March 24, 1953 R. D. KENNEDY 2,632,178

ORTHOPEDIC JACKET

Filed July 3, 1950 2 SHEETS—SHEET 1

Fig. 1.

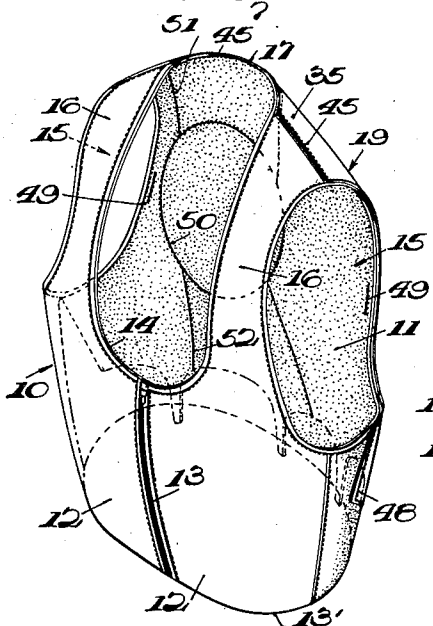
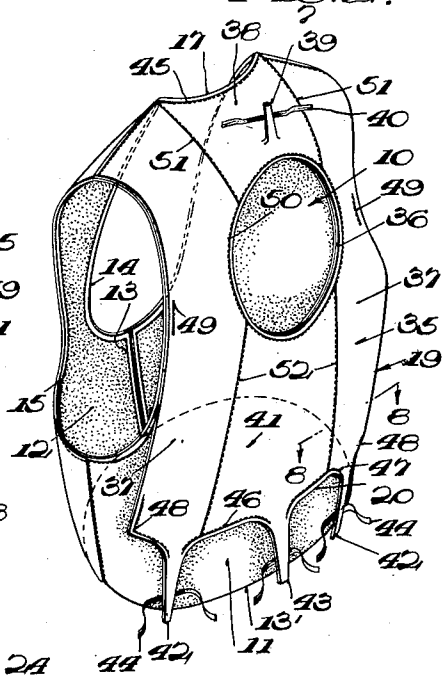


Fig. 2.



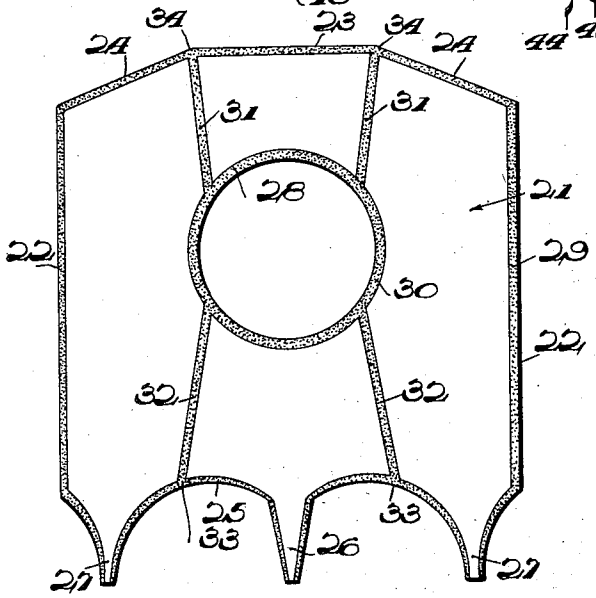


Fig. 3.

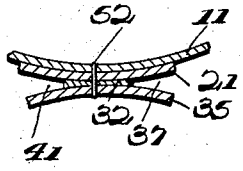


Fig. 8.

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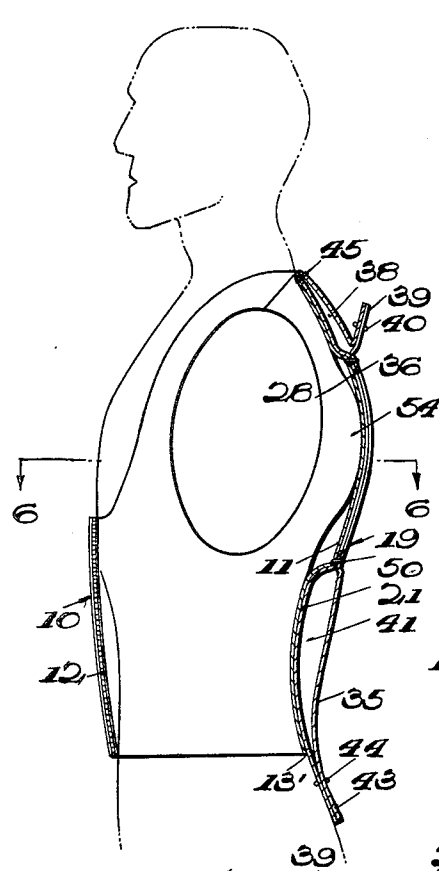

FIG. 5.

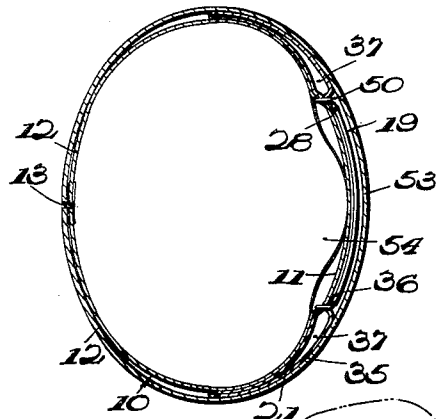

FIG. 6.

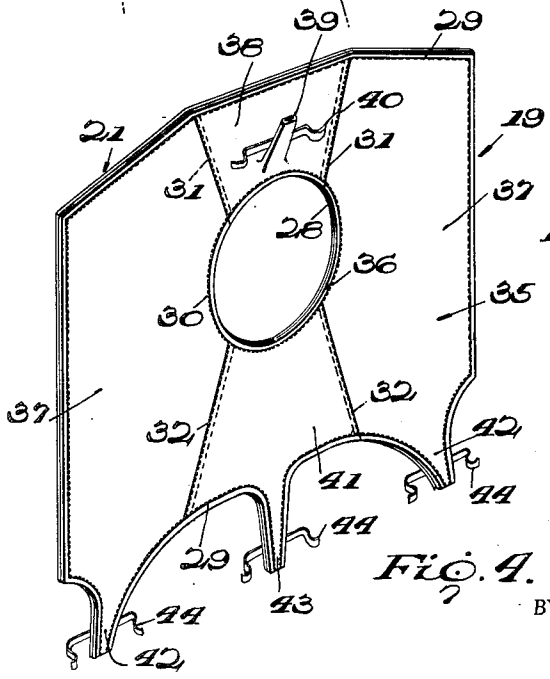

FIG. 4.

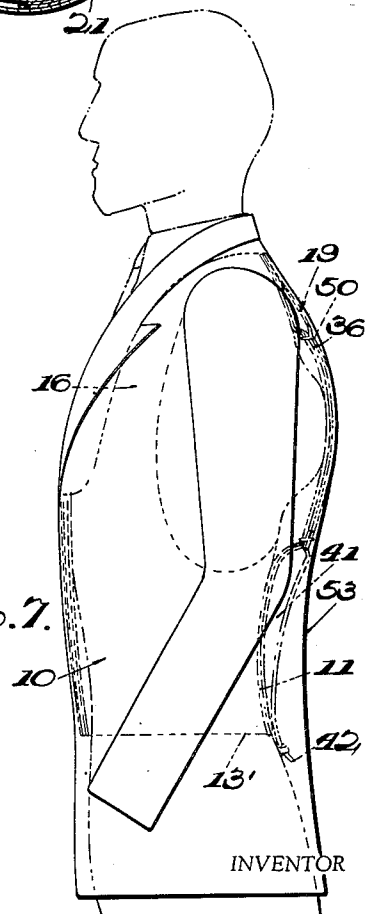

FIG. 7.

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ORTHOPEDIC JACKET

Richard D. Kennedy, Wenatchee, Wash.

Application July 3, 1950, Serial No. 171,965

5 Claims. (Cl. 2—267)

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My invention relates to an inflatable orthopedic jacket for use in concealing body deformities, such as humps on the back or shoulder.

A primary object of the invention is to provide a jacket or vest to be worn beneath a suit coat or other outer garment by individuals having back deformities or humps, the jacket having inflatable compartments which fill out the portions of the body surrounding the deformity for forming a smooth and normal contour beneath the outer garment.

A further object is to provide an orthopedic vest or jacket of the above mentioned character, which is highly simplified in construction, extremely light-weight, and therefore cool to wear, and relatively inexpensive to make.

A further object is to provide an inflatable jacket having a plurality of separate inflatable compartments each of which may be blown up or inflated the necessary degree to properly conceal the deformity on the back, regardless of whether the deformity is centrally located, or off-center, with respect to the back.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout same;

Figure 1 is a front perspective view of an orthopedic jacket embodying my invention,

Figure 2 is a rear perspective view of the same,

Figure 3 is a side elevation of a bag section or blank,

Figure 4 is a perspective view of an inflatable bag,

Figure 5 is a central vertical longitudinal section through the jacket illustrated by Figures 1 and 2 and showing the use of the same for concealing a deformity of the back,

Figure 6 is a horizontal cross-section taken on line 6—6 of Figure 5,

Figure 7 is a side elevation of the jacket as used beneath a suit coat or outer garment, and,

Figure 8 is an enlarged fragmentary cross-section taken on line 8—8 of Figure 2.

In the drawings, where for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates generally a jacket or vest, preferably formed of a single layer of thin light-weight fabric such as light-weight cotton ticking. The jacket 10 comprises a rear panel or back 11 which substantially completely covers the back of the wearer, and a front formed by a pair of opposed front sections 12, having

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their meeting edges detachably secured together by a vertically extending slide fastener or zipper 13, located at the transverse center of the jacket. The zipper extends from the bottom edge 13' of the jacket to the bottom of a low neck opening 14 formed in the front of the jacket. The bottom edge 13' terminates at the waist of the wearer, as shown. The jacket 10 is sleeveless, and provided in its opposite sides with large arm openings 15, forming with the low neck opening 14, shoulder covering portions or straps 16. The back 11 extends upwardly to the base of the neck, as at 17, and the back is joined with the tops of the shoulder straps 16 on opposite sides of the low neck opening 14.

The numeral 19 designates generally a thin-wall inflatable bag or body, applied to the outer side of the back 11, in a manner to be fully described, and preferably formed of a flexible sheet plastic material which is substantially air-tight or impervious. The bag 19 has generally the shape of the jacket back 11, although the lower edge 20 of the bag terminates above the bottom edge 13', Figure 2. The bag 19 substantially completely covers the back 11, and its marginal edge substantially follows or registers with the marginal edge of the back 11, except at the bottom of the bag, Figure 2.

The inflatable bag 19 comprises an inner bag section or side wall 21, Figure 3, arranged next to the back 11 in assembly, Figure 5. The bag section 21 has straight side edges 22 which are parallel, and a top central edge 23 which conforms in assembly to the top or neck receiving edge 17 of the jacket 10. The jacket section 21 also has top converging edge portions 24 on opposite sides of the edge 23, as shown, and the lower edge 25 of the jacket section is provided at the transverse center of the jacket section with an elongated depending extension or tongue 26, for a purpose to be described. Near its side edges 22, the jacket section 21 is further provided at its bottom with additional elongated depending extensions or tongues 27, and the bottom ends of the tongues 26 and 27 terminate in alignment. The jacket section 21 has a large central circular opening 28, as shown. The jacket section 21 is provided upon one side and adjacent to its marginal edge with a continuous narrow band or strip of adhesive material or cement 29, extending entirely about the marginal edge of the jacket section. A similar continuous band 30 of adhesive material extends about the marginal edge of the circular opening 28, and upper and lower generally radial converging bands 31 and 32 of adhesive material extend

from the circular band 30 to the marginal adhesive band 29. The outer or bottom ends of the adhesive bands 32 terminate substantially midway between the tongues 26 and 27, as shown at 33. Likewise, the outer or top ends 34 of the adhesive bands 31 intersect the adhesive band 29 substantially midway between the transverse center of the jacket section 21 and its side edges 22. The inner ends of the adhesive bands or strips 31 and 32 intersect the circular continuous adhesive band 30. The adhesive bands or strips 29, 30, 31 and 32 are preferably between one quarter and three-eighths of an inch wide, and the bands of adhesive material may be coated upon the bag section 21 in any conventional manner.

An outer companion bag section or side wall 35 is provided, and has the same shape as the inner bag section 21 and is adapted to register with the bag section 21, Figure 4. The bag section 35 has a large central opening 36 which registers with the opening 28, as shown. The completed bag 19 is formed by superimposing the bag section 35 upon the inner bag section 21, and pressing the bag sections together along the adhesive bands 29, 30, 31 and 32. When this is done, the bag sections 21 and 35 will adhere together along the various adhesive strips or bands, and form a unitary permanently assembled inflatable bag having separately inflatable compartments or pockets.

Side elongated air-tight compartments or pockets 37 are formed and bounded by the adhesive bands 30, 31 and 32 at their inner sides, and by the marginal adhesive band 29 at their outer sides. A top central compartment or pocket 38 is formed between the side pockets 37 and above the central opening of the bag, and bounded by the adhesive bands 29, 30 and 31. The inflatable pocket 38 is air-tight, and the bag section 35 has formed integral therewith an elongated tubular extension or nipple 39, leading into the upper central pocket 38 and arranged at the transverse center of the pocket 38. This nipple 39 is used for inflating the pocket 38, and is provided with a suitable tie string 40, preferably permanently secured thereto. A lower central inflatable air-tight pocket 41 is formed between the side pockets 37 and below the central opening of the bag 19, and this pocket is bounded by the adhesive bands 29, 30 and 32. The bag section 35 is provided at its bottom with extensions or tongues identical with the tongues 26 and 27 and registering therewith, and the pairs of registering tongues form tubular elongated depending nipples or extensions 42 and 43, leading into the pockets 37 and 41 respectively. The nipples 42 and 43, like the nipple 39 are used to inflate the pockets or compartments 37 and 41, and the nipples 42 and 43 are provided with tie strings 44, identical with the tie string 40.

As previously stated, the completed inflatable bag 19 is applied to the outside of the back 11 of the jacket 10. The top edge of the bag 19 is stitched to the top edge of the back 11 by a continuous line of stitching 45 extending for the full width of the bag 19 and back 11. The bottom of the bag 19 is secured to the back 11 by lines of stitching 46 and 47, between the depending nipples 42 and 43. The nipples 42 and 43 are not stitched to the jacket, but free from connection therewith, the lines of stitching 46 and 47 terminating at the tops of the nipples, Figure 2. The lower corners of the bag 19 are stitched to the back 11 by L-shaped lines of stitching 48, as shown, and the opposite sides of the bag are tacked or stitched to the sides of the back 11 by short lines of stitching 49. Except for the lines of stitching 49, the side edges of the bag are free from connection with the back 11. The bag 19 is further secured to the back 11 by a circular line of stitching 50, adjacent to the large circular opening of the bag, and the line of stitching 50 is arranged at the transverse center of the circular band of cement 30, so that the cement extends upon opposite sides of the line of stitching 50, in the manner shown in Figure 8. In this manner, the bag 19 may be secured to the back 11 by stitching without destroying the air-holding ability of the several compartments or pockets of the bag. The bag is further stitched to the back 11 by upper and lower generally radial lines of stitching 51 and 52, likewise arranged at the transverse centers of the adhesive bands 31 and 32, Figure 8, so that an air-tight joint is maintained between the compartments 37, 38 and 41. The lines of stitching 51 and 52 extend for the entire distances from the circular line of stitching 50 to the lines of stitching at the top and bottom of the bag 19, so that the bag is secured to the back 11 of the jacket all along the adhesive bands or joints separating the several compartments of the bag. Figure 8 shows a typical cross-section through any of the various lines of stitching between the jacket back 11 and bag 19. All of these lines of stitching pass through both bag sections 21 and 35, and through the back 11, as shown in Figure 8. Since the several lines of stitching are disposed at the transverse centers of the several adhesive bands 29, 30, 31 and 32, Figure 8, air-tight joints are provided at the margins of the several inflatable compartments 37, 38 and 41.

In use, the jacket 10 with the inflatable bag 19 secured to it in the manner described, is worn like a vest beneath a suit coat 53, or the like, Figure 7. The several inflatable compartments of the bag 19 are disposed in a group surrounding the large opening formed centrally in the bag, and such opening is arranged substantially centrally of the back of the wearer, as shown. Assuming that the wearer of the orthopedic jacket has a back deformity or hump 54 which is located substantially centrally upon the back, such hump will be adjacent to the large circular opening of the inflatable bag. When this is the case, the compartments 37, 38 and 41 surround the deformity 54 and are spaced radially beyond the deformity. Each of the several compartments is inflated with a proper amount of air to provide a smooth and normal-appearing body contour at the back of the deformed individual, and the coat 53 will appear to fit properly and the deformity 54 is concealed and unnoticeable. The extent to which the individual bag compartments are inflated depends upon the size of the deformity 54. If the deformity is small, a slight amount of air in each compartment may suffice to fill out the area of the back surrounding the hump. If the deformity is larger, the surrounding compartments are inflated to a greater degree, and in any case where the deformity is centrally located, some air is preferably introduced into all of the surrounding compartments to produce a smooth and normal contour for the back. The exact amount of air to be introduced into each compartment depends in each case upon the shape, size and location

of the deformity. My jacket is constructed in such a manner that substantially any shape and size of deformity can be concealed, regardless of its location upon the back. The arrangement of the several inflatable compartments surrounding the central open portion of the bag provides means for inflating any desired section of the bag to a greater or lesser extent, about a central uninflated area.

When the hump or deformity of the back is not centrally located, but rather offset toward one side or upwardly toward one shoulder, the deformity may then lie partly or wholly beneath one or more of the surrounding compartments **37**, **38** or **41**. If this is the case, the compartment which overlies the deformity is left uninflated, while the other compartments below or to the sides of the deformity are inflated to the necessary extent to provide a smooth and normal contour beneath the outer garment **53**.

Air is introduced into and exhausted from the several compartments through the nipples **39**, **42** and **43**, and the tie strings **40** and **44** are used to maintain the air within the inflatable compartments.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. An orthopedic garment adapted to be worn beneath an outer garment for concealing a deformity on the back of the wearer comprising a jacket, and a flexible inflatable bag connected with the back of the jacket and adapted to extend over a substantial area of the back of the wearer, the bag being divided into a plurality of separately inflatable compartments arranged in a group adapted to surround the deformity, the inner margins of the inflatable compartments defining a generally central non-inflatable area adapted to lie adjacent to the deformity, whereby portions of the back of the wearer surrounding the deformity may be filled out by inflating certain of the compartments to give the back of the wearer a natural contour.

2. A device adapted to be worn beneath an outer garment for concealing a deformity on the back of the wearer comprising a jacket, and a pair of flexible sheets arranged in superposed relation and secured to the back of the jacket, the sheets being connected near their marginal edges and further connected inwardly of their marginal edges to form an inflatable structure surrounding a generally central non-inflatable area arranged

to lie adjacent to the deformity and substantially coextensive therewith.

3. A device adapted to be worn beneath an outer garment for concealing a deformity on the back of the wearer comprising a jacket, and a pair of flexible sheets arranged in superposed relation and secured to the back of the jacket and adapted to cover a substantial area of the back of the wearer, the sheets being connected near their outer and inner marginal edges and along generally radial lines extending between said outer and inner marginal edges for forming a plurality of separately inflatable compartments surrounding the deformity, the inner margins of the inflatable compartments defining a non-inflatable area arranged to lie opposite the deformity.

4. A device adapted to be worn beneath an outer garment for concealing a deformity on the back of the wearer comprising a pair of flexible sheets arranged in superposed relation, the sheets being formed to provide a generally central opening in the device which is substantially coextensive with the deformity, the sheets being connected near their outer and inner marginal edges and along generally radial lines extending between the outer and inner marginal edges for forming a plurality of separately inflatable compartments surrounding the deformity, and a jacket carrying the flexible sheets so that the same may be positioned adjacent to the back of the wearer.

5. A device adapted to be worn beneath an outer garment for concealing a deformity on the back of the wearer comprising a jacket, a flexible inflatable bag secured to the jacket and arranged to lie adjacent to the back of the wearer, the bag being divided into a plurality of separately inflatable compartments arranged in a group to surround the deformity, the inner margins of the inflatable compartments defining a non-inflatable area which is substantially coextensive with the deformity, and means connected with each inflatable compartment to facilitate introducing air into the same.

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