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Light

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[54] PORTABLE VERTEBRAL COLUMN SUPPORT

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[63] Continuation-in-part of Ser. No. 852,693, Aug. 25, 1969, abandoned.

[52] **U.S. Cl.**.....**297/230,** 297/350

[51] **Int. Cl.**.....**A47c 7/42**

[58] **Field of Search**.....297/230, 231, 352, 460, 350, 297/351, 382, 380, 191, DIG. 1, 282, 252; 5/342, 327

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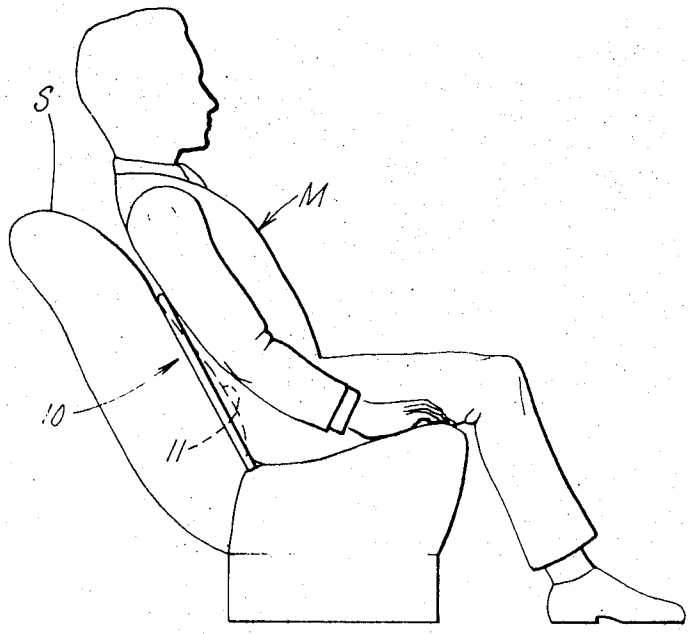
[57] **ABSTRACT**

A portable vertebral column support for use in chairs and the like to support the vertebral column of the user. The support comprises an elongated flexible envelope having at least a pair of spaced apart elongated pockets therein extending parallel to one another and parallel to the user's vertebral column when in a position of use. Each of the pockets has a closable end adjacent one end thereof for receiving removable rigidifying means therein to rigidify the flexible envelope to provide the necessary support for the vertebral column.

4 Claims, 8 Drawing Figures



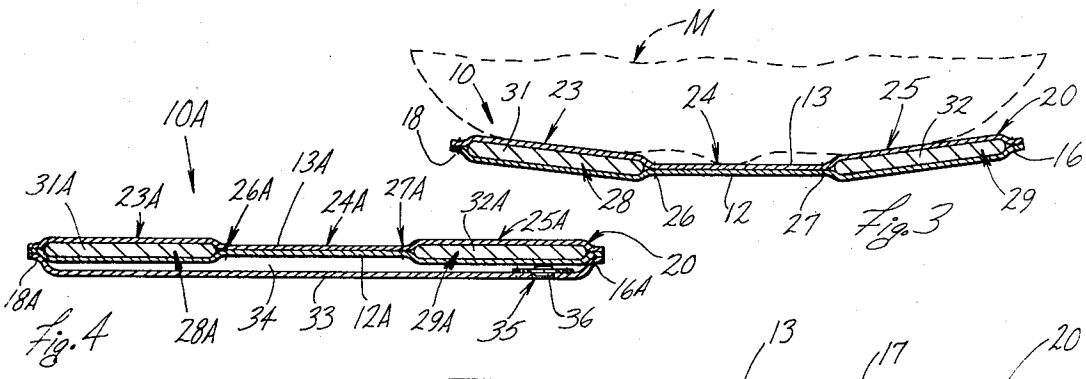


Fig. 3

Fig. 4

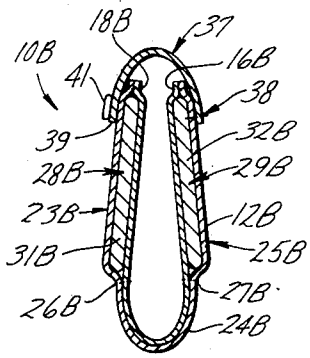


Fig. 5

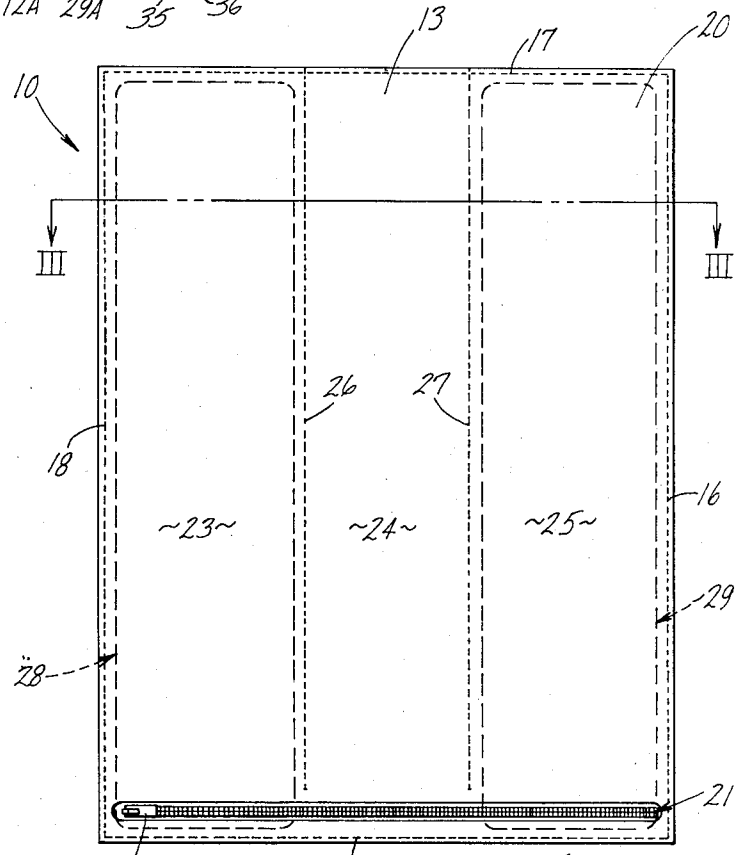


Fig. 2

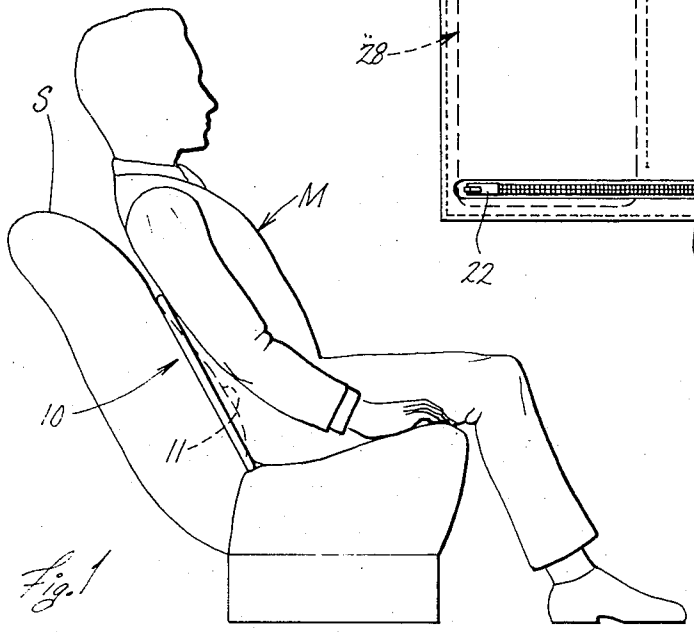


Fig. 1

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PORTABLE VERTEBRAL COLUMN SUPPORT

Cross-Reference to Related Application

This application is a continuation-in-part of my copending application Ser. No. 852,693, filed Aug. 25, 1969, now abandoned.

FIELD OF THE INVENTION

This invention relates to a portable vertebral column support and, more particularly, relates to a vertebral column support for use in chairs and the like which may be transported by the user in an inconspicuous manner by camouflaging the support as a commonly known article which is normally carried, such as a briefcase, purse or the like.

BACKGROUND OF THE INVENTION

People who have recurring back problems are often confronted with having to sit in uncomfortable seating which does not adequately support their vertebral column. As a result, and after a prolonged sitting in such seating, an uncomfortable feeling begins to develop in the back muscles of the occupant of the seat and no matter how the occupant reorients himself relative to the seat, the uncomfortable feeling in the back muscles cannot be remedied. As a result, the occupant is forced to leave the uncomfortable seat and move about for a certain period of time before returning again. This becomes an embarrassing problem particularly in theaters where it is not convenient for the occupant of the seat to get up and move about. Further, the problem also arises in modern day automobiles wherein the seats are often inclined at an angle which is aggravating to the back muscles of some occupants thereof. As a result, it may be necessary for the occupant, if he is driving the automobile, to pull off the road and stop the car so that he may get out and walk around a little bit to ease the discomfort in the region of the back. On our modern day freeway system, this is neither always convenient to do nor is it safe to do unless it is at a rest area provided along the highway for stopping and resting. As a result, the occupant's attention is diverted from the road for short periods of time while trying to reorient himself in the seat to eliminate the pain and discomfort in the back area, resulting in an obviously dangerous condition.

Further, it is desirable to provide a portable vertebral column support which is not worn by the user but is, instead, carried by the user in an inconspicuous manner so that the device will be readily available if and when desired but is not otherwise burdensome.

Accordingly, the objects of this invention include:

1. To provide a portable vertebral column support which may be carried in an inconspicuous manner by a person suffering from frequent back problems by camouflaging same as a commonly known article, such as a man's briefcase or lady's purse.

2. To provide a portable vertebral column support, as aforesaid, which is comprised of readily available, light weight, components which are easily assembled into a light weight, easily portable form.

3. To provide a portable vertebral column support, as aforesaid, which will permit the replacement of the rigidifying support elements should they become broken or damaged.

4. To provide a portable vertebral column support, as aforesaid, which is inexpensive to manufacture and easy to maintain in a satisfactory condition.

5. To provide a support which needs no adjustment, but which, through its simplicity, fits the majority of people and conditions.

Other objects and purposes of this invention will be apparent to persons acquainted with vertebral column supports upon reading the following specification and inspecting the accompanying drawing, in which:

FIG. 1 is a side elevational view of an occupant of a seat utilizing the portable vertebral column support embodying the invention;

FIG. 2 is a front elevational view of the portable vertebral column support;

FIG. 3 is a sectional view taken along the line III—III of FIG. 2;

FIG. 4 is a sectional view of a modified embodiment similar to FIG. 3 except that an auxiliary pocket is provided for holding flat, preferably paper articles to serve as a briefcase;

FIG. 5 is a sectional view of a further embodiment of the invention wherein the portable vertebral column support can be folded and secured in a manner to appear as a lady's purse;

FIG. 6 is a front elevational view of a still further modification of the invention;

FIG. 7 is a section shown on the line VII—VII of FIG. 6; and

FIG. 8 is a section similar to FIG. 7 but showing the support in the folded condition for convenient carrying by the user.

Certain terminology will be used in the following descriptive material for convenience in reference only and will not be limiting. The words "up," "down," "right" and "left" will designate directions in the drawing to which reference is made. The words "in" and "out" will refer to directions toward and away from, respectively, the geometric center of the device and designated parts thereof. Such terminology will include derivatives and words of similar import.

SUMMARY OF THE INVENTION

The objects and purposes of the invention are met by providing a portable vertebral column support for use in chairs and the like having elongated flexible envelope means with at least two spaced, parallel, rigidifying means provided in substantially fixed relationship to the envelope means and extending substantially the full length thereof. The portion of the envelope between the adjacent parallel edges of the spaced rigidifying means is sufficient to span the width of the vertebral column of the user so that the spinous processes of the protruding portion of the vertebral column will not engage the portions of the envelope at which the rigidifying means are fastened. If desired, the envelope may be provided with an auxiliary pocket along one side of the envelope for holding papers and the like without intefering with the functioning of the vertebral column support. Further, the envelope may be provided with a strap or snaps to permit the outer longitudinal edges of the envelope to be brought together and maintained in closed relationship relative to one another by the strap.

DETAILED DESCRIPTION

FIG. 1 illustrates the portable vertebral column support 10 positioned between the back of an individual M and the curved portion 11 of a seat S. The curved portion 11 of the seat S has a tendency to resiliently return to the normal broken line position and projects into the back of the individual, which aggravates any swayback

or lordosis of the individual M. However, by placing the portable vertebral column support 10 in the position illustrated, the vertebral column of the individual M will be supported in a straight and upright position to alleviate pain and discomfort.

One desirable form of the portable vertebral column support 10 comprises a pair of elongated sheets of flexible material 12 and 13 fastened together in any convenient manner, as by riveting, welding, sewing, or with glove snaps, at the peripheral edges thereof along seams 16, 17, 18 and 19 to define an envelope 20. The sheets 12 and 13 are of sufficient length to engage the desired portion, usually the lower and middle back muscles, of an average individual which serve to support the vertebral column in an upright position. An opening 21 is provided adjacent one end of the envelope 20 to permit access into the interior thereof. In this particular embodiment, a zipper 22 of any convenient variety may be provided to close the opening 21 but permit ready access as desired to the interior of the envelope 20.

In this particular embodiment, the sheets 12 and 13 are divided into three longitudinal sections 23, 24 and 25, which are in this embodiment of approximately equal width but may be varied as desired. Said sections are separated by seams 26 or 27 formed as convenient, as by sewing, welding or riveting. The spacing between the seams 26 and 27 are preferably of a width sufficient to span the average width of the protruding portion of the vertebral column of the individual M so that the sections 23 and 25 engage the portions of the back of the individual M on opposite sides of the vertebral column. Since the sections 23 and 25 directly engage the back of the user closely adjacent to but on opposite sides of the vertebral column, the support 10 is thus provided with a width approximately no greater than the width of the average user's back, as clearly illustrated in FIG. 3. The seams 18, 17, 26 and 16, 17, 27 define a pair of pockets 28 and 29 (FIG. 3), respectively.

Rigidifying members 31 and 32 may be inserted into the pockets 28 and 29 respectively, in the sections 23 and 25 through the opening 21. The rigidifying members 31 and 32 may be made of a thick (¼ inch) plastic or wood or other light weight material having a rigid, or at least stiff, characteristic. They may be fixed permanently in place if desired or made removable through openable closing means associated with the ends of said pockets, as the zipper 22 shown.

Further, it is to be recognized that the rigidifying elements 31 and 32 may be straight or curved as desired in order to satisfy the particular needs of an intended user.

It is contemplated that the flexible sheets 12 and 13 may be made of a plastic or of a leather material which will be decorative in appearance so that the portable vertebral column support will be partially camouflaged as either a briefcase or other flat or folded object normally carried by an individual.

OPERATION

In use the support is opened to its spread out position as shown in FIGS. 2 and 3 and is placed between the user's back and the back of the seat in which he is sitting, preferably at the lower portion of both thereof as shown in FIG. 1. The support 10 is arranged so that the protruding portion of the vertebral column is received into the space between the stiffeners, namely the space 24 shown in FIGS. 2 and 3 and corresponding spaces in the other embodiments of the support.

The portions of the individual's back on either side of the vertebral column engage the rigidified sections 23 and 25 of the support 10. Thus, the rigidified portions 23 and 25 serve to preserve a flat lower back, instead of allowing the seating to effect a forward thrust into swayback or lordosis. Thus, the individual may be seated in a seat S wherein the curved portion 11 thereof will be sufficient to aggravate the person's swayback or lordosis, and lead to pain. However, through the utilization of the portable vertebral column support 10, the back muscles are adequately supported to maintain the vertebral column in an erect posture and thereby make it possible for the individual to remain seated in the seat for longer periods of time without being subjected to pain and discomfort. The flexibility of the central panel 24 permits the support to curve as needed to place the stiffened sections 23 and 25 in the proper position against the user's back.

ALTERNATE CONSTRUCTIONS

The portable vertebral column support 10A illustrated in FIG. 4 will be referred to by the same reference numerals designating corresponding parts of the support 10 but with the suffix "A" added thereto. The portable vertebral column support 10A illustrated in FIG. 4 is identical to the embodiment illustrated in FIGS. 2 and 3 except that an additional sheet of flexible material 33 is fastened to the sheet 12A along the peripheral edges thereof which correspond to the seams 16, 17, 18 and 19 illustrated in FIG. 2. Only two seams 16A and 18A, however, are illustrated in FIG. 4. The pockets 28A and 29A may be, as desired, permanently closed with the stiffeners 31A and 32A permanently therein or they may be openable and closable by any convenient means, such as means similar to the zipper 22 of FIG. 2. The additional sheet of flexible material 33 defines with the sheet 12A a pocket 34 having a sufficient capacity to carry a plurality of papers or other flat objects. An opening 35 is provided adjacent one end of the sheet 33 to permit access into the pocket 34. If desired, a zipper may be provided to open and close the opening 35 as desired. Alternatively, a single zipper across the end of support 10A, similar to the zipper 22, may be used to open and close simultaneously both the opening 34 and the pockets 28A, 29A.

The portable vertebral column support 10B illustrated in FIG. 5 will be referred to by the same reference numerals designating corresponding parts of the support 10 but with the suffix "B" added thereto. The portable vertebral column support 10B illustrated in FIG. 5 is identical to the support illustrated in FIGS. 2 and 3 except that a strap 37 has been fastened, as at 38, adjacent the seam 16B to the sheet 12B adjacent one edge thereof. The free end 39 of the strap 37 is provided with a fastening device 41 which is cooperable with a mating fastening device (not shown) fixed to the sheet 12B adjacent the seam 18B. The section 24B is flexible and defines a hinge. Thus, the support 10B can be folded in half about the hinge section 24B and the fastening device 41 secured to a fastening device (not shown) adjacent the seam 18B so that the support is

maintained in a folded condition. Alternatively, the strap 37 may, if desired, be replaced or supplemented by detachable fastening means, such as snaps, affixed between the seams, or surfaces near the seams, 16B and 18B. Thus, the portable vertebral column support 10B can be camouflaged, if desired, as a ladies purse or other article normally carried by an individual.

As a still further modification (FIGS. 6-8) a single sheet of flexible material such as leather, cloth, plastic or the like indicated generally at 41 is folded back upon itself to provide a bight 42 and free edges 43 and 44, said latter being preferably hemmed or otherwise finished to improve the appearance.

A plurality of relatively stiff slats 46-48 is provided at one side of the unit and a further plurality of similar slats 51–53 is provided at the other side of the unit. In the illustrations of FIGS. 6 and 7 each group is shown as comprising three slats each and such has been worked out as a highly advantageous number thereof. However, such number may be increased or decreased as desired with the corresponding decreases or increases in the width of each thereof to provide for various operational and/or manufacturing objectives and conveniences as desired. In the present embodiment said slats 46–48 and 51–53 are made of wood but they may be of plastic or other stiff material as desired. Said slats are fastened to the adjacent side 41A of the sheet 41 in any convenient manner, such as by a suitable adhesive.

Placed between the said slats and the other side 41B of the sheet 41 are two pieces of padding 54 and 56. Same may be of any desired thickness, preferably, however, not so thick as to destroy the essential compactness and thinness of the finished article. It has been found that foamed polyethylene of approximately one-eighth to three-sixteenths inch in thickness is effective.

In the drawing there is shown a single piece of such padding, as the piece 54 between an entire adjacent group of slats as the group 46–48. It will be evident that if desirable, it is equally feasible, though of less manufacturing convenience, to provide individual pieces of padding between each of said slats and the side 41B.

The free edges 43 and 44, as well as the adjacent ends, are affixed together in any convenient manner, such as by sewing, by an adhesive or heat sealing as appropriate.

As before, a zone 57 is provided between the two groups of slats corresponding to the space 24 between the slats 23 and 25 of the embodiment shown in FIG. 3 for the reception of the protruding portion of the vertebral column of the user in the same manner as above outlined.

The manner of use of this form of the invention is the same as that above set forth in connection with the embodiment of FIGS. 2 and 3 and hence needs no further description. It is of particular note here, however, that with padding on only one side of the stiffeners, the user may place either a hard surface or a soft surface against his back as desired. This provides further flexibility in use and will further extend the usefulness of the support.

Although particular preferred embodiments of the invention have been disclosed in detail for illustrative purposes, it will be recognized that variations and modifications of the disclosed apparatus, including the rearrangement of parts, the use of more than three longitudinally joined and hinged sections, lie within the scope of the present invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A portable vertebral column support device for use as a medical appliance in supporting the vertebral column of a user, said support device consisting of a substantially flat and rectangularly shaped pad which has a length less than the length of the vertebral column of the user and is relatively rigid throughout the complete longitudinal length thereof, said pad comprising:

elongated, rectangularly-shaped, flat and flexible envelope means including a single sheet of flexible material folded back upon itself to provide a single bight connecting a pair of completely overlapping sheets having a plurality of free edges and means for securing said free edges together, said envelope means having a pair of laterally spaced apart zones between said overlapping sheets extending parallel to one another the full length of said envelope means, the central portion of said envelope means between said zones being of a width sufficient to span the vertebral column of the user and sufficiently flexible to permit a folding of the envelope means so that said zones may overlap each other, the width of said central portion being a small fraction of the overall width of said pad;

elongated rigid slat means in each of said zones for rigidifying said envelope means in said longitudinal direction while permitting the central portion of said envelope means to remain flexible, said rigid slat means extending the full length of each of said zones and engaging one of said overlapping sheets of said envelope means along the full length thereof;

means for adhesively securing said slat means to said one overlapping sheet; and

flexible padding means positioned between one side of said rigid slat means and the other of said overlapping sheets of said envelope means and extending substantially the full width and length of said rigid slat means to thereby define a padded side and an unpadded side on said pad;

said pad being positionable so that the longitudinal axis of said pad extends parallel to the vertebral column of the user with the central portion substantially spanning the vertebral column and the rigidified zones being positioned on opposite sides of the vertebral column and disposed for contact with the user's back, either the padded or unpadded side of said pad being positioned for contact with the user's back.

2. A portable vertebral column support device according to claim 1, wherein said rigid slat means comprises a plurality of laterally spaced slats in each of said zones. the

3. A portable vertebral column support device according to claim 2, wherein said flexible padding means comprises a thin pad of foamed polyethylene between said plurality of slats in each of said zones and said other of said overlapping sheets and an adhesive for securing said foamed polyethylene pad to each of said slats.

4. A portable vertebral support device for use as a medical appliance in supporting the vertebral column of a user and designed for use between the user's back and an external supporting surface, such as a seat back, said support device consisting of a substantially flat and rectangularly shaped pad having a length less than the length of the vertebral column of the user and a width approximately no greater than the width of the user's back so that the pad directly engages the back muscles of the user, and said pad being relatively rigid throughout the complete longitudinal length thereof, said pad comprising:

elongated, rectangularly shaped, flat and flexible envelope means including a pair of overlapping sheetlike portions of flexible material, the opposed edges of said sheetlike portions being fixedly secured together;

said envelope means having a pair of laterally spaced zones defined between said overlapping sheetlike portions and extending parallel to one another throughout the full length of said envelope means, said spaced zones being disposed adjacent the opposite longitudinally extending edges of said envelope means;

said envelope means including a central portion disposed between said spaced zones and being of a width sufficient to span the vertebral column of the user, the width of said central portion being a small fraction of the overall width of said pad;

elongated rigid slat means disposed in each of said zones for rigidifying said envelope means in the longitudinal direction thereof while permitting the central portion of said envelope means to remain flexible, said rigid slat means extending the full length of each of said zones, and means associated with said envelope means and said slat means for substantially maintaining said rigid slat means in position within said zone;

flexible padding means positioned between one side of said rigid slat means and the adjacent inner surface of one of said sheetlike portions, said flexible padding means extending substantially the full width and length of said rigid slat means to define a padded side on said pad;

said pad being positionable so that the longitudinal axis of said pad extends parallel to the vertebral column of the user with the central portion substantially spanning the vertebral and the rigidified zones being positioned on opposite sides of the vertebral column and disposed for contact with the user's back muscles, either side of said pad being positionable for contact with the user's back.

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