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SPINAL COLUMN SUPPORTER

3,052,236

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FIG. 1

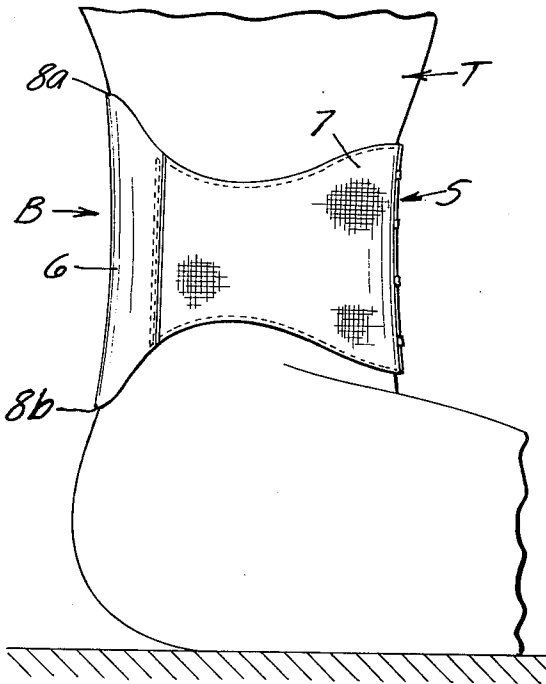


FIG. 3

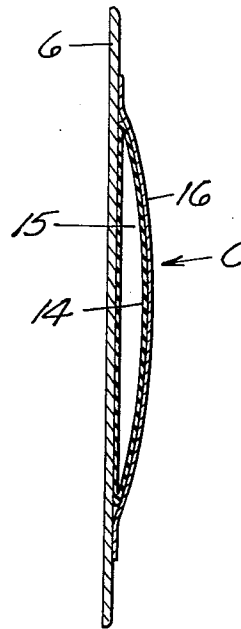
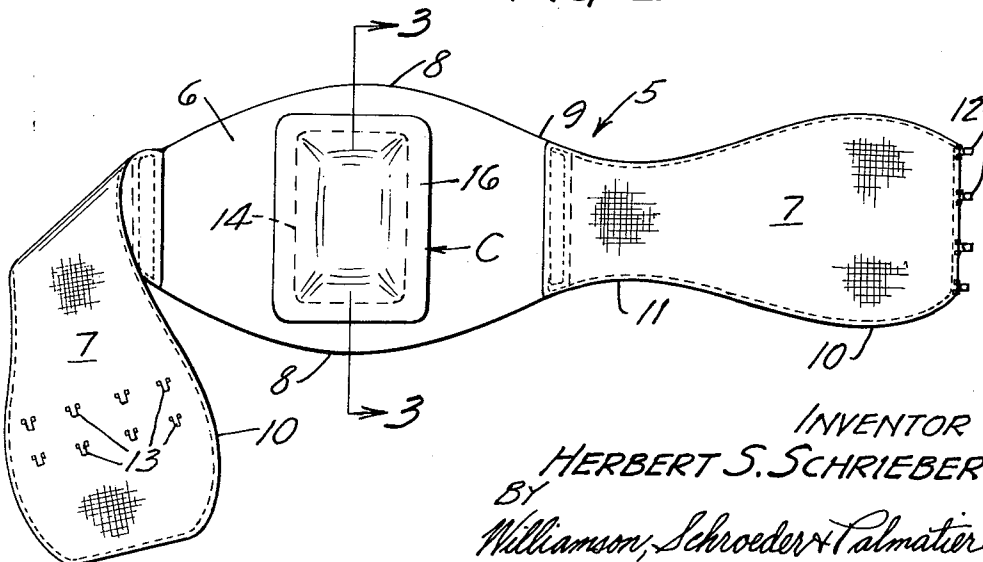


FIG. 2



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SPINAL COLUMN SUPPORTER

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1 Claim. (Cl. 128—78)

This invention relates to a body-supporting device and particularly to a back support especially suited for bracing and supporting that portion of the spinal column located in the lower portion of the back commonly referred to as the "small" of the back.

That portion of the spinal column located in the small of the back frequently requires additional bracing or support because of injuries suffered, because of deformities or natural weaknesses present at birth or occurring after birth, or requires protective support when the person is indulging in strenuous activities or lifting of heavy objects to prevent strain and damage thereto. Therefore, an object of my invention is a novel back-supporting device of simple design and construction especially suited to bracing, supporting and stabilizing that portion of the spinal column located in the small of the back to prevent strain or damage thereto.

Another object is a body-supporting device of the class described which provides a spine-supporting cushion which embraces the spine along its weakest extent located in the small of the back, which cushion is slightly resilient in nature to fill the interstices and irregular contours of the spinal column and provides a uniform pressure throughout the length thereof to provide the support desired.

Still another object is a body supporter of the class described which utilizes a shiftable, fluent, cushioning medium of substantially constant volume to provide the necessary uniform pressure throughout the entire length of the spinal column embraced thereby.

A further object is a body-supporting device of the class described in which the cushioning medium is of such nature that pressure applied to any localized portion thereof is transmitted to substantially all of the surfaces confining said cushioning medium.

A still further object is a body-supporting device of the class described which tightly but comfortably encircles the waist to not only brace the spinal column in the small of the back but also to partially limit the free movement of the back, particularly the backward bending thereof, and to confine the sides and stomach region to slenderize the wearer and improve his or her appearance.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the several views and in which:

FIG. 1 is a side elevational view of a portion of a torso supported by the device of my invention;

FIG. 2 is a plan view of the supporting device; and

FIG. 3 is a transverse cross section taken on the line 3—3 of FIG. 2.

Referring to the drawings, FIG. 1 shows the body support of my invention indicated generally by the letter S encircling and secured to the torso T of the wearer about the waist thereof and supporting that portion of the spinal column located in the small of the back indicated generally by the letter B. The body-supporting device of my invention comprises an elongate, flexible body-embracing member or belt indicated generally by 5, which in the preferred embodiment shown in the drawings consists of a middle portion or panel 6 and similar end portions or panels 7. The entire supporting belt 5 is preferably symmetrical in nature throughout so that it can be worn with either side disposed up or down for the convenience of

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left handed or right handed wearers for ease in fastening and unfastening the same and to comfortably adapt the same to the normal body configuration.

The center panel 6 is provided with convex marginal edges or sides 8 and has its greatest vertical or transverse width at the approximate center thereof and of the belt itself, the vertical center line (corresponding to the section line 3—3 of FIG. 2) of which is adapted for location approximately apposite of the spinal column when worn. The center panel 6 is preferably of sturdy, stiff, somewhat flexible, semi-rigid material such as leather, the ends 9 of which converge to form the narrower side encircling portions.

The height of the center panel 6 at its greatest width is preferably sufficient to substantially span the cavity provided by the small of the back so that the upper edge thereof presses against the upper portion of the back as at 8a and the lower edge presses against the upper portion of the buttocks as at 8b. Because of the stiffness of the center panel 6, the spanning of the back cavity to engage the upper back and buttocks effects a semi-rigid brace therebetween which inhibits the backward arching or bending of the back while being sufficiently yielding so as not to cause discomfort to the wearer.

The end panels 7 are of somewhat more flexible material than the center panel 6 for comfort of the wearer and may be made of such material as sturdy canvas or sailcloth. These end panels 7 have enlarged convex outer ends 10 which overlap one another at the front of the wearer and overlie the stomach and diaphragm thereof. The end panels 7 have a narrow inner portion 11 which joins and merges with the narrow ends 9 of the center panel to enclose and embrace the sides of the wearer. The end panels 7 are provided with suitable cooperating fastening means such as the row of hooks 12 carried by one of said end panels and adapted to cooperatively engage the rows of eyes 13 carried by said other end panel 7 to adjustably and tightly secure the belt around the waist of the wearer.

The inner face of the center panel 6 is provided with a spine-bracing and supporting cushion or pad indicated generally by the letter C, which cushion C is located centrally of the center panel 6 and extends outwardly from the inner face thereof. The cushion C consists of a flexible sack or liner 14 preferably of flexible gas-imperious material such as rubber which liner encloses and defines a sealed chamber 15. The outer face of the liner 14 may be covered by a sheet of body-comfortable material as at 16 which also serves to protect the liner 14 and prevent puncture or damage thereto and prevent unsealing of the chamber 15.

The chamber 15 is substantially filled with a fluent cushioning material or substance which is shiftable in nature to permit a slight resiliency or yielding in the supporting cushion but which maintains a substantially constant volume when any portion thereof or all of it is subjected to moderate pressure, from without. In my preferred form the cushioning and supporting medium enclosed within the chamber 15 is gasiform in nature such as air but it is to be understood that other media which function in the same fashion insofar as this invention is concerned may also be employed which media may consist of a liquid such as water. Thus, when any portion of the cushion C is subjected to localized pressure the force of said pressure is uniformly transmitted throughout the entire surface of the cushion and the total volume of the media and the volume occupied thereby, remains substantially the same. Thus the material or media-cushioning means to be employed in the cushioning of my invention is substantially incompressible under moderate pressures and redistributes itself when subjected to localized pressure. Such a media provides a firm cushioned support for the entire area of

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the spinal column embraced thereby and readily conforms to all the irregularities and contours and interstices of the spinal column to provide a uniform support throughout the entire length of the spinal column and provide the uniform pressure to each localized area of the spine to render the supporting or bracing pressure desired and necessary for such a body support to function properly.

In use the body supporter S is tightly strapped around the waist of the wearer normally beneath the clothing, with the center panel 6 being disposed opposite and generally centrally of the small of the back while the end portions 7 overlap forwardly to overlie the stomach and diaphragm of the wearer and confine the same which not only maintains the center panel 6 in the supporting location desired but also restrains and confines the stomach and diaphragm of the wearer in "girdle fashion" to slenderize the wearer at the waist-line to present an overall more attractive appearance. One of the enlarged convex sides 8 of the center panel 6 engages the upper portion of the back while the opposite lower side 8 engages the upper portion of the buttocks and presents a semi-rigid brace therebetween to prevent excessive relative movement between the back and the buttocks in a backward direction and prevent excessive inward bending of the spinal column. The narrow side portions provided by the merging of the center panel 6 and the end panels 7 encloses and embraces the sides of the wearer and provides comfortable conformation to the body contours. The cushion C faces inwardly and fills the cavity between the center panel 6 and the spinal column, and presses against the spinal column throughout the entire length thereof located in the small of the back and applies a uniform pressure thereto throughout its entire length. During use, the wearer will normally move about and cause flexing and bending of the body supporter and the various portions of the back embraced thereby. Such movement effects a redistribution of forces on the cushion C increasing the pressure in some localized areas and somewhat relieving the pressure in others. However, because of the fluent, substantially incompressible shiftable nature of the cushioning media, the media redistributes itself in response to the variations in pressure to reconform the supporting surface to the changed contour of the spinal column and continues to maintain a uniform supporting pressure throughout, thereby continually and uniformly bracing all portions of the spine, regardless of the movements of the wearer.

It will, of course, be understood that various changes may be made in the form, detail, arrangement and proportion of the parts without departing from the scope

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of my invention which consists of the matter described herein and set forth in the appended claim.

What I claim is:

A spine supporting device comprising an elongate flexible waist encircling belt-like member having enlarged flexible panel portions adjacent the ends for overlying the stomach region of the wearer, and an enlarged stiffened somewhat flexible center panel portion intermediate said end portions and capable of overlying and vertically spanning the cavity formed by the small of the back and substantially inhibiting backward arching of the back, the marginal edges of said end portions and said center portions converging and merging to form narrow side encircling portions intermediate said end portions and said center portions, adjustable and detachable fastening means carried by said end portions for maintaining the member tightly about the waist of the wearer, a pad-like element carried on the inner face of said center panel portion for seating in and substantially spanning said cavity in a vertical direction to press uniformly against substantially the entire length of that portion of the spine located in the small of the back, said element having a flexible substantially symmetrically convexed spine embracing wall member defining a sealed chamber intermediate said wall member and said center panel portion, and a fluent cushioning substance substantially filling said chamber and applying a substantially uniform pressure against substantially all portions of said wall member to press the same against the spine to conform the same to the body contours embraced thereby and apply a fluent substantially uniform bracing pressure to all portions thereof opposed by said wall member, said cushioning substance redistributing itself upon any change in the distribution of forces applied thereagainst and translating pressure applied to a localized portion thereof to all confining surfaces confining and engaging said cushioning substance.

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