

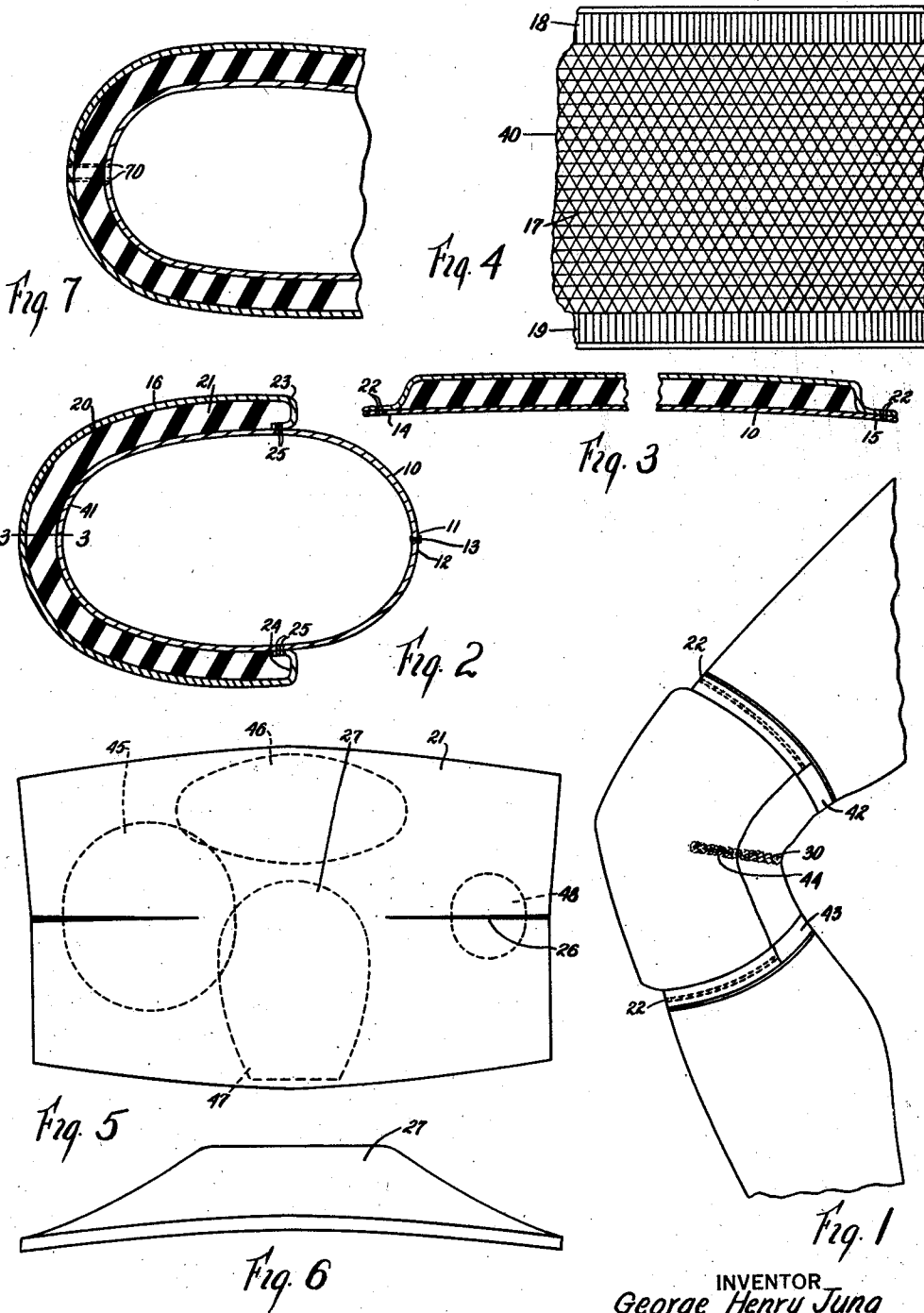
Jan. 30, 1940.

G. H. JUNG

2,188,718

PROTECTOR PAD AND SUPPORTER

Filed March 21, 1938



INVENTOR
George Henry Jung
BY Frank Gygeler
ATTORNEY

UNITED STATES PATENT OFFICE

2,188,718

PROTECTOR PAD AND SUPPORTER

George Henry Jung, Cincinnati, Ohio

Application March 21, 1938, Serial No. 197,104

5 Claims. (Cl. 2—24)

This invention relates to knee pads or protectors intended primarily for use of participants in athletic sports such as football. While the subject matter of the invention is adaptable to devices of the character indicated for use in connection with other sports such as basketball and the like, the invention will be explained in connection with its application to football and the participants in football matches.

The invention is not limited to embodiment in knee pads or knee protectors but is also adaptable to and applicable to other devices of the general character of, for example, elbow pads or protectors and other pads or protectors wherein the within disclosed principles of adaptation and cooperation of parts may be utilized.

Heretofore various types and kinds of knee pads have been provided for football players. Various objectionable features, incident to such devices, have been noted, and an object of the invention is to obviate same.

An object of the invention is to provide a device of the character indicated that will not constrict or restrict the free easy movement of the wearer.

Another object is to provide a device of the character indicated which, by reason of the relationship established between its cooperating parts, will maintain its intended position upon the wearer's body, regardless of the movement of the wearer incident to the participation of the wearer in various events.

Another object of the invention is to provide a device which will have practically no restrictive or constrictive effect upon the blood circulation of the wearer.

Another object is to provide a combined knee pad and supporter that will serve as a comfortable and effective brace or support in connection with a padding material arranged so that neither the padding nor the parts provided to hold same in place, will interfere with the efficient action of the brace or support.

Another object is to provide a device having the indicated novel features, and to which there may readily be added, extra padding at the more vulnerable places or injured portions of a wearer's body, without increasing the bulk of the entire pad, forming an essential part of the invention.

Another object of the invention is to provide a device which will give the maximum of protection with a minimum of padding material, weight, and general bulk or size of the device as a whole.

Another object of the invention is to provide

such a relationship of cooperating parts that no one of the various parts will in any manner prevent utilization of all the inherent shock preventing qualities or characteristics of other parts of the device.

These and other objects are attained by the means described herein and illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmental view of a wearer's leg having a device embodying the invention mounted at the knee thereof.

Fig. 2 is a horizontal sectional view of a device embodying the invention.

Fig. 3 is a cross sectional view on line 3—3 of Fig. 2.

Fig. 4 is a fragmental side view of the pocket forming section 16 of elastic material forming a detail of the invention, and turned upon itself intermediate its ends.

Fig. 5 is a plan view of a formed sponge rubber pad, forming a detail of the invention and showing, in dotted lines, attachment of various additional or supplemental pads to the main or base pad, forming a detail of the invention.

Fig. 6 is a side view of the device shown in Fig. 5.

Fig. 7 is a fragmental view, similar to Fig. 2, showing a modification of the invention.

The device of the invention comprises an annular band 10 of elastic webbing. The elastic webbing preferably has stronger elasticity circumferentially of the band 10, than transversely thereof, although some elasticity in other directions is not objectionable. The ends 11 and 12 of an elongated strip of elastic material are secured together in any suitable manner, for example, as shown at 13, by vulcanizing rubber at and about the ends 11 and 12 in accordance with any of the practices common in the art. In some instances, it may be deemed advisable to also provide suitable stitching or sewing and possible overlap either of the ends 11 and 12 or of an additional ply of material, so as to provide sufficient strength to the joint or seam in the annular band 10. If desired, the opposed peripheral edges 14 and 15 of the band 10 may be provided with a suitable selvage for reinforcing the edges in accordance with common practice in the webbing art.

Preferably, the annular band 10 is of a fairly heavy character. By this is meant that the annular band 10 more firmly resists stretching than does the cooperating elastic cover or pocket member 16.

The annular band or brace portion 10 of the device is preferably shaped or fashioned, by

weaving of the elastic, or by slitting and removing a portion thereof and then vulcanizing the adjacent edges as indicated at 30, for effecting a somewhat tapered structure adapted to better accommodate the annular band to a wearer's knee.

The cover or pocket forming member 16 consists of a length of elastic material, the central portion 17 of which is universally elastic in that it may stretch in any direction. The outer edges or selvage edges 18 and 19 thereof are preferably relatively less elastic and are preferably so formed as to stretch only in the direction of the length rather than in the direction of the width of said member 16. Preferably, the member 16 is so positioned upon the annular band 10, that a pocket 20 is formed opposite to the seam 13 in the annular band 10. It is intended that the device when mounted upon a wearer's knee shall have the seam 13 disposed at the rear of the knee and that the pocket 20, together with the sponge rubber pad 21, contained within said pocket, shall be disposed at the front and well over the sides of the wearer's knee.

The cover or pocket forming member 16 is preferably so shaped or fashioned, that the selvage edges thereof, in the normal, unstretched condition of said member 16, are shorter than the intermediate, body forming portion 40 thereof. By reason of such arrangement, the body or intermediate portion of the member 16 has a ruffled appearance or form, along its connection with the selvage portions thereof, and the relatively loose webbing intermediate the selvage side or lateral edges thereof is developed into what may be termed a bag for receiving the padding material. Thus, the body portion of the pocket is spaced from the underlying body portion 41 of the annular band 10, such spacing providing the pocket 20 between said body portions. This arrangement is shown in Figs. 3 and 4.

The opposite selvaged edges 18 and 19 of the pocket member 16 are secured to and along the opposed selvage edges 42 and 43 of the annular band 10 by suitable rows of stitching 22 or any other suitable attachment means. The ends 23 and 24 of the pocket member 16 are turned inwardly and are secured to the annular band 10 by stitching 25 or other suitable attachment means.

The ends of the pocket forming strip or member 16, is preferably so shaped or fashioned, so as to conform with the shape of the annular band 10. The tapered form of the band 10, effected by the means previously explained herein in connection with the illustration at 30 in Fig. 1, may be imparted, in like manner, to the ends of the pocket forming member 16, as shown at 44. Thus the overall widths of the band 10 and pocket forming member 16 are substantially identical at any place, transversely of the device. Thus the pocket proportions and form remain substantially constant throughout the length and width of such pocket.

Prior to closing the pocket 20, there is introduced into the same, a pad 21. The pad 21 is preferably made of sponge rubber. Preferably, there is used a sponge rubber having minute cells therein which are filled with a gas, for example, hydrogen carrying sponge rubber.

The pad 21 may be formed by slitting the opposite ends and removing from such area, sufficient of the material as will taper the opposite ends of the pad, as shown in Fig. 5. The material along the indicated slits is then secured

together by vulcanization or any other suitable method or means, as indicated generally at 26. By so forming the pad 21, the central portion 27 thereof is developed into a cup-like shape which is best observed at 27 in Fig. 6. The cup form so given to the pad is adapted to receive the kneecap or patella, the lateral walls of the indicated cut portion providing lateral protection to the knee joint and serving to help retain the device as a whole in proper position for best guarding or protecting the vulnerable parts of the wearer's knee.

Attention is called to the fact that the cupped pad 21 may be free of any connection with any other parts that would tend to fix it in relation to the elastic pocket forming members 16 and 10. However, it is to be understood that if desired, the pad may be attached to one or the other or to both of said pocket forming members 10 and 16, in any suitable manner that will not interfere with the proper functioning of the parts. For example, a row of stitching may be applied transversely of the device, on approximately the line 3—3 shown in Fig. 2. In Fig. 7 the referred to stitching is shown at 70, and the stitching may extend through the entire device or through either of the elastic webbings and the pad only.

In Fig. 5, there are shown in dotted lines, a series of arbitrarily shaped and positioned buttons or supplemental pads 45, 46, 47 and 48, attached to the base or main pad 21. Any suitable means such as adhesive or stitching may be resorted to for such attachment. The buttons or auxiliary pads are intended to be applied or attached to the main pad at such places as may be desired to provide extra cushioning or protective benefit at such places where same may be desired in view of the personal peculiarities or injuries of the wearer, or in view of the peculiarities of the game in which the wearer may be engaged and because of which special padding at special places may be deemed advisable or necessary.

The relatively light weight elastic 16, disposed so as to provide the outer wall of the pad receiving pocket 20, as well as the universal elastic properties thereof, assure the adjustment or movement of the pad member 21, without appreciable restriction, and incident to impact of the wearer with the ground or other players. Also, said elastic characteristic of member 16, together with spaced relationship established between the body portions of the elastic webbings, permit ready enclosure within the pocket, of the main pad together with such buttons or auxiliary pads as may be attached thereto.

The selvage edges 18 and 19 permit the flexing and stretching of the lateral edges of the pocket forming member incident to mounting and demounting of the device upon a wearer as well as permitting such slight stretching thereof as may be desired incident to movement of the wearer's muscles disposed adjacent the upper and lower edges of the applied device. In addition, the indicated selvage members assure return of the central portion 17 of the pocket forming member to normal position, as soon as the wearer's weight is removed from the pad and pocket-forming members. Consequently, the parts properly readjust themselves to their normal positions and under which condition, the pad 21 is positioned for most effectively and efficiently protecting the wearer at the vulnerable points where protection is most desired.

The slitting of the opposite ends of the sheet of padding 21, and the subsequent attachment of the edges thereof adjacent such slits, serves both to give a cupped shape to the pad and also

5 tapers the opposite longitudinal edges of the padding, as shown in Fig. 5, thus causing the pad to conform to the shape and size of the pocket formed between the elastic strips or webbing 10 and 16.

10 What is claimed is:

1. In a device of the class described the combination of an annular band having annular selvage edges and elastic mainly in the direction of its selvaged edges, a pocket forming elastic strip having a central or body portion, universally elastic and having two opposite selvage edges, said edges being elastic mainly in the direction of the length of the strip, the selvage edges of the strip being secured to the selvage edges of the band, and the elastic strip having its edges intermediate said selvage edges thereof secured to the annular band, whereby to provide a closed pocket between the band and the strip, and a cup-shaped pad within the pocket and substantially free of connection with said band and strip, the recessed portion of said cupped pad being disposed adjacent the band portion of said pocket.

2. In a device of the class described the combination of an annular band having annular selvage edges and elastic mainly in the direction of its selvaged edges, a pocket forming elastic strip having a central or body portion, universally elastic and having two opposite selvage edges, said body portion and selvage edges being so related that in the normal unstretched conditions thereof, the body portion is longer than the selvage portions thereof, whereby a ruffle of said body portion is produced along said edges, said edges being elastic mainly in the direction of the length of the strip, the selvage edges of the strip being secured to the selvage edges of the band, and the elastic strip having its edges intermediate said selvage edges thereof secured to the annular band, whereby to provide a closed pocket

between the band and the strip, and a cup-shaped sponge rubber pad within the pocket, the recessed portion of said cupped pad being disposed adjacent the band portion of said pocket.

3. In a device of the class described the combination of an annular elastic band having greatest elasticity in the direction of its peripheral edges, a universally elastic strip having a greater degree of elasticity than said band, secured externally of and to said band for providing a pocket 5 between said band and strip, and a cupped, sponge rubber pad within said pocket and having the recessed portion thereof disposed toward said annular band.

4. In a device of the class described, the combination of an annular elastic band having greatest elasticity in the direction of its peripheral edges, an elastic strip mounted externally of and to said elastic band in spaced relationship for providing an outwardly bulging pocket between the band and the strip, with the external strip stretchable in a direction transversely of the direction of greatest elasticity of the annular band, and a preformed cup-shaped elastic cushion within said pocket having the recessed portion thereof disposed toward said annular band while the projecting portion opposed to the recessed portion extends outwardly into the pocket formed by the elastic strip.

5. In a device of the class described, the combination of an annular elastic band having greatest elasticity in the direction of its peripheral edges, an elastic strip mounted externally of and to said elastic band in spaced relationship for providing an outwardly bulging pocket between the band and the strip, with the external strip stretchable in a direction transversely of the direction of greatest elasticity of the annular band, and an elastic pad having a thickness approximating the extent of the bulge on the annular band formed by the externally disposed elastic strip, thereby to avoid inward bulging of the annular band by the pad.

GEORGE HENRY JUNG.