A sports glove (10) supports a molded plastic base (30) fastened to the backhand portion (11) of the glove by a gasket plate (39). A plurality of interchangeable convenience devices (31, 72, 110, 120, 130, 150) are configured to be received by the base member in a removable attachment to provide a variety of interchangeable convenience devices for use by participants in various activities in which gloves are worn.
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SPORTS GLOVE WITH INTERCHANGEABLE APPARATUS

SPECIFICATION

Field of the Invention

This invention relates generally to sports apparel and particularly to gloves used therewith.

Background of the Invention

Many sports activities require that the participant wear one or more gloves of different types. In most activities the gloves are suited to the particular needs of the wearer and the activity. Some gloves, such as baseball batting gloves or golf gloves, are worn primarily to protect the participant's hands against excessive wear and abrasion. In other sports activities participated in during cold weather seasons, such as skating, motorcycling, cycling, skiing, sledding and the like, the participant's gloves are worn primarily to protect the participant from the effects of the cold weather. Generally in such seasonal sports activities, the participants also wear specially fabricated clothing designed to provide freedom of movement and suit the activity while protecting the participant from the cold weather, etc. Such clothing tends to be tight-fitting and rather sparse in its provision of pockets and the like. The combined effects of the use of such protective clothing and protective gloves in sports activities, particularly those participated in cold weather seasons, can render the attention to basic human needs difficult to meet.
For example, skiers and other cold weather athletes often need to tell time, clear snow or spray from their goggles, apply additional sunscreen or lotion to exposed skin, or attend to problems such as nose drip, so common in cold weather activities. In most instances, attending to such needs requires that the skier stop and release at least one pole and remove one or both gloves in order to retrieve the necessary article from the pocket or gain access to a wrist watch or the like.

Because these processes are cumbersome and undesirable, practitioners in the art have developed various devices to secure aids and convenience articles to the hand, arm or glove of the participant.

U.S. Patent 4,536,889 for a FACE AND NOSE WIPER HOLDING DEVICE FOR SKIERS issued to Taylor et al. sets forth an apparatus adapted for attachment to the lower arm of a skier having a retractable cover exposing therein a wiper also supported on the attachment. The holder is adapted to retain one or more sheets of prepackaged absorbent materials suitable for use in wiping the skier's nose etc.

U.S. Patent 4,387,838 for a GLOVE MOUNTED WRIST WATCH issued to Jackson sets forth a glove having mounted thereon a wrist watch overlying a portion of the wrist cuff of the glove. A hingeably attached cover adapted to overlay the wrist watch is secured to the wrist cuff portion of the glove and is pivotable between a closed position overlying the wrist watch and an open position exposing it. An aperture in the cover is positioned to permit viewing of the watch face when the cover is in the closed position.

U.S. Patent 4,639,947 for a GOLF GLOVE issued to Lanscioni sets forth a golf glove having a main body
portion, a palm portion and a back portion. A pocket is attached to the back portion of the glove and a flap is connected to the main body of the glove such that the pocket may be opened or closed by moving the flap. The intended use of the pocket is to retain one or more of the small disk-like objects frequently used by golfers to mark the position of their ball on the putting green and generally referred to as "ball markers".

U.S. Patent 4,281,389 for a PACING TIMING MOUNTING ARRANGEMENT issued to Smith sets forth a partial glove piece adapted to be secured to the wrist, forearm, and index finger of the wearer which supports an attachment means for detachably mounting a pacing timer or clock-like device. Alternative forms of attachment between the glove-like device and the timer are shown, each of which permit the timer to be removed from the glove-like device.

U.S. Patent 4,330,120 for a RUNNING OR JOGGING EXERCISING GLOVE issued to Netti sets forth an apparatus adapted to be worn on the forearm, wrist and a portion of the hand which accommodates a plurality of removable weight objects by detachable attachment means. The function of the exercising glove is to permit the wearer to impose various weights upon the wearer’s arm during exercising to increase and tone the wearer’s muscle.

U.S. Patent 3,635,190 for a GOLF GLOVE HAVING A SWING COUNTER issued to Araki sets forth a golf glove having a plurality of flexible counting strips arranged in a side by side pair of rows and bearing a plurality of numbers. The counting device is utilized to permit the golfer to maintain an accurate count of strokes employed in a round of golf.
In addition to the foregoing described devices directed to athletic activities which make use of hand or wrist mounted apparatus, practitioners in the art have provided similar devices directed to other areas of activity. For example, U.S. Patent 1,139,942 for a MOISTENING DEVICE sets forth a moistening device supported upon the back of the user's hand by a strap encircling the user's forehand. A compressible absorbent pad is supported on the device and is accessible to permit moistening of the fingers on the other hand by the wearer.

U.S. Patents 1,416,653 for GLOVE ATTACHMENT issued to Lenneberg and U.S. Patent 1,524,137 for a WATCH EXPOSING GLOVE issued to Kastl both set forth conventional glove apparel providing use of or access to a wrist watch.

U.S. Patent 1,426,797 for a HANDKERCHIEF RETAINER FOR GLOVES issued to Wagelin sets forth a device for securing a handkerchief retainer to the forearm portion of a conventional glove and retaining therein an appropriately folded handkerchief.

While the foregoing described articles provide some benefit to the wearer, in that they provide some limited access to convenience aids for the wearer, they are generally difficult to use, expensive to manufacture, and cumbersome, and are therefore not suitable for use by participants in action sports like skiing, cycling and action sports.

Summary of the Invention

Accordingly, it is a general object of the present invention to provide an improved sports glove. It is a more particular object of the present invention to
provide an improved sports glove providing ready access to one or more convenience aids and suitable for use in action sports such as skiing, cycling and marksmanship.

In accordance with the present invention, there is provided a sports glove with interchangeable apparatus in which a sports glove having a palm portion and a plurality of finger and thumb receiving portions together with a wrist cuff and a backhand portion supports apparatus mounting means on the back portion thereof. A plurality of convenience apparatus are configured to be received by and detachably secured to the mounting means whereby a selected one of the plurality of convenience devices may be secured to the sports glove.

**Brief Description of the Drawings**

The features of the present invention, which are believed to be novel, are set forth with particularity in the appended claims. The invention, together with further objects and advantages thereof, may best be understood by reference to the following description taken in conjunction with the accompanying drawings, in the several figures of which like reference numerals identify like elements and in which:

> Figure 1 is a perspective view of the present invention sports glove with interchangeable apparatus;

> Figure 2 is a detailed perspective assembly view of the interchangeable apparatus of the present invention;

> Figure 3 is a section view of the present invention interchangeable apparatus taken along section lines 3-3 in Figure 1;
Figure 4 is a section view of the present invention interchangeable apparatus taken along the section lines 3-3 in Figure 1 showing the partial disassembly of the interchangeable apparatus;

Figure 5 is a perspective view of a portion of the present invention sports glove with interchangeable apparatus;

Figure 6 is a top view of the present invention interchangeable apparatus showing alternate positions;

Figure 7 is a section view of the interchangeable apparatus of Figures 5 and 6 taken along section lines 7-7 in Figure 6;

Figure 8 is a top view of a portion of the present invention interchangeable apparatus support with the apparatus removed;

Figure 9 is a bottom view of the interchangeable apparatus of Figure 5;

Figure 10 is a perspective view of an interchangeable apparatus constructed in accordance with the present invention;

Figure 11 is a perspective view of an alternate interchangeable apparatus constructed in accordance with the present invention;

Figure 12 is a perspective view of an alternate interchangeable apparatus constructed in accordance with the present invention; and
Figure 13 is a perspective view of an alternate interchangeable apparatus constructed in accordance with the present invention.

Description of the Preferred Embodiment

Figure 1 sets forth a perspective view of a sports glove with interchangeable apparatus constructed in accordance with the present invention. A sports glove generally referenced by the numeral 10 comprises a backhand portion 11, a palm portion 12, a thumb portion 13 and a plurality of finger portions 14, 15, 16 and 17. In accordance with conventional glove fabrication techniques, backhand portion 11, palm portion 12, thumb portion 13, and finger portions 14 through 17 are fabricated from a soft pliable and preferably water repellent material. Glove 10 further includes an adjustment band 20 positioned overlying a portion of backhand portion 11 which in accordance with conventional glove fabrication techniques is operative to firmly secure glove 10 upon the wearer’s hand. In addition, glove 10 further includes a wrist cuff 21 which in its preferred form is fabricated from a resilient knit material having an expandable elastic character and configured to receive and encircle the wearer’s wrist.

An apparatus base 30, the structure of which is set forth below in greater detail, is secured to a gasket plate 39 by a fastening layer 47 which in turn is secured to a backhand portion 11 of glove 10 by an adhesive layer 24 (better seen in Figure 3). In addition, a raised bead 25 formed of the material of gasket plate 39 encircles base 30. In accordance with the invention, a wiper assembly 31, the construction of which is set forth below in greater detail, is received within base 30. Wiper assembly 31 defines a plurality of upwardly extending rubber wiper blades 33, 34, 35 and 36 which are
preferably formed of a resilient rubber or plastic material. Base 30 further defines a channel 37 which in accordance with the structure set forth below receives and secures wiper assembly 31 within base 30. A movable tab 32 formed in base 30 secures wiper assembly 31 within channel 37 by means set forth below in greater detail.

In accordance with the invention, base 30 is secured to glove 10 and is configured to receive a plurality of interchangeable apparatus such as wiper assembly 31. As set forth below in greater detail, wiper assembly 31 is representative of several different types of devices, all of which are interchangeably assembled within base 30 at the wearer’s preference. Accordingly, in accordance with an important aspect of the present invention, the wearer of glove 10 may select from a plurality of interchangeable devices such as wiper assembly 31 and secure the selected device within base 30 and utilize it during the sports activities. In the case of wiper assembly 31, blades 33 through 36 are configured to provide a wiper or squeegee device adapted to conveniently clean water, snow and spray from the goggles worn by a skier or other athlete participating in outdoor sports activities. It should be noted that the placement of base 30 and thereby wiper assembly 31 is selected to provide ready accessibility and use in that the user simply turns glove 10 to the proper attitude to bring wiper assembly 31 into contact with the wearer’s goggles. In further accordance with the present invention, the placement of base 30 and thereby wiper assembly 31 in the manner shown in Figure 1 maintains wiper assembly 31 in a position which does not restrict or interfere with the wearer’s manipulation of articles and objects within the wearer’s hand. Specifically, thumb 13 and finger portions 14 through 17 remain free to grasp any desired object. In addition, the placement of base 30 and thereby wiper assembly 31 a predetermined distance from
wrist cuff 21 assures that the wearer's coat sleeve or
other similar article of apparel may overlap wrist cuff
21 and extend toward adjustment band 20 without covering
wiper assembly 31. Thus a maximum of accessibility is
maintained for wiper assembly 31.

Figure 2 sets forth a perspective view of base 30
and wiper assembly 31 with wiper assembly 31 removed from
base 30. Base 30, which is preferably formed of a molded
plastic material, includes a generally flat planar member
40 and a pair of opposed inclined side walls 41 and 42.
A rear wall 43, similar to side walls 41 and 42, extends
upwardly from planar member 40. A tapered surface 44 is
formed at the junction of side wall 41 and rear wall 43
and a similar tapered surface 45 is formed at the
junction of side wall 42 and rear wall 43. In accordance
with the invention, side walls 41 and 42 and rear wall 43
are integrally formed with planar member 40 in a common
molded housing. An internal channel 37 extends inwardly
of side walls 41 and 42 and rear wall 43 to form a
continuous internal channel. A tab 32 extends upwardly
from planar member 40 and defines an edge 38.

Wiper assembly 31 includes a planar member 50 which
terminates in a pair of extending ridges 51 and 52 on
either side and a rear extending ridge 55 on the third
side. Wiper assembly 31 further includes an upwardly
extending blade support 53 which defines a continuous
side wall 56 extending above ridges 51, 52, 55 and a
tapered surface 54. Blade support 53 further defines a
plurality of blade grooves 60, 61, 62 and 63 extending
transversely above planar member 50. A plurality of
wiper blades 33, 34, 35 and 36 are received and secured
within grooves 60 through 63 respectively. In its
preferred form, planar member 50, ridges 51, 52 and 55,
and blade support 53 are formed of a single molded
housing of plastic material or the like. While any
number of materials may be utilized to form wiper blades 33 through 36 in their preferred form, they comprise elongated wiper blades formed of a resilient rubber material. It will be also be apparent to those skilled in the art that blades 33 through 36 as well as blade support 53 may be molded as a single soft plastic or rubber member.

In the position shown in Figure 2, wiper assembly 31 is removed from base 30. This position would correspond to the relative positions of base 30 and wiper assembly 31 prior to assembly. The assembly of wiper assembly 31 to base 30 is carried forward by aligning ridges 51 and 52 with channel 37 and forcing ridge 55 against tab 32 while forcing ridges 51 and 52 into channel 37. As mentioned above, planar member 40 is formed of a resilient plastic material. Accordingly, the abutment of ridge 55 of wiper assembly 31 with taper 29 of tab 32 causes planar member 40 to be flexed in the area surrounding tab 32 and causes tab 32 to be forced downwardly beneath planar member 50. The continued insertion of wiper assembly 31 into base 30 causes tab 32 to be forced under planar member 50 and causes planar member 40 of base 30 to flex downwardly. Thereafter, wiper assembly 31 is forced into base 30 until edge 57 passes beyond edge 38 of tab 32. At that point ridges 51, 52 and 55 are received within channel 38 of base 30 in the manner shown in Figure 1. Once edge 57 passes beyond edge 38, the resilience of planar member 40 causes tab 32 to return to its normal position and causes edge 38 of tab 32 and edge 57 of wiper assembly to be maintained in contact. As a result, wiper assembly 31 is firmly secured within channel 37 and maintained in the assembled position by the obstruction created between edge 38 of tab 32 and edge 57 of wiper assembly 31.
The removal of wiper assembly 31 from base 30 is carried forward by reversing the foregoing process in which tab 32 is depressed downwardly causing a flexing of planar member 40 and causing edge 57 to clear edge 38 of tab 32. Once tab 32 is fully depressed and edges 57 and 38 are no longer in abutment, wiper assembly 31 may be slideably moved from base 30 and completely removed.

Figure 3 sets forth a section view of the present invention sports glove taken along section lines 3-3 in Figure 1. Base 30, which as set forth above, is preferably formed of a molded plastic material or the like and which defines a planar member 40 having a bottom surface 46 is secured to gasket plate 39 by a fastening layer 47. Gasket plate 39 is secured to backhand portion 11 of glove 10 by an interposed adhesive layer 24. It will be recognized by those skilled in the art that any number of adhesive agents may be used to form adhesive layer 24 with the essential function being the firm attachment of base 30 to backhand portion 11. In its preferred form, adhesive layer 24 may comprise a layer of adhesive or alternatively a segment of double sided adhesive tape or the like. Also, it will be apparent that fastening layer 47 may be formed of an adhesive or tape layer. Alternatively, fastening layer 47 may use other fasteners such as hook and loop fabrics or the like. As described above, gasket plate 39 defines an encircling bead 25 which surrounds base 30 about its entire periphery and provides a sealing edge and a contour match between the sloped sides of base 30 and the fabric of backhand portion 11. Base 30 as shown defines an upwardly extending rear wall 43 which in turn defines a channel 37. Base 30 further defines a flexible tab 32 having a tapered front surface 29 and a vertical edge 38 on the opposite side thereof. Gasket plate 39 provides a transition member between the relatively firm character
of base 30 and the flexible fabric of backhand portion 11 of glove 10.

Wiper assembly 31 is shown secured within channel 37 of base 30 and is captivated by the extension of ridges 51 and 52 (seen in Figure 2) and ridge 55 within channel 37. In accordance with an important aspect of the present invention, wiper assembly 30 defines a plurality of transverse blade grooves 60 through 63 which support a plurality of wiper blades 33 through 36 respectively.

Wiper assembly 31 further defines a vertical edge 57 which in the assembled position shown in Figure 3 abuts edge 38 of tab 32. As described above and is shown in Figure 3 in the assembled position, wiper assembly 31 is maintained within channel 37 by the abutment of edges 38 and 57.

Figure 4 sets forth a section view of the present invention sports glove also taken along section lines 3-3 in Figure 1 but depicting the partial withdrawal of wiper assembly 31 from base 30. Accordingly, base 30 defines a rear wall 43, a side wall 42, a tab 32 and a planar member 40 as described above. Similarly, wiper assembly 31 defines a ridge 55, a plurality of blade grooves 60 through 63 supporting a corresponding plurality of wiper blades 33 through 36 respectively. Wiper assembly 31 further defines an edge 57. In the position shown in Figure 4, wiper assembly 31 has been moved from the position shown in Figure 3 by movement of wiper assembly 31 in the direction of arrow 65. As should also be noted, edge 38 of tab 32 and edge 57 of wiper assembly 31 have been withdrawn from their locking abutment by the pivoting of tab 32 shown by arrows 92 and 93. It should be noted that the extent to which tab 32 pivots from planar 40 is dependent upon the flexibility of material from which base 30 is molded. In the situation shown in Figure 4, the material forming base 30 is
extremely flexible permitting tab 32 to pivot without extensive deformation of planar member 40. In the alternative, in the event a less flexible material is utilized for base 30, tab 32 is not able to pivot as dramatically as shown in Figure 4 but rather a substantial portion of planar member 40 is also deflected downwardly as shown by the dashed line representation thereof indicated by reference numeral 39. In either event, the important aspect is that edge 38 of tab 32 is moved away from edge 57 of wiper assembly 31 permitting wiper assembly 31 to be withdrawn from base 30.

In accordance with an important aspect of the present invention and as set forth below in the alternate embodiment shown in Figures 5 through 13, it should be understood that wiper assembly 31 is representative of any number of convenience devices which may be interchangeably secured within base 30 and utilized in combination with glove 10. For example, it will be apparent to those skilled in the art that the clock and timing device shown in Figures 5, 6 and 7 may be supported within an assembly similar to wiper assembly 31 and secured to base 30 in accordance with the foregoing descriptions. Similarly, it will be equally apparent to those skilled in the art that the convenience apparatus shown in Figures 10 through 13 may be configured in a similar manner to be received within base 30.

Figure 5 sets forth an alternative embodiment of the present invention interchangeable apparatus generally referenced by numeral 70 in which a base 71 preferably formed of a molded plastic material defines a planar member 69 and a pair of upwardly extending tapered side walls 90 and 91. Base 71 forms a generally elongated structure with side walls 90 and 91 forming the end portions thereof. An outer edge 74 is formed
about the periphery of planar member 69 and side walls 90 and 91 forming a continuous vertical surface. A gasket plate 89 comprises a generally planar member defining a raised bead 73 which conforms to outer edge 74. Side wall 90 defines an interior channel 80 and side wall 91 defines an interior channel 79. In accordance with an important aspect of the present invention, side walls 90 and 91 are positioned on opposite sides of planar member 69 leaving a substantial gap therebetween.

A timer assembly 72 defines an opposed pair of tapered side walls 84 and 85 together with a generally planar bottom surface 95 and a generally planar top surface 88. In accordance with an important aspect of the present invention, timer assembly 72 further defines a pair of outwardly extending ridges 75 and 77 received within channels 80 and 79 respectively. It should be noted that the contours of side walls 84 and 85 of timer assembly 72 are generally continuous with and matched to side walls 90 and 91 of base 71 to provide a smooth inclined continuous surface about interchangeably apparatus 70 in the assembled position shown in Figure 5. Timer assembly 72 further defines a timer readout 83, which in accordance with conventional fabrication techniques supports a plurality of digital readout elements 140, 141, 142 and 143. It should be understood that timer readout 83 is constructed in accordance with any of the several presently available digital readouts such as liquid crystal displays or light emitting diode displays. Timer assembly 72 further includes a stop button 81 and a set button 82 and appropriate apparatus for providing an audible alarm or beeper.

In the position shown in Figure 5, timer assembly 72 is firmly captivated within base 71 by means set forth below in greater detail. In addition by means also set
forth below in greater detail, base 71 is secured to backhand portion 11 of glove 10.

While any number of presently available timing mechanisms may be utilized within timer assembly 72 without departing from the spirit and scope of the present invention in its preferred form, a conventional digital electronic timing circuit operative in response to stop button and set button 82 provides an information readout on timer readout 83. In its simplest form, timer assembly 72 comprises a conventional digital electronic clock mechanism. In its preferred form however, timer 72 further includes a conventional multifunction timer operative in modes corresponding to general time of day, as well as various incremental time operations such as elapsed time or "stopwatch" activity, or if preferred, a conventional delayed start timer.

Figure 6 sets forth a top view of the present invention interchangeable apparatus 70 in which timer assembly 72 is shown assembled within base 71. Accordingly, base 71 includes side walls 90 and 91 which in turn define channels 80 and 79 respectively. Timer assembly 72, shown in its assembled position in solid line representation, shows side walls 84 and 85 continuous with side walls 90 and 91 of base 71. Timer assembly 72 further includes top surface 88 which supports set button 82, stop button 81 and timer readout 83. In addition to the assembled position shown for timer assembly 72 in Figure 6, the dashed line representation 99 thereof depicts the position of timer assembly 72 with respect to base 71 when the former is rotated approximately 90 degrees in the clockwise or counterclockwise direction indicated by arrows 92 and 93. In accordance with an important aspect of the present invention set forth below in greater detail, the rotation of timer assembly 72 to the dashed line position shown in
Figure 6 removes ridges 75 and 79 of timer assembly 72 from channels 80 and 79 respectively. Accordingly, when so rotated, timer assembly 72 may be withdrawn from base 71 by simply lifting timer assembly 72 upwardly from base 71 in the rotated position shown in Figure 6. In accordance with an important aspect of the present invention set forth below in greater detail, timer assembly 72 may be removed from base 71 in the manner set forth in Figure 6 and reinstalled or replaced by alternative devices similarly configured such as those shown in Figures 10, 12 and 13 below.

Figure 7 sets forth a section view of the embodiment of the present invention shown in Figure 6 taken along section lines 7-7 therein. Base 71 defines a planar member 69 and a pair of upwardly extending side walls 90 and 91. The latter define internal channels 80 and 79 respectively. In accordance with the embodiment set forth in Figure 1, base 71 is secured to a gasket plate 89 by a fastening layer 67 which in turn is secured to backhand portion 11 of glove 10 by an adhesive layer 86. In addition, an upwardly extending bead 73 is formed in gasket plate 89 about base 71 to aid in sealing the attachment between base 71 and timer assembly 72. Planar member 69 of base 71 further defines a surface 94 extending generally between channels 80 and 79. Planar member 69 further defines a center pivot 100 extending upwardly from surface 94 and having a generally cylindrical shape. Planar member 69 also defines a pair of upwardly projections 104 and 105, which in their preferred form, are equally spaced from pivot 100. A pair of generally semicircular slots 144 and 145 partially encircle projections 104 and 105 respectively. Slots 144 and 145 permit projections 104 and 105 to be displaced downwardly.
Timer assembly 72 defines a pair of outwardly extending ridges 75 and 77 received within channels 80 and 79 of base 71. Timer assembly 72 further defines a bottom surface 95 extending between ridges 75 and 79.

Bottom surface 95 defines a pair of recesses 101 and 102 which in the assembled position shown receive projections 104 and 105 of base 71. Base 71 further defines a center recess 103 configured to receive pivot 100 in the assembled position shown in Figure 7. Timer assembly 72 supports a stop button 81, a set button 82 and a timer readout 83 as described above. In addition, timer assembly 72 supports timer circuitry 87 in accordance with conventional timer fabrication techniques. In the position shown in Figure 7, the extension of pivot 100 into center recess 103 together with the extensions of projections 104 and 105 into recesses 101 and 102 respectively cooperate to maintain the rotational position of timer assembly 72 within base 71. This position corresponds to that shown in Figure 5. When so positioned, the extension of ridges 75 and 77 into channels 80 and 79 respectively of base 71 securely captivates timer assembly 72 within base 71. In accordance with the alternate position for timer 72 shown in Figure 6, timer 72 may be withdrawn from base 71 by rotation as shown in Figure 6. During such rotation and in accordance with an important aspect of the present invention, timer assembly 72 pivots about pivot 100 and is maintained in a center orientation by the cooperation of pivot 100 and center recess 103. During this rotation, recesses 101 and 102 are moved from projections 104 and 105 respectively and ridges 75 and 77 are slideably moved within channels 80 and 79 respectively. In addition, slots 144 and 145 permit projections 104 and 105 respectively to be displaced downwardly beneath surface 95 in a spring-like movement. In accordance with an important aspect of the present invention design, the relative clearances between base 71 and timer assembly 72
are selected such that the cooperation of slots 144 and 145 and projections 104 and 105 with recesses 101 and 102 provides a "snap-fit" locking arrangement which may be overcome by rotating timer assembly 72 with a predetermined amount of torque but which in the absence of such torque securely attaches timer 72 within base 71.

Once timer assembly 72 is rotated to the position shown by dashed line figure 99 in Figure 6, timer 72 is freely movable about pivot 100. Thereafter, timer 72 may be removed by raising it upwardly from base 71. The assembly of timer 72 (or any of the alternative devices set forth below) is carried on by reversing the foregoing process. Specifically, assembly is carried forward by placing timer assembly 72 upon base 71 in the position shown by dashed line figure 99 in Figure 6 such that pivot 100 is received within center recess 103. Thereafter, timer assembly 72 is rotated causing ridges 75 and 77 to be received within channels 80 and 79 respectively until projections 104 and 105 are received within recesses 101 and 102 respectively in the foregoing described snap fit.

Figure 8 sets forth a top view of base 71 with timer assembly 72 removed therefrom. Accordingly, base 71 defines a planar surface 94 having a pair of upwardly extending opposed projections 104 and 105, a pair of semicircular relief slots 144 and 145 and a central pivot 100. Base 71 further defines a pair of opposed upwardly extending side walls 90 and 91 which in turn define respective channels 80 and 79. While projections 104 and 105 may be formed in different shapes, in their preferred form, they comprise generally spherical or domed-shaped members. Similarly, while pivot 100 comprises a generally cylindrical member, in its preferred form, it further defines a tapered surface 107. The function of surface 107 is to provide easy positioning for timer
assembly 72 or any of the additional interchangeably 
convenience items such as those shown in Figures 10, 11 
and 12. It should also be noted in Figure 8 that in 
accordance with the foregoing described attachment 
mechanism between base 71 and timer assembly 72, that 
side walls 90 and 91 are curved in a generally constant 
radius of curvature. Correspondingly, channels 80 and 79 
within side walls 90 and 91 respectively are also curved 
and define a constant radius of curvature.

Figure 9 sets forth a bottom view of timer assembly 
72 in which a planar surface 95 covers the entire bottom 
portion of timer assembly 72. A pair of outwardly 
extending ridges 75 and 77 are positioned on opposed 
sides of surface 95 and in accordance with the above 
description of base 71 define curved edges having a 
substantially constant radius of curvature. A central 
recess 103 extends downwardly from surface 95 and is 
configured to receive pivot 100. A pair of recesses 102 
and 101 are positioned with respect to central recess 103 
so as to receive projections 104 and 105 of base 71 (seen 
in Figure 8). Surface 95 further defines a guide track 
106 having a circular shape corresponding to a diameter 
equal to the spacing between recesses 101 and 102. The 
function of track 106 is to provide a further guide for 
rotation of timer assembly 72 with respect to base 71. 
During such rotation, guide track 106 receives 
projections 104 and 105 and serves to aid in guiding 
projections 104 and 105 into recesses 102 and 101 
respectively.

While the foregoing assembly and discussions of 
attachment and removal of timer assembly 72 with respect 
to base 71 have been carried forward to illustrate the 
assembly of an interchangeable convenience device within 
base 71, it should be noted that additional convenience 
devices other than timer assembly 72, may if similarly
configured, be removably secured within base 71. Figures 10, 11, 12 and 13 set forth alternate convenience apparatus which are configured to be assembled to base 71 and thereby glove 10 in the same manner as timer assembly 72. Specifically, it should be understood in the discussions of Figures 10, 11, 12 and 13 which follow that the bottom surfaces thereof define similar combinations of central recess 103 and recesses 101 and 102 as set forth in Figure 9.

Figure 10 sets forth a dispenser assembly 110 constructed in accordance with the present invention and having a bottom surface 116 which conforms to surface 95 of timer assembly 72 (not shown). Dispenser assembly 110 defines a substantially planar top surface 11 and a pair of opposed inclined side walls 114 and 115. In further accordance with the foregoing described construction of timer assembly 72, dispenser assembly 110 further includes a pair of curved outwardly extending ridges 113 and 112. Dispenser assembly 110 further includes a dispensing nozzle 112 extending upwardly from surface 111. In accordance with the invention, dispenser assembly 110 further defines an interior cavity 117 which is in operative communication with nozzle 112. Dispenser assembly 110 receives a quantity of to-be-dispensed materials such as sun-screen or other externally applied lotion material which remains within cavity 117. The material within cavity 117 is dispensed through nozzle 112 by downward pressure exerted upon surface 111. In its preferred form, dispenser assembly 110 is formed of a resilient plastic material and is therefore deformed by pressure upon surface 111 which in turn compresses cavity 117 and expels a quantity of the lotion or other material therein through nozzle 112. In addition, it should be understood that dispenser assembly 110 is attachable to base 71 on glove 10 in the same manner as described above for timer assembly 72.
Figure 11 sets forth an alternate convenience device configured to be received within base 71. The device in Figure 11 comprises a vanity 120 which defines an upper surface 121 and a lower surface 129. In accordance with the invention, surface 129 is identical to surface 95 of timer assembly 72 as described above. Vanity 120 further defines a pair of opposed side walls 122 and 123 together with a pair of outwardly extending ridges 124 and 125. Vanity 120 further defines a generally planar lid portion 126 which is hingeably secured as a hinge 128. A tab 127 extends outwardly from lid 126. As set forth above for dispenser assembly 110 and timer assembly 172, vanity 120 is similarly usable in combination with base 71 and is removably attachable thereto. Vanity 120 defines an interior cavity (not shown) which is accessible by pivoting lid 126 about hinge 128. The function of vanity 120 is to provide a convenient storage compartment for cosmetic aids, pills, pocket change, currency, or other similar sized items readily available to the wearer of the present invention sports glove. Lid 126 supports a mirror (not shown) on its interior surface which is viewable in the open position. While any number of materials may be utilized to fabricate vanity 120, in its preferred form comprises a single molded plastic member having an integral hinge 128.

Figure 12 sets forth still another interchangeable convenience device configured to be used with and attachable to base 71. A wiper assembly 130 having a bottom surface 139 identical to surface 95 of timer assembly 72 further includes a pair of opposed side walls 131 and 132 and a pair of opposed outwardly extending ridges 133 and 134. Wiper assembly 130 further supports a plurality of upwardly extending wiper blades 135, 136, 137 and 138. The function of wiper blades 135 through 138 is substantially the same as wiper blades 33 through 36 of the embodiment shown in Figure 2.
Figure 13 sets forth still another interchangeable convenience device configured to be used with and attachable to base 71. A radio 150, configured in accordance with the foregoing described interchangeable devices, supports internal electronic circuitry corresponding to conventional miniaturized radio receiving devices (not shown). In addition, radio 150 supports a speaker cavity 151 which in turn supports a conventional miniaturized speaker or audio transducer (not shown). A power button 155 is accessible from the exterior of radio 150 and is operative to apply power to the internal circuitry of radio 150. A power indicator 152 provides indication of the powered condition of radio 150. In addition, radio 150 further defines an elongated socket 153 which in turn supports a plurality of pins 154. In accordance with conventional fabrication techniques, socket 153 and pins 154 provide means for coupling the electronic circuitry within radio 150 to an external antenna and power source.

What has been shown is a sports glove with interchangeable apparatus in which a plurality of individual convenience devices may be interchangeably attached to the backhand portion of a sports glove and which may be readily used by the wearer without the need of removing either glove.

While particular embodiments of the invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the invention in its broader aspects. Therefore the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope the invention.
THAT WHICH IS CLAIMED IS:

1. For use in combination with a glove having a backhand portion interchangeable apparatus comprising:

   a base member having a bottom surface and defining first attachment means;

   fastening means securing said base member bottom surface to said backhand portion of said glove;

   a convenience device having convenience means and defining second attachment means configured to cooperate with said first attachment means to removably secure said convenience device to said base member.

2. Interchangeable apparatus as set forth in Claim 1 wherein said first attachment means include a pair of internal channels and wherein said second attachment means include a pair of opposed ridges cooperating with said pair of channels.

3. Interchangeable apparatus as set forth in Claim 2 wherein said base member defines a receiving surface having an upwardly extending pivot and wherein said convenience device defines a recess for receiving said pivot.

4. Interchangeable apparatus as set forth in Claim 3 wherein said pair of channels are opposed and separated by a pair of gaps and wherein said convenience device is received within said base member at a first rotational alignment in which said ridges extend through said gaps and is rotatable about said pivot to a second position in which said pair of ridges are captivated within said pair of channels.
5. Interchangeable apparatus as set forth in Claim 4 wherein said first and second attachment means include a detent to position said convenience device in said second position.

6. Interchangeable apparatus as set forth in Claim 5 wherein said fastening means includes a generally planar gasket plate interposed between said base member bottom surface and said backhand portion of said glove including a first layer of adhesive securing said gasket plate to said backhand portion of said glove and a second adhesive layer securing said gasket plate to said bottom surface of said base member.

7. A sports glove as set forth in Claim 6 wherein said convenience device includes a timer having a clock and clock readout.

8. A sports glove as set forth in Claim 6 wherein said convenience device includes a wiper assembly having a plurality of upwardly extending wiper blades.

9. A sports glove as set forth in Claim 6 wherein said convenience device includes an internal cavity for supporting a dispensable material and a nozzle in communication therewith and means for dispensing a quantity of said material.

10. A sports glove as set forth in Claim 6 wherein said convenience device includes an internal cavity, a cavity top and a hinge pivotally supporting said cavity top in open and closed position with respect to said internal cavity.

11. A sports glove for use by a wearer comprising:

backhand, palm and thumb portions;
a base member secured to said backhand portion;

and

a convenience device removably attachable to
said base member and having means for providing a
convenience function to the glove wearer.

12. A sports glove as set forth in Claim 11 wherein
said convenience device includes a timer having a clock and
clock readout.

13. A sports glove as set forth in Claim 11 wherein
said convenience device includes a wiper assembly having a plurality
of upwardly extending wiper blades.

14. A sports glove as set forth in Claim 11 wherein
said convenience device includes an internal cavity for
supporting a dispensible material and a nozzle in
communication therewith and means for dispensing a
quantity of said material.

15. A sports glove as set forth in Claim 11 wherein
said convenience device includes an internal cavity, a
cavity top and a hinge pivotally supporting said cavity
top in open and closed position with respect to said
internal cavity.

16. A sports glove as set forth in Claim 11 wherein
said convenience device supports a miniaturized radio
receiver.
### INTERNATIONAL SEARCH REPORT

#### A. CLASSIFICATION OF SUBJECT MATTER

**IPC(5):** A41D 19/00  
**US CL:** 2/249;224/148,152  
According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

| U.S. | 2/249;224/180,217,903;455/351 |

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database consulted during the international search (name of database and, where practicable, search terms used)

#### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tbody>
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Further documents are listed in the continuation of Box C.  
See patent family annex.

**Date of the actual completion of the international search:** 23 FEBRUARY 1993

**Date of mailing of the international search report:** 17 MAR 1993

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