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ARTICLES FOR PROTECTING THE HUMAN BODY AGAINST IMPACTS

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FIG. 1

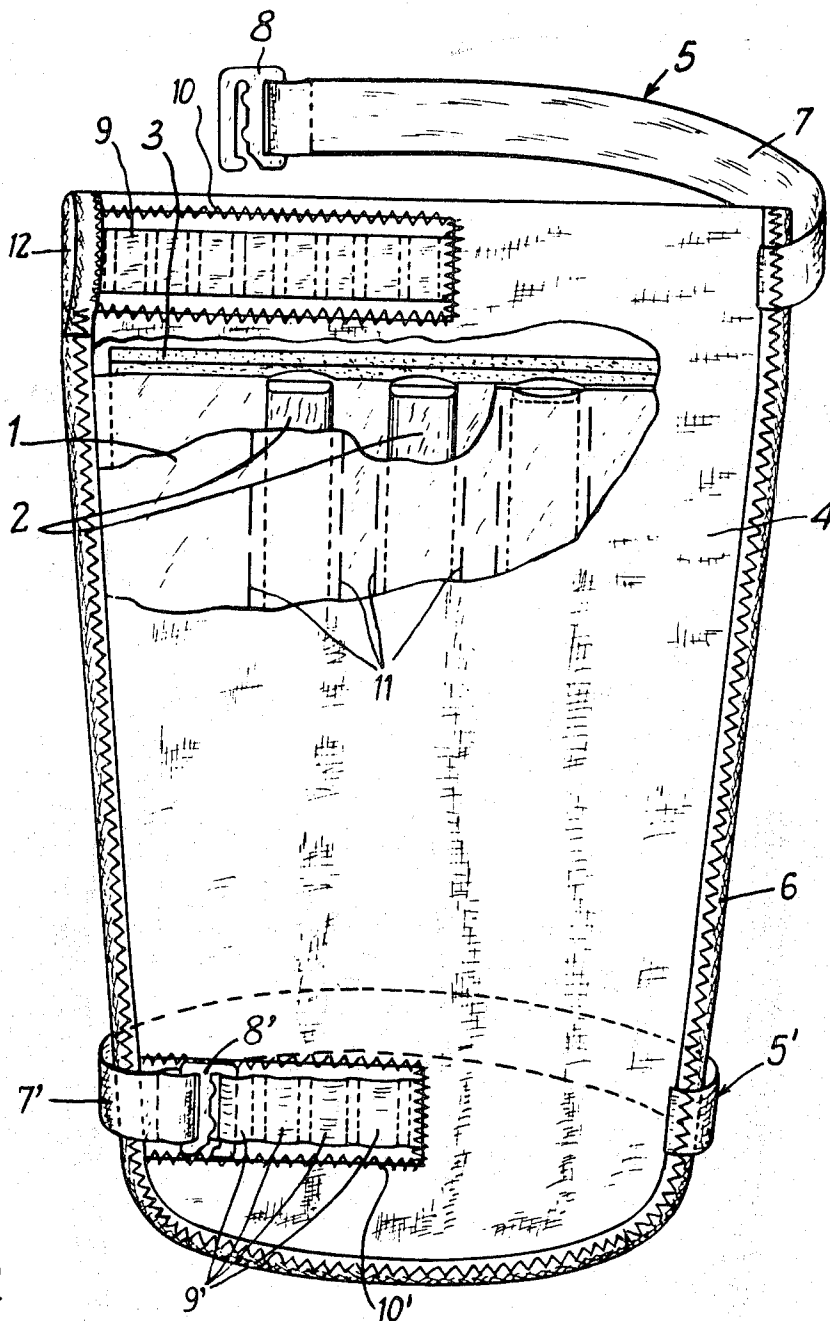
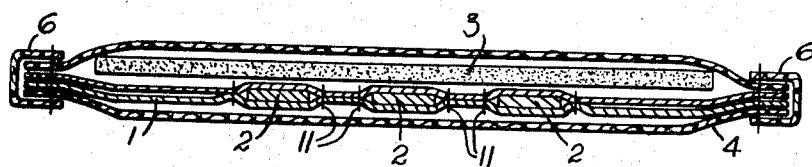


FIG. 2



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## ARTICLES FOR PROTECTING THE HUMAN BODY AGAINST IMPACTS

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3 Claims

### ABSTRACT OF THE DISCLOSURE

A protective article consisting of a bag of flexible plastic material divided into a plurality of compartments in which are imprisoned protective elements of relatively substantial thickness, said bag being provided with means for fastening said article to the part of the body to be protected.

The invention relates to articles for protecting the human body against impacts and especially for shielding the wearer's legs, arms or bust, such articles being primarily intended to be worn for some sports such as football, hockey, karate and the like.

The object of the invention is to provide protective articles of this type which are of very simple design and inexpensive to produce while having high strength and affording very effective protection.

To this end, a protective article in accordance with the invention consists of a bag of flexible plastic material which is divided into a plurality of compartments in which are imprisoned protective elements of relatively substantial thickness, said bag being provided with means for fastening to the part of the body to be protected.

This article is of relatively more simple design and less costly than conventional articles in which the protective elements are held in position on their supports by means of stitched seams.

The invention is also directed to embodiments comprising at least one of the following properties:

(a) The compartments are defined by bond lines between the two walls of the bag.

(b) At least some of the protective elements are rigid and preferably in the form of rods which may be made of wood or a relatively hard plastic material, for example.

(c) The protective elements or some of the protective elements are constituted by flexible pads which may be made of flexible material of either natural or synthetic origin.

(d) The bag of plastic material is covered with fabric over at least one face.

(e) A plate of flexible material of either natural or synthetic origin is placed between the bag of plastic material and the fabric.

(f) The means for fastening the bag to the part of the body which is to be protected consist of elastic straps each secured at one end in the vicinity of one edge of the bag whilst the other end is provided with means for hooking onto corresponding means which are secured to the bag near the opposite edge of said bag.

(g) The hooking means consist of a hook which can be selectively engaged in one of a series of gussets located at different distances from the opposite edge of said bag and constituting the corresponding means referred to in paragraph (f).

A better understanding of the invention will be gained from the following description and from the single figure of the accompanying drawings in which an article in accordance with the invention for protecting the human body

against impacts is shown in perspective and solely by way of non-limitative example, the article illustrated being a shin-guard or leg-pad.

FIG. 1 is front elevation view partly broken away of a leg pad construction in accordance with the invention;

FIG. 2 is traverse section of the leg pad of FIG. 1. The leg-pad comprises a bag 1 formed of flexible plastic material such as polyvinyl chloride, for example, which contains protective elements 2 and against which is applied a plate 3, said plate being made of a natural or synthetic material such as rubber, neoprene or felt, for example. The complete assembly is covered with a fabric bag 4 fitted with means such as 5, 5' for fastening to the leg of the wearer.

The bag 1 of plastic material is made, for example, of polyvinyl chloride. The protective elements 2 which, in the form of construction which is illustrated, consist of straight rigid rods of wood or hard plastic material, for example, are housed within compartments formed by the bond lines 11 between the two walls of the bag.

In this example, the rods 2 are parallel to each other in order that the whole leg-pad should be suitably adapted to correspond to the shape of the wearer's leg.

The plate 3 of flexible material has smaller external dimensions than the bag 1 of plastic material and the fabric bag 4 is closed by means of a seam which is stitched around the entire periphery and which is preferably strengthened by means of a braid 6. This stitched seam serves at the same time to maintain the bag 1 perfectly in position, the lateral edges of said bag being retained in said seam. The fabric is made of a material which has the advantage of strengthening the bag of plastic material and above all of absorbing perspiration while being more pleasant to wear in contact with the skin than plastic material.

The means for fastening the leg-pad to the wearer's leg consist in this example of two elastic straps 7, 7' which are attached at one end to one of the edges of the fabric bag 4 whilst the other end is provided with a hook 8, 8' respectively which can be selectively engaged in one of a series of gussets 9, 9' formed, for example, in an added band 10, 10' which has been laid flat and fixed on the fabric bag 4 starting from the opposite edge of this latter.

The braid 6 is folded back at the top left-hand extremity so as to form a loop 12 for the insertion of the top elastic strap 12 in order that this latter should remain securely in position even when it is hooked in one of the furthest gussets 9.

This article is of very simple design but nevertheless provides very effective protection of the leg on which it is fitted. Moreover, the mode of attachment by means of elastic straps permits of variations in volume of muscles during physical exertion and consequently prevents any physiological disturbances. Adjustment of the leg-pad by engagement of a hook in either one or another of a series of gussets permits the use of the same article by all sportsmen and this greatly facilitates both manufacture, storage and sale of the article.

Effective positioning and adaptation to the wearer are ensured automatically, with the result that the article does not tend to be displaced under the action either of impacts or of physical movements by the wearer.

As will be readily apparent, the invention is not limited to the form of construction which has been described with reference to the accompanying drawings and it will be understood that, depending on the applications which are contemplated, a large number of modifications could be made without thereby departing from the scope of the invention.

It accordingly follows, for example, that the hooks proposed as fastening means could be replaced by any

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other suitable and conventional means for fastening the straps such as buttoning systems or alternatively systems comprising hooking elements of the filament type known by the name of "Velcro."

Instead of being designed to be fitted on a leg, the protective article could be designed and arranged so as to be fitted on an arm or could also serve as a body-shield.

Furthermore, the bag of plastic material fitted with protective elements could be employed directly and without any fabric covering. Alternatively, the bag need be protected by fabric only on one face.

What is claimed is:

1. An article for protecting the human body against impacts and especially for shielding the wearer's legs, arms and bust, said article comprising an open-ended bag formed of a flexible plastic material, said bag divided into a plurality of elongated side-by-side compartments, each of said compartments in said bag having along each of its longitudinally extending edges a bond line and the adjacent bond line along the edges of adjacent compartments are disposed in laterally spaced relationship so that said compartments are spaced apart in the direction transverse to the length of said compartments, an elongated rigid rod disposed within each of said compartments, a plate-like member of flexible plastic material in surface contact with one of the sides of said bag and forming a backing for said rods, the edges of said plate-member extending in the direction of said rods in said compartments being spaced inwardly from the edges of said bag, and absorbent fabric material covering said bag and said plate-like member, a stitched seam formed about the entire peripheral open edge of said fabric material securing said fabric material to said bag, and means attached to said article for fastening

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said article to the part of the body which is to be protected.

2. An article, as set forth in claim 1, wherein said means for fastening said article to the part of the body which is to be protected comprises elastic straps secured to said article at spaced positions, each of said straps is secured at one end in the vicinity of one edge of said bag, hooking means attached to the opposite end of said elastic strap spaced from the end secured to said bag and corresponding means secured to the opposite end of the edge of said bag to which said strap is secured for engagement with said hooking means on the free end of said strap.

3. An article, as set forth in claim 2, wherein said hooking means comprises a hook, said corresponding means comprising a series of gussets disposed in spaced relationship along the opposite end of the edge of said bag to which said strap is secured so that said hook can be selectively engaged in one of said gussets for fastening said article to the part of the body which is to be protected.

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