July 22, 1941. W. B. MATTHEWS 2,249,966

ABDOMINAL PROTECTOR

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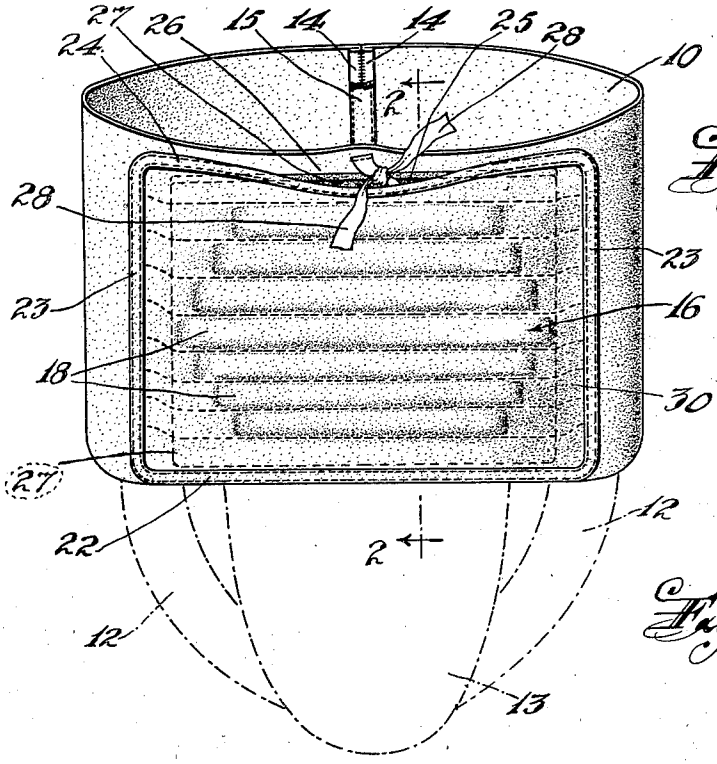


Fig. 1

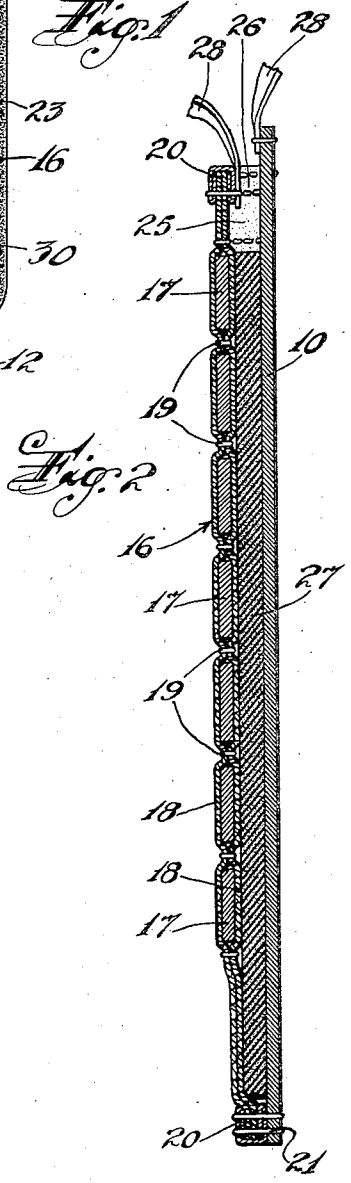


Fig. 2

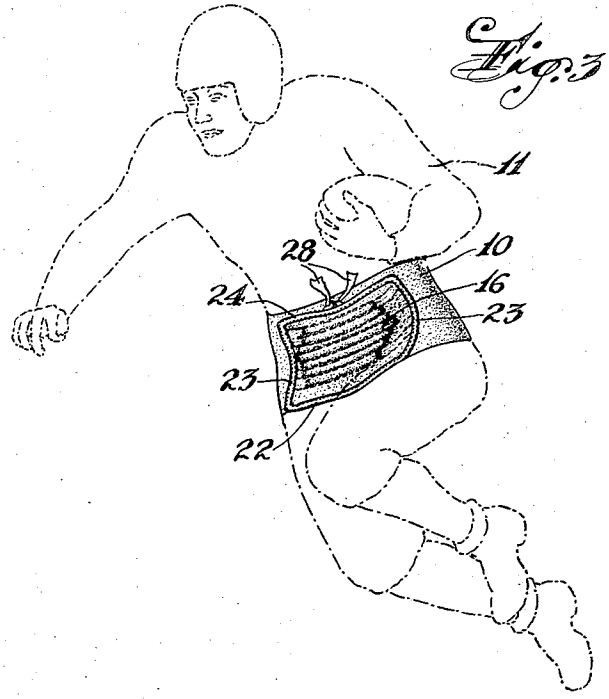


Fig. 3

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Fig. 4

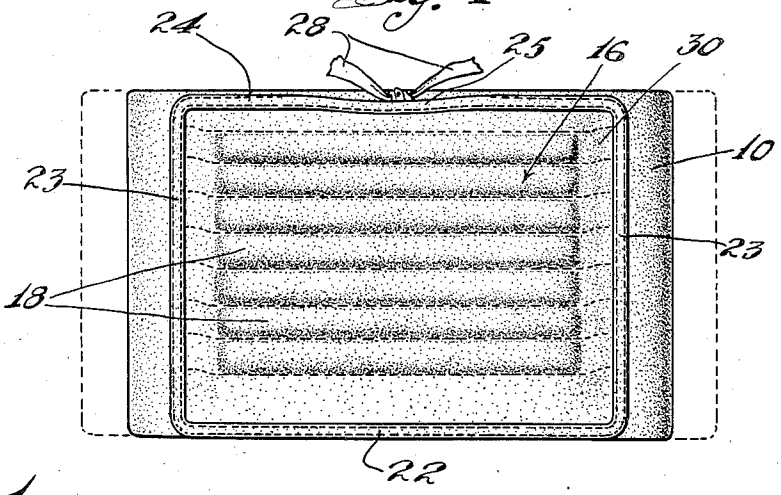


Fig. 5

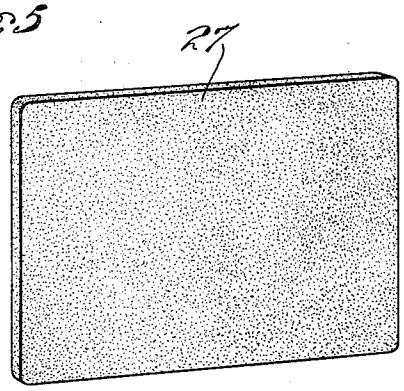


Fig. 6

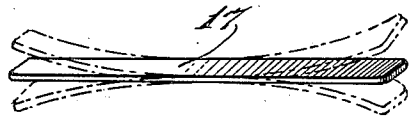
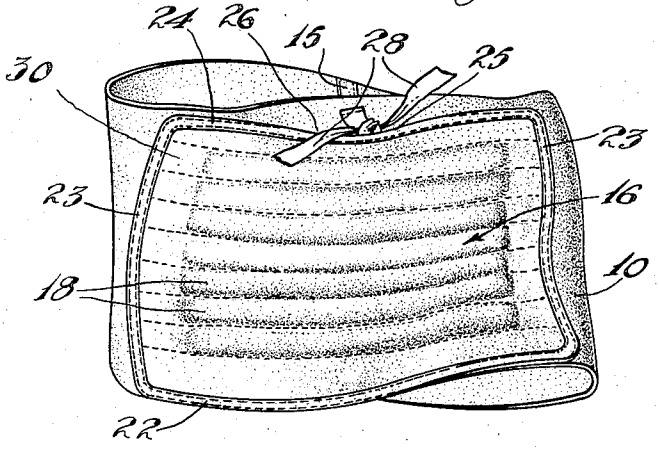


Fig. 7



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ABDOMINAL PROTECTOR

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Application October 19, 1939, Serial No. 300,133

5 Claims. (Cl. 2—2)

This invention relates to a device adapted to be worn by athletes participating in sports and by persons engaged in hazardous occupations, for the protection of the abdominal area. The device is likewise adapted to be worn for esthetic reasons, because of the contracting effect it has on the abdominal area.

An object of my invention is to provide an abdominal protector having an articulated protective panel constructed to readily yield and conform to the movements of the wearer, and, at the same time, afford effective protection to the abdominal area of the wearer.

A further object of my invention is to provide a protector which is so constructed as to effectively absorb the impact of blows directed toward the abdominal area.

A further object of my invention is to provide a protector which will prevent injury to the wearer, assuring his ease of mind and increasing his efficiency on that score, without impeding his participating in any work or sport.

The foregoing and other objects and advantages of the invention will be apparent from the following description when read in connection with the accompanying drawings, wherein:

Fig. 1 is a perspective view of an abdominal protector embodying my invention, the straps thereof being indicated in dotted lines,

Fig. 2 is a transverse sectional view taken on lines 2—2 of Fig. 1, in the direction of the arrows, enlarged to the preferred actual scale,

Fig. 3 shows the device of my invention, worn by a football player indicated in dotted lines,

Fig. 4 is a front elevational view of said device,

Fig. 5 is a perspective view of an impact absorbing pad adapted for use in said device,

Fig. 6 is a perspective view of one of the flexible rib members of the continuous, articulated protective panel used in my device, the flexing of the rib member being indicated in dotted lines, and

Fig. 7 is a perspective view of the device, shown distorted as during the twisting of the wearer's body.

Referring to the drawings by the reference numerals, my abdominal protector comprises an endless band 10, preferably made of lastex interwoven with mercerized cotton to provide a relatively tough, yet resilient material capable of being stretched to position the device on the wearer's body 11, around the abdominal area as shown in Fig. 3. The band 10 is preferably made of a length of suitable material, the free ends 14—14 of which are marginally inturned; a strip 15 of any suitable material is superimposed on and sewed to the free ends 14—14 as indicated in Fig. 1. The band is initially stretched to position the device on the wearer's body, as indicated in dotted lines, Fig. 4, and will then cling tightly thereto; being taut when worn, it provides a firm support for the protective panel presently described.

The band 10 is preferably provided with straps 12 and with an athletic pouch 13 such as are common in athletic garments.

The protective panel 16 of my invention comprises a plurality of flexible rib members 17 sewed together in horizontal close relation, forming a substantially continuous articulated panel 16. The rib members 17 are covered by sheets 18—18 of canvas or other suitable material, the rib members being stitched in aligned horizontal position between said sheets with merely sufficient space between the rib members for the horizontal rib stitches 19 to be applied, said stitches 19 preferably continuing to the vertical margins of said sheets. The panel 16 provides a substantially continuous, articulated impact absorbing panel protecting the entire abdominal area of the wearer. At the same time, each rib member is free to yield independently of the others to conform to the movements of the wearer's body and to receive the impact of blows directed to the panel 16. The rib members 17 are preferably made of fiber, plastic, or any other suitable material which is relatively tough and yieldable, and which will yield to absorb the impact of a blow and will then snap back to normal position, as indicated in Fig. 6. The rib members 17 are preferably, as shown, of less length than the width of the sheets 18—18 and are centrally secured in position between said sheets to provide continuous vertical margins 30, enhancing the flexing characteristics of the device. The sheets 18—18 are marginally secured together, preferably by superimposing over the marginal edges of said sheets a marginal strip 20, preferably of canvas or similar material, the strip 20 being U-shaped in cross section and being secured to the sheets 18—18 by stitching 21 or by any other suitable means. The lower horizontal portion 22 and the vertical portions 23 of strip 20 are preferably stitched directly to the band 10, while the upper longitudinal portion 24 is not, thus providing a substantially three-sided pocket 25 on the band 10. The pocket 25 is open at the top 26 to enable an impact-absorbing pad 27, preferably made of sponge or soft rubber or the like, to be positioned

within the pocket. The pocket **25** may be closed by means of cords **28** carried by the marginal strip **20** and band **10**, as shown in Figs. 1 and 2.

As the pad **27** is intermediate the articulated protective panel **16** and the band **10** it serves to cushion impacts directed to the panel **16** and further serves to conform the panel **16** to the flexing of the band **10**.

The band **10** is normally taut when worn, so that the rib members **17** are held relatively rigid and, when a blow is struck at the panel **16**, the stretching of the band **10** and flexing of the rib members **17** will absorb the impact. The pad **27** cooperates in absorbing the impact.

By varying the length of the rib members **17** the outline of the protective panel **16** may be correspondingly altered. Thus, by using rib members of graduated length, as in Figs. 1 and 3, a protective panel **16** of generally oval outline may be obtained. The oval arrangement is advantageous in that it covers the abdominal area without danger of the binding of the ribs **17** against the wearer's body when the protective panel is distorted as in Fig. 3. The sheets **18** and pad **27** may have the square outline shown in the drawings or may have an outline corresponding with that of the protective panel **16** or may have any other desired outline.

Although but few embodiments of the invention have been illustrated and described, it will be apparent to those skilled in this art that changes and modifications may be made without departing from the spirit of the invention or from the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. An abdominal protector comprising a band adapted to be worn over the abdominal area, a protective panel secured to said band, said panel comprising a plurality of rib members secured to said band in a horizontal, close, substantially continuous, articulated arrangement, presenting a substantially continuous, articulated panel for the protection of the abdominal area, and an impact absorbent pad interposed between the panel and band in registry with said rib members.

2. An abdominal protector comprising a band adapted to be worn on the abdominal area, a protective panel marginally secured to said band at three sides to present an open pocket adapted to receive an impact absorbent pad, said panel comprising a plurality of rib members secured to said band in a horizontal, close, substantially continuous articulated arrangement, presenting a substantially continuous articulated panel for the protection of the abdominal area, and an impact absorbent pad interposed between the panel and band for registry with said rib members.

3. An abdominal protector comprising a band adapted to be worn on the abdominal area, a protective panel marginally secured to said band, said panel comprising a plurality of rib members secured to said band in a horizontal, close, substantially continuous articulated arrangement, presenting a substantially continuous, articulated panel for the protection of the abdominal area, and an impact absorbent pad secured to said band in registry with said panel.

4. An abdominal protector comprising a band adapted to be worn on the abdominal area, a protective panel comprising a pair of sheet members marginally secured to said band at three sides presenting an open pocket adapted to receive an impact absorbent pad, and a plurality of rib members secured between said sheets in a horizontal, close, substantially continuous articulated arrangement presenting a substantially continuous articulated panel for the protection of the abdominal area.

5. An abdominal protector comprising a band adapted to be worn on the abdominal area, a protective panel comprising a pair of sheet members marginally secured to said band and presenting a pocket adapted to receive an impact absorbent pad, a plurality of rib members secured between said sheets in a horizontal close substantially continuous articulated arrangement presenting a panel for the protection of the abdominal area, and an impact absorbent pad secured in said pocket.

WILLIAM B. MATTHEWS.