Jan. 6, 1942. F. L. UNION 2,269,044

TRUSS

Filed April 4, 1941 2 Sheets-Sheet 1

Fig. 1.

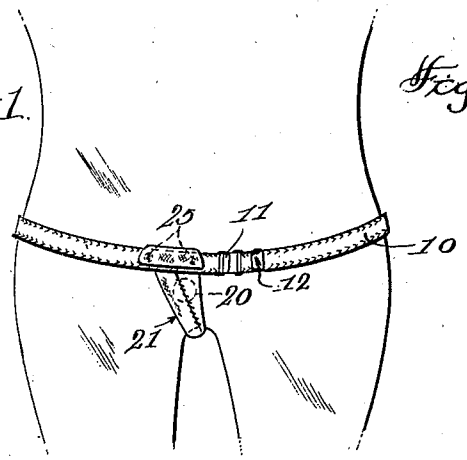
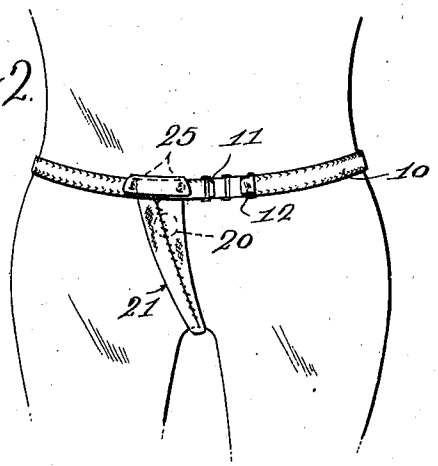



Fig. 2.



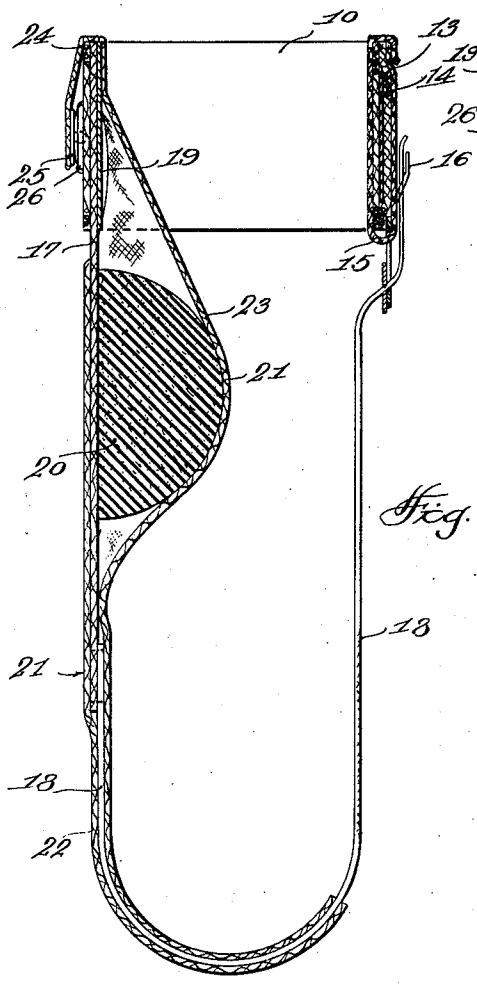




Fig. 5.

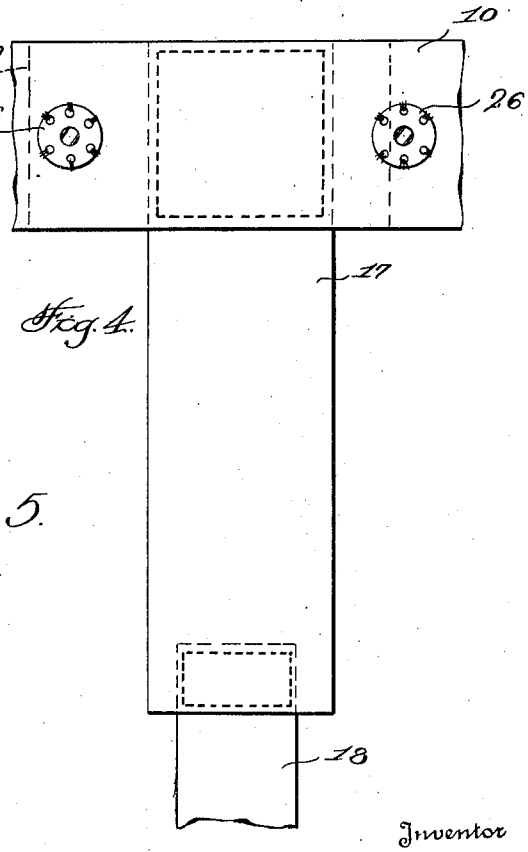



Fig. 4.

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TRUSS

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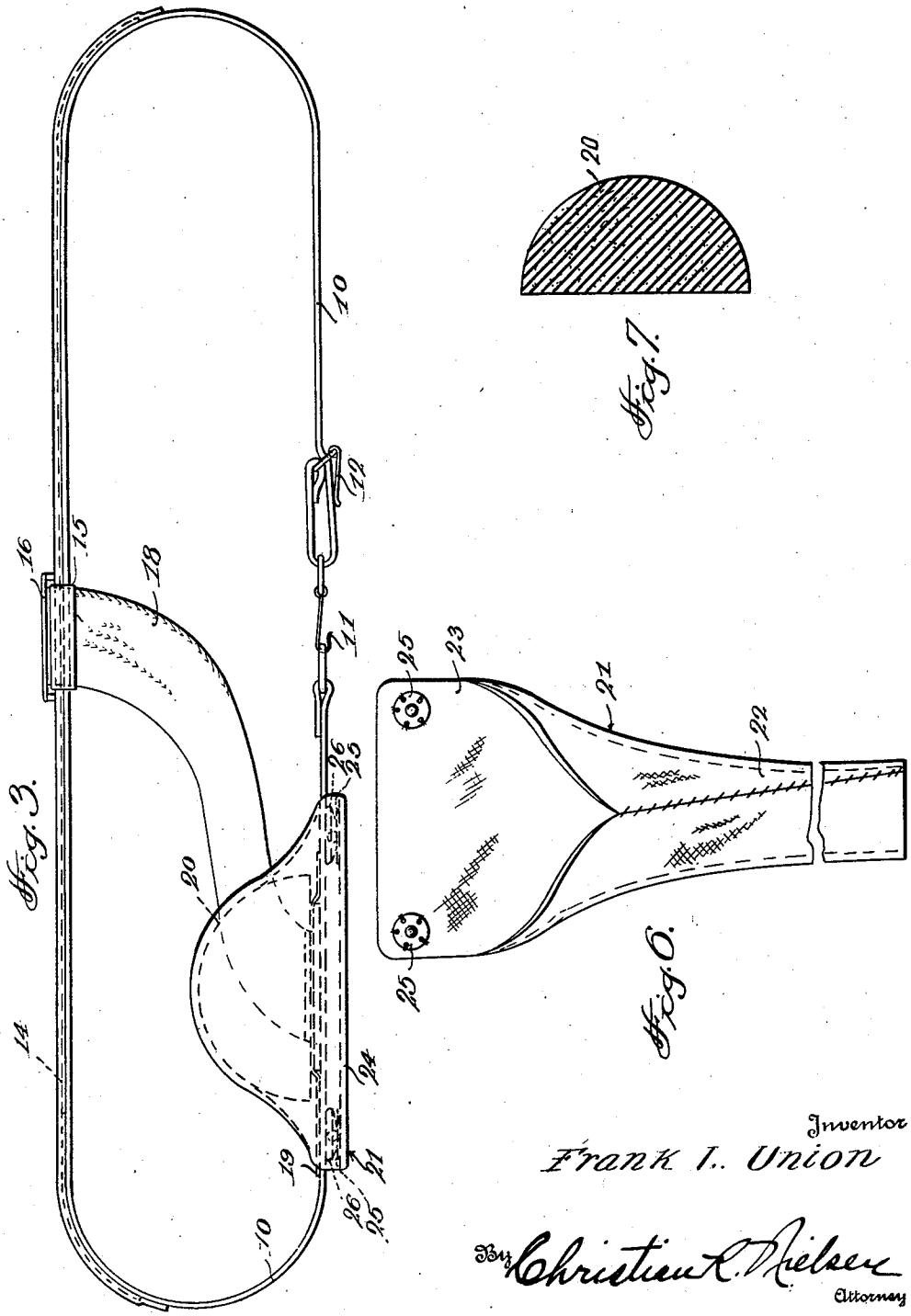


Fig. 3.




Fig. 7.




Fig. 6.

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Patented Jan. 6, 1942 2,269,044

# UNITED STATES PATENT OFFICE

2,269,044

## TRUSS

Frank L. Union, Miami, Fla.

Application April 4, 1941, Serial No. 386,898

1 Claim. (Cl. 128—121)

The invention relates to trusses of the belt carrying-pad type, and particularly aims to increase the efficiency of such devices, in supporting and retaining hernias while at the same time materially increasing the comfort of the persons required to wear such appliance.

A special aim of the invention is to obviate the need for having the waist or hip belt drawn tightly around the body of the wearer, which has been a special objection in such devices, where a leg strap is used connected to the waist-band at the back, it having been necessary to have this band fairly tight in order to prevent it from sagging under the pull of the leg strap. By the use of my invention such sagging is entirely overcome without requiring the belt to be drawn tight around the body of the wearer.

Another important aim of the invention is to present a novel manner of mounting the pad proper to the end that it is independent of the movement of any part of the supporting straps, so the pad will remain properly in position over the hernia or other part requiring support, in all positions of the body.

Another important aim of the invention is to provide a novel form of pad-retainer and body protector in a quick-detachable and renewable form, enhancing the sanitary advantages of the device. Additional related and other objects, advantages, and features of the invention will be apparent from the following description and accompanying drawings, wherein

Figure 1 is a front elevation of a portion of the body of a person having my truss adjusted thereon in one position.

Figure 2 shows a manner of use of the device at another position.

Figure 3 is a top view of the belt.

Figure 4 is a fragmentary rear elevation of the belt, enlarged.

Figure 5 is a vertical section through the pad-supporting web.

Figure 6 is a front view of the boot for the leg strap and pad, detached.

Figure 7 is an enlarged section of the pad device.

There is illustrated a truss comprising a belt or waist-band 10, which is preferably formed of longitudinally elastic material, adapted to encircle the waist of a patient, or to pass around the hips of the patient, and having separable ends secured releasably together by means of a belt buckle or other fastening 11, and including also means formally shown at 12, for extensibly or retractibly adjusting the length of the belt.

An additional piece of elastic webbing of similar size and material, indicated at 13, is secured at its edges to the rear portion of the belt 10, the section 13 being of a length approximately equal to two-thirds the length of the belt, although this length may be varied according to the proportions of the patient who is to wear the belt, its purpose being to extend across the back and around the sides of the patient, where the belt requires curvature to fit the contour of the body. A strip of sheet metal, preferably aluminum, 14 is set between the belt and the supplementary piece 13, which, being stitched at its edges, forms a pocket entirely around the strip of metal. The metal is arranged so as to fit loosely enough in the pocket thus formed to permit the elastic extension and contraction of the belt around the metal, as may be required in adjustment of the belt upon a wearer. The strip 14 is preferably of such major transverse dimension that it lies closely to the stitching between the upper and lower edges of the belt and back piece 13, so that it affords a substantially rigid truss element with respect to vertical stresses. It is, however, light enough to be bent horizontally to accommodate itself to the contours of the wearer, and the extremities are slightly curved so as to extend with a slight curve around the sides of the wearer. On the belt there is a slide 15, movable longitudinally over that portion of the belt where the back piece 13 is applied, and having thereon a buckle 16 by which a leg-strap may be connected to the slide, as will be found desirable. In the present instance, the slide is formed of a short length of woven vegetable fiber strap material or metal fitted snugly around the belt, and the material of the belt 10 and back piece 13 are formed of woven elastic fabric materials of such structure that rubber or other elastic material enclosed therein may be extended and contracted by the nature of the weave of the fabric, which, taken with the enclosed elastic, will constitute an elastic extensible material. The slide being made of woven material or metal, and being fitted snugly around the belt, may be adjusted longitudinally on the belt, but will not tend to change the position of adjustment unless manually moved, and therefore may be positioned so as to hold the leg strap of such a device in proper position to suit particular cases.

Near one end of the belt, although it may be otherwise located if desired, there is a pendant piece of elastic web material 17, which may be the same as the material of the belt, secured upon the belt and extending downwardly therefrom at right angles, and having a length of approximately four inches in the present instance, although this may be varied if desired. Secured, attached, or formed with this piece, there is a leg strap piece 18, preferably of non-elastic material, which is extended to a suitable length from the belt for the uses to be described hereinafter. Preferably, the pendant web piece 17 is attached to either side of the belt,

and if desired, a facing piece 19 of leather, or other suitable non-irritating material, suitable for contacting the skin of a wearer, may be secured over the end portions of the web 17 where it underlies the belt 10, and will project beyond a boot device, presently to be described, so as to protect the body of a wearer, or to protect the wearer's garments, as may be necessary. The end of the strap 18 is adapted for engagement through the buckle 16, for longitudinal adjustment and tightening, as may be required. A pad proper, 20, is provided, which in the present instance is formed of a semi-spherical body of sponge rubber, the entire surface of which is continuous smooth skin of the same or other suitable material, although it may be covered with a supplementary facing, if desired. This pad thus has a flat side, which is set against the web 17, or it may be reversed, in accommodating the device to various cases.

A boot device 21 is provided, consisting of a lower narrow sleeve portion 22, adapted to fit snugly around the strap 18, and an upper broad portion continued above the sleeve, and open at one side, so that it may be flattened out as shown in Figure 6. The upper end portion of this boot is formed with a horizontal top edge 24 at its broadest part, and on the inner side adjacent each of the corners thus formed, there are secured male elements of separable fasteners, the female supplementary elements for which are secured upon the belt 10 on its outer side, equally spaced from the web 17 at opposite sides of the latter. The boot is so constructed that it may be drawn upwardly over the strap 18 and web 17, and its upper open portion drawn above the belt and then swung downwardly over the belt until the fastenings 25 and 26 may be coengaged to secure the boot in place in that manner. The broadened part is of such proportions that it may pass over the pad 20, accommodating the latter thereunder and serving as a guard between the pad and body of the wearer, in addition to preventing the strap and web 18 from chafing the skin of the wearer, and protecting the wearer from irritation by the lapped portions of the straps and web, and the lapped portion of the web 17 and belt 10.

It will of course be appreciated that the stitching of the longitudinal edges of the belt 10 and the back piece 13 should be of the "overhand" type or other stitching which will permit the lengthening of the belt under stress, as an elastic element, and its proper contraction when released from compression.

In order to absorb moisture and prevent chafing, a slip of padding may be used in parts where the chafing could occur.

In the use of this appliance, the belt is adjusted to position upon the wearer in accordance with the location of the hernia or other wound to be supported, so that the web piece 17 will extend thereover. Preferably, if the hernia or wound is below the level of a line around the hips of the wearer, the belt is adjusted so as to set around the hips of the wearer, without excessive tension, but if the wound is above this level, the belt is preferably adjusted around the waist of the wearer above the hips, so that the web 17 lies over the hernia or wound. The pad 20 is then positioned with either side against the under side of the web 17, and pressed firmly thereagainst, after which the boot 21 is drawn upwardly around the strap 18, over the pad, and over the top edge of the belt, and the fastenings 25 and 26 coengaged, as before indicated. The lower end of the strap is then swung inwardly through the crotch of the wearer and around the leg, and brought upwardly to the buckle 16 on the slide 15, which is adjusted longitudinally on the belt, so that the strap will be held in proper position to firmly retain the pad in position, especially in the case where the belt is adjusted around the hips, and in cases where the belt is adjusted around the waist of the wearer, the strap 17 is less firmly secured in the same manner, sufficient play being allowed to prevent the strap from disturbing the position of the pad, which will in this instance be mainly determined by the belt itself.

It will be appreciated that by reason of the manner in which the rear portion of the belt is trussed or sustained by the metal plate 14, the tension exerted in the strap 18 against the belt will not cause the back portion of the belt to sag, even when it is loosely adjusted upon a wearer. On the contrary, in prior devices the belt has been liable to sag at the back when the leg strap is attached, and it has been necessary to draw the belt tighter than is comfortable for the wearer in order to minimize the effect, and also to minimize the liability of disturbance of proper adjustments which would occur through the effect of movement of the wearer in various ways which tend to cause variation of tension in the belt. Such variation in the tension of the belt will not cause the modification of the support of the leg strap in my invention. A patient may obtain one of my trusses with several of the boots, so that some of these may be in the laundry while others are worn, thus enabling the maintenance of cleanliness without inconvenience, and making it necessary to renew only the one element 21, in order to maintain a clean cover under the pad, and for the leg strap, these being the principal parts which become soiled in such devices.

While I have disclosed a specific embodiment of my invention, it will be understood that this is purely exemplary, and that various modifications in construction and arrangement, and combination of parts, substitution of equivalents and modifications of proportions, and uses of other materials will be carried out without departing from the spirit of the invention, as more particularly set forth in the appended claim.

I claim:

In a truss of the character described, a belt element, a depending pad-supporting web, a leg strap extended therefrom, means to connect the leg strap to the belt at the rear portion of the latter and slidable on the belt, a tubular boot element slidable upon the strap and having a pad therein having a flat side and an oval side, said boot having a broadened piece open at the front at the upper end of the boot, separable fastener elements on the upper end portion of said broadened piece, separable fastener elements upon the front face portion of the belt, said broadened portion of the boot being drawn upwardly around the belt and over the top edge thereof for engagement with respective separable fastener elements.

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