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(54) **ATHLETIC GLOVE FOR RACQUET SPORTS**

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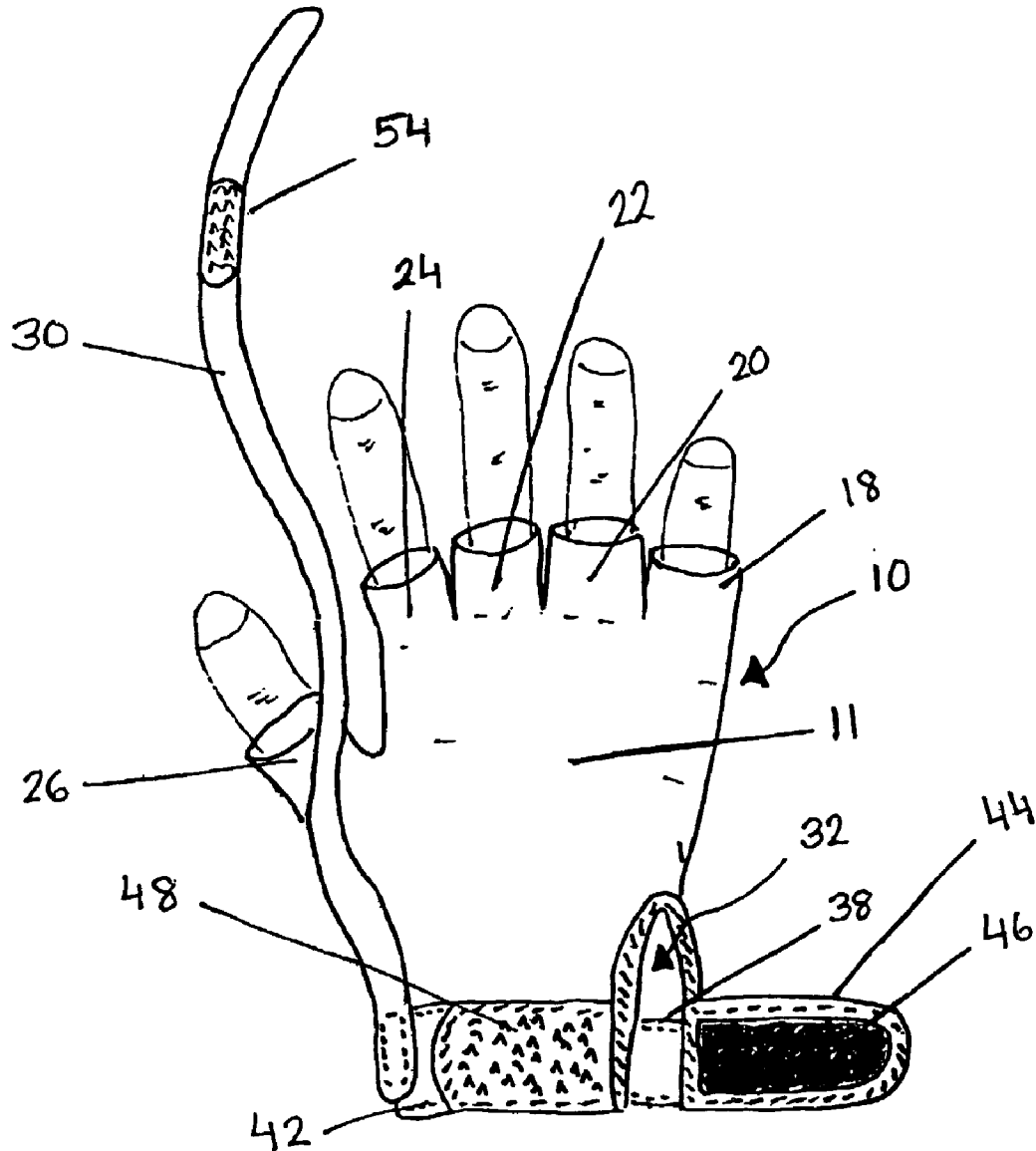
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(57) **ABSTRACT**

An athletic glove for racquet sports which includes a support strap fixed at one end extending between the thumb and index finger. The free end of strap is wrapped around the top of handle to give support to reduce the head weight of racquet felt on the wrist of wearer. The glove helps support the racquet, which is useful both as a training device and a performance enhancement device in competition.

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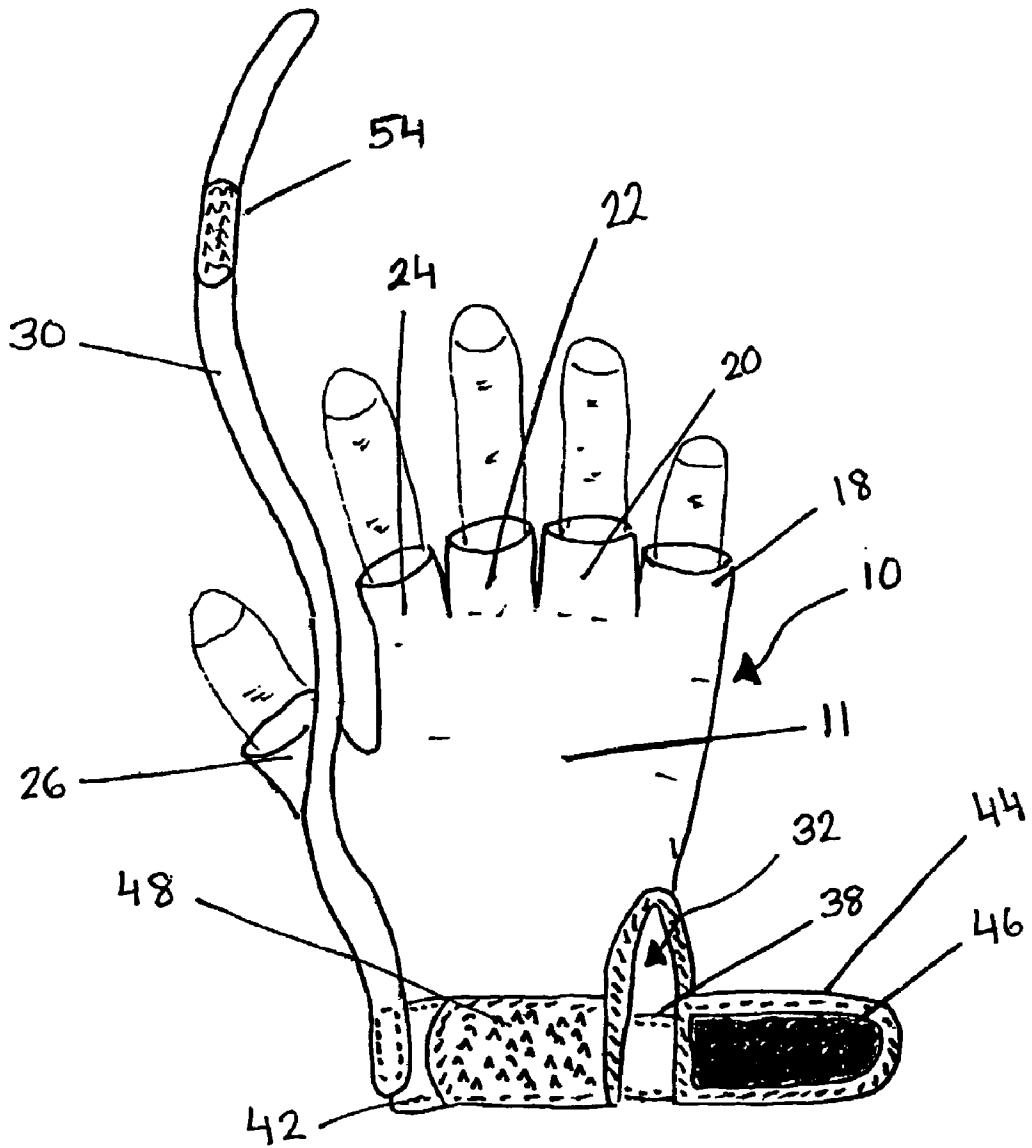


FIG. 1

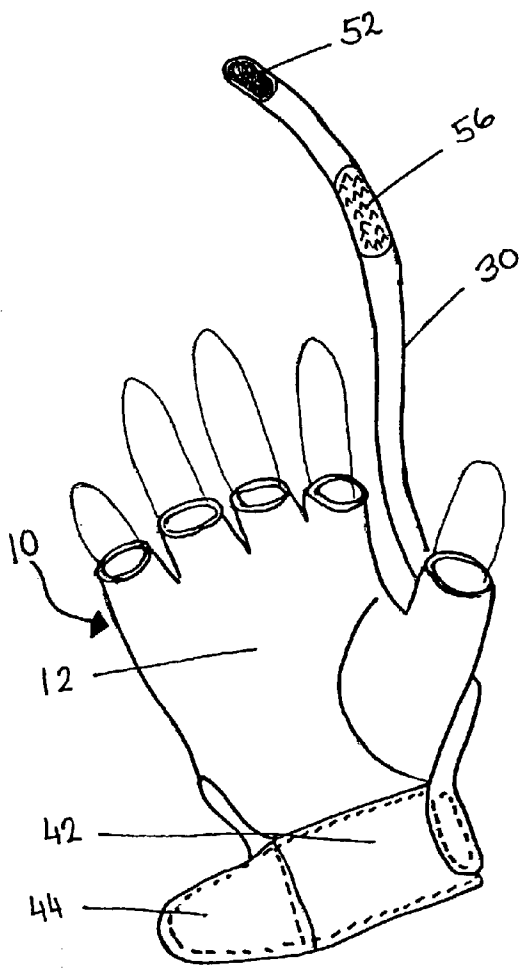


FIG. 2

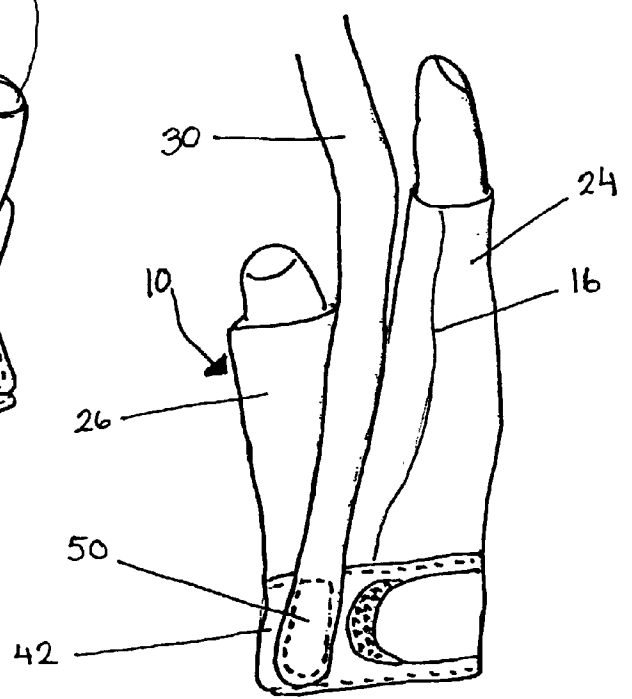


FIG. 3

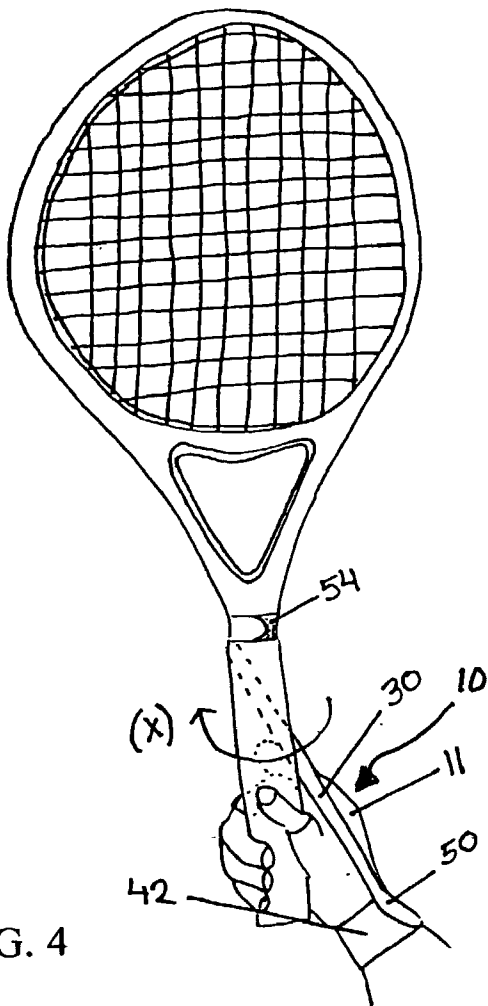


FIG. 4

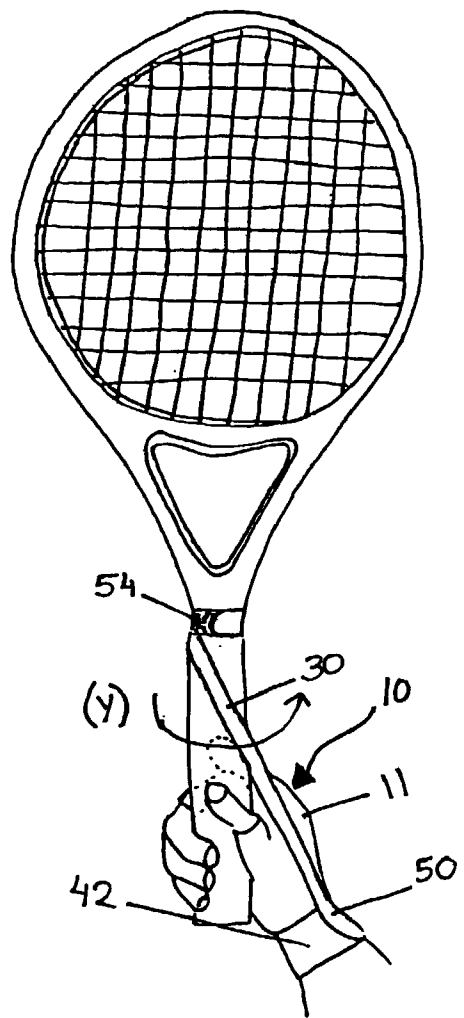
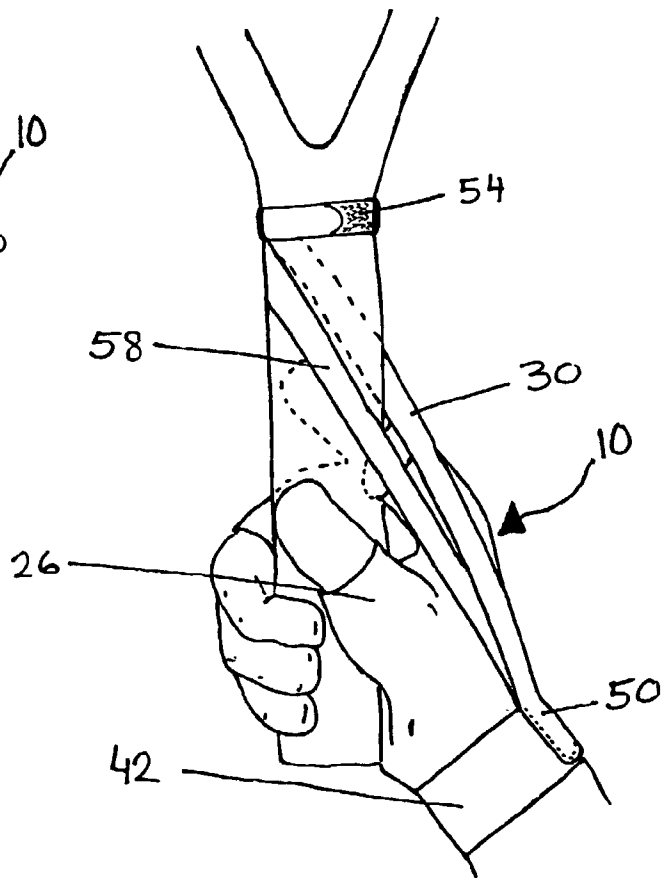
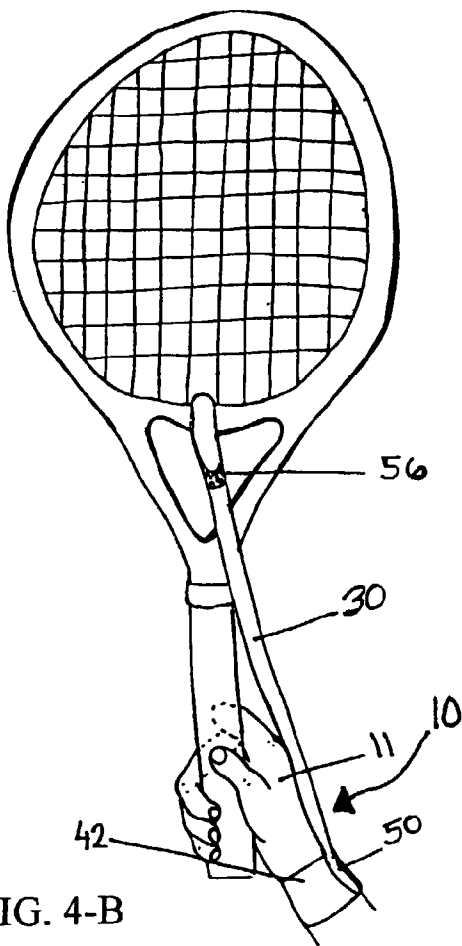


FIG. 4-A



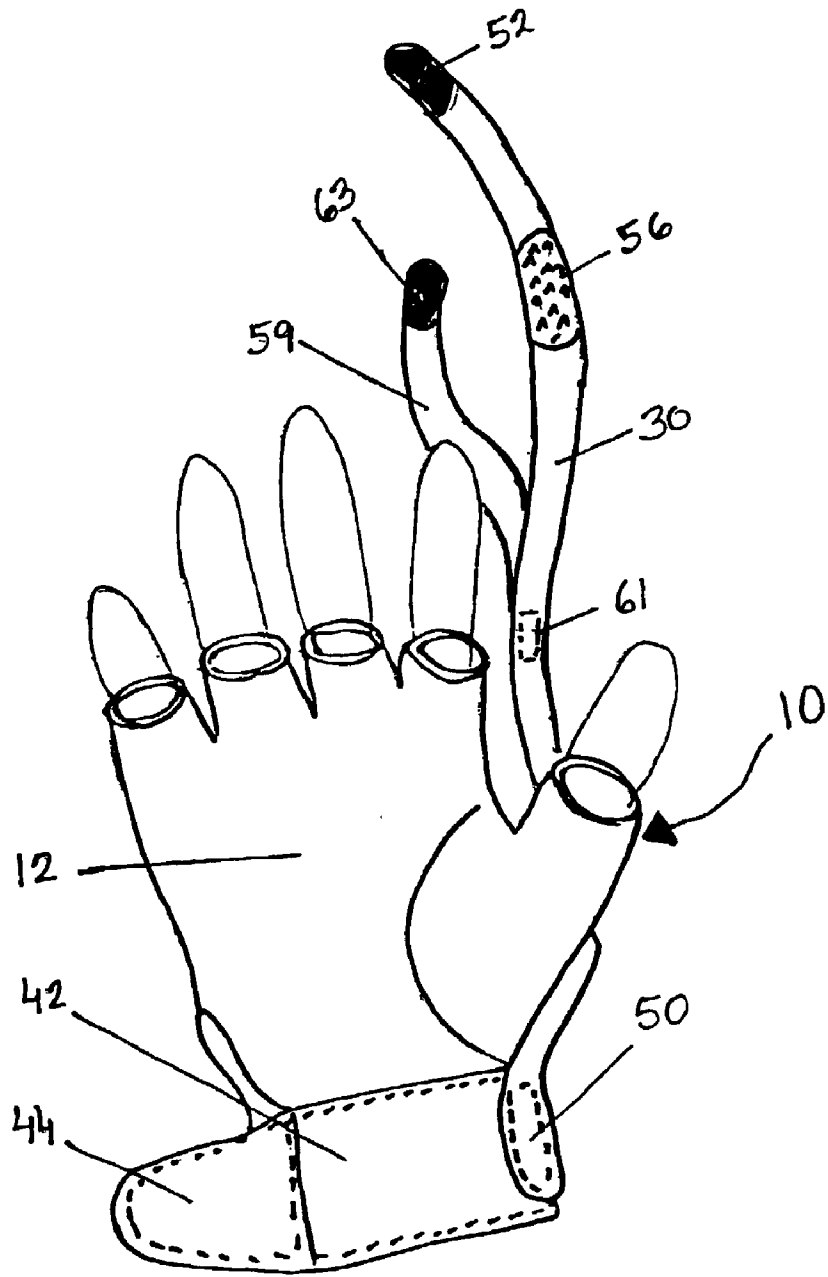


FIG. 4-D

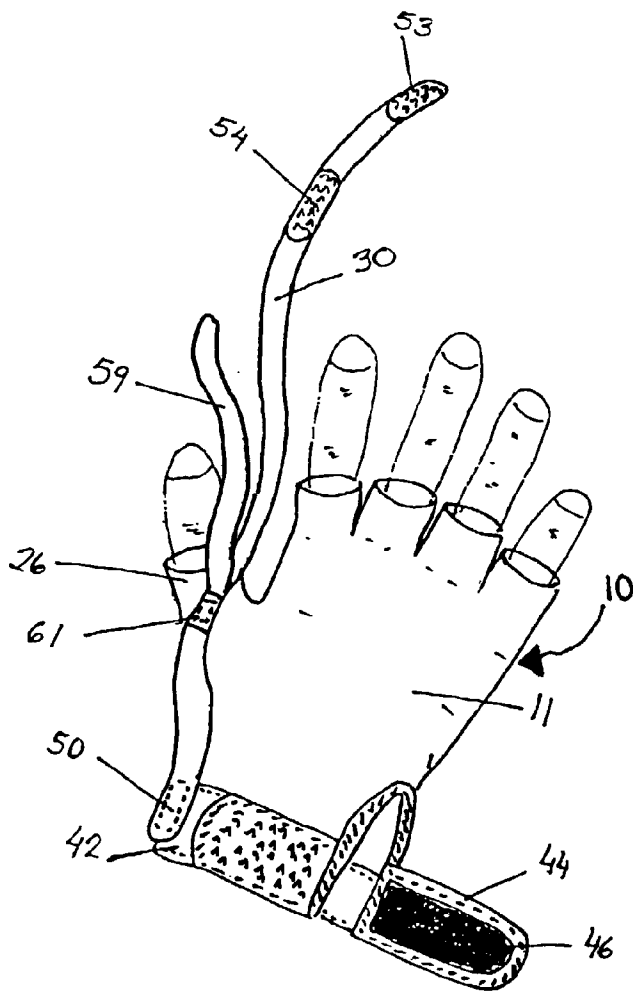


FIG. 4-E

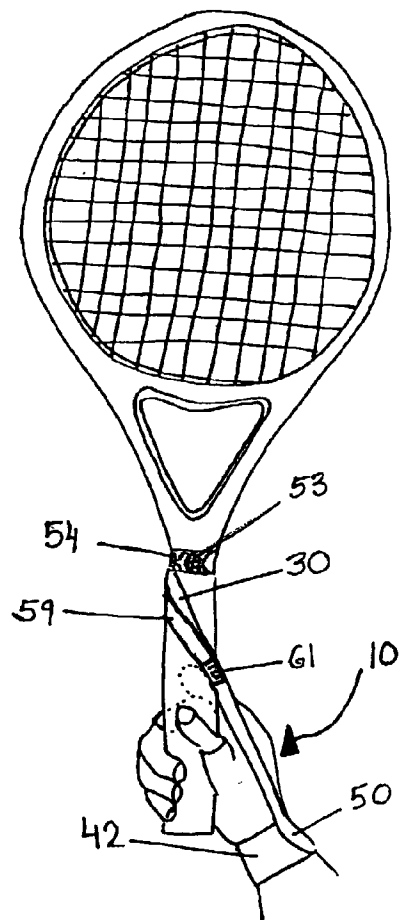


FIG. 4-F

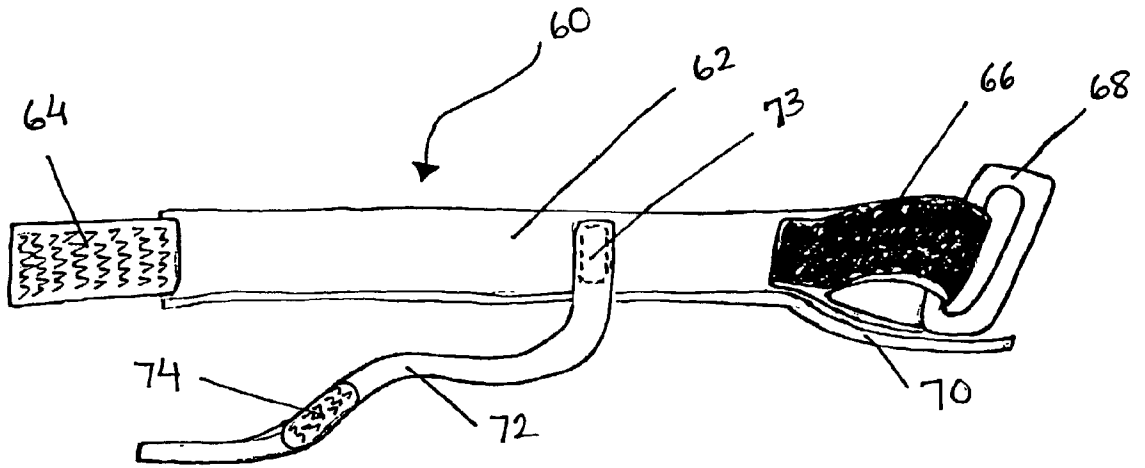


FIG. 5

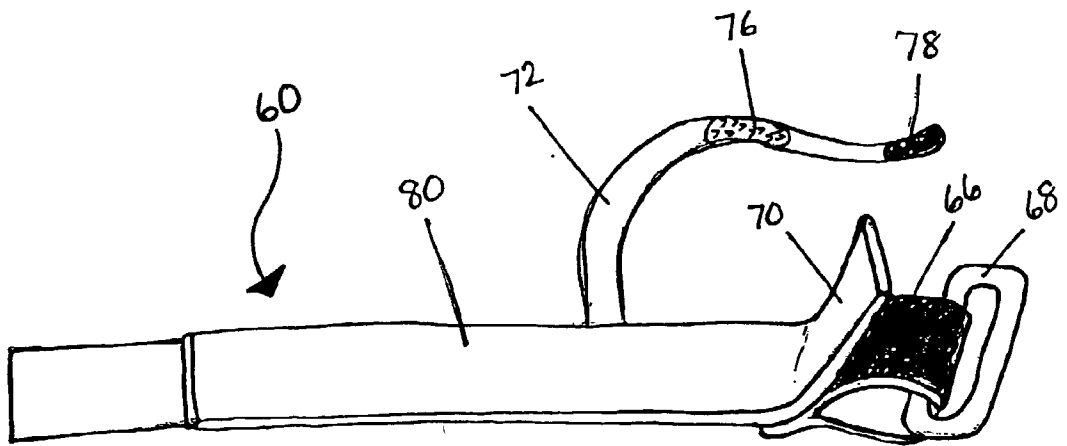


FIG. 6

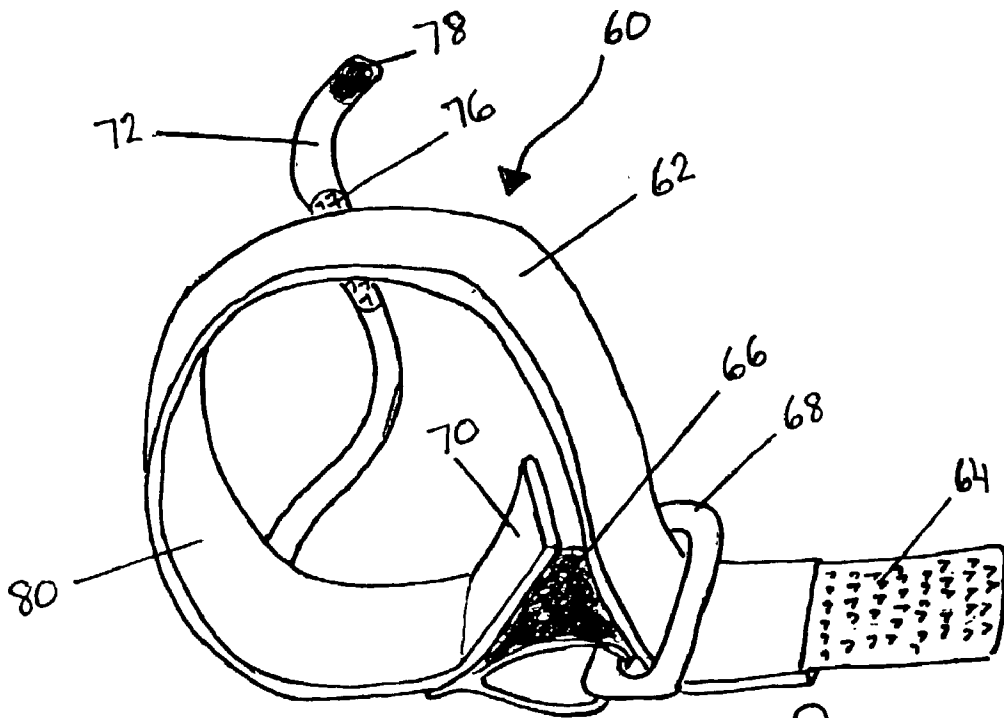


FIG. 7

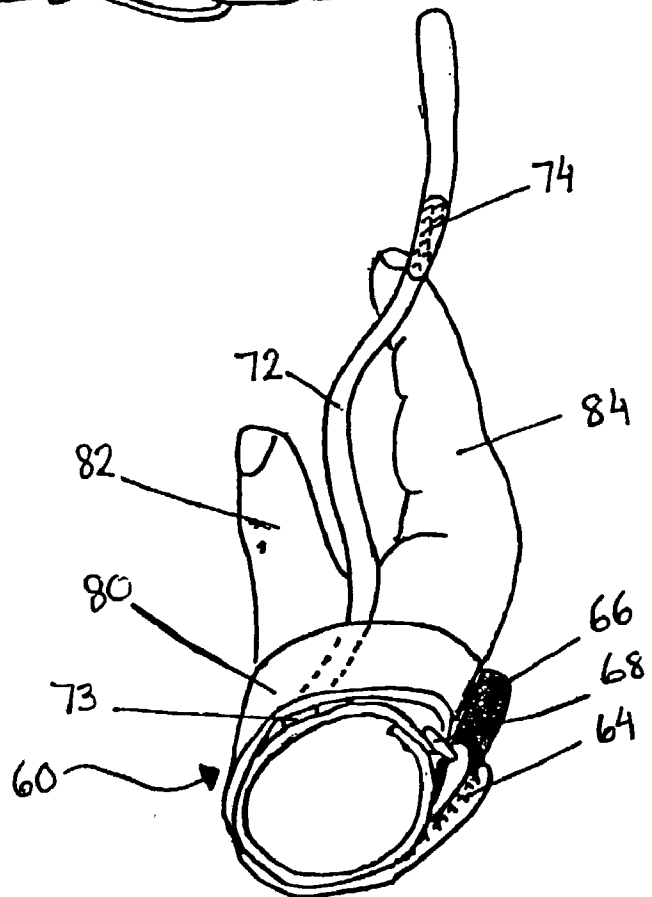


FIG. 8

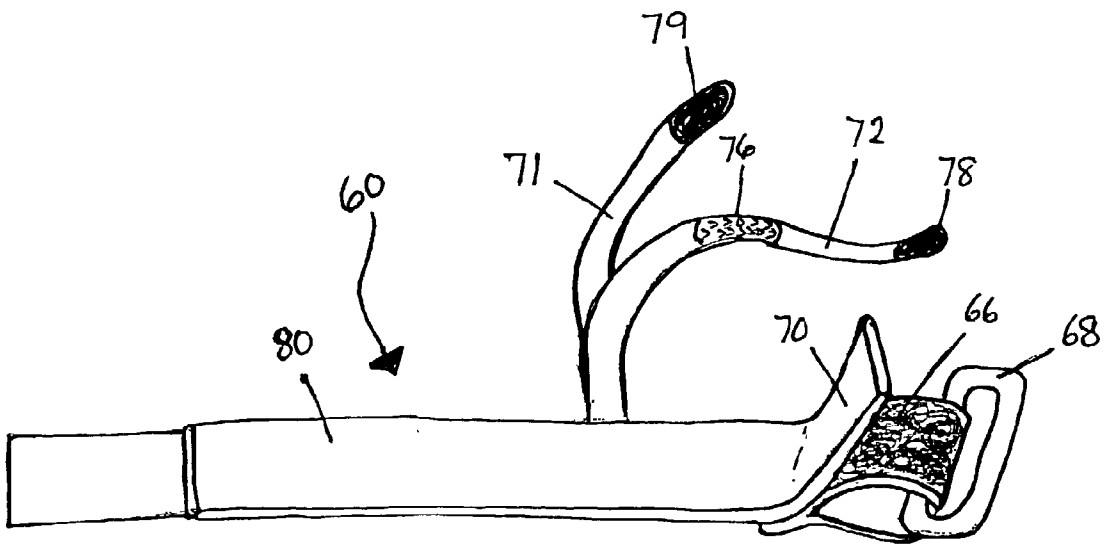


FIG. 9

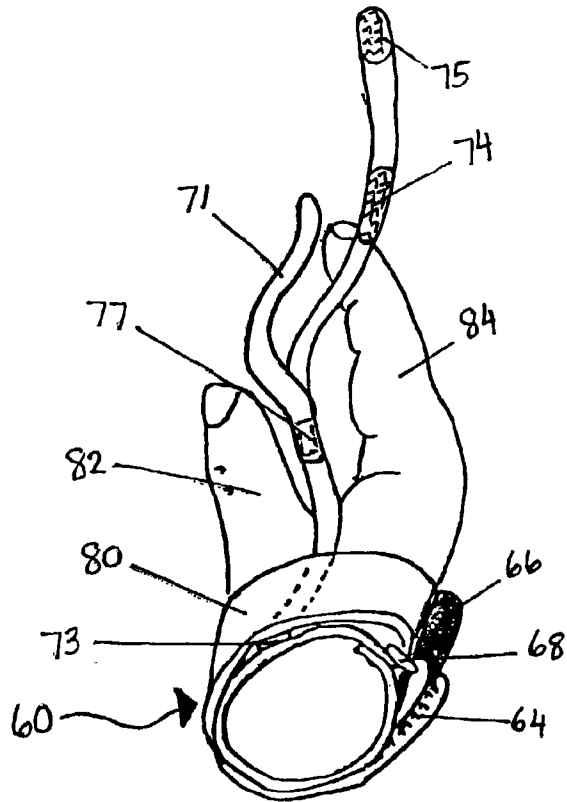


FIG. 9-A

ATHLETIC GLOVE FOR RACQUET SPORTS

[0001] The present invention is designed for racquet sports such as tennis. Tennis is a demanding game and requires a lot of wrist strength. The wrist has to be strong enough to withstand the force of the ball as well as the force of gravity working on the racquet during the duration of the activity. Thus it is desirable to provide an athletic glove, which allows the wearer to withstand the forces effecting the wrist and allowing the freedom to make the same swings without being inhibited by the glove.

SUMMARY OF THE INVENTION

[0002] The present invention is a athletic glove for racquet sports which is designed to provide support for the wrist by redistributing the vertical forces felt by the head of the racquet by a elongated support strap permanently secured at one end of glove. The free end of support strap wraps around the top of handle or at the bottom face of racquet. Once the support strap is securely wrapped around the top of handle, the head weight of racquet is reduced on the wrist. The support strap does not inhibit the natural forehand and backhand strokes in anyway it only enhances playability.

[0003] The support strap wrapped around the back hand side of handle, in an untwisted position is supporting the vertical head weight of the racquet and is best suited for volleys and return serves. For a right-handed player, when the hand is rotated in the counter clockwise direction the support strap twists and supports the single handed backhand, re-enforcing the single handed backhand stroke and also reducing the vertical force felt by the head of racquet. For a forehand stroke the wearer has to rotate the hand in a clockwise direction to free up the support strap and swing normally. During a game, the player normally rotates his or her hand over the handle of the tennis racquet for a forehand stroke or a single-handed backhand stroke. The support straps does not change or inhibit the natural strokes but only re-enforces the natural strokes and reduces the vertical force of racquet on wrist.

[0004] The athletic glove of the present invention includes a glove having a palm portion joined with a back portion, a rear wrist cuff, and an elongated support strap permanently secured on one end to the rear wrist cuff between the thumb and index finger. The placement of the permanently secured strap can be thought of as a natural extension of the muscle, which is responsible in moving the hand up and down in a handshake movement. The glove preferably has a vent extending lengthwise from the wrist cuff, part way through the length of the glove. A fastener, such as a tab secured to the glove on one side of the vent having a Velcro element that can engage a second Velcro element on the other side of the vent, permitting the fit of the glove to be adjusted.

[0005] Therefore, in accordance with present invention the athletic glove for racquet sports reduces the vertical force produced by the head of the racquet and in direct relation improves the backhand and forehand strokes, volleys, backhand returns and backhand slices. The player with the glove is less likely to make an error due to a weak or fatigue wrist due to a long duration of the game, which may compromise the correct form of the strokes.

[0006] These and other objects, features and advantages of the present invention will become apparent from the fol-

lowing detailed description. It should be understood, however, that the detailed description and the specific examples, while indicating preferred embodiments of the invention, are given by way of illustrations only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The present invention will become more fully understood from the detailed description given herein below and the accompanying drawings, which are given by way of illustration only and are not limitative of the present invention, wherein:

[0008] FIG. 1 is a top plan view of the glove according to the invention with the strap shown fully extended;

[0009] FIG. 2 is plan view of the palm side of the glove;

[0010] FIG. 3 is an elevated view of glove in FIG. 1 with wrist in the vertical handshake position;

[0011] FIG. 4 is a diagrammatic view of glove in FIG. 1 of a right-handed tennis player's hand gripping the handle portion of a tennis racquet while wearing the glove and securing the strap to the top of handle to obtain support for a backhand stroke;

[0012] FIG. 4-A is a diagrammatic view of glove in FIG. 1 of a right-handed tennis player's hand gripping the handle portion of a tennis racquet while wearing the glove and securing the strap to the top of handle to obtain support for a forehand stroke;

[0013] FIG. 4-B is a diagrammatic view of glove in FIG. 1 of a right handed tennis player's hand gripping the handle portion of a tennis racquet while wearing the glove and securing the strap to the face of racquet to obtain increased head weight support;

[0014] FIG. 4-C is a diagrammatic view of glove in FIG. 1 of a right handed tennis player's hand gripping the handle portion of a tennis racquet while wearing the glove and depicting multiple support straps secured to the top of handle to obtain support for a forehand and backhand stroke;

[0015] FIG. 4-D is a plan view of the palm side of glove with adjustable support strap fully extended;

[0016] FIG. 4-E is a top plan view of the glove in FIG. 4-D with adjustable support strap fully extended;

[0017] FIG. 4-F is a diagrammatic view of FIG. 4-D of a right handed tennis player's hand gripping the handle portion of a tennis racquet while wearing the glove and depicting the adjustable support strap secured to the top of handle;

[0018] FIG. 5 is a top plan view of another embodiment of the present invention, showing the outside surface of wrist cuff;

[0019] FIG. 6 is a top plan view of the inside surface of wrist cuff;

[0020] FIG. 7 is a diagrammatic view of wrist cuff;

[0021] FIG. 8 is a diagrammatic view of wrist cuff on wrist;

[0022] FIG. 9 is a top plan view of the inside surface of wrist cuff depicting a adjustable support strap;

[0023] FIG. 9-A is a diagrammatic view of wrist cuff on wrist and depicting the adjustable support strap.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0024] Referring now to the drawings wherein the depictions are for purposes of illustrating a preferred embodiment of the present invention only and not for the purpose of limiting the same. FIG. 1 is a top plan view of a glove 10 of the present invention. Glove 10 is generally comprised of a back piece 11, a palm piece 12, an elongated support strap 30 and a wrist cuff 42. Glove 10 is adapted to snugly fit the human hand such that palm piece 12 in FIG. 2 lies tightly against the palm of the hand while back piece 11 lies tightly against the back of the hand. Palm piece 12 and back piece 11 are preferably joined by at least one seam, a seam 16, in a conventional substantially continuous manner around the glove as depicted in FIG. 3. When palm piece 12 and back piece 11 are joined, a wrist edge 38 and a four half-fingers portions 18, 20, 22, 24 and a half-thumb portion 26 are provided in a conventional manner. It will be understood that although the half-finger portions are illustrated, the half-finger portions could be replaced with full-finger portions or no finger-coverings at all.

[0025] Wrist cuff 42 forms the lower portion of the glove adjacent to the hand opening on both the palm side and the back side, and is constructed of elastic and non-elastic material to provide stability to the wrist. Glove 10 has a split 32 therein which extends from wrist cuff 42 thereof not more than about one forth way through the length of glove on the opposite side of half-thumb portion 26 and between palm portion 12 and back portion 11.

[0026] FIG. 2 depicts the palm side of glove, which comprises wrist cuff 42 which includes a lateral tab 44 sewn directly to the palm portion of the wrist cuff along a lengthwise seam of the split. Tab 44 comprises a loop element 46 of a hook and loop fastener, such as a Velcro fastener, sewn to the inside thereof. Loop element 46 is for adjustable engagement with a hook element 48 sewn to the outside back portion of wrist cuff 42.

[0027] In FIG. 3 support strap 30 is sewn at a fixed end support strap 50 directly to wrist cuff 42 between half-thumb portion 26 and finger 24. Sewn into the palm side of support strap 30 comprise a loop element 52 of a hook and loop fastener as depicted in FIG. 2. Loop element 52 is for adjustment engagement with the backside of a hook element 54, sewn onto the backside of support strap 30 depicted in FIG. 1, and a hook element 56, sewn onto the palm side of support strap 30 as depicted in FIG. 2.

[0028] FIG. 4 depicts a diagram after putting on glove 10, the wearer holds the handle of racquet in a standard handshake position and wraps support strap 30 around the top portion of handle by extending it over the backhand side of handle and engaging loop element 52 to hook element 54. This type of engagement of support strap 30 is used to support the backhand stroke, when twisting the hand in a counter clockwise direction (X) the strap supports the backhand swing. FIG. 4-A shows support strap 30 wrapped around the top portion of handle by extending it over the finger side of handle being held in the handshake position of the right hand and engaging loop element 52 to hook element 54 to secure the wrap around the handle. This type

of engagement of support strap 30 is used to support the forehand stroke, when twisting the hand in a clockwise direction (Y) the strap supports the forehand swing. FIG. 4-B shows a different support strap position, at the lower center face of racquet by engaging loop element 52 to hook element 56 to obtain increased support to reduce the head weight of racquet and to obtain the standard form of holding a racquet. FIG. 4-C depicts multiple support straps. A support strap 58 and support strap 30 to support the head weight of racquet and to support both the forehand and backhand strokes respectively.

[0029] FIG. 4-D depicts an adjustable support strap 59 to allow the wearer to adjust the support level while in play. Adjustable support strap 59 is attached to support strap 30 approximately at the wrist end at a fixed adjustable point 61, depicted in FIG. 4-E. The wearer can increase the support by pulling adjustable support strap 59 around the handle of racquet and attach loop element 63 located at the unattached end of adjustable support strap 59 to hook element 53 already wrapped around the top portion of handle of racquet on support strap 30. FIG. 4-F depicts a diagram of the racquet in a standard handshake position while wearing the glove with adjustable support strap 59. Adjustable support strap 59 is attached to support strap 30. The wearer of glove can adjust the level of support by pulling adjustable support strap 59 and engaging hook element 53, located on support strap 30, already wrapped around the top portion of racquet. When the wearer pulls on adjustable support strap 59 to increase the support, support strap 30 is also pulled indirectly at fixed end support strap 50 attached to wrist cuff 42, to obtain the desired support. The wearer can rapidly adjust the support level during play to obtain the desired support by releasing and engaging hook element 53 to loop element 63, without releasing support strap 30 engaged at top portion of handle with hook element 54 to loop element 52.

[0030] FIG. 5 depicts another embodiment of the present invention with a wrist strap 60. A outside surface 62 of wrist strap 60 has permanently attached to it a support strap 72 at a fixed end 73, a hook element 64 and a loop element 66. Loop element 66 is joined to a link 68 by looping through center of link 68 and permanently attached to outside surface 62 at a point to have outside surface 62 overlap loop element 66 and link 68 to produce an overlap flap 70. Hook element 64 is attached to one end of wrist strap 60 on the outside surface 62, which is on the opposite end of loop element 66. FIG. 5 also depicts the top side of support strap 72, which comprises of a hook element 74 used when wrapped around handle of racquet and attaches to a loop element 78 on the bottom side of support strap 72. FIG. 6 depicts an inside surface 80 of wrist strap 60. This inside surface will be in contact with the wearer's wrist. FIG. 6 also depicts the bottom side of support strap 72, which comprises of a hook element 76 and loop element 78.

[0031] FIG. 7 depicts inside surface 80, which will be in contact with the wrist of wearer. Loop element 78 is used to wrap support strap 72 to racquet and attaches to hook element 74 or hook element 76. FIG. 7 shows a diagrammatic view of wrist strap 60 where hook element 64 is inserted through link 68 and pulled back over outside surface 62 of wrist strap 60 and joined together by hook element 64 and loop element 66 with inside surface 80 exposed on top of wrist. FIG. 8 is a diagrammatic view showing the location of support strap 72, which is in between thumb 82 and index finger 84. Fixed end 73 of

support strap 72 is pressed between outside surface 62. FIG. 8 also depicts the top side of support strap 72 with hook element 74 ready for engagement with the handle of racquet.

[0032] FIG. 9 depicts a support strap 60 with an adjustable support strap 71 to allow the wearer to adjust the support level while in play. Adjustable support strap 71 is attached to support strap 72 approximately at the wrist end at a fixed adjustable point 77, depicted in FIG. 9A. The wearer can increase the support by pulling adjustable support strap 71 around the handle of racquet and attach a loop element 79 located at the unattached end of adjustable support strap 71 to hook element 75 already wrapped around the top portion of handle of racquet on support strap 72.

[0033] Additional support straps can also be added to reduce the vertical force and aid in the strokes and volleys of the racquet. While a particular embodiment of the present invention has been shown and described, modifications may be made within the scope of the invention. Such as different types of fasteners can be used, the permanently fixed support strap can be placed in different areas and more than one support strap and adjustable support strap can be used to aid in the strokes to obtain the desired effect in the spirit of the invention.

1) I claim an apparatus that supports the head weight of racquet when holding the racquet, comprising:

- a) a wearing apparatus worn on the side holding the racquet;
- b) a elongated support material;
- c) means for attaching said elongated support material to said wearing apparatus and to racquet, whereby supporting the head weight of racquet and improving racquet strokes.

2) The apparatus in claim 1, wherein said elongated support material can be attached to said wearing apparatus at plurality of places and have plurality of said elongated support material attached to said wearing apparatus.

3) The apparatus in claim 2, wherein said elongated support material can be composed of inelastic, elastic or a combination elastic and inelastic materials.

4) The apparatus in claim 3, wherein said attachment means of said elongated support material to said wearing apparatus includes a permanent stitch at one end of said elongated support material, sewn on said wearing apparatus between the thumb and index finger and the other end of said elongated support material is wrapped around the racquet by said attachment means including a hook element and a loop element of an hook and loop fastener, one sewn on either side of said elongated support material.

5) The apparatus in claim 4, further including an adjustable support strap attaches to said elongated support material by attachment means including a permanent stitch at one end of said adjustable support strap.

6) The apparatus in claim 5, wherein said adjustable support strap attaches to the racquet by attachment means including a hook element and a loop element of an hook and loop fastener.

7) The apparatus in claim 6, wherein said wearing apparatus is a glove having a palm portion joined with a back portion, a four finger portions and a thumb portion.

8) The apparatus in claim 7, wherein said glove has a wrist cuff.

9) The apparatus in claim 8, wherein said wrist cuff includes means for securing said wrist cuff around the user's wrist, wherein said securing means includes a hook element and a loop element of an hook and loop fastener that permits said wrist cuff to be secured in a series of positions under varying tension.

10) The apparatus in claim 9, wherein said glove has plurality of shapes including, full fingers, half fingers and no fingers.

11) The apparatus in claim 10, wherein said attachment means of said elongated support material to said wrist cuff includes a permanent stitch at one end of said elongated support material, sewn on said wrist cuff between the thumb and index finger and the other end of said elongated support material is wrapped around the racquet by said attachment means including said hook element and said loop element of an hook and loop fastener, one sewn on either side of said elongated support material.

12) The apparatus in claim 1, wherein said wearing apparatus is a wrist strap.

13) The apparatus in claim 12, wherein said attachment means of said elongated support material to said wrist strap includes a permanent stitch at one end of said elongated support material, sewn on said wrist strap between the thumb and index finger and the other of said elongated support material is wrapped around racquet by said attachment means including a hook element and a loop element of an hook and loop fastener, one sewn on either side of said elongated support material.

14) The apparatus in claim 13, further including an adjustable support strap attaches to said elongated support material by attachment means including a permanent stitch at one end of said adjustable support strap.

15) The apparatus in claim 14, wherein said adjustable support strap attaches to the racquet by attachment means including a hook element and a loop element of an hook and loop fastener.

16) The apparatus in claim 15, wherein said wrist strap includes means for tightening and means for attaching said wrist strap around user's wrist.

17) The apparatus in claim 16, wherein said tightening means includes a ring connector where said wrist strap extending through said ring connector and folding back on itself tightening said wrist strap around wrist and by attachment means including a hook element and a loop element of an hook and loop fastener attaches said wrist strap to wrist.

18) I claim an apparatus that supports the head weight of racquet, comprising

- a) a wearing apparatus;
- b) a elongated support material;
- c) a adjustable support strap;
- d) means for attaching said elongated support material to said wearing apparatus;
- e) means for attaching said adjustable support strap to said elongated support material;
- f) means for attaching said elongated support material and said adjustable support strap to the racquet, whereby supporting the head weight of racquet and improving racquet strokes.

19) The apparatus in claim 18, wherein said wearing apparatus is a glove with plurality of shapes, where said

attachment means of said elongated support material to said glove is a permanent stitch at one end of said elongated support material, sewn onto wrist of said glove between thumb and index finger; and said attachment means of said elongated support material to the racquet includes a hook element and a loop element of an hook and loop fastener, one sewn on either side of said elongated support material; and said attachment means of said adjustable support strap to said elongated support material is a permanent stitch at one end of said adjustable support strap sewn onto said elongated support material; and said attachment means of said adjustable support strap to the racquet includes a hook element and a loop element of an hook and loop fastener, one said loop element sewn on said adjustable support strap and the other said hook element sewn on said elongated support material.

20) The apparatus in claim 19, wherein said wearing apparatus is a wrist strap where said attachment means of

said elongated support material to said wrist strap is a permanent stitch at one end of said elongated support material, sewn onto said wrist strap between thumb and index finger; and said attachment means of said elongated support material to the racquet includes a hook element and a loop element of an hook and loop fastener, one sewn on either side of said elongated support material; and said attachment means of said adjustable support strap to said elongated support material is a permanent stitch at one end of said adjustable support strap sewn onto said elongated support material; and said attachment means of said adjustable support strap to the racquet includes a hook element and a loop element of an hook and loop fastener, one said loop element sewn on said adjustable support strap and the other said hook element sewn on said elongated support material.

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