Jan. 2, 1940. L. CREPER 2,185,834

SURGICAL BELT

Filed Dec. 5, 1938

Fig. 1.

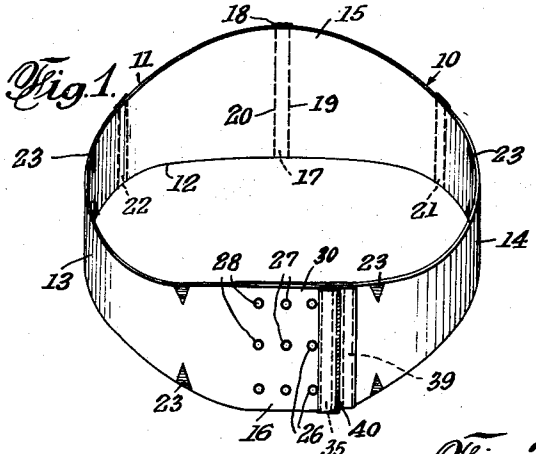


Fig. 2.

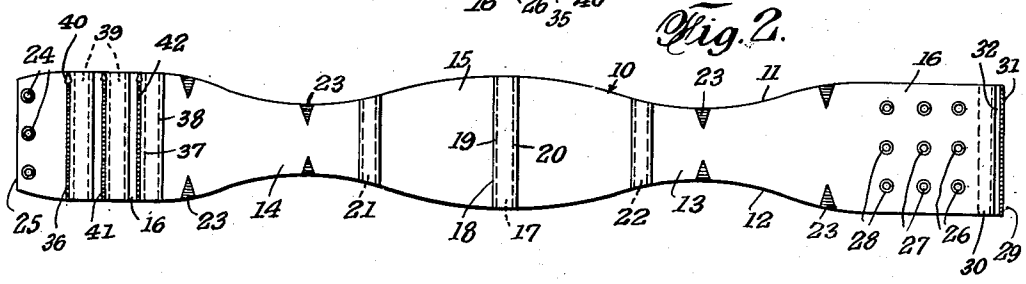
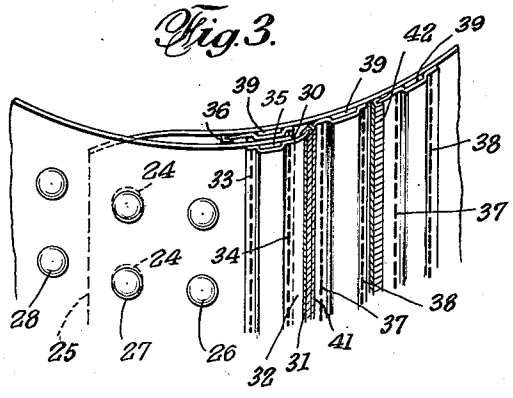


Fig. 3.



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Patented Jan. 2, 1940 2,185,834

UNITED STATES PATENT OFFICE

2,185,834

SURGICAL BELT

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Application December 5, 1938, Serial No. 244,016

6 Claims. (Cl. 2—41)

This invention relates to surgical belts, bands or bandages designed particularly for the support and protection of the lower back and abdominal regions of the body.

My invention contemplates the provision of an efficient protecting belt useful in the treatment of back and abdominal injuries and certain body ailments, and which may be quickly and easily secured in place and adjusted to support and adequately protect the injured region or the regions where treatment is indicated.

My invention further contemplates the provision of quickly and easily operated securing means for the respective ends of the belt, which securing means includes a quick-acting initial means adjustable to give the desired support and protection without undue pressure on the body, and a second quick-acting and adjustable fastening means which becomes automatically adjusted to its proper position when the initial fastening means has been adjusted and secured, and which cooperates with the initial fastening means to form an adjustable overlapped closure of double thickness for the ends of the belt, while avoiding the need for laces, straps, buckles or the like comparatively bulky fastening means which might be difficult for the patient to manipulate and which frequently present protuberances tending to exert undesirable pressure upon the body and consequent discomfort or pain.

My invention further contemplates the provision of a support or belt of simple construction and having completely separable or open ends and provided with independently operated but quickly and easily manipulated securing means for the respective ends thereof and also provided with means for preventing the wrinkling of the support or the formation of undesirable folds or creases therein which might cause discomfort.

The various objects of the invention will be clear from the description which follows and from the drawing, in which,

Fig. 1 is a perspective view of my improved belt or band as it appears with the ends thereof closed or secured in place.

Fig. 2 is an elevational view of the same as it appears with the ends detached and the belt spread out flat.

Fig. 3 is a fragmentary perspective view of the front or abdominal supporting part of the belt, showing the adjustable independent securing means for the respective belt ends.

In the practical embodiment of the invention which I have shown by way of example, the body 10 of the belt may be made of any suitable textile material such as loosely woven canvas or other comparatively light-weight fabric, not likely to induce excessive perspiration but of sufficient strength to provide the desired supporting and protecting effect. The belt may be applied directly over a suitable dressing for a wound resulting from a surgical operation, or suitable padding or dressings may be interposed between it and the body regions which are to be protected or supported. The peripheral edges 11 and 12 of the belt may be so shaped as to accommodate the belt to movement of the body of the wearer, being preferably, though not necessarily, concaved at the side portions 13 and 14 of the belt and convexed to slightly enlarge the belt in width at the back 15 and at the front 16.

At any desired intervals along the belt body 10, suitable upright ribs may optionally be provided for the purpose not only of maintaining the belt flat when in use but also of providing the desired supporting effect. As shown, the rib 17 is intended to become arranged at about the center of the back portion 15. Said rib is enclosed in a pocket formed by stitching the rib cover 18 to the outer face of the body 10 as by means of the lines of stitching 19 and 20. Similarly, the ribs 21 and 22 may be arranged at the side extremities of the back, though it will be understood that as many or as few ribs are provided as may be found convenient or desirable.

To provide a limited amount of elasticity to the belt and thereby to enable it to be more readily adjusted and fastened into place and at the same time to exert its proper supporting action when secured in position, inserts, gussets or gores as 23, preferably of triangular shape and of longitudinally elastic webbing, are inserted into the edges 11 and 12 and in the region of the side portions 14 of the belt. Any desired number of elastic inserts, gores or gussets may be thus inserted or arranged at any points in the edges 11 and 12 as may be found desirable, or they may be entirely omitted, if desired.

As has been indicated, a separate quick-acting and adjustable fastening means is provided for each of the ends of the belt, one fastening means being engaged before the other and thereby constituting an initial fastening means for the belt, and the other constituting a final securing means. As illustrated, the initial fastening means takes the form of a transversely arranged row of snap fastener elements as 24 positioned closely adjacent to one extreme end edge 25 of the belt and shown in the form of snap fastener studs pro-

jecting outwardly from the outer surface of the belt. The row of fasteners 24 is intended to engage a selected one of the multiplicity of rows 26, 27 and 28 of cooperating snap fastener elements, illustrated as sockets. The transverse rows 26, 27 and 28 of sockets are arranged in substantial longitudinally spaced relation to the other extreme end edge 29 of the belt and in suitable spaced relation to each other on what may be designated as an end flap 30. It will be understood that the fastener elements at the end of each row are arranged quite close to the respective adjacent belt edges 11 and 12 and that a sufficient number of intermediate fasteners are provided in each row to provide adequate securing means throughout the width of the belt.

The size of the end flap 30 will vary, depending on which row 26, 27 or 28 is selected and engaged by the row of fasteners 24. It will be understood that while I have illustrated three rows of fasteners from which to select for engagement by the row 24, any number of rows may be provided, and that the spacing between the rows may also be varied to any desired extent. It will also be understood that while I have illustrated cooperating snap fastener elements as the initial adjustable securing means, any other suitable type of quickly attachable and separable fastener elements commonly used may be substituted therefor, in a manner which will be readily understood and which will be obvious to those skilled in the art.

On the extreme end edge 29 of the belt is secured one element or stringer 31 of a fastener of the slide-operated type commonly known as a "zipper". The individual interlocking fasteners of the element 31 are, as is common, secured to and carried by a suitable flexible tape 32, which is in turn secured to the inner surface of the body portion 10 by means of a pair of spaced parallel lines of stitching as 33 and 34 to form a pocket between the lines of stitching, and between the tape and the belt. In said pocket is preferably inserted the stiffening or reinforcing rib 35, the pocket being closed at its ends to maintain the rib within the pocket. At the other end portion of the belt and in longitudinally spaced relation to the extreme end edge 25 thereof, is secured the similar cooperating slide-operated fastener element 36, as by means of the lines of stitching 37 and 38 forming a similar pocket in which the rib 39 is inserted. The spacing or distance between the fastener element 36 and the row 24 of snap fasteners is the same as that between the row of snap fastener elements 26 and the slide-operated fastener element 31. On the element 36 is slidably mounted the slider 40 for interlocking the elements 31 and 36 after they have been arranged in the proper positions for that purpose.

Additional slide-operated fastener elements 41, 42, corresponding in number to the number of additional rows 27, 28 of snap fastener elements, are secured to the outer face of the body portion 10 adjacent the fastener element 36, by means of lines of stitching through the tapes thereof similar to the stitching 33, 34 to form pockets similar to the pocket for the fastener 31, and in which pockets, ribs similar to the ribs 35 and 39 are inserted. The spacing between the fastener elements 36, 41 and 42 is the same as the spacing between the rows of snap fastener elements 26, 27 and 28, so that when the proper row of snap fastener elements is selected and engaged by the row 26, the fastener element 31 is automatically arranged in the correct position for engagement with the corresponding one of the elements 36, 41 and 42.

The belt is arranged about the body of the wearer by an enveloping or wrapping movement to carry the row 24 of snap fastener elements into register with a selected row 26, 27 or 28. As shown in Fig. 3, the row 24 is in engagement with the center row 27 of cooperating snap fastener elements.

The initial securing of the belt in position or in other words, the fastening of the extreme end edge 25 in place, by the engagement of the row 24 with the selected row of cooperating fasteners is quickly and easily accomplished and can most frequently be done by the patient himself. The patient selects the required row necessary to put the desired pressure upon his body without discomfort. When the initial fastening means have been so selected and secured, the flap 30 extends past and outside of the row 24 with the fastener element 31 thereof in position to be engaged by and interlocked with the corresponding selected one of the cooperating slide fasteners 36, 41 and 42. The end of the element 31 being inserted into the proper slider on the selected slide fastener element, the slider may then be moved downwardly to interlock the element 31 with the corresponding selected one of the cooperating elements 36, 41 and 42, thereby to secure the end edge 29 in place, or in other words, to complete the final fastening movement which has been initiated by the securing of the initial fastening means, namely, the snap fastener elements.

By the provision of two separate sets of fastening means, namely, the initial fastening means and the slide fastening means, a strong and adequate closure is attained, not likely to open or stretch on the pressure exerted by movement of the body of the wearer yet which is so quick and easy to operate that the wearer himself, even though recovering from an operation, can make the required adjustment and effect the required closure. It also becomes possible to secure each end of the belt in place independently of the other end and to provide an overlap or two thicknesses of material where the maximum protecting and supporting effect is desired. By utilizing the slide fastener tape as a rib pocket, additional simple but efficient support is attained when desired

It will be seen that I have provided a simple but efficient adjustable belt, offering the required protection and support to the body, quick and easy to manipulate and well designed to meet the requirements of practical use.

While I have shown and described certain specific embodiments of my invention, I do not wish to be understood as limiting myself thereto, but intend to claim the invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. A protecting belt of the character described comprising an inelastic elongated body portion having completely separable ends, a slide-operated fastener element secured transversely at one of the ends, said element being of substantially the same length as that of said one end, a series of spaced parallel slide-operated fasteners each carrying a slide and secured to the body portion in longitudinally spaced relation to the other end of the body portion, said slide-operated fasteners comprising a variable securing means for said one end of the body

portion, and an initial securing means for the other end comprising a separable fastener element secured to the body portion closely adjacent said other end and a series of cooperating fastener elements spaced apart the same distance as that between the slide-operated fasteners of the series, said separable fastener elements being secured to the body portion in longitudinally spaced relation to the first-mentioned slide-operated fastener element whereby the belt is secured to the body of the wearer by first engaging the row of separable fastener elements at said other end with a selected one of the cooperating fastener elements and then operating the slide of the corresponding slide-operated fasteners, a tape for each of said slide-operated fasteners, parallel spaced lines of stitching securing the tape to the body portion and thereby providing a rib-holding pocket between the tape and the body portion and a rib arranged in the pocket.

2. In a belt of the character described open at its ends, initial selective fastening means for one end comprising a separable fastener element closely adjacent said one end, a series of longitudinally spaced cooperating separable fastener elements in longitudinally spaced relation to the other end of the belt, that part of the belt between the cooperating fastener elements and said other end comprising an inner front flap on the belt, a slide-operated fastener element at said other end and a series of longitudinally spaced slide fastener elements in longitudinally spaced relation to said one end and in the same spaced relation as the cooperating separable fastener elements, that part of the belt between the first-mentioned separable fastener element and said series of slide-operated fasteners constituting a front outer flap overlapping the inner front flap when the respective fastener elements are selectively engaged.

3. In a belt of the character described open at its ends, a tape at one extreme end of the belt, a slide-operated fastener carried by the tape, spaced lines of stitching securing said tape to said extreme end providing a rib-holding pocket between the tape and the belt, a series of longitudinally spaced tapes each carrying a slide-operated fastener secured by similar stitching to the other end portion of the belt in longitudinally spaced relation to the other extreme end, the first-mentioned slide-operated fastener being selectively engageable with one of the said series to adjustably secure said one extreme end to the belt, said slide-operated fasteners constituting a final securing means for the belt, and an initial securing means for the belt comprising a series of sets of separable snap fasteners, one set being positioned at said other extreme end of the belt, and the remainder at said one end portion of the belt in the same corresponding spaced relation to said one extreme end as the spaced relation of said series of slide-operated fasteners to said other extreme end.

4. In a body belt having completely separable end edges, a slide fastener element at one end edge, a multiplicity of cooperating slide fastener elements in substantially spaced relation to each other at the other end portion of the belt, a tape for each of said elements, transverse lines of stitching securing the tapes of said elements to the belt and forming rib pockets between adjacent lines of stitching, and a stiffening rib in each of the pockets.

5. In a belt of the character described having completely separable end edges, a transversely arranged slide fastener element adjacent one end edge, a tape for said element, spaced lines of stitching securing the tape to the belt and forming a rib pocket in the belt, a rib in said pocket, spaced and substantially parallel cooperating slide fastener elements at the other end portion of the belt, a tape for each of the cooperating slide fastener elements, pocket forming stitching securing the last-mentioned tapes to the belt, and a rib in each of the pockets formed by the last-mentioned stitching.

6. In a belt of the character described open at its ends, a tape at one end of the belt, a first slide fastener element carried by the tape, spaced lines of stitching securing said tape to the belt and forming a rib-holding pocket between said lines of stitching, a rib in the pocket, a series of longitudinally spaced tapes each carrying a slide fastener element at the other end portion of the belt, spaced lines of stitching securing the spaced tapes to the belt, and ribs between the last-mentioned lines of stitching, said first slide fastener element cooperating with a selected one of the series of slide fastener elements to close said open ends and to adjustably secure the belt about the body of a wearer.

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