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BODY SUPPORT GARMENT

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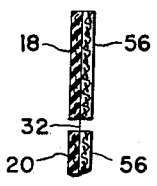
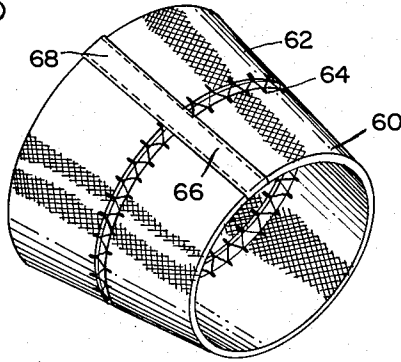
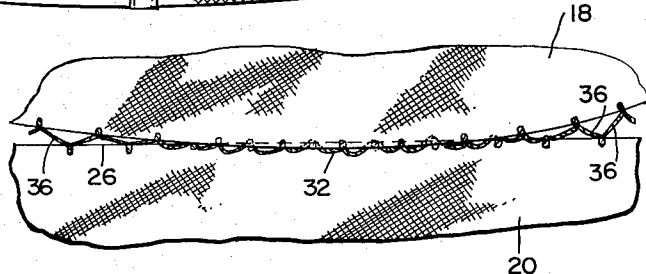
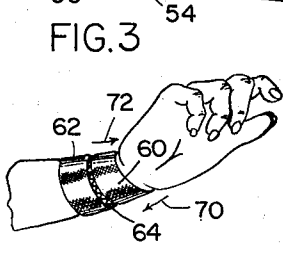
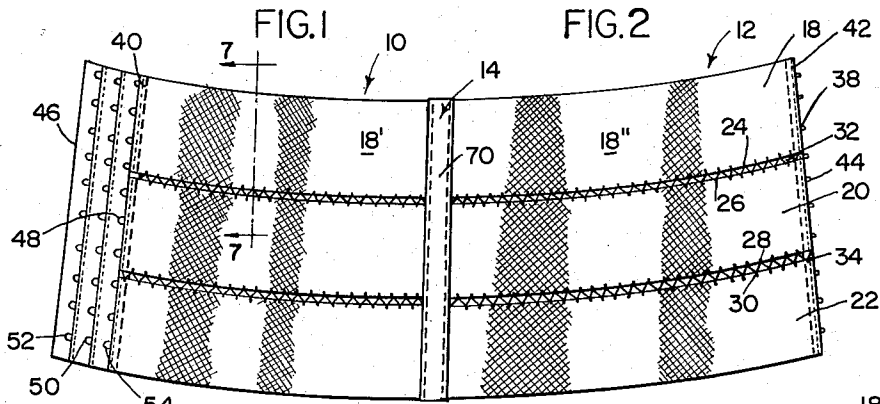
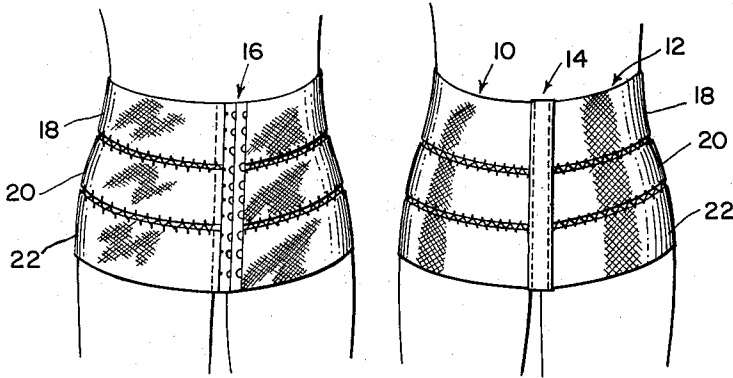


FIG. 7

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FIG. 6

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## BODY SUPPORT GARMENT

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8 Claims. (Cl. 128—541)

This invention relates to body supports and binders. More particularly, this invention relates to garments which typically are worn as post-operative abdominal binders, post-partum binders and wrist, ankle, and knee supports.

At the present time most body binders and supports fall into one of four well known classes; namely, Scultetus binders, cotton cloth binders, ace bandages, and adhesive elastic bandages. All of these different types have inherent disadvantages. For example, Scultetus and cotton cloth binders do not stay in place and therefore requiring frequent attention. Cotton cloth binders are not easily opened or closed as they are wound about the body and, therefore, are inconvenient when used for post-operative purposes. Ace bandages, like cotton cloth binders, must be unwrapped completely to inspect the part of the body on which the bandage is worn and, therefore, are inconvenient. Furthermore, ace bandages are difficult to apply correctly, and they do not withstand laundering well. Adhesive elastic bandages have a very limited application, can be used but once, and stick to the skin which makes them painful to remove.

The primary object of this invention is to provide a garment in the nature of a binder or support which will remain in place on the part of the body upon which it is applied.

Another important object of this invention is to provide a comfortable and lightweight binder and support which may be applied and removed readily and which, therefore, permits easy inspection of the part of the body covered by it.

Another important object of this invention is to provide a binder or support which may be laundered many times without appreciable shrinkage or loss of elasticity.

Yet another important object of this invention is to provide a binder or support which may be readily applied to the body without adhesive tape or other fastening means.

To accomplish these and other objects this invention includes among its many features a plurality of parallel panels made of elastic webbing stretchable in the direction in which the panels extend. The adjacent edges of the panels are secured together by rows of fagoting stitches or another similar type of stitching which permits free stretching of the panels or strips in their lengthwise direction but which are not stretchable in a direction transverse to the panels. The stitching secures the adjacent edges of the panels in spaced relationship and permits the adjacent edges of the panels to overlap one another when one panel is moved relative to an adjacent panel. At the same time, the fagoting stitching provides a very definite limitation against separation of the panels beyond a selected amount. The panels which make up the garment are designed to encircle the portion of the body upon which the garment is worn and may or may not be provided with fasteners to facilitate applying and removing the garment and varying the garment size. Whether or not this feature is incorporated into the garment is determined by the specific use for which the garment is designed.

The circumferential dimensions of the garment may vary from end to end depending upon the particular use for which the garment is designed. As yet another feature, the garment is provided with an Helanca lining or backing which is very soft and stretchable and, therefore,

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comfortable when worn against the skin. This material does not interfere with the stretchability of the webbing material and aids in retaining the garment in place on the body.

5 These and other objects and features of this invention, along with its incident advantages will be better understood and appreciated from the following detailed description of a number of embodiments thereof, selected for purposes of illustration and shown in the accompanying drawing, in which:

10 FIG. 1 is a front view of a binder constructed in accordance with this invention and worn about the abdomen;

15 FIG. 2 is a rear view of the abdominal binder shown in FIG. 1;

20 FIG. 3 is a perspective view of an open binder of the type shown in FIGS. 1 and 2;

25 FIG. 4 is a fragmentary plan view of a portion of the binder shown in the preceding figures and illustrating one feature of the invention;

30 FIG. 5 is a perspective view showing a wrist support constructed in accordance with this invention;

35 FIG. 6 is an enlarged perspective view of the wrist support shown in FIG. 5; and

40 FIG. 7 is a cross-sectional view taken along the line 7—7 of FIG. 3.

The embodiment of my invention shown in FIGS. 1 to 3 includes two sets of panels or strips 10 and 12 stitched together as suggested at 14 to form a generally rectangular garment which may be detachably secured in tubular or encircling form by fasteners 16, sewn along the free edges of the sets of panels.

The two sets of panels secured in end to end relationship by the stitching suggested at 14 effectively comprise a single set of elongated panels and will be so described. The set of composite panels includes three elongated strips of elastic webbing 18, 20 and 22 stretchable in their lengthwise direction; that is, in the encircling direction when the garment is closed by the fasteners 16. The webbings or panels are not stretchable across their width. Thus, the diameter of the cylindrical garment formed by the panels is variable while the length of the cylindrical garment cannot exceed the fixed limit set by the sum of the panel widths plus their spacing as limited by the stitching which joins them.

45 The panels 18 and 20, as well as the panels 20 and 22 have their adjacent edges 24 and 26 on the one hand and 28 and 30 on the other secured together by rows of fagoting stitches 32 and 34 respectively. The fagoting stitching 32 and 34 which joins the adjacent edges of the panels does not impair the action of the elasticity of the webbing, and the edges of the webbing may be stretched readily as if no stitching joined the adjacent edges. The fagoting stitching made of a cotton yarn or some similar material, however, is not stretchable in itself and, therefore, the panels 18, 20 and 22 may not be separated more than what is permitted by the length of the individual stitches 36 (see FIG. 4). The rows of fagoting stitches 32 and 34 permit each panel to move relative to the adjacent panel edge limited only by the length of the individual stitches 36, permit complete stretching of the individual panels in their lengthwise direction, and permit the stretching of one panel relative to its adjacent panel or panels.

50 In FIG. 4 the manner in which one panel may move transversely with respect to its adjacent panel is illustrated. In that figure a portion of panel 18 is shown to overlap the edge 26 of adjacent panel 20. In that figure it will be noted that the fagoting stitching 32 readily permits this overlapping relationship without causing the edges to curl. It will also be appreciated from an inspection of that figure that one panel may be

stretched while the adjacent panel remains in an unstretched condition by virtue of the stitching which joins the panels. Thus, the panel 18 may be elongated while the panel 20 remains normal because of the disposition and size of the stitches which join the edges 24 and 26.

On the free ends 38 and 40 of the panels 18, 20 and 22 the different parts of the fastener 16 are assembled. On the end 38 as shown in FIG. 3 a tape 42 is stitched along the edge which carries a plurality of hooks 44 (three at the edge of each panel as shown). On the end 40 of the panels a tape 46 carries three parallel rows of eyes 48 (each row providing three eyes at the end of each panel), and the hooks 44 on the tape 42 are adapted to engage any one of the rows. Thus, the size of the garment may be varied by connecting the hooks 44 to different rows of eyes. Obviously a larger person may connect the hooks 44 to the rows 50 or 52 while a smaller person may connect the hooks to the rows 54 to achieve the proper fit.

If the garment is designed for use as an abdominal binder for men, the length of each panel 18, 20 and 22 may be substantially the same so that the garment when closed has little or no taper; that is, its normal or unstretched circumference at one end is virtually the same as at the other. If the garment is designed as an abdominal binder for women, better fit and greater comfort may be achieved by constructing the garment with a tapered shape to allow for the normal difference in the measurements of the waist and hips of women. Such a garment is in fact shown in FIGS. 1-3, and the desired shape is achieved by making each of the panels 18, 20 and 22 in two parts as initially suggested by the sets of separate panels 10 and 12 secured together by stitching 14. In FIG. 3 particularly, the difference in length of the panels 18, 20 and 22 is noticeable. The lower panel 22 is longest and lies at the hip line when worn as shown in FIGS. 1 and 2. Panel 18 is appreciably shorter than panel 22 and lies at the waist line of the wearer. To further aid in achieving a proper fit, the two panel sections, namely panel sections 18' and 18'' which together make up the full panel 18 may be sewn together at a slight angle to one another rather than being assembled in a straight line. Of course all of the panel sections would be secured together at the same angle. This feature coupled with the different panel lengths provides the garment with the best and most natural taper.

For maximum comfort the elastic webbing should be provided with an Helanca backing or lining 56 shown in FIG. 7, which does not impede the stretch of the webbing and which is most comfortable against the skin. The lining made of Helanca yarn or other similar material in addition may help to retain the garment in place; that is, the lining along with the relative movement permitted between the panels by the fagoting stitching cause the garment to remain in place when worn.

In FIGS. 5 and 6 the invention is shown embodied in a wrist band. The wrist band is composed of a pair of panels 60 and 62 made of the same or similar elastic webbing with a one way stretch which permits the support to enlarge in a circumferential direction but which does not permit the garment to elongate. The two panels 60 and 62 are secured together by a row of fagoting stitching 64, and the ends of the panels are stitched together as shown at 66 so that the garment is permanently closed. To enhance the appearance of the garment the stitching 66 is covered by a tape 68 as is the stitching 14 by tape 70 in the embodiment of FIGS. 1-3. The panel 60 is shown to be of smaller diameter than the panel 62 and each panel slightly tapers so that the two merge with one another to form a truncated cone. The webbing preferably is provided with a Helanca backing or lining as in the previous embodiment. The wrist binder shown in FIGS. 5 and 6 does not include the row or rows of fasteners 16 of the abdominal binder as it is obviously not necessary for a support for the wrist, ankle or knee

and may be applied and removed to the named parts of the body without difficulty.

Having described this invention in detail, the several advantages of this garment will now be appreciated. Of primary importance is the ability of the garment to remain in place even when the body and particularly that portion wearing the binding or support is moved, twisted or jarred even over prolonged periods. This is achieved because the individual panels which make up the garment may move relative to one another; that is, one panel may stretch while the other remains of constant dimension, one panel may move toward or away from the other panel within limits, and the entire garment is flexible. The ability of the garment to remain in place may perhaps be better appreciated when described in connection with FIG. 5. Because the wrist support is made of two panels 60 and 62 joined by fagoting stitching 64, when the wrist of the wearer is bent downwardly so that the hand drops relative to the arm in FIG. 5, the lower part of panel 60 moves toward panel 62 as suggested by arrow 70 while its upper part may move away from panel 62 as suggested by arrow 72. Thus, the lower part of the panel 60 may move to overlap the adjacent edge of panel 62 while the upper part will move away from the panel 62 a distance permitted by the length of the individual stitches of the fagoting stitching. When the garment so constructed is used as a post-operative binder, it will require no nursing attention for it will continuously stay in place.

Another important advantage of the garment constructed in accordance with this invention is that it permits ready inspection of a wound covered by it. For example, as a post-operative chest or abdominal binder, the garment is provided with the detachable fasteners 16 so that the garment may be opened and closed readily.

Less obvious advantages of garments constructed in accordance with this invention are the many uses to which the garments may be put after their primary function has been performed. Thus, a woman who obtains such a garment for use in the first instance as a post-partum binder may later use it as a foundation garment under a bathing suit, shorts, or slacks.

From the foregoing description those skilled in the art will appreciate the many modifications which may be made of this invention along with the many uses to which it may be put. Some typical uses of the invention are in post-operative abdominal and chest binders, binders worn for rib fractures, post-partum binders, varicose vein binders, head bandage supports, and wrist, ankle and knee supports. Therefore, it is not my intention to limit the breadth of this invention to the specific embodiments illustrated and described. Rather, it is my intention that the breadth of this invention be determined by the appended claims and their equivalents.

What is claimed is:

1. A body support garment comprising a plurality of parallel and adjacent body encircling panels made of elastic webbing and being stretchable only in the parallel direction of the panels, a lining secured to the inner surface of each of the panels and made of a soft stretchable material, stitching joining the panels along their adjacent edges and being expandable in the direction of stretch of the panels and being substantially unexpandable in a direction transverse to the stretch of the panels, said stitching permitting the adjacent edges of the panels to move toward and overlap one another, and means secured to the ends of the panels for joining the ends of the panels to form a garment of tubular shape to encircle the portion of the body on which it is to be worn.

2. A body support garment comprising a plurality of parallel panels made of elastic webbing and being stretchable only lengthwise of the panels, an equal number of parallel panels of elastic webbing being stretchable only lengthwise of the panels and secured end to end to the first-recited panels, a lining of soft stretchable material

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secured to the inner surface of each panel, said end to end panels in the two groups of panels being disposed at a slight angle to one another and with the combined length of the end to end panels at one end of the garment being greater than the combined length of the end to end panels at the other end of the garment, rows of fagoting stitches securing the parallel panels together with the adjacent edges of the panels in spaced relationship, and means secured to the free ends of the panels enabling them to be detachably joined about the body of the wearer.

3. A body support garment as defined in claim 1 further characterized by the adjacent edges of the panels being spaced apart a distance enabling said edges to overlap one another when the panels are moved toward one another.

4. A body support garment as defined in claim 1 further characterized by said lining being made of Helanca yarn.

5. A body support garment comprising, at least first and second strips of material each having a length greater than its width and characterized by high elasticity along its length but nearly zero elasticity along its width, each of said strips being adapted to encircle a portion of the body in a lengthwise direction; means secured to the ends of the strips for maintaining the two end portions of each of said strips fastened together in a body encircling form and with the length of each surrounding a common axis, and means secured to the strips fastening adjacent lengthwise edges of said strips together and restricting relative movement between said adjacent edges to an increment along and an increment

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orthogonal to the lengths of said strips which increments are finite but much smaller than the width of either strip while allowing expansion of both said adjacent edges along their lengths.

6. A body support garment in accordance with claim 5 and further comprising, means defining a surface attached to the inside surface of each of said strips facing said common axis for resisting slippage of said strips on the skin of the wearer.

7. A body support garment comprising a plurality of parallel body encircling panels each stretchable in a body encircling direction and being nonstretchable in a direction parallel to the axis of the panels, a row of fagoting stitches made of nonstretchable thread joining the adjacent edges of the panels in spaced relationship and allowing said edges to move toward and overlap one another when one panel is moved relative to an adjacent panel, and means secured to the ends of the panels for joining the ends of the panels together in a body encircling form.

8. A body support garment as defined in claim 7 further characterized by the last-named means being adjustable for varying the circumferential size of the garment.

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