June 23, 1970 H. O. THURSTON 3,516,180

ANTI-CHAFING LEG GUARD

Filed Oct. 22, 1968

Fig. 1

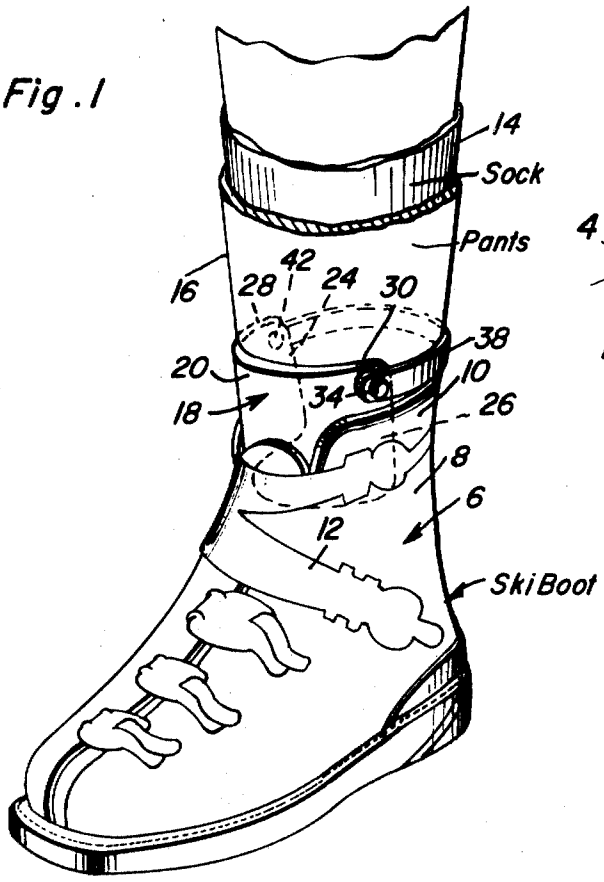


Fig. 2

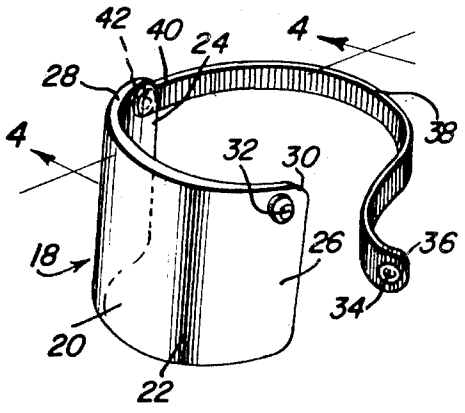


Fig. 3

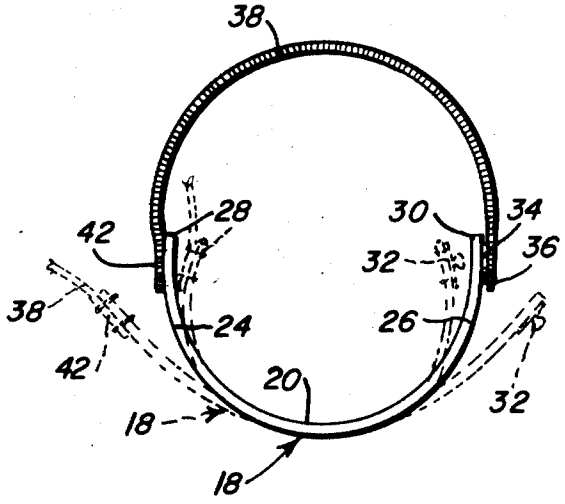
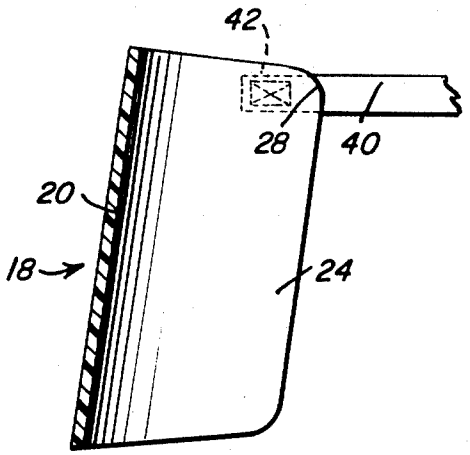


Fig. 4



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ANTI-CHAFING LEG GUARD

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ABSTRACT OF THE DISCLOSURE

An accessory for use by a skier. It functions as guard and reduces to a practical minimum painful leg soreness such as ordinarily results from bruising and chafing of the skier's skin in the area directly subjected to frictional pressure, for example, by the usual stiff collar surrounding the high upper of a conventional ski boot. Stated otherwise, it provides an efficient bruise and chafe resisting guard or shield. It is saddled over the vunerable ankle and leg areas, can be strapped in place and is so shaped and proportional in size that the lower curvate portion can be tucked into the aforementioned collar.

This invention relates to certain new and useful improvements in a skier's leg guard, more particularly, a longitudinally bowed conformably fitting one piece lightweight but rigidified shield can be retentively saddled over the tender flesh and vulnerable skin in that area which is commonly subjected to frictional pressure from the associated ski boot collar while skiing.

More specifically, the concept, generally stated, has to do with effective and reliable protection against frictional pressure and pertains to a simple, practical and feasible form-fitting guard or shield which provides a capably performing pressure intercepting shield and receives and distributes pressures imposed upon it and wards off bruising and pain inflicting difficulties such as are commonly encountered by skiers when resorting to certain pressure generating maneuvers.

Briefly, the protective guard is uniquely designed and adapted for use in conjunction with a ski boot the upper of which is encompassed by a stiff difficult-to-cope-with ankle and leg encircling collar and is known to exert and impose chafing and crippling pressure on vulnerable ankle and leg surfaces. It is characterized by a plastic or an equivalent guard capable of intercepting, blocking and distributively equalizing pressures which are concentrated and imposed on the tender vulnerable surfaces.

In carrying out the inevntion the preferred guard comprises an elongated longitudinally bowed or curvate plastic or equivalent shield. This shield is adapted to be comfortably and conformingly saddled over the aforementioned tender ankle and leg surfaces. This guard is of an over-all size and shape that it spans and safeguards the surfaces which are subjected to frictional pressure and attending bruising and chafing as the case may be.

As will be hereinafter more fully appreciated the herein disclosed guard involves an innovation in intercepting and affording protection against frictional pressure. To this end it provides a hard self-shape retaining barrier which when properly associated with the boot collar, pants leg and sock functions to dissipate objectionable frictional pressures thereby preventing any transmission of these forces to the skin and flesh. This unique gaurd or shield is preferably but not necessarily made of moldable plastic material which is reinforced with self-contained fibrous glass commonly referred to in the trade as "Fiberglas."

Thus molded and shaped it is vertically rigid but has flexible terminal ends for ease of placement on and conformability to the leg surfaces cooperable therewith. It will also be significant to note that the guard or shield is substantially rectangular in front elevation and the grade of plastic material used is non-toxic to the skin. In fact, it is low in heat and cold conductivity and while possessing requisite toughness and strength with the vertical rigidity it allows sufficient flexibility laterally permitting easy attachment and conformable fitting to the leg. Experience has shown that the reinforced plastic guard or shield cannot ordinarily be dented or broken or bent out of shape through normal usage. Being made of moldable plastic material it takes advantage of lightness in weight and provides excellent conforming characteristics and a maximum of serviceability. Then, too it permits precise shaping to an individual's specific or particular need. By immersing the shield in hot water say around 200° F., the shield then becomes pliable and formable for shaping. In fact, after it has cooled and set it will resume and maintain its natural guard forming shape.

In addition to the above this unique shield can be applied over the ski sock or pants leg where it becomes an impervious barrier to any frictional pressure emanating from the boot collar. All of the rubbing by the boot due to constant ankle and knee flexing action is virtually intercepted and absorbed by this simple but nevertheless highly effective guard.

This guard is not only strong, durable and light in weight it is amply thin in profile, which enables it to be slipped on the leg between the pants leg and the ski boot collar and because of its minimal dimensions it takes up very little space. It is within the purview of the invention to provide the guard with ventilating holes to cope with heat problems. It can also be used in industry job requirements where wearing of a high upper shoe or boot is essential. Fastenings can be attached if necessary for industrial use and in fact for use when employed by a skier.

It may be added that the guard disclosed usually measures approximately three inches vertically in the center thereof and has end portions which taper slightly toward the respective or terminal ends. The over-all length horizontally could and preferably will be between seven and eight inches.

It is also a matter of significance to mention at the outset that a guard constructed as herein shown and described diminishes rubbing and constant frictional contact between the stiff pressure imposing front portions of the boot's collar and that part of the wearer's leg which unless protectively shielded would be painfully chafed and distressingly bruised.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a view in perspective showing a ski boot having its upper terminating in a stiff ankle embracing collar, showing a portion of a sock, a portion of one leg of the pants and, more particularly, the improved frictional pressure intercepting and chafe resisting guard.

FIG. 2 is an enlarged view of the guard by itself showing the optionally usable elastic leg encircling and retaining strap or band.

FIG. 3 is a top plan view the purpose of which is to show the guard with the retaining strap attached and which also shows in phantom lines how the flexible end portions are susceptible of being contracted or spread to accommodate the leg of the wearer.

FIG. 4 is an enlarged fragmentary detail section taken approximately on the plane of the section line 4—4 of FIG. 2 looking in the direction of the arrows.

The inventive concept embodies the combination of component parts shown in FIG. 1 and also the sub-combination aspect as illustrated in FIGS. 2, 3 and 4.

Insofar as the ski boot **6** is concerned it can be of conventional construction and as shown it embodies a so-called high upper **8** which terminates in a relatively stiff pressure imposing collar **10**. The fastenings **12** and other features of the boot are of no moment, that is, patentably speaking.

Inasmuch as the invention lends itself to use in the manner shown in FIG. 1 the numeral **14** designates a sock and the numeral **16** designates a covering or lower portion of a pants or trouser leg. It is within the purview of the invention to apply the guard between the leg **16** and the sock **14** or to apply it over the pants leg **16** in the manner shown.

The leg guard detailed in FIGS. 2, 3 and 4 will virtually prevent soreness, bruised and chafed skin in the ankle area directly subjected to frictional pressure by the front collar portion of the ski boot in the manner shown in FIG. 1. It provides a positive hard barrier which dissipates objectionable frictional pressure. The guard proper is denoted as an entity by the numeral **18**. It is preferably longitudinally bowed and substantially rectangular in plan and has a substantially rigid non-yielding central body portion **20** which is of the curvature illustrated and which merges as at **22** into gradually tapering terminal left and right end portions **24** and **26**. The upper left hand corner portion is denoted at **28** and the upper right hand corner portion at **30**. This portion **30** is provided on its exterior surface with a snap fastener **32**, that is, a male snap fastener, the same being constructed and located to accommodate a female snap fastener **34** on the free end portion **36** of an elastic attaching strap or band **38**. The opposite end portion **40** is superimposed on the corner and is stitched or otherwise joined thereto as at **42** (FIG. 4). It is to be recalled that the leg guard will be made with or without fastenings. The major or body portion is rigid at **20** for approximately three inches before it becomes amply flexible at the ends **22** to conform with the protectable portion of the leg.

The invention has been used primarily for skiing and has been experimentally tried out and approved as practical by recognized skiers and ski shops. It is made as suggested from reinforced plastic, that is moldable plastic which is reinforced and rigidified by embedded fibrous glass known, as already suggested, as "Fiberglas."

The ready-to-use appliance or accessory is shown advantageously in FIG. 2 in readiness for use. In FIG. 3 it is shown that the strap end **36** is fixed and, as will be evident from this view, the structure lends itself to shaping and form fitting in that the end portions can be bent in or out depending on the contour of the surface which is to be protectively covered. In FIG. 1 the shield or guard is shown in place and it would appear from this view that it should be evident that the invention well serves the unique purposes for which it has been devised and successfully used. Accordingly, a more extensive description is deemed to be unnecessary.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. In combination, a ski boot embodying a high upper terminating in a relatively stiff ankle and leg embracing collar, and a pressure intercepting, distributing and equalizing guard adapted to be conformingly saddled over

vulnerable surface portions of the ankle and leg which are proximal to and commonly subjected to frictional pressure, said guard having significant portions thereof which when in use can be and are fittingly tucked into cooperating portions of said collar, said guard comprising a horizontally elongated arcuately curved chafe resisting shield of an area to efficaciously span and cover the aforementioned vulnerable surface portions, said guard being substantially rectangular in front elevation, light in weight, made from moldable sheet plastic material and characterized by an unyielding centralized body portion which is stable, dissipates friction promoting pressures and wards off bruising stress and strain, said plastic material being non-toxic and possessed of low heat and cold conduction properties, and the respective end portions to the left and right respectively of the central body portion being bendable in a manner to conform to the general contour of the boot collar, pants leg, sock and leg portions.

2. The combination defined in and according to claim **1**, and wherein said guard is of one-piece construction and amply firm and strong that it provides a barrier, distributes and equalizes pressure imposed thereon by a stiff unyielding ski boot collar while skiing yet lends itself to feasible comforting use in conjunction with an underlying pants leg and worn sock, as the case may be.

3. The combination defined in and according to claim **1**, and wherein said sheet plastic material is reinforced by imbedded fibrous glass known as "Fiberglas" and while permitting horizontal bending prevents vertical bending and when once properly contoured and set is thereafter self-shape retaining.

4. The combination defined in and according to claim **1**, and wherein an elastic leg embracing strap is provided, said strap having end portions connectible with coacting upper corner portions of said guard.

5. For use in conjunction with a ski boot having a high upper terminating in a stiff ankle and leg encircling collar which while the wearer is skiing usually exerts bruising frictional and chafing pressure on tender and vulnerable surfaces of the skier's ankle and leg, a protective guard capable of intercepting, blocking and distributively equalizing pressures which are concentrated and imposed thereon, said guard comprising an elongated longitudinally bowed shield which is adapted to be conformingly saddled over the aforementioned tender surfaces, said guard being of an over-all size and shape to span and safeguard the surfaces which are subjected to frictional pressures and resulting bruising and chafing, as the case may be, said guard being substantially rectangular in front elevation, light in weight, made from moldable sheet plastic material and characterized by an unyielding centralized body portion which is stable, dissipates friction promoting pressures and wards off bruising stress and strain, said plastic material being non-toxic and possessed of low heat and cold conduction properties, and the respective end portions to the left and right respectively of the central body portion being bendable in a manner to conform to the general contour of the boot collar, pants leg, sock and leg portions.

6. The protective guard defined in and according to claim **5**, and wherein said sheet plastic material is reinforced by embedded fibrous glass known as "Fiberglas" which while permitting horizontal bending prevents vertical bending and when once properly contoured and set is thereafter self-shape retaining, and, in combination, an adjustable leg embracing guard positioning and restraining strap having ends thereof operatively connected to corner portions of the respective end portions of said guard.

7. The protective guard defined in and according to claim **6**, and wherein said sheet plastic material is such in substance and inherent properties that when immersed in hot water or otherwise heat-treated it becomes pliant and malleable for manual bending, shaping and form fitting needs and which when cooled sufficiently it hardens,

stays put and retains its given conformable state for repetitional use.

8. The protective guard defined in and according to claim 5, and wherein said sheet plastic material is reinforced by embedded fibrous glass which, while it permits horizontal bending, prevents vertical bending and when once properly contoured and set it becomes self-shape retaining, and, in combination, an elastic leg embracing guard positioning and retaining strap carried by and operatively connected to said guard.

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