Feb. 24, 1970 W. E. SHERFEY 3,497,259

HEAD OR BACK SUPPORT FOR WHEELCHAIRS

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FIG. 2

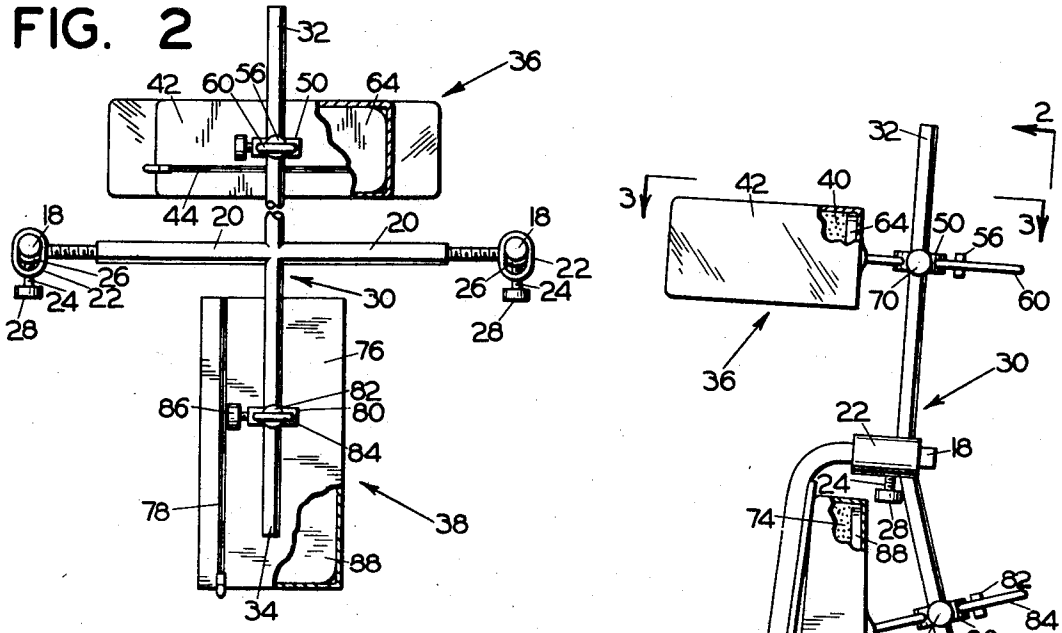

FIG. 1

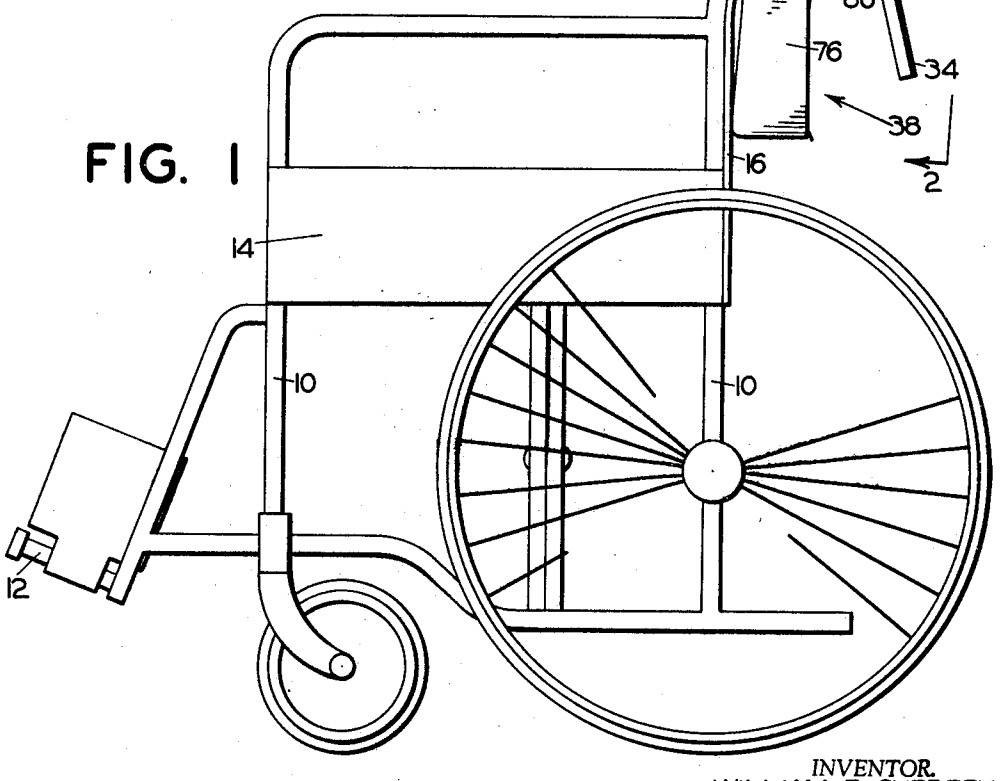

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FIG. 3

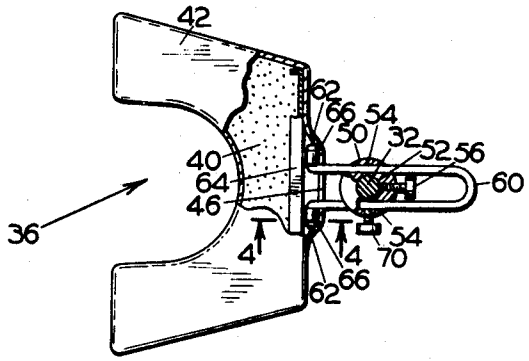
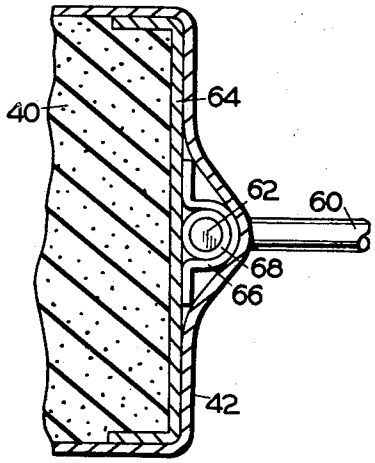


FIG. 4



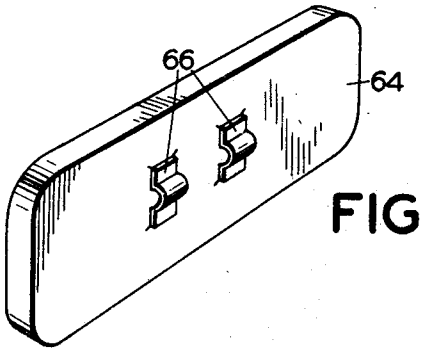


FIG. 5

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3,497,259
Patented Feb. 24, 1970

3,497,259

HEAD OR BACK SUPPORT FOR WHEELCHAIRS

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Filed June 28, 1968, Ser. No. 741,081
Int. Cl. A47c 7/36, 4/28
U.S. Cl. 297—391 9 Claims

ABSTRACT OF THE DISCLOSURE

A wheelchair head or back support comprises a horizontal bar spanning the wheelchair handles, a clamp fastening the bar to the handles, a vertical standard secured to the bar, and padded head or back supports mounted on the standard. The supports are adjustable both horizontally, vertically and angularly to support fully the occupant of the wheelchair in a sitting position.

This invention relates to wheelchair head or back supports. It pertains particularly to wheelchair supports useful in supporting the back and head of a patient seated in the chair, thereby substantially increasing his general comfort.

The use is widespread of collapsible wheelchairs having a metal frame, a plastic or cloth seat, and handles extending rearwardly from the back of the chair at about the height of the shoulders of the wheelchair occupant. The satisfactory use of such chairs is limited, however, by reason of the fact that adequate head and back support is not provided. Thus in the normal use of the chair an infirm occupant who tires easily can not maintain himself erect in a comfortable sitting position.

This problem is particularly acute where the chair is to be used by a dental patient, or a patient who is to be subjected to medical examination or treatment. In this situation, it is essential that provision be made for supporting the back of the occupant in an erect position, and for holding his head at a desired angle.

It is the general purpose of the present invention to provide such a wheelchair support, i.e. a wheelchair head and/or back support which is attachable to conventional wheelchairs of the class above described which supports the patient firmly and comfortably in an erect, sitting position and which supports his head in a position suited for medical or dental operations and for increasing his general comfort.

It is another object of this invention to provide a head and/or back support for wheelchairs which is fully adjustable horizontally, vertically and angularly as required to suit a particular patient or a particular operation.

It is a further object of the present invention to provide a combination head and back support for wheelchairs which promotes the good health and comfort of the occupant by holding him erect and preventing him from slumping down with fatigue, which facilitates wheeling the chair and which prevents the occupant from falling.

The manner in which the foregoing and other objects of this invention are accomplished will be apparent from the accompanying specification and claims considered together with the drawings, wherein:

FIG. 1 is a view in side elevation of a wheelchair having mounted thereon the herein described head and back support;

FIG. 2 is a view in rear elevation looking in the direction of the arrows of line 2—2 of FIG. 1, partly broken away to show interior construction;

FIG. 3 is a transverse sectional view taken along line 3—3 of FIG. 1 and illustrating the construction of a headrest used in the herein described support;

FIG. 4 is a detail, transverse, fragmentary sectional view taken along line 4—4 of FIG. 3; and

FIG. 5 is a detail perspective view of a retaining plate used in the herein described wheelchair support.

Generally considered, the head or back support of my invention comprises a horizontal bar removably clamped to the handles of a conventional wheelchair. A vertical standard is supported by the bar. A padded head support is attached to the upper part of the standard and a padded back support is fastened to the lower part of the standard. Both head and back supports are adjustable in three directions: vertically, horizontally and angularly. Thus the necessary support is provided for the comfort and security of an infirm patient seated in the wheelchair.

Considering the foregoing in greater detail:

As is shown in the drawings, the head and back support of my invention is adapted for use as a removable attachment on a conventional, folding-type wheelchair which includes a wheeled frame **10**, a foot rest **12**, a canvas or plastic seat **14**, and a canvas or plastic back **16**. The rearward frame members are extended horizontally to form rearwardly-extending handles **18** located substantially opposite the shoulders of the occupant of the chair. These are employed as mountings for the herein described head and back support.

The general construction of the support is illustrated in FIGS. 1 and 2. It comprises an endwise-adjustable horizontal bar **20** dimensioned to span the distance between handles **18**. Clamp means releasably clamp the bar to the handles.

In the illustrated form the invention, the clamp means employed for this purpose comprise a pair of sleeves **22**, elliptical in cross section and having a bore dimensioned for reception of the handles. A screw **24** is threaded through the lower portion of each of the sleeves. The inner end of the screw pivotally engages and supports a clamp block **26**. The outer end of the screw mounts a knurled nob **28** by means of which the screw is operated. Thus the assembly conveniently may be mounted and demounted on the handles of a conventional wheelchair as the occasion arises.

A vertical standard, indicated generally at **30**, is supported centrally of bar **20**. The upper segment **32** of the standard, i.e. the segment above bar **20**, is substantially vertical. However, the lower segment **34** of the standard is angled rearwardly at an angle of from 15–25°, preferably about 17° from the vertical. This facilitates mounting the back support in its most effective, operative position, as will appear hereinafter.

The upper segment **32** of the standard supports a headrest indicated at **36**, while the lower segment **34** of the standard supports a back rest **38**. The construction and manner of mounting these two elements of the assembly is somewhat similar.

Thus headrest **36** comprises a U-shaped padded member **40** encased in a plastic or cloth case **42**. The case has a zipper opening **44** in its rear panel, and another opening **46** immediately adjacent. Headrest **36** is mounted for adjustment vertically, horizontally and angularly.

To this end it is supported on a block **50** which, in the illustrated form of the invention, comprises a metal disc of substantial dimensions. The disc is provided with a central vertical opening **52** and with a pair of spaced, horizontal openings **54**, one on each side.

Vertical opening **52** receives vertical segment **32** of the standard in sliding engagement. A clamp screw **56** threaded through block **54** locates the headrest in the desired vertical position.

Horizontal openings **54** slidably receive a U-shaped horizontal arm **60**. The inner ends of the arm are bent to form short shaft segments **62** which extend outwardly in diametrically opposite directions.

Pad **40** is supported on arms **60** through the agency of a retaining plate **64**, FIG. 5. The plate is introduced through zipper opening **44** and has on its back side a pair of spaced bearings **66**. These house friction pads **68** of rubber or other resiliently deformable material which frictionally engage shaft **62**.

The mounting involving arm **60** thus provides for both horizontal and angular adjustment of the head rest. The desired horizontal location is obtained by sliding arm **60** in block **50**, and tightening down on clamp screw **70**. Angular adjustment is obtained simply by rotating the head rest about shaft **62**, whereupon it is maintained in the selected position of angular adjustment by frictional bearing of resilient pads **68** against the adjacent surfaces.

The general manner of mounting back rest **38** is similar.

As shown particularly in FIGS. 1 and 2, the back rest comprises a pad **74** enclosed in a plastic or fabric case **76**.

The pad is generally rectangular in outline and is of sufficient extent to bear against and support the back of the occupant of the wheelchair.

Case **76** is provided with a long zipper opening **78** and with a smaller adjacent opening in its back panel.

The back support is mounted in the desired location on outwardly angled, lower segment **34** of standard **30**.

To this end there is provided a disc-shaped block **80** which is analogous in its construction and function to block **50**, above described. It has a central, vertical perforation which receives in sliding engagement segment **34** of the standard, to which the block is clamped by means of clamp screw **82**.

The block also is provided with a pair of spaced, substantially horizontal openings which receive in sliding engagement a substantially U-shaped arm **84**. The desired horizontal position of this arm is maintained by means of a clamp screw **86**.

Arm **84** corresponds in construction and function to arm **60**, above described, which supports the head rest. Its inner end extends through the opening in the back rest case and is formed with two short shafts which extend outwardly in diametrically opposed directions. These in turn mount a retaining plate **88** which corresponds to plate **64** and is introduced into the interior of the pad through zipper opening **78**. The mounting of the shafts to the plate is frictional so that the back rest may be adjusted to any desired angular position which it maintains until shifted to another such position.

It thus will be seen that the support of my invention has advantages which determine substantial usefulness.

It easily is mounted on and demounted from a conventional folding wheelchair without alteration of the latter. It effectively supports either the head or the back, or both, of the wheelchair occupant. It is adjustable horizontally, vertically and angularly, as required to suit the size of the occupant or to perform given functions.

The back rest serves as a fulcrum so that the head may be pressed back against the head rest when it is desired to use the chair for dental or medical applications.

In the normal use of the chair, the occupant is fully supported so that he may sit erect for long periods of time without slumping over.

All of these advantages are obtained, furthermore, through the agency of a support of relatively simple construction which easily may be applied and used by wheelchair occupants and attendants.

Having thus described my invention, I claim:

1. A head or back support for wheelchairs provided with a pair of rearwardly extending, substantially horizontal, push handles, the support comprising:

(a) a horizontal bar dimensioned to span the distance between the handles,

(b) first clamp means fastened on each end of the bar for clamping the bar to the handles,

(c) a vertical standard secured to the bar centrally thereof,

(d) a padded support member having a case, the back of which is provided with an opening,

(e) a plate mounted non-retractably inside the support member case opposite the opening,

(f) slide means mounted on the standard,

(g) second clamp means on the slide means clamping the same in a selected position of vertical adjustment on the standard,

(h) a horizontal arm slidably mounted on the slide means,

(i) third clamp means on the slide means clamping the arm in a selected position of horizontal adjustment,

(j) the inner end of the arm extending through the case opening into proximity with the plate,

(k) and hinge means on the inner end of the arm hinging the arm to the plate for angular adjustment with respect thereto.

2. The support of claim **1** wherein the first clamp means comprise sleeves of elliptical cross section dimensioned for telescoping over the handles and screw-operated clamp blocks mounted within the sleeves for clamping engagement against the handles.

3. The support of claim **1** wherein the vertical standard extends below the bar and the support member comprises a pad of substantially rectangular outline positioned for contact with the back of the wheelchair occupant.

4. The support of claim **1** wherein the standard extends upwardly from the bar and the support member comprises a pad of U-shaped outline extending forwardly of the standard and positioned for receiving the head of the wheelchair occupant.

5. The support of claim **1** wherein the slide means comprises a block having a central opening therethrough slidably receiving the standard and a marginal opening therethrough at right angles to the central opening and slidably receiving the arm, and wherein the second and third clamp means comprise screw clamps threaded into the block.

6. The support of claim **1** wherein the arm comprises a U-shaped arm having its inner ends turned out to form short shafts and wherein the back of the plate is provided with spaced bearings frictionally receiving the shafts.

7. The support of claim **6** wherein the bearings are provided with rubber liners frictionally engaging the shafts.

8. A head and back support for wheelchairs provided with a pair of rearwardly extending, substantially horizontal push handles located at about the height of the shoulders of the wheelchair occupant, the support comprising:

(a) a horizontal bar dimensioned to span the distance between the handles,

(b) first clamp means fastened on each end of the bar for clamping the bar to the handles,

(c) a vertical standard secured to the bar centrally thereof,

(d) the standard being formed in two sections, a substantially vertical section extending upwardly from the bar and a rearwardly angled section extending downwardly from the bar,

(e) a padded head support member adjustably secured to the upper segment of the standard and,

(f) a padded back support section adjustably secured to the lower section of the standard,

(g) both head support and back support extending forwardly in the direction of the occupant of the wheelchair.

9. The support of claim **8** wherein the angle of the lower segment of the standard is from 15–25° from the vertical.

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U.S. Cl. X.R.

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