ABSTRACT: A wrist support comprising an elongate relatively wide strap having some limited transverse resiliency is provided and it has a thumb engaging aperture at one end. Attaching means are provided on opposite surfaces of the strap to engage with each other when the strap is operatively positioned. A pocket is provided in one portion of the strap for a reinforcing member to aid in the wrist support action of the strap.
STRAP TYPE WRIST SUPPORT

This is a continuation-in-part of my prior application Ser. No. 767,969 filed Oct. 16, 1968, now abandoned.

This invention relates to wrist supports, particularly those of the type used by bowlers, golfers, or by people engaged in any physical activity wherein some wrist support action is desired. Heretofore there have been various types of wrist supports manufactured and sold in some quantities, and one type of a wrist support is shown in U.S. Pat. No. 2,348,939. Such wrist support is, or L-shaped member with a thumb engaging aperture provided at the connection between the legs of the L-shaped wrist support. It has been somewhat difficult to wrap the short leg of this wrist support around one's wrist and then to affix the support in position by winding the long strap leg around the wearer's wrist to be attached thereto. Other wrist supports are shown in U.S. Pat. Nos. 2,369,115 and 2,369,210.

The general object of the present invention is to provide a novel and improved wrist support member which can be readily and easily applied by any person to his wrist for wrist support or bracing action.

Another object of the invention is to provide a relatively tight fitting, low cost wrist support that can be easily and snugly affixed to a wearer's wrist, and which wrist support has fastening members provided on opposite faces thereof at longitudinally spaced portions of the wrist strap to attach the strap in an operative position.

Another object of the invention is to provide a special reinforcing pocket and a reinforcing member in a wrist support to brace the wrist at the wrist joint to more-or-less lock the wrist in a fixed position.

In the drawings:

FIG. 1 is a top plan of the brace of the invention;
FIG. 2 is a bottom plan of the wrist brace;
FIG. 3 is an enlarged section through the attachment means of the wrist brace;
FIG. 4 is an enlarged section through the pocket in the wrist brace;
FIG. 5 is a perspective view of the wrist brace operatively positioned on a person's wrist; and
FIG. 6 is a top view of a wrist brace or support, with the pocket of the wrist brace shortened to a rectangular shape.

In general, the wrist brace 1, according to the invention comprises a semi-flexible, compact, and comfortable unit that easily allows itself to be wrapped around an outer extremity of the body, especially the wrist. The brace preferably has a finished plastic layer or surface 2 and a fabric inner surface or layer 3. As the brace is positioned around the wrist, the thumb goes through a thumb hole 6 and the fastening means 4, 5 are connected. The fastening means are provided on opposite faces at opposing longitudinal ends of the brace 1. Furthermore, said fastening means comprise a pile member 4, of relatively fine fibers positioned on the inner surface near the wider end of the brace at the thumb hole, and parallel to the longitudinal axis of the brace, the pile means being of general rectangular shape. The other fastening means, the hook member 5, usually a Velcro tape of spaced vertically positioned hook elements, is positioned on the finished surface 2 of the brace at the end remote from the thumb hole, and said hook member being elongate and parallel to the pile member. The hook member 5 is rectangular but usually shorter than the pile member. The use of this Velcro fastening means gives convenience to the user of this invention. It permits him ease of attaching and ease of removing the brace, with a wide range of length or wrist size for adjustment of the brace so as to adapt to the wearer. The fastening members are joined together by any force or pressure exerted thereon, such that the brace acts as a quick and ungrappled around the wrist.

The wrist brace 1 primarily is made from a strap or strip of material that may be laminated, as shown, or not and which is made from a suitable plastic or fabric material. The strap of material preferably has no, or a very limited longitudinal stretch. The strap is of generally wedge shape or it may be considered to be of frusto-triangular shape. It may be considered to have a very short section 10 extending rearwardly from the hole 6 and an appreciably longer section 11 of decreasing width extending from the thumb hole at about 90° from the other section. The strap has slight resiliency or elasticity in its depth direction i.e. perpendicular to the line 1-2 of FIG. 1.

For the left hand strap, as shown in FIG. 6, the brace 1 would just be turned over with relation to the right hand strap as shown in FIG. 1.

Conventionally attached to the inside of the brace 1 is a pocket portion 7 with an open edge facing the back side of the unit which is furthest from the thumb hole. Inside this pocket is the primary bracing element of the invention comprising a thin metal strip or sheet 8, similar to a slat of a conventional venetian blind, with a lateral curvature so when the brace is positioned on the wrist, the metal strip 8 follows the curve of the back of the wrist. This strip 8 is considered to extend transversely of the brace. The metal brace provides more comfort for the wearer than if the metal brace were flat in nature and not conforming in general to the curvature of the hand and wrist. This metal brace is sidewise engaged in the previously mentioned pocket and, if for some reason the metal brace is desired to be removed, the owner of the brace can easily remove it from the pocket. This sheet or brace 8 of thin curved metal sheet, may be replaced by one or more items of similar shape and of different or semiflexible construction, or more than one bracing member may be positioned within the opened-ended pocket, thus obtaining a more rigid unit than that consisting of one bracing member. The front edge of the pocket 7 follows the front edge 9 of the wrist brace and the metal sheet or strip 8 likewise has in inclined front edge for at least a portion of its length to abut on the edge 9. The strip or brace 8 may be of any suitable width and length to fit in the pocket and usually extends substantially the width and length thereof to fit readily in the pocket and form a reinforcement on an axis extending along the back of the hand and over the wrist towards a wearer's forearm.

A variation of the type of wrist brace and reinforcing pocket previously discussed is shown in FIG. 6. By employing additional stitching 15a and 15b an enclosed rectangular pocket 16a is formed, with brace 8a also enclosed therein, leaving vacant a sealed trapezoidal pocket 13 and a pocket 14 at the ends of the brace 8a. This type of pocket is desired especially by golfers, because of the added flexibility obtained by shortening the length of the brace or reinforcing strip or means used. The remainder of the brace usually is identical to the previously mentioned wrist brace but provides effective wrist support action for use, normally, by golfers to prevent excessive wrist break on the back swing. Thus the drawings show a left hand wrist support, FIG. 6 from the inside, and a right hand wrist support, FIG. 2 from the inside. Either support may be used for wrist reinforcement by athletes but the supports are particularly designed for use by golfers and bowlers in the designs as shown.

The pocket in the wrist brace 1a may be made from a plastic covered slightly resilient fabric like that used in forming the remainder of the brace. More wrist mobility is permitted for a golfer in the wrist support 1a than in the unit of FIG. 1. However, the wrist supports 1 and 1a both firmly support and reinforce the wearer's wrist when snugly attached thereto. The braces or metal plates 8 and 8a prevent backward bending of the wrist with a tighter reinforcement being provided by the support 1.

In its shown form, the support is made from a laminated formation of the fabric layer 3, plastic layer 2, and a resilient intermediate foam layer 12. The plastic layer 2 may be made from a vinyl resin material or the like and the foam layer may be polyurethane, foam rubber or the like. These layers can be secured together by conventional adhesives and/or by heat sealing. This resilient laminate gives an effective, cushioned support and/or brace action when operatively positioned. However, just a finishing plastic layer 3 may be used to provide a support and the fabric will have the desired limited stretch depthwise or transversely of the strap.
The attaching means strip 5 may be parallel to the strip 4 or the strip 5 may be substantially parallel to the front edge 9. By inclining the strip 5 at an angle of about 10° to 15° to the longitudinal axis of the strip 4, as indicated in FIG. 1, the strip 5 is in better register with the strip 4 when the wrist support is operatively positioned.

Naturally the positions of the hook strip 5 and the pile strip 4, and the lengths thereof, can be reversed from the structure shown so that a short hook strip may be on the section 13 and an elongate pile strip may be on the longer section 11. As the hook strip is more expensive than the pile strip, the foregoing construction may be preferred.

The wrist support is compact and easily attached. By its general wedge shape, it reinforces the back of the wrist and adjacent areas. However, it does not extend over any large area of the palm but nicely engages and extends around the wrist and an adjacent short length of the wearer's forearm. The novel shape of the support and its compact size and effective bracing action give the wrist support desirable properties. Flexibility is provided by the areas 13 and 14 to prevent any cutting action by the brace 8a which itself is light in weight and flexible but reinforced by its confining fabric pocket.

While what has been described is considered to be the most advantageous embodiment of the invention, it is apparent that many modifications and variations can be made in the specific details, construction and arrangement of parts without departing from the spirit and scope of the present invention, as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the invention.

I claim:

1. A wrist support including a generally frusto-triangularly shaped strap, said strap having a thumb hole in the wider end thereof adjacent a front edge of the strap, said strap including a short section extending generally rearwardly from said hole so that when a thumb is inserted into said hole the adjacent said short section extends over a portion of the palm and partially over the inner surface of the wrist of the wearer, the remainder of the strap having a section of a length extending away from said hole to wrap over the back of the hand and around the underside of the wrist and overlap the other end of the strap, interlocking hook and fibrous fastening means on different surfaces of the ends of the said strap to overlie each other in the attached position to allow fastening therebetween, a pocket being formed on the inner surface of said strap and extending transversely of said strap, and a thin resilient reinforcement received in said pocket, said reinforcement being of flat arcuate shape to provide a concave inner surface substantially complementary to the back of the wearer's wrist.

2. A wrist support including a generally wedge-shaped strap, said strap having a thumb hole in the wider end thereof adjacent a side edge of the strap, the material of the strap being a plastic outer layer and a fabric inner layer suitably secured together, in use when a thumb is inserted into said hole the adjacent end of the strap extends over part of the palm and partially over the inner surface of the wrist of the wearer, the remainder of the strap having a length to wrap over the back of the hand and around to the underside of the wrist to overlap the other end of the strap, and interlocking hook and fibrous fastening means on different surfaces of the ends of said strap to overlie each other in the attached position to allow fastening even though the strap is applied to different sized hands.

3. A wrist support as in claim 2 wherein a metal reinforcing member is positioned in a pocket on said remainder of the strap, said member being a thin metal strip with a concave surface which in use is positioned over the back of a wearer's wrist and to extend along the back of a wearer's hand.

4. A wrist support as in claim 2 wherein said strap is only long enough to extend around a wearer's wrist and overlap at the ends of the strap only a sufficient distance for attachment between the ends of the strap.

5. A wrist support as in claim 1 wherein the strap is made from a resilient laminate having a plastic outer surface, a foam intermediate layer and a fabric inner layer.

6. A wrist support as in claim 1 wherein the interlocking hook and fibrous means comprise a relatively short member extending generally across said short section on one surface thereof and a relatively long member on the other surface of the remainder of said strap at the end thereof positioned at an angle of between about 10° and 15° to longitudinal axis of said short member.

7. A wrist support as in claim 2 wherein a metal reinforcing member is positioned in a pocket on said remainder of the strap, said pocket extending transversely of said support but being spaced from both the front and rear edges of said strap.