attached to a threaded screw 84. The second leg has a cutout 94 for receiving an adjustable wedge 91. The adjustable wedge is rotateably mounted to the moveable jaw 80 on a pin 95. The angle of the incline of the adjustable wedge 91 relative to the moveable jaw 80 is adjustable by placing a pin 93 within one of a plurality of holes 92 on the adjustable wedge 91. If no angle is desired, or for shipping purposes, the adjustable wedge may be flush with the moveable jaw by securing pin 93 within the bottommost pin hole 96, 92 in the moveable jaw 80 and the adjustable wedge 91. The threaded screw 84 is received within a hole 83 that runs the entire length of the base 14 in a direction of the z axis. An end of the threaded screw 84 is received by an adjustment knob 82. Rotation of the adjustment knob 82 translates the moveable jaw 80 relative to the threaded screw 84, moving the moveable jaw 80 towards and away from the fixed jaw 16.

[0083] To adjust the position of the moveable jaw 80 relative to the fixed jaw 16 and attached the headrest to the soft
back chair, the back of the soft back chair is fitted between the second leg 16 forming the fixed jaw and the moveable jaw 80 such that the headrest is placed on the top of the back of the chair with the fixed jaw 16 placed over and on the front surface of the back of the chair receiving a user's back and/or shoulders and the moveable jaw 80 is placed over and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, the adjustment knob 82 is rotated until the adjustable wedge 91 of the moveable jaw 80 of the attachment means is firmly compresses the back of the chair with the fixed jaw 16 and the headrest is fastened to the chair.

[0084] To remove the headrest from the back of the chair, a user would rotate the adjustment knob 82 in a direction opposite of the direction to tighten the headrest onto the chair.

[0085] In all of the above embodiments, the pad is shown to be oblong in shape, but may be any shape that may be comfortable for the user to rest their head against. Additionally, the headrest may be covered, and may include a heating element or a cooling element.

[0086] FIGS. 24-27 show a headrest with an attachment means of an eighth embodiment. A first arm 112 of the headrest has a first end mounted to pad 100 and a second end with a hole 111 that receives a threaded portion 113 of an adjustment knob 110. At least one fixed jaw leg 108 also receives the threaded portion 113 of the adjustment knob 110 and is pivotally attached to the adjustment knob 110. When the adjustment knob 110 is rotated in a first direction, the pad 100 is locked into place rotationally relative to the rest of the device. When the adjustment knob 110 is rotated in a second direction, opposite the first direction, the position of the pad 100 may be pivoted relative to the rest of the device.

[0087] A second fixed jaw leg 109 may also be mounted or receive the threaded portion 113 of the adjustment knob 110 and if present, moves with the at least one fixed jaw leg 108. The second fixed jaw leg 109 provides additional support for attaching the headrest to the back of a chair.

[0088] A linkage piece 102 is pivotally pinned 114 to the first end of the at least one fixed jaw leg 108 and a first bracket piece 104 in one of a series holes 116 by pin 118. The first bracket piece 104 is pivotally connected to a moveable jaw leg 106 by pin 120. A second bracket piece 105 may be attached to the first bracket piece 104 and the linkage piece 102 to provide extra support to the headrest.

[0089] To adjust the position of the moveable jaw 106 relative to the fixed jaw leg 108, 109, and attach the headrest to a soft back chair, the back of the soft back chair is fitted between the at least one fixed jaw leg 108, 109 and the moveable jaw leg 106, such that the headrest is placed on the top of the back of the chair with the fixed jaw leg 108, 109 placed over and on the front surface of the back of the chair receiving a user's back and/or shoulders and the moveable jaw leg 106 is placed over and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, a user would move either the first bracket piece 104 (and the second bracket piece 105 if present) and consequently the moveable jaw leg 106 to a position in with the moveable jaw leg 106 firmly compresses the back of the chair with at least one of the fixed jaw legs 108, 109 and the headrest is fastened to the chair. To alter the placement of the pad in which receives the head of a user may be altered by rotating the first adjustment knob 110 and by threading the pad 100 out from the first arm 112 and tightening the nut 124.

[0090] To remove the headrest from the back of the chair, a user would move either the first bracket piece 104 (and second bracket piece 105 is present) and consequently the moveable jaw leg 106 to a position in which the moveable jaw leg 106 no longer compresses the back of the chair.

[0091] FIGS. 28-31 show a headrest with an attachment means of a ninth embodiment. A first arm 112 of the headrest has a first end mounted to pad 100 and a second end with a hole 111 that receives a threaded portion 113 of an adjustment knob 110. At least one fixed jaw leg 108 also receives the threaded portion 113 of the adjustment knob 110 and is pivotally attached to the adjustment knob 110. When the adjustment knob 110 is rotated in a first direction, the pad 100 is locked into place rotationally relative to the rest of the device. When the adjustment knob 110 is rotated in a second direction, opposite the first direction, the position of the pad 100 may be pivoted relative to the rest of the device.

[0092] A first end of the fixed jaw leg 108 is coupled to a holder 136 by pins 132 (or otherwise suitably rigidly attached). The holder 136 has a hole 134 for receiving a threaded shaft 126 of a second adjustment knob 128. The end of the threaded shaft 126 opposite the end that receives the second adjustment knob 128 contacts a surface of a moveable jaw leg 106. The moveable jaw leg 106 is pivotally attached to the at least one fixed jaw leg 108, 109.

[0093] A second fixed jaw leg 109 may also be mounted or receive the threaded portion 113 of the adjustment knob 110 and if present, moves with at least one fixed jaw leg 108. The second fixed jaw leg 109 provides additional support for attaching the headrest to the back of a chair.

[0094] To adjust the position of the moveable jaw 106 relative to the at least one fixed jaw leg 108, 109, and attach the headrest to a soft back chair, the back of the soft back chair is fitted between at least one fixed jaw leg 108, 109 and the moveable jaw leg 106, such that the headrest is placed on the top of the back of the chair with the fixed jaw leg 108, 109 placed over and on the front surface of the back of the chair receiving a user's back and/or shoulders and the moveable jaw leg 106 is placed over and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, a user would rotate the second adjustment knob 128, which causes the threaded portion 126 to press on the moveable jaw leg 106, to move the moveable jaw leg to a position in which the moveable jaw leg 106 firmly compresses the back of the chair with at least one of the fixed jaw legs 108, 109 and the headrest is fastened to the chair. The placement of the pad in which receives the head of a user may be altered by rotating the first adjustment knob 110 and by threading the pad 100 out from the first arm 112 and tightening the nut 124.

[0095] To remove the headrest from the back of the chair, a user would rotate the second adjustment knob 128 in a direction opposite to of the direction to tighten the moveable jaw leg onto the headrest onto the chair.

[0096] FIGS. 35-36 show a headrest of a tenth embodiment similar to the headrest of the seventh embodiment with the adjustable wedge 91.

[0097] A first arm 18 of the headrest has a first end mounted to a pad 10 and a second end slidably received by a hole 11 defined by the first end of a second arm 12, and perpendicular to the second arm 12. A channel 17 extends a length between the first end and the second end of the arm 18. A first threaded adjustment knob 20 is received by a nut (not shown) within the first arm 18, passing through and engaging the channel 17 of the first arm 18. By rotating or turning the first threaded
adjustment knob 20 in a first direction, the threaded portion of the knob engages a nut and locks the position of the first arm 18 relative to the second arm 12 along the z axis, and thus in an anterior/posterior direction relative to the chair to which the headrest is attached. By rotating or turning the first threaded adjustment knob 20 in a second direction, opposite the first direction, the first arm 18 slides within the hole 11 of the second arm 12, adjusting the position of the pad 10 in an anterior/posterior direction relative to the chair to which the headrest is attached.

[0099] The second arm 12 has a second end with a hole 150 that slidably receives a third arm 152. The third arm 152 has a channel (not shown) extending a length between the between the first end and second end of the third arm 152. A second threaded adjust knob 22 is received by a nut (not shown) within the third arm 152, passing through and engaging a channel 153 of the third arm 152. By rotating or turning the second threaded adjustment knob 22 in a first direction, the threaded portion of the knob 22 engages with the nut and thus locks the position of the third arm 152 relative to the second arm 12.

[0100] To adjust the position of the moveable jaw 80 relative to the fixed jaw 16 and attached the headrest to the soft back chair, the back of the soft back chair is fitted between the second leg 16 forming the fixed jaw and the moveable jaw 80 such that the headrest is placed on the top of the back of the chair with the fixed jaw 16 placed over and on the front surface of the back of the chair receiving a user’s back and/or shoulders and the moveable jaw 80 is placed over and on the back surface of the back of the chair. To tighten and fix the headrest in place on the chair, the adjustment knob 82 is rotated until the adjustable wedge 91 of the moveable jaw 80 of the attachment means firmly compresses the back of the chair with the fixed jaw 16 and the headrest is fastened to the chair.

[0101] To remove the headrest from the back of the chair, a user would rotate the adjustment knob 82 in a direction opposite of the direction to tighten the headrest onto the chair.

[0102] In all of the above embodiments, the pad is shown to be circular in shape, but may be any shape that may be comfortable for the user to rest their head against. Additionally, the headrest may be covered, include a heating element or a cooling element.

[0103] In all of the above embodiments, the attachment means of the portable headrest to the soft back chairs applies a force to compress the pad against the frame of the chair within the pad and hold the headrest upright without significant deflection and without allowing the headrest to fall off of the chair. The attachment means also applies a substantially low pressure to avoid permanently deforming, cutting, tearing, or puncturing the chair cover material or chair padding of the soft back chair as shown in FIGS. 32-34.

[0104] In all of the above embodiments, once the headrest is tightened onto the chair, both the front surface of the chair and the back surface of the chair are preferably compressed as shown in FIGS. 32-34.

[0105] In all of the above embodiments, all screw type fixing devices may be replaced with cam, detent style, or otherwise actuated fixing features.

[0106] In all of the above embodiments, a pad may be added to the contact surface of the fixed jaw(s) that receives the user’s back.

[0107] Accordingly, it is to be understood that the embodiments of the invention herein described are merely illustrative of the application of the principles of the invention. Reference herein to details of the illustrated embodiments is not intended to limit the scope of the claims, which themselves recite those features regarded as essential to the invention.

What is claimed is:

1. A portable, detachable headrest for mounting to a back of a soft back chair without exposed framework, the back having a front surface with padding for receiving at least a user’s back and a back surface, opposite the first surface, the headrest comprising:
   a. a first arm having a first end and a second end and a channel extending a length between the first end and the second end;
   b. a pad mounted to the first end of the first arm;
   c. a second arm with a first end and a second end, the first end of the second arm slidably receiving a second end of the first arm;
   d. a first adjustment knob received by the channel of the first arm and the first end of the second arm, wherein when first adjustment knob engages the first arm and locks the first arm in an anterior/posterior direction relative to the back of the chair;
   e. a base comprising an attachment means comprising at least a moveable jaw and a fixed jaw, the base coupled to the second arm; and
   f. a second adjustment knob received by the second arm, wherein the second adjustment knob locks the second arm vertically relative to the back of the chair;
   wherein when the back of the chair is received between the fixed jaw and the moveable jaw, the moveable jaw firmly compresses the back of the chair between the moveable jaw and the fixed jaw, mounting the headrest stably to the back of the chair.

2. The headrest of claim 1, wherein the pad further comprises a heating element, a cooling element, or a vibrating element.

3. The headrest of claim 1, wherein the moveable jaw of the attachment means comprises:
   a. a slide fixedly attached to the base; and
   b. a locking jaw comprising a locking assembly moveable on the slide and a trigger assembly moveable to a locking position and an unlocking position relative to the slide;
wherein when the trigger assembly is moved to an unlocking position, the locking jaw is moveable on the slide towards or away from the fixed jaw.

4. The headrest of claim 1, wherein the attachment means and the moveable jaw comprises a threaded screw received within a slot, the threaded screw having a first end coupled to a third adjustment knob and a second end coupled to a flat surface.

5. The headrest of claim 4, wherein the attachment means is shaped as a C-clamp.

6. The headrest of claim 4, wherein the threaded screw is fixed and the moveable jaw slides on the fixed threaded screw.

7. The headrest of claim 4, wherein the flat surface is a swivel pad.

8. The headrest of claim 1, wherein the moveable jaw of the attachment means is at least one strap having a ratchet assembly, the at least one strap being moveable relative to the fixed jaw of the base by the ratchet assembly.

9. The headrest of claim 1, wherein the moveable jaw of the attachment means comprises a pivoting rack coupled to the moveable jaw of the attachment means and a locking pivot comprising a ratchet.

10. The headrest of claim 1, wherein the moveable jaw further comprises a wedge.

11. The headrest of claim 10, wherein the wedge is adjustable.

12. The headrest of claim 1, further comprising a third arm fixedly attached to the base and coupling the base to the second arm, including a channel extending a length, wherein the second adjustment knob is received by the channel in the third arm.

13. The headrest of claim 1, wherein the second arm and the base each further comprise a channel extending a length, wherein the channel of the base is aligned with channel of the second arm and wherein when the second adjustment knob is received by the channel of the second arm and the channel of the base.

14. A portable, detachable headrest for mounting to a back of a soft back chair without exposed framework, the back having a front surface with padding for receiving at least a user’s back and a back surface, opposite the first surface, the headrest comprising:
- a first arm having a first end and a second end;
- a pad mounted to the first end of the first arm;
- at least one fixed jaw leg having a first end and a second end;
- an adjustment knob coupling the first arm and the at least one fixed jaw leg together;
- a first bracket piece pivotally connected to the first end of the at least one fixed jaw leg through a linkage piece; and
- a moveable jaw leg pivotally attached to the first bracket piece and the at least one fixed jaw leg;

wherein when the back of the chair is received between the fixed jaw leg and the moveable jaw leg, the moveable jaw leg firmly compresses the back of the chair between the moveable jaw and the fixed jaw, mounting the headrest steadily to the back of the chair.

15. The headrest of claim 14, wherein the pad further comprises a heating element, a cooling element, or a vibrating element.

16. The headrest of claim 14, further comprising a second fixed jaw leg coupled to the at least one fixed jaw leg and the adjustment knob.

17. The headrest of claim 14, further comprising a second bracket piece mounted to the first bracket piece and the moveable jaw leg.

18. A portable, detachable headrest for mounting to a back of a soft back chair without exposed framework, the back having a front surface with padding for receiving at least a user’s back and a back surface, opposite the first surface, the headrest comprising:
- a first arm having a first end and a second end;
- a pad mounted to the first end of the first arm;
- at least one fixed jaw leg having a first end and a second end;
- a first adjustment knob coupling the first arm and the at least one fixed jaw leg together;
- a holder coupled to the first end of the fixed jaw leg, a threaded shaft received by the holder having a first end coupled to a second adjustment knob and a second end;
- and
- a moveable jaw leg pivotally attached to the at least one fixed jaw leg and in contact with the second end of the threaded shaft;

wherein when the back of the chair is received between the fixed jaw leg and the moveable jaw leg, the moveable jaw leg firmly compresses the back of the chair between the moveable jaw and the fixed jaw, mounting the headrest steadily to the back of the chair.

19. The headrest of claim 18, wherein the pad further comprises a heating element, a cooling element, or a vibrating element.

20. The headrest of claim 18, further comprising a second fixed jaw leg coupled to the at least one fixed jaw leg and the adjustment knob.