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3,307,535

ORTHOPEDIC APPLIANCE

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Fig. 1

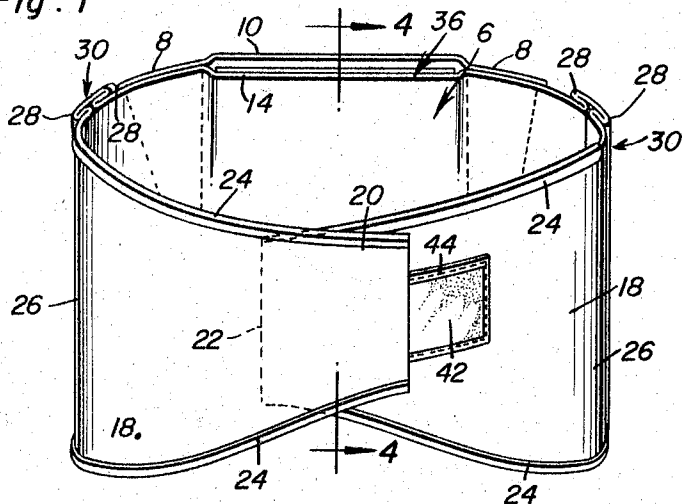


Fig. 4

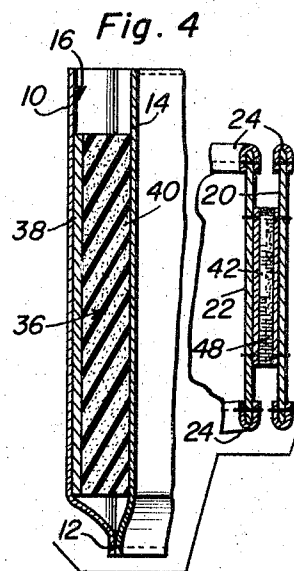


Fig. 2

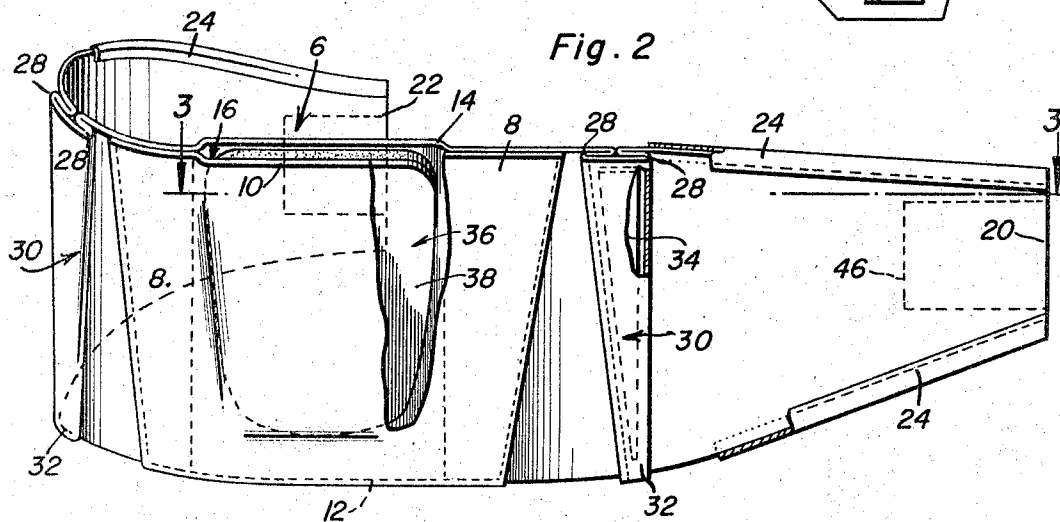
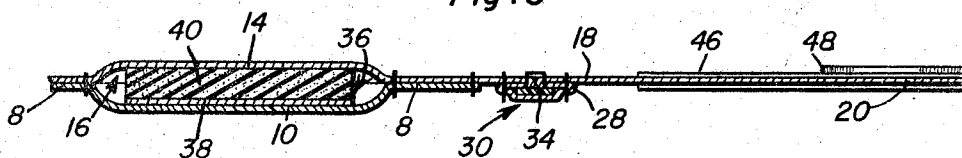


Fig. 3



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ORTHOPEDIC APPLIANCE

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4 Claims. (Cl. 128—78)

The present invention relates to an orthopedic appliance which, generally speaking, is structurally and functionally designed and correctly adapted to improve the posture of the wearer and which, more particularly stated, has to do with a unique belt equipped with facilities which afford needed support for the small-of-the-back and a vital part thereof, the sacral area.

Briefly the appliance comprises a body or waist-encircling belt characterized by readily separable and connectable overlapping end portions which, when in use and thus joined, provide a median back portion which imposes yieldable pressure on the sacroiliac joint with which said back portion is responsively cooperable, a diametrically opposite front portion wherein the overlapping end portions impose desired supportive pressure on the wearer's abdomen, and side portions which join the front and back portions and which are specifically identified as above-the-hips side portions.

The above-described belt can be, and often is, categorized as a body and back brace, more explicitly, a sacroiliac support. This sacroiliac support feature comprises a readily insertable and removable composite pad, that is, a pad having a substantially rigid backing member equipped on a face thereof with a suitably resilient pad. The pad is wedge-shaped and thus suitably tapered and is fitted into a conformingly tapering pocket. This pocketed pad imposes yieldable pressure upon the small-of-the-back and particularly the sacral area therein (the sacrum and ilium-sacroiliac joint).

The belt also features self-contained longitudinally spaced darts which are disposed transversely of the belt. These darts are located one to the left and one to the right of the pocket or pouch which contains the pad. Each dart encases a wedge-shaped stay or stave. These encased stays are significantly important and are accordingly strategically located relative to each other and the intervening pocketed pad in order to exert extra pull and apply the desired stress and strain on the movable pad. With this construction that part of the elastic belt between the darts is not only of double ply construction but is significantly less elastic thus imposing the desired degree of pressure, that is the pressure of the pad against the sacroiliac joint and the proximal portion of the spinal column.

The invention also utilizes quick separable multiple fastener means wherein contacting surfaces of the overlapped ends have quick separable pressure responsive pull-released connecting means. This means is releasable merely by catching hold of the available free terminal outer end, then yanking it open. This means while not in and of itself original, eliminates the extra aid often required by other types of belts with connectable ends. This is to say the means herein employed obviates the need for troublesome buckles, buttons, clasps and laced eyelets which are known to be objectionable and more expensive than is necessary.

The invention also employs bias tapes on upper and lower edges which keep the belt from riding up on the wearer, thus obviating the need for hold-down leg straps. Experience has shown that the thus finished or overedged marginal edges of the tapered free ends at the front of the belt function with requisite nicety in achieving the end results desired.

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These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a view in front elevation showing a sacroiliac belt constructed in accordance with the invention and illustrating it in use;

FIGURE 2 is a view with the belt ends disconnected and showing the median back of the belt broken away to bring out the pad and pouch and also to show the construction of one of the darts, the one to the right of the pad;

FIGURE 3 is a fragmentary horizontal section on the plane of the line 3—3 of FIGURE 2; and

FIGURE 4 is a fragmentary view in section and elevation taken on the plane of the vertical section line 4—4 of FIGURE 1.

Referring now to the views of the drawing the belt proper is of one piece construction, that is made from a single length of elastic material (one-way-stretch) and wherein the permissible stretch is lengthwise only so that when the belt encircles the body or waist of the wearer and is thus worn the circumferential dimension is variable within the limits of the ability of the material to distend itself. The median back portion of the belt, denoted generally at 6 is relatively wide and is provided on its exterior side with a separate piece or patch of elastic, the end portions 8 of which are superimposed on and stitched in place as shown, the intermediate portion 10 being stitched only at the bottom (FIG. 4) as denoted at 12 and which in conjunction with the opposed belt portion 14 provides a pouch or pocket 16. The gradually narrowing or tapering frontal end portions 18 have terminal ends 20 and 22 which are overlapped and separately joined together, the upper and lower lengthwise edges of said ends 20 and 22 being bound with bias tape which is simply overedged by machine. The thus reinforced edges, upper and lower, are denoted at 24 and when in use guard against undesirable riding and slippage of the belt either up or down. The intervening or diametrically opposite side portions (which are of the same width as the back) are denoted at 26. Between the side portions and the pouch the belt is gathered and folded and stitched as denoted at 28 to define downwardly tapering exterior darts 30. Each dart provides a pocket or casing whose lower narrower end is denoted at 32. It is in this casing that the wedge-shaped stay or reinforcing stave 34 (FIGS. 2 and 4) is confined for its highly effectual stabilizing effect.

It is significant to note that the pocket or pouch 16 tapers downwardly as illustrated in FIG. 2 and is open at the top to facilitate utilization of the insertable and removable sacroiliac pressure applying compressibly resilient pad 36. The pad is wedge-shaped and proportional in size to the pocket in which it is contained. It comprises a relatively rigid cardboard or equivalent backing member 38 one side of which has the foam rubber or sponge rubber pad 40 applied thereto.

The opposed or overlapping surfaces of the terminal ends or end portions 20 and 22 are joined by quick separable multiple fasteners. Instead of employing hooks and eyes, grommets and laces, buckles, clasps or troublesome fasteners a modern fastener is utilized and which is known in the trade as Velcro. This fastener comprises a rectangular mat 42 which is bound and stitched in place at 44 and centrally located the finish being a multiplicity of soft-nap loops which constitute keepers for the nylon or equivalent plastic hooks carried by the companion fasteners 46 on the interior of the end portion 20. Velcro

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is a patented fastener and the nylon or equivalent miniature multiplicity of hooks are denoted generally at 48. These hooks are releasably hooked into the loops of the soft-nap mat 42. This type fastener is pressure-responsive and is openable by exerting a yank or pull on the end 20. This fastener means permits adjustment and is possessed of the features already set forth in the introductory portion of the specification.

It is submitted that the belt herein shown and described serves the purposes for which it is intended, is an innovation, will appeal to manufacturers and retailers, meets the manufacturing requirements of manufacturers and otherwise achieves the improved end results attained.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An orthopedic appliance functionally designed and correctly adapted to efficaciously improve posture of a wearer and to, at the same time, afford vitally needed localized support for the sacral area, particularly the small-of-the-back, a single length waist-encircling belt made of elastic material limited to one-way lengthwise stretch requirements, said belt characterized by a relatively restricted median small-of-the-back portion, a diametrically opposite front portion adapted to embrace and impose distributive supportive pressure on the wearer's abdomen for maximum support, and intervening diametrically opposite above-the-hips side portions, said median and side portions being of uniform relatively broad width, said front portion having overlapping free end portions gradually and progressively decreased in width toward terminal portions thereof, the contacting surfaces of the overlapped ends having quick-separable pressure-responsive pull-released connecting and fastener means which is releasable by merely catching hold of the available accessible free terminal end and yanking it open, the central part of said median portion being provided with a compressibly resilient pad of a size and shape to span and exert localized pain alleviating pressure on the sacroiliac joint, said pad being removably held in a pocketing pouch, being generally wedge-shaped in size, and having a substantially rigid backing with a foam rubber pad superimposed and fixed thereon.

2. The bolt defined in claim 1, and wherein the separable fastener means embodies one component part fixed flatwise on one of said surfaces, and a complemental component part also applied and fixed flatwise on the other surface, at least one of said component parts being concealed and unobjectionably out of the way.

3. The structure defined in claim 2 and in combination, transversely disposed longitudinally spaced darts provided on the median portion of the belt to the left and right of said pouch, each dart being gradually downwardly tapered from its upper to its lower end and providing a casing, said casing containing a rigidifying stay.

4. An orthopedic appliance functionally designed and adapted to correctly improve one's posture and to, at the same time, afford needed support for the sacral area and

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the adjacent small-of-the-back, a waist-encircling belt made of elastic material having one-way, lengthwise only, stretch properties, said belt characterized by a median small-of-the-back portion, said median portion being provided on an exterior side with a relatively short but equally wide patch of elastic material whose end portions are superimposed on and stitched to said median portion, the bottom edge of said patch being also stitched in place and the upper intermediate edge portion being unattached, additional stitching connecting a median portion of the patch with said small-of-the-back portion and cooperating therewith in defining a pocket-like pouch, said pouch having downwardly converging vertical side portions and having an open mouth at the top, an insertable and removable sacroiliac pressure applying composite pad fitted snugly but removably in said pouch and conformable in size and shape with the pouch and comprising a relatively rigid backing member covered on one side with a compressibly resilient sponge rubber pad which is adapted to exert localized pain alleviating pressure on the wearer's sacroiliac joint, said belt also embodying a diametrically opposite front portion which embraces and imposes supportive pressure on the wearer's abdomen, and intervening above-the-hips side portions, said median and side portions being of uniform broad width, the front portion having overlapping free end portions, the latter being gradually and progressively decreased in width toward terminal portions, the upper and lower lengthwise edges of said free overlapping end portions being over-
 edged and bound with bias tapes, the latter functioning to minimize the likelihood of the belt as an entity, from either riding up or sliding down on the wearer, said narrowing end portions keeping said lengthwise edges from girding and undesirably pressuring the wearer's thighs whether standing, sitting, kneeling or the like that portion of the belt to the left and right, respectively, of said pocket being doubled and gathered upon itself and stitched in place and providing a downwardly tapering dart, said dart decreasing in width gradually and in a direction toward the lower edge portion of the belt, and said dart comprising a hollow casing provided with a wedge-shaped stabilizing stay, each reinforced dart being of a length commensurate with the cooperating portion of the belt and being situated at the juncture of the overlapping gradually narrowing free end portion of the corresponding end of said small-of-the-back portion.

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