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3,553,749

IMPACT CUSHION

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FIG. 1

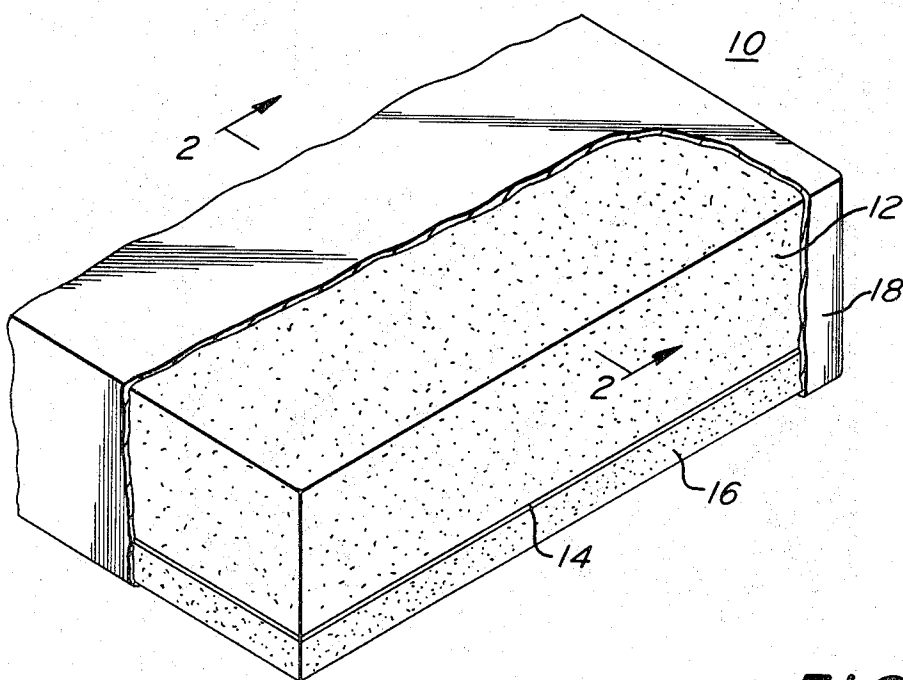
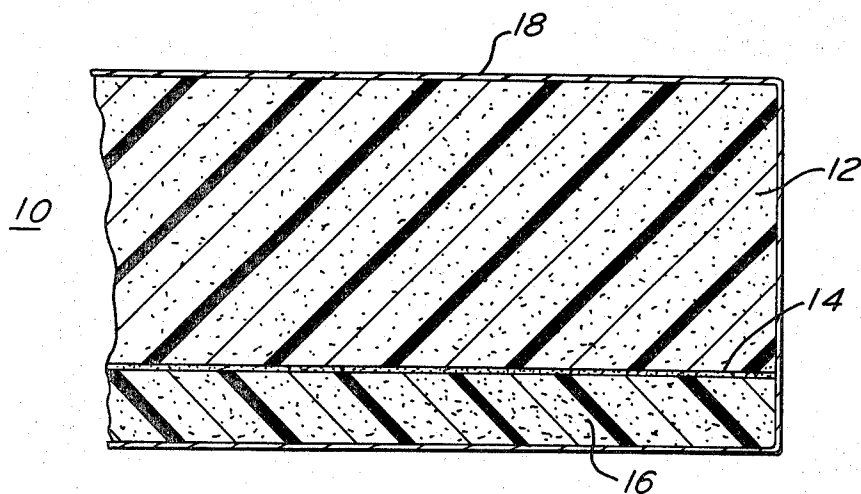


FIG. 2



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IMPACT CUSHION

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1 Claim

ABSTRACT OF THE DISCLOSURE

An impact receiving cushion which includes an upper or outer soft quick recovery foam element, preferably of polyurethane, superposed on and adherent to a lower or inner harder liquid proof foam element, preferably of closed cell polyethylene. The upper foam element receives the impact, partially encompasses and exerts a drag on the impacting device but transmits such part of the impact as it does not absorb to the lower harder and less resilient foam element. An outer enclosing cover of fabric or the like may be provided to reduce the soiling of the foam elements in use.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to impact cushions for industrial use and for body protection.

Description of the prior art

Impact cushions for beer kegs in rectangular form have been employed, these having been made of rope. Such cushions are absorbent of water which adds greatly to their weight and makes them unpleasant to handle.

Impact cushions for athletic use have been made with fillings of curled hair, cotton or even confined air, as in Gilman, U.S. Pat. No. 2,526,217, or with an elastomer sponge, such as sponge rubber, plastic or the like as in Roderick, U.S. Pat. No. 3,135,961.

SUMMARY OF THE INVENTION

In accordance with the invention an impact cushion is provided which includes an upper or inner soft quick recovery primary impact receiving foam element adherently secured to a lower or inner harder liquid proof secondary impact receiving foam element. The primary element is soft, slowing down the impact device and reducing side slip, and the secondary element is harder and stiffer and receives the remainder of the impact which is not absorbed in the primary element.

It is the principal object of the present invention to provide an impact cushion which is simple in construction, of relatively inexpensive materials, which can be readily made in any desired size and shape, is light in weight, has relatively long life and which has a wide range of usefulness.

It is a further object of the present invention to provide an impact cushion which has an outer or upper softer foam element for exerting a drag on the impacting device and which reduces side slipping and an inner or lower harder preferably waterproof foam element which absorbs such impact as is not taken up in the first element.

Other objects and advantages features of the invention will be apparent from the description and claims.

BRIEF DESCRIPTION OF THE DRAWING

The nature and characteristic features of the invention will be more readily understood from the following description taken in connection with the accompanying drawings forming part thereof, in which:

FIG. 1 is a fragmentary perspective view of an impact

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cushion in accordance with the invention, parts being broken away to show the construction; and

FIG. 2 is a vertical sectional view, enlarged, taken on the line 2—2 of FIG. 1.

It should, of course, be understood that the description and drawings herein are illustrative merely, and that various modifications and changes can be made in the structure disclosed without departing from the spirit of the invention.

Like numerals refer to like parts throughout the several views.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to the drawings a specific embodiment of the invention is illustrated and is suitable for taking the impact of beer kegs, such as those weighing approximately one hundred and thirty pounds.

The impact cushion or pad 10 there shown, and which may be approximately eighteen inches by twenty four inches has an upper or outer primary cushion element 12 of a soft foam, a thickness of about four inches having been found suitable. The cushion element 12 is preferably an open pore expanded polyurethane foam of a density of the order of two pounds per cubic foot and up to six pounds per cubic foot.

The cushion element 12 has secured thereto, such as by a layer of adhesive 14, a lower or inner secondary cushion element 16. The cushion element 16 is preferably a hard foam of a thickness in the specific cushion referred to above of about one inch. The cushion element 16 is preferably a light weight waterproof shock absorbing chemically inert foam. One suitable foam for this purpose is a closed pore expanded polyethylene, available from Dow Chemical Co., Plastic Division, Midland, Mich., under the name Ethafoam, of a density of two pounds per cubic foot up to eleven pounds per cubic foot and previously employed alone for parachute drop cushions. Another suitable foam is an open cell slow recovery polyurethane foam of Scott Paper Company, Chester, Pa., of similar density range but any other synthetic plastic foam having the desired characteristics may be employed.

The adhesive layer 14 for holding the elements 12 and 16 together may be brush or spray applied, may provide a bond by mechanical adhesion, specific adhesion, or both. Such adhesives are available from various sources, including Adhesive Products Corporation of New York, N.Y.; Pittsburgh Plate Glass Co., Adhesives Products Division, Bloomfield, N.J.; Minnesota Mining and Manufacturing Company, Adhesives, Coatings and Sealers Division, St. Paul, Minn.

For some purposes an outer protective enclosing cover 18 may be employed to reduce likelihood of soiling in use. The cover 18 can be of vinyl sheeting, woven fabric such as canvas or the like preferably impervious to moisture or treated for this purpose, and preferably heat sealed at the meeting edges or sewn or otherwise joined dependent upon the material employed.

The impact cushion specifically referred to above is particularly suitable for handling beer barrels but the cushion assembly has additional uses, with varied thicknesses of the elements 12 and 16 dependent upon the use. Thinner assemblies will serve for impact receiving padding for athletic and other protective garments in the desired shapes and sizes in accordance with the area of the body to be protected. The cushion 10 for such purposes can be mounted and otherwise covered on one or both sides as desired.

In use, as will be understood from the foregoing, the upper or outer cushion element 12 is soft and has an absorbing action and at least partially encompasses the impacting device or object so that side slipping of the

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impact device or object is prevented. The impact itself, to the extent that the cushion element 12 can do so, is taken up and absorbed by that element but in the event of greater magnitude the impact in reduced but concentrated form is largely or wholly taken by the secondary cushion element 16.

I claim:

1. An impact cushion comprising
a primary cushion element of stabilized synthetic plastic foam of open pore expanded polyurethane foam of a density in the range from two to six pounds per cubic foot and having rapid impact recovery for initial impact reception,

a secondary cushion element of stabilized synthetic plastic foam coextensive with and secured to said primary cushion element therebelow for transmitted impact reception,

said primary cushion element being a plurality of times the thickness of said secondary cushion element and being of a softer foam than said secondary cushion

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element and restraining side slipping of the impacting object,
said secondary cushion element being of a foam selected from the group consisting of closed pore expanded polyethylene and expanded polyurethane, and
said secondary cushion element being of a slow recovery foam with a density in the range from two to eleven pounds per cubic foot.

References Cited

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5—361