



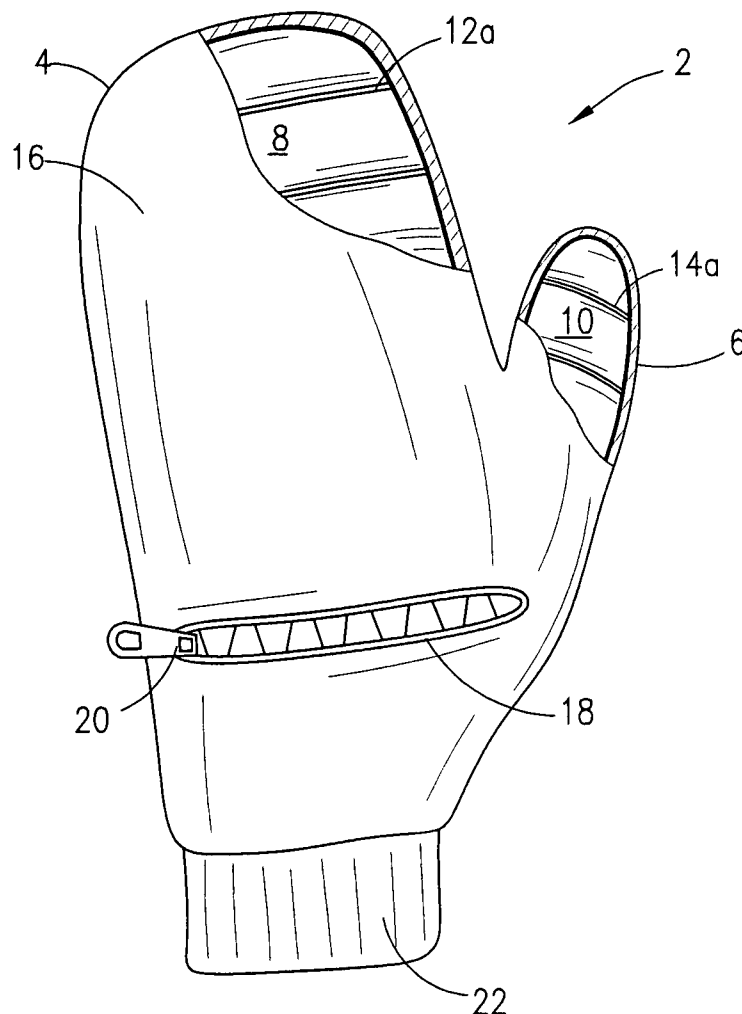
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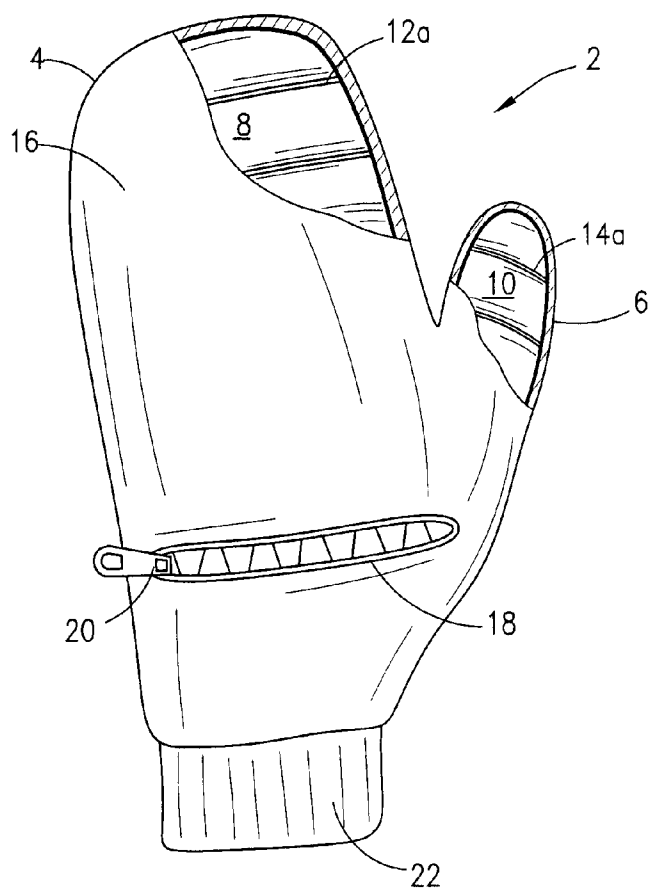
(19) **United States**(12) **Patent Application Publication**  
**Sarkies**(10) **Pub. No.: US 2008/0282439 A1**(43) **Pub. Date: Nov. 20, 2008**(54) **PROTECTIVE HAND DEVICE***A41D 19/01* (2006.01)*A41D 19/015* (2006.01)(76) Inventor: **Joseph P. Sarkies**, Carencro, LA  
(US)(52) **U.S. Cl.** ..... 2/20; 2/158; 2/161.6; 2/163(57) **ABSTRACT**

Correspondence Address:

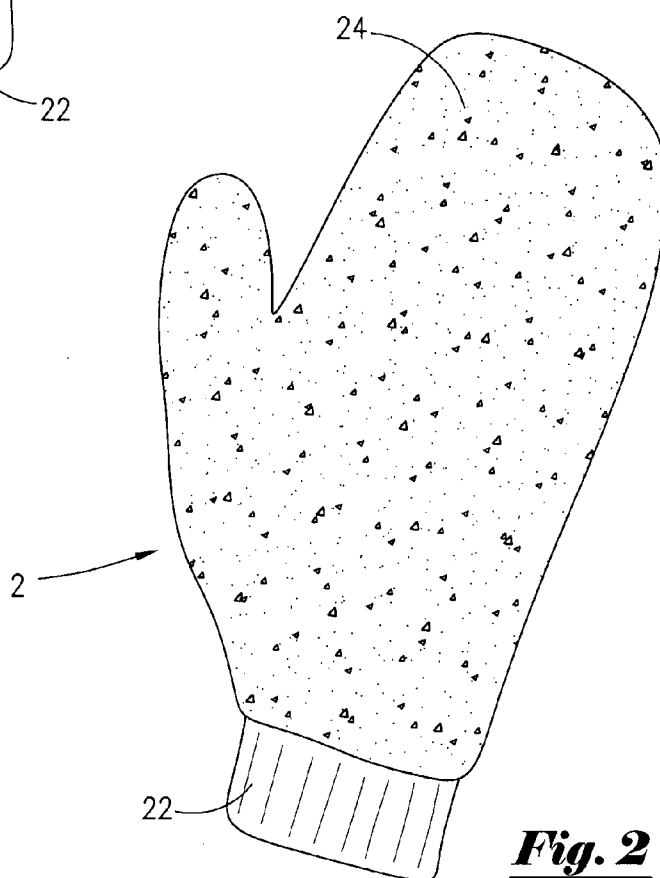
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A protective apparatus for a person's hand. In one embodiment, the apparatus comprises a glove having a front and a back side, and wherein the glove has finger compartments. The apparatus includes a cover attached to the back side of the glove and the finger compartments so that a palm pocket and finger pockets are formed. A palm pad is inserted between the glove's back side and the cover, and wherein the palm pad is configured to be adjacent the palm pocket. The apparatus further comprises finger pads inserted between the glove's back side and the cover. The finger pads are configured to be inserted into the finger pockets. The apparatus further comprises a throat member for binding together the glove and the cover. The palm pad has a first density layer joined to a second density layer.

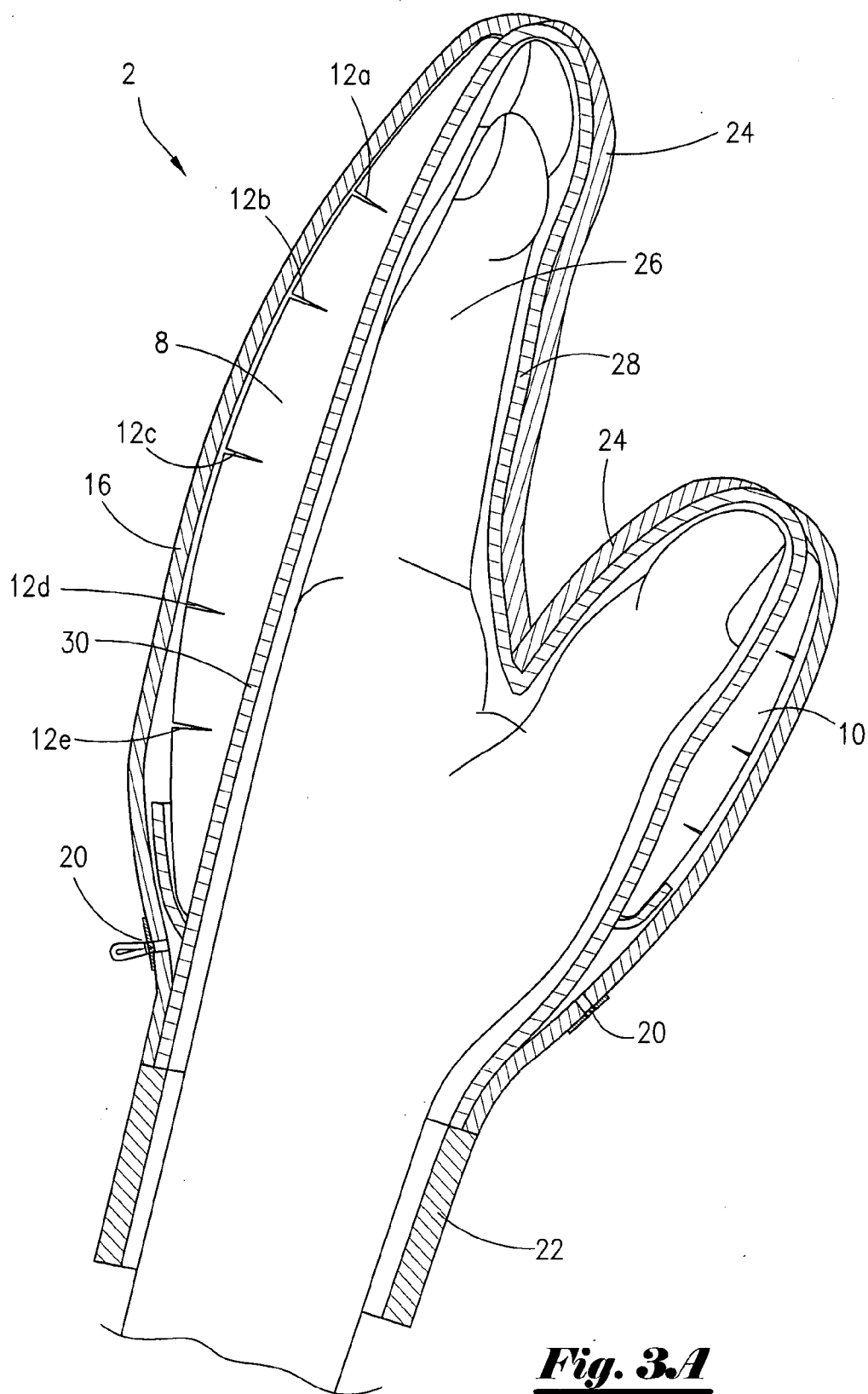
(21) Appl. No.: **11/804,083**(22) Filed: **May 17, 2007****Publication Classification**(51) **Int. Cl.***A41D 13/00* (2006.01)*A41D 19/00* (2006.01)



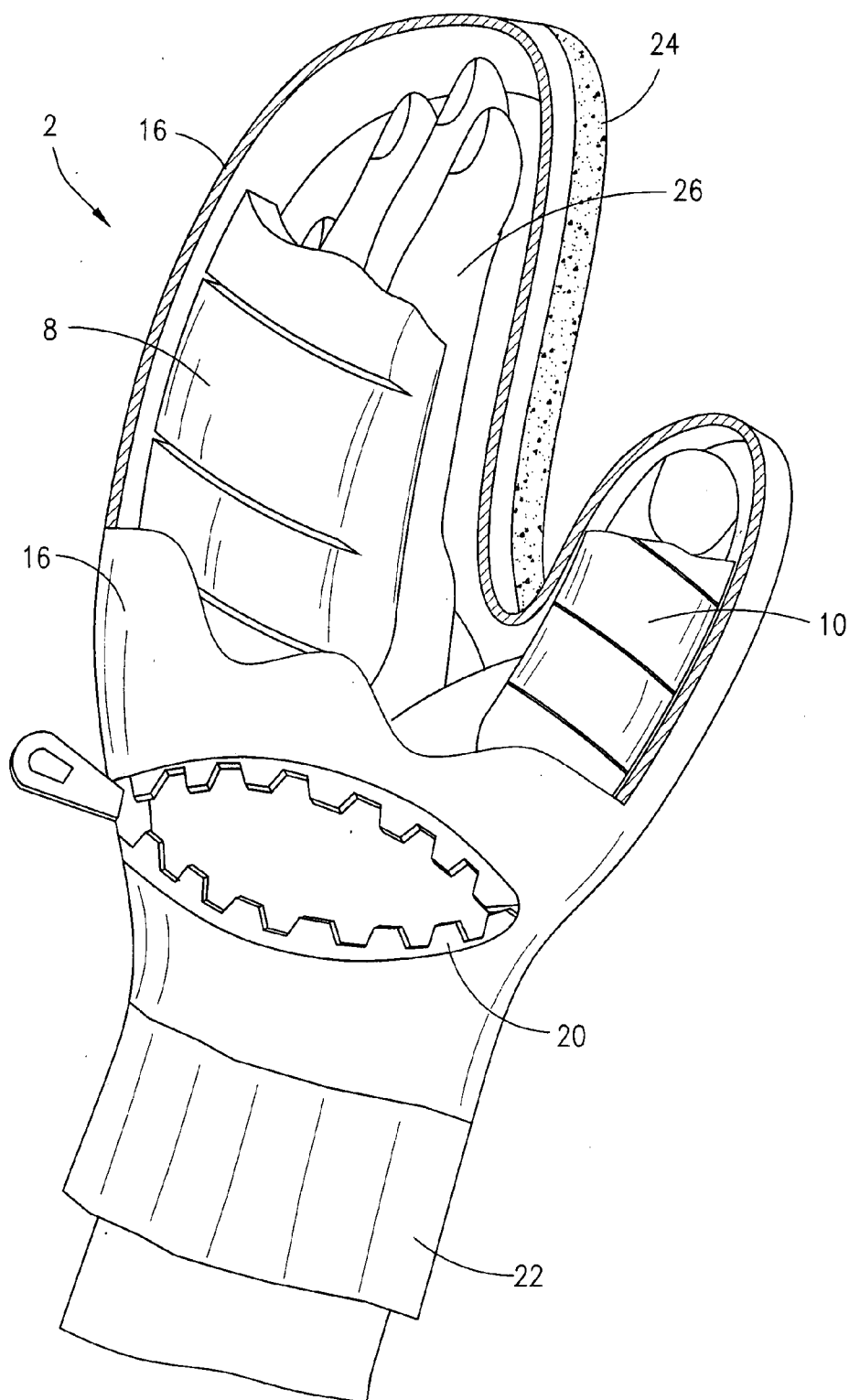
**Fig. 1**



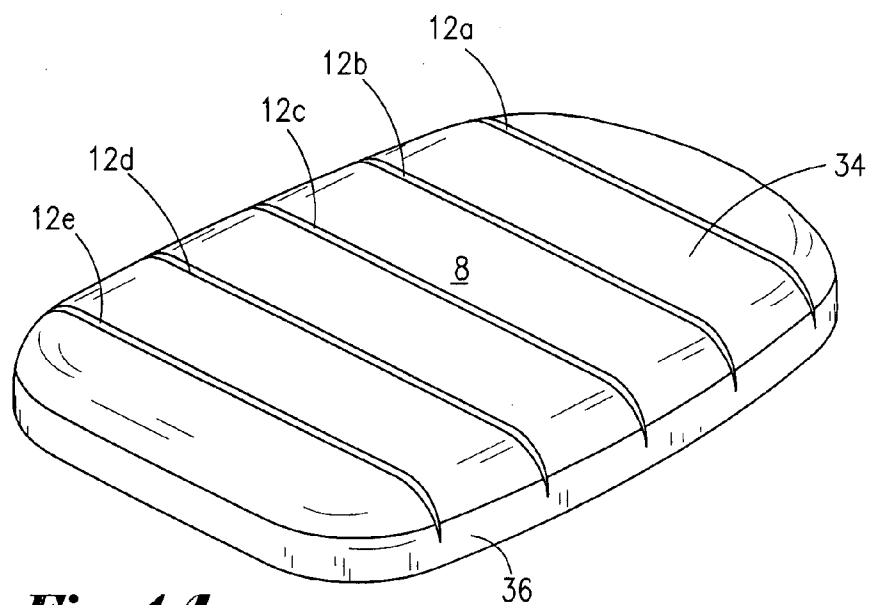
**Fig. 2**



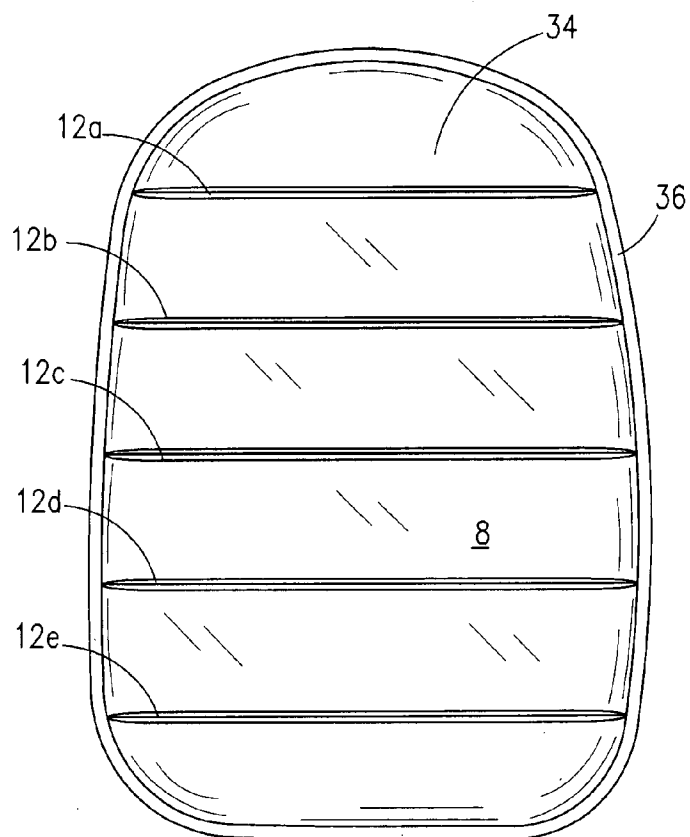
***Fig. 3.A***



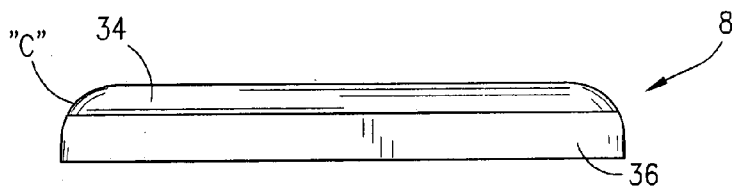
***Fig. 3B***



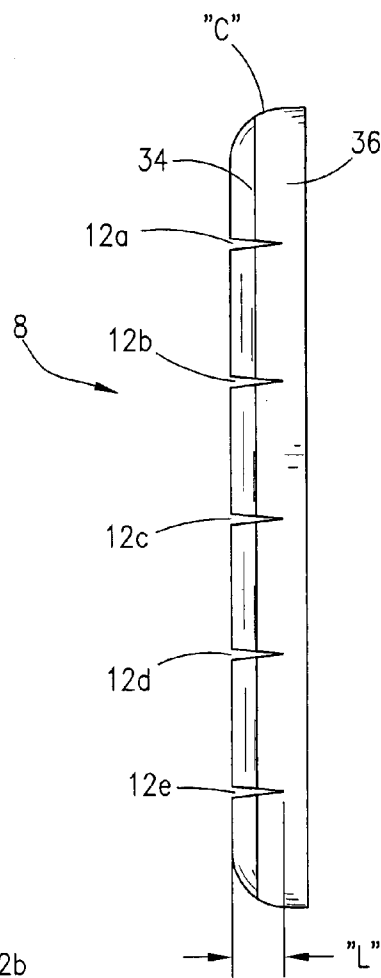
**Fig. 4A**



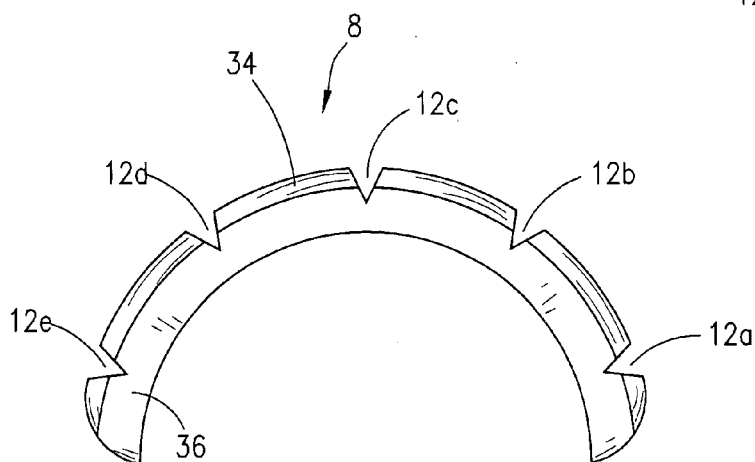
**Fig. 4B**



**Fig. 4D**



**Fig. 4C**



**Fig. 4E**

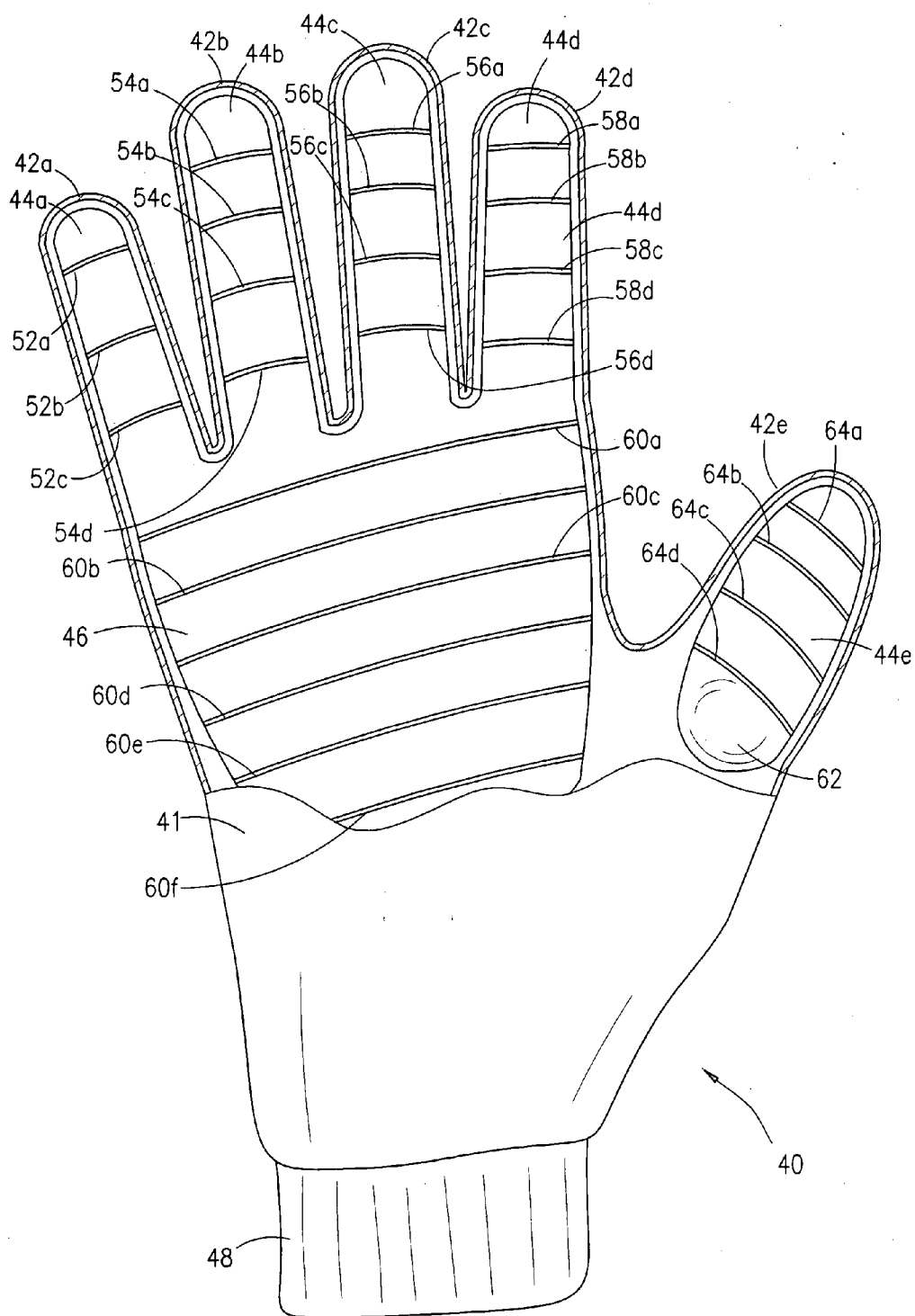
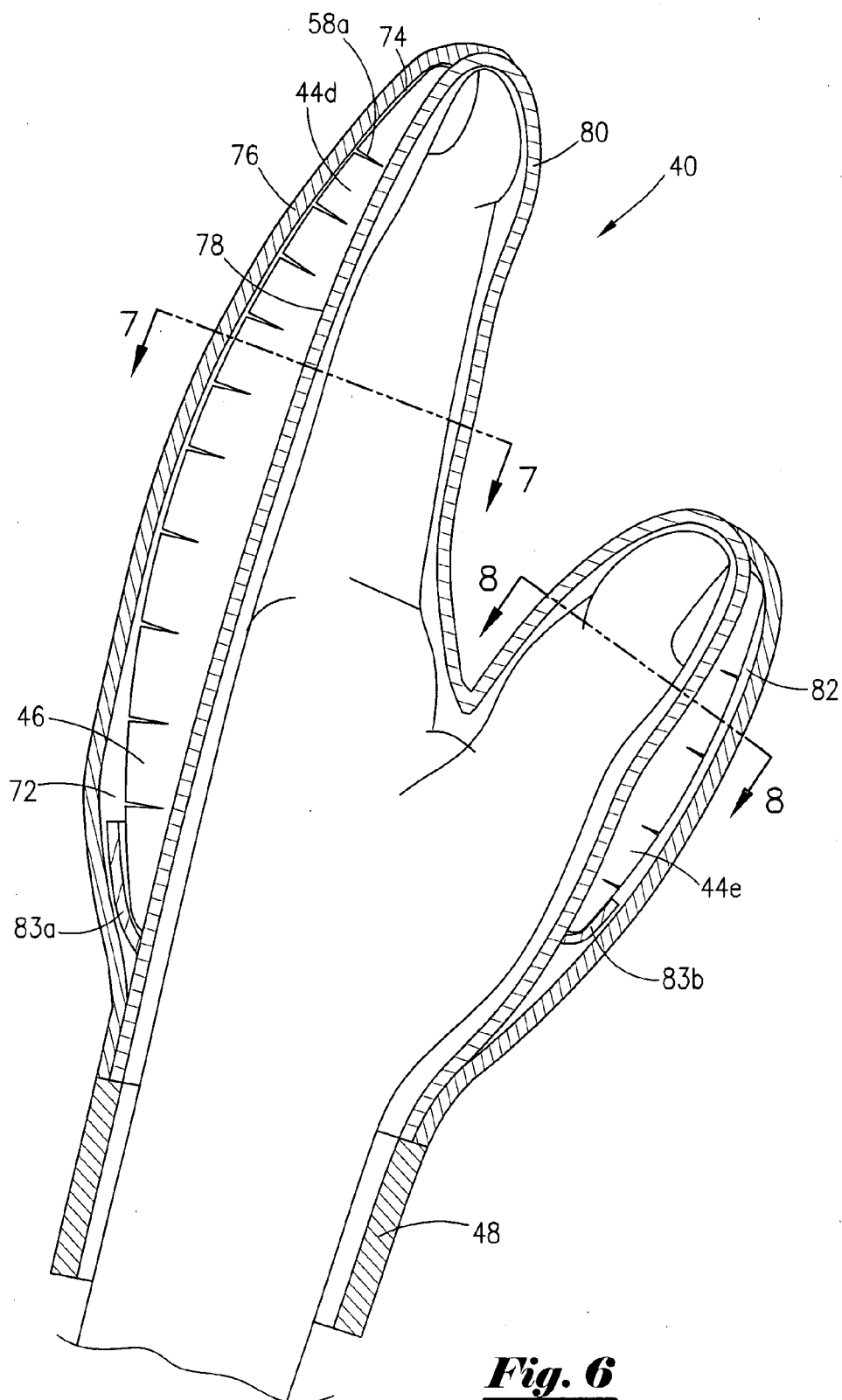


Fig. 5



**Fig. 6**





## PROTECTIVE HAND DEVICE

### BACKGROUND OF THE INVENTION

**[0001]** This invention relates to a protective hand device. More specifically, but without limitation, this invention relates to a glove and mitten that is worn by a person in order to protect the hand while working.

**[0002]** Gloves and mittens are generally a fitted covering for the hand, usually made of leather, wool, or cloth. Gloves have a separate sheath for each finger and the thumb. The mitten is a covering for the hand that encases the thumb separately and the four finger together. As those of ordinary skill in the art will recognize, hand injuries occurring in work and recreational environments can be painful and debilitating. A particular industry with a high incidence of hand injury is the oil and gas industry, wherein heavy and awkward tubulars must be handled on a repetitive basis. It should be noted that the description herein set out is not limited to only the oil and gas industry; instead, the description is applicable to all areas that a user can injury his (or her) hand due to trauma associated with the user coming into contact with foreign objects.

**[0003]** Prior art gloves and mittens include various cover arrangements that act to protect the hand from injury. Numerous prior art devices have been developed. However, all of the prior art gloves and mittens suffer from the inability to adequately protect the user from hand injury when the hand contacts foreign objects. Hence, an object of the present invention includes providing a protective device for the hand, and wherein the protective hand device prevents injuries to the hand when the user contacts foreign objects.

### SUMMARY OF THE INVENTION

**[0004]** A protective apparatus for a person's hand is disclosed. In the most preferred embodiment, the apparatus comprises a glove having a front side and a back side, and wherein the glove has finger compartments. The apparatus includes a cover attached to the back side of the glove and the finger compartments so that a palm pocket and a plurality of finger pockets are formed. A palm pad is inserted between the glove's back side and the cover, and wherein the palm pad is configured to be inserted into the palm pocket. The apparatus further comprises a plurality of finger pads inserted between the glove's back side and the cover. The finger pads are configured to be inserted into the plurality of finger pockets. The apparatus further comprises a throat member for binding together the glove and the cover. The palm pad has a first density layer joined to a second density layer.

**[0005]** In one preferred embodiment, the cover contains an opening for insertion of the palm pad and the finger pads. The apparatus may further comprise latching means for opening and closing the opening. The latching means, in the most preferred embodiment, is a zipper device.

**[0006]** In the most preferred embodiment, the palm pad has a plurality of slices formed thereon, and wherein the slices are formed through the first density layer and to a depth reaching into the second density layer. The cover may be formed of a stretch knit fabric. Also in the most preferred embodiment, the palm pad has a plurality of slices configured to allow full flexion and extension of the hand and fingers.

**[0007]** In one preferred embodiment, the finger pads contain a plurality of slices, and wherein the slices correspond to the knuckle's on the person's hand. Also, the apparatus may

include a thumb pad inserted between the back side of the glove and the cover. The thumb pad may contain a plurality of slices, and wherein the slices may correspond to the knuckle's on the person's thumb.

**[0008]** In a second preferred embodiment, a protective device for a person's hand is also disclosed. The device comprises a mitten having a front side and a back side, a cover attached to the back side of the mitten, and an impact pad inserted between the glove's back side and the cover, and wherein the impact pad comprises a first density pad joined to a second density pad. The cover may contain an opening for insertion of the impact pad. The device may further comprise a throat member for binding together the mitten and the cover and latching means for opening and closing the opening. In the most preferred embodiment, the latching means is a zipper device. The impact pad has a plurality of slots formed thereon, and wherein the slots are formed to a depth reaching into the second density pad in the preferred embodiment.

**[0009]** In a third preferred embodiment, a protective apparatus for a person's hand is disclosed. In this third embodiment, the apparatus comprises a first glove material, a second glove material attached to the first glove material and wherein the first glove material and the second glove material is configured to have a palm area and a finger area. A third glove material is attached to the second glove material so that a pocket area is formed. The apparatus further includes a throat member binding together the first, second and third glove material, and a foam pad received within the pocket area, and wherein the foam pad comprises a first density section joined to a second density section, and wherein the foam pad is configured to cooperate with the palm area and the finger area. The first glove material may contain a gripping surface and the second and third glove material may comprise a stretch knit fabric. In this third embodiment, the foam pad includes a plurality of lateral slices configured to allow flexion and extension of the hand.

**[0010]** An advantage of the invention includes the protection of the back side of the hand including knuckles, joints and fingers. Yet another advantage is that the disclosed apparatus is easy to manufacture. Yet another advantage is that it is easy to install replacement pads. Yet another advantage is that the apparatus allows for full flexion and extension of the hand.

**[0011]** A feature of the present invention is that the apparatus contains a gripping surface. Yet another feature is that the use of a stretch knit material that forms the lining and pockets which enables the lining and pockets to quickly and consistently recover to its original condition/position on a repetitive basis. Another feature is the throat of the glove, referred to as the cuff of the glove, which serves to bring together and effectively join the multiple ply of fabric that make-up the glove construction into a singular opening in which the wearer can insert his/her hand. The cuff also prevents foreign material from entering the glove during use while still allowing quick removal of the hand from the glove should the need develop.

**[0012]** Still yet another feature is the impact absorbing pads that act to absorb impact energy and shield the wearer's hand from laceration, avulsion, and abrasion. The pads contain deep lateral slices which allow full flexion and extension of the hand/fingers and thumb without sacrificing impact protection. In the most preferred embodiment, the impact pad is made of Ethylene Vinyl Acetate (EVA). Another feature of the present invention is that the EVA exhibits a low liquid absorption quality and is non-reactive to many chemicals com-

monly, particularly found in the oil and gas drilling industry. Still yet another feature is that the impact pads have dual densities (i.e. two (2) layers of densities) i.e. the bottom layer is softer than the top layer.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a plan view of the back side of one preferred embodiment of the mitten of the present disclosure.

[0014] FIG. 2 is a plan view of the palm side of the mitten seen in FIG. 1.

[0015] FIG. 3A is a partial cross-sectional side elevation view of the mitten seen in FIG. 1.

[0016] FIG. 3B is the side elevation view of the mitten seen in FIG. 3A with a partial cut-through of the cover material.

[0017] FIG. 4A is an isometric view of the palm pad used with the embodiment of FIG. 1.

[0018] FIG. 4B is a front view of the palm pad seen in FIG. 4A.

[0019] FIG. 4C is a side view of the palm pad seen in FIG. 4A.

[0020] FIG. 4D is an end view of the palm pad seen in FIG. 4A.

[0021] FIG. 4E is a side view of the palm pad seen in FIG. 4A in a flexed position.

[0022] FIG. 5 is a plan view of the back side of the most preferred embodiment of the glove of the present disclosure.

[0023] FIG. 6 is a side elevation, partial cut away, view of the glove seen in FIG. 5.

[0024] FIG. 7 is a cross-sectional view of the glove taken from line 7-7 of FIG. 6.

[0025] FIG. 8 is a cross-sectional view of the glove taken from line 8-8 of FIG. 6.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0026] Referring now to FIG. 1, a plan view of the back side of one preferred embodiment of the protective apparatus 2 for a person's hand of the present disclosure will now be described. As seen in FIG. 1, a mitten 2 is illustrated. The mitten 2 includes the finger area 4 and the thumb area 6 for insertion of the person's fingers and thumb. The palm pad 8 as well as the thumb pad 10 is shown. The traverse lines, such as lines 12a and 14a represents slices in the palm pad 8 and thumb pad 10, respectively, and will be described in greater detail later in the disclosure. FIG. 1 further depicts the cover 16, which in this preferred embodiment is a stretch knit fabric, commercially available from Top Value Fabric Inc. under the name Cotton/Lycra Knit.

[0027] The mitten 2 further contains the opening 18, and wherein the opening 18 allows insertion of the palm pad 8 and thumb pad 10. The mitten 2 includes the latching means, which in the most preferred embodiment is a zipper device 20. The mitten 2 also includes the throat member 22 which is a band for binding together the various ply material of the mitten. As understood by those of ordinary skill in the art, the throat member 22 also helps to keep foreign material from entering the interior of the mitten.

[0028] Referring now to FIG. 2, a plan view of the palm side of the mitten 2 seen in FIG. 1 will now be described. It should be noted that like numbers appearing in the various views refer to like components. This view depicts the cover material 24, which in the preferred embodiment is a cotton dot fabric

commercially available from Mount Vernon Mills Inc. under the name Vinyl Dot Cotton Fabric.

[0029] FIG. 3A is a partial cross-sectional side elevation view of the mitten 2 seen in FIG. 1. This view depicts the hand 26 inserted into the interior of the mitten 2. FIG. 3A depicts the cover material 24 which is attached to a second ply material 28, and wherein the second ply material 28 is commercially available from Top Value Fabrics Inc. under the name Cotton/Lycra Knit. FIG. 3A depicts the zipper device 20 in the latched (closed) position. Additionally, FIG. 3A depicts the palm pad 8 inserted between the pocket area between the cover 16 and the lining 30, and wherein the lining is a stretch knit fabric commercially available from Top Value Fabrics Inc. under the name Poly/Cotton Interlock Knit. The slices within the palm pad 8 are represented by the numerals 12a, 12b, 12c, 12d, 12e.

[0030] FIG. 3B is the side elevation view of the mitten 2 seen in FIG. 3A with a partial cut-through of the cover material 16, and in particular with the cut-away area of the back of the finger area and the cut-away area of the thumb. FIG. 3B also depicts palm pad 8 and thumb pad 10. The various plies of material are banded together at the throat member 22, as previously noted.

[0031] Referring now to FIG. 4A, an isometric view of the palm pad 8 used with the mitten 2 embodiment of FIG. 1 will now be described. The view of FIG. 4A illustrates that the palm pad will have a first density layer 34 and the second density layer 36; in other words, the first density layer 34 has a first denseness and the second density layer 36 has a softer denseness. As shown, the bottom layer 36 is softer and thicker than the top layer 34. It should be noted that the layer (i.e. layer 36) that contacts the wearer's hand is to be the thicker/softer layer for comfort purposes and the thinner/harder layer is the upper most layer (i.e. layer 34) as it functions to disperse the energy of an applied blow across a larger square inch area of the underlying softer pad. As per the teachings of the present disclosure, the hard foam shell positioned above the softer layer of foam allows a design that diffuses and disperses the energy impact over a broader square inch area of the protective padding. This feature is not shown nor taught in the prior art. The use of a thinner, two (2) density pad is more efficient and makes protection of a worker's hand possible, while not sacrificing dexterity.

[0032] Also, FIG. 4A illustrates that the slices 12a-12e are cut, in the most preferred embodiment, such that the slots are formed through the first density layer 34 to a depth reaching into the second density layer. In the most preferred embodiment, the pads are constructed of ethylene vinyl acetate (EVA). Hence, there are two impact absorbing pads, the larger palm (first) pad 8 described as the dorsal pad and the thumb (second) pad 10 located over the thumb area. In the most preferred embodiment, the dual density (two layer) laminar construction with a top layer being of 0.156 inch thickness and a hardness durometer value of between 75-80; and, the lower layer being 0.500 inch thickness and has a hardness durometer value of 50-55. The thumb pad 10 also has a dual density laminar construction with a total thickness of 0.480 inches (top layer 0.12 inch thickness and the lower layer 0.36 inch thickness); the durometer values are the same as for the dorsal pad as noted above.

[0033] FIG. 4B is a front view of the palm pad 8 seen in FIG. 4A. Hence, the slices 12a-12e are shown. Also, the first density layer 34 and the second density layer 36 is also shown. Referring now to FIG. 4C, a side view of the palm pad 8 seen

in FIG. 4A depicts the density layer 34 and the density layer 36, as well as the curvature “C” of the palm pad. The length of the slices is also shown in FIG. 4C, and wherein the length of the slice is denoted by the letter “L”. It should be noted that the length “L” is completely through the first density layer 34 and partially through the second density layer 36 i.e. into the second density layer 36 as seen in FIG. 4C.

[0034] In FIG. 4D, an end view of the palm pad 8 seen in FIG. 4A is illustrated. The first density layer 34 and the second density layer 36 is shown, and the curvature “C” is also depicted. FIG. 4E is a side view of the palm pad 8 seen in FIG. 4A in a flexed position. Hence, the slices 12a, 12b, 12c, 12d, and 12e have opened up, and allowed the pad 8 to bend to a suitable position without structurally damaging the pad 8.

[0035] FIG. 5 is a plan view of the back side of the most preferred embodiment of the glove 40 of the present disclosure. The glove 40 is a fitted covering for the hand, having separate compartments for fingers and thumb. More specifically, the glove 40 contains a first cover material 41 that includes the area of the back side of the hand as well as the fingers and thumb, such as the finger area 42a, 42b, 42c, 42d and thumb area 42e. FIG. 5 also depicts the impact pad means. More specifically, the impact pad means includes the finger pads 44a, 44b, 44c, 44d, and the thumb pad 44e. The back side of the hand pad is seen generally at 46 (hereinafter referred to as the hand pad 46), and in the most preferred embodiment, the hand pad 46 is operatively attached to the finger pads 44a-44d. Additionally, it should be noted that finger pads 44a-44d and the hand pad 46 is referred to as the impact pad. The pads are similar to the pads previously discussed, and are constructed with the EVA material, also previously discussed.

[0036] More specifically, and as described with reference to the mitten embodiment, the impact pad and thumb pad 44e have dual layers i.e. a first density layer and a second density layer. Additionally, the impact pad and the thumb pad 44e will have slices formed therein, and in the preferred embodiment, the slices extend through the first (top) density layer into the second (bottom) density layer. FIG. 5 also depicts the throat member 48 for banding together the multiple plies of material.

[0037] In the preferred embodiment shown in FIG. 5, finger pad 44a has slices 52a, 52b, 52c; finger pad 44b has slices 54a, 54b, 54c, 54d; the finger pad-44c has slices 56a, 56b, 56c, 56d; and the finger pad 44d has slices 58a, 58b, 58c, 58d. The hand pad 46 will also have slices; in the preferred embodiment, the hand pad 46 has slices 60a, 60b, 60c, 60d, 60e, 60f. The thumb pad 44e will contain an indentation 62 as well as the following slices in the preferred embodiment: 64a, 64b, 64c, 64d. The embodiment of FIG. 5 may also have, although not shown here, an opening, along with the latch means for opening and closing, and wherein the latch means in the preferred embodiment is a zipper device.

[0038] Referring now to FIG. 6, a side elevation, partial cut away view of the glove 40 seen in FIG. 5 will now be described. The view of FIG. 6 depicts the finger pad 44d and the hand pad 46 within the palm pocket area, denoted by the numeral 72, and the finger compartment area, denoted by the numeral 74. FIG. 6 further illustrates the top cover 76, the lining 78, and the bottom cover 80. Hence, the palm pocket area 72 and the finger compartments 74 are formed from the configuration of the top cover 76 and lining 78. In the most preferred embodiment, the top cover 76 is stretch knit material commercially available from Top Value Fabrics Inc. under the name Cotton/Lycra Knit; the lining 78 is a stretch

knit material commercially available from Top Value Fabrics Inc. under the name Poly/Cotton Interlock Knit; and the bottom cover 80 is a cotton dot fabric commercially available from Mount Vernon Mills Inc. under the name Vinyl Dot Cotton Fabric. As understood by those of ordinary skill in the art, the interface between all three plies will be sewn together. As noted earlier, the throat member 48 bands all plies (76, 78, 80) together.

[0039] FIG. 6 also illustrates the slices contained on the various pads; for instance the finger pad 44d contains the slice 58a. FIG. 6 also depicts the thumb pad 44e, which is contained within the thumb compartment seen generally at 82. The hand pad 46 is held in place with an inner pocket 83a. The thumb pad 44e is held in place with an inner pocket 83b. It should be noted that a metal clip, such as a staple, could be used to affix the pads in place.

[0040] Referring now to FIG. 7, a cross-sectional view of the glove 40 taken from line 7-7 of FIG. 6. More specifically, FIG. 7 depicts the top cover 76, lining 78 and the bottom cover 80 for the index finger (it should be noted that the other finger compartments are similar and will not be repeated). FIG. 7 depicts the finger pads 44d, 44c, 44b, and 44a. FIG. 7 shows the dual layer of the pads; for instance, pad 44a has the first density section 84 and the joined second density section 86. The finger area is also shown, for example finger area “F”.

[0041] FIG. 8 is a cross-sectional view of the glove 40 taken from line 8-8 of FIG. 6. The thumb compartment contains the top cover 76, the lining 78 and the bottom cover 80. The thumb pad 44e is also shown. The thumb area is also shown at “T”.

[0042] Although the invention has been described in terms of certain preferred embodiments, it will become apparent that modifications and improvements can be made to the inventive concepts herein without departing from the scope of the invention. The embodiments shown herein are merely illustrative of the inventive concepts and should not be interpreted as limiting the scope of the invention.

I claim:

1. A protective apparatus for a person's hand, the apparatus comprising:

- a glove having a front side and a back side, and wherein said glove has a plurality of finger compartments;
- a cover attached to the back side of said glove and said finger compartments so that a palm pocket and a plurality of finger pockets are formed;
- a palm pad inserted between said glove's back side and said cover, and wherein said palm pad is configured to be inserted into said palm pocket;
- a plurality of finger pads inserted between said glove's back side and said cover and configured to be inserted into said plurality of finger pockets;
- a throat member for binding together said glove and said cover;
- wherein said palm pad has a first density layer joined to a second density layer.

2. The apparatus of claim 1 wherein said cover contains an opening for insertion of said palm pad and said finger pads.

3. The apparatus of claim 2 further comprising:  
latching means for opening and closing said opening.

4. The apparatus of claim 3 wherein said latching means is a zipper device.

5. The apparatus of claim 4 wherein said palm pad has a plurality of slices formed thereon.

6. The apparatus of claim 5 wherein the slices are formed to a depth reaching the second density layer.

7. The apparatus of claim 6 wherein said cover is formed of a stretch knit fabric.

8. The apparatus of claim 3 wherein said palm pad has a plurality of slices configured to allow full flexion and extension of the hand and fingers.

9. The apparatus of claim 8 wherein said finger pads contain a plurality of slices, and wherein said slices correspond to the knuckles on the person's hand to allow full flexion and extension of the fingers.

10. The apparatus of claim 9 further comprising a thumb pad inserted between the back side of the glove and the cover.

11. The apparatus of claim 10 wherein said thumb pad contain a plurality of slices, and wherein said slices correspond to the knuckles on the person's thumb.

12. A protective device for a person's hand, the device:

a mitten having a front side and a back side;

a cover attached to the back side of said mitten;

an impact pad inserted between said glove's back side and said cover, and

wherein said impact pad comprises a first density pad joined to a second density pad.

13. The device of claim 12 wherein said cover contains an opening for insertion of said impact pad.

14. The device of claim 13 further comprising a throat member for binding together said mitten and said cover.

15. The apparatus of claim 14 further comprising:

latching means for opening and closing said opening.

16. The apparatus of claim 15 wherein said latching means is a zipper device.

17. The apparatus of claim 16 wherein said impact pad has a plurality of slots formed thereon.

18. The apparatus of claim 17 wherein the slots are formed through said first density pad to a depth reaching the second density pad.

19. A protective apparatus for a person's hand comprising:

a first glove material;

a second glove material attached to said first glove material and wherein said first glove material and said second glove material is configured to have a palm area and a finger area;

a third glove material attached to said second glove material so that a pocket area is formed;

a throat member binding together said first, said second and said third glove material;

a foam pad received within said pocket area, and wherein said foam pad comprising a first density section joined to a second density section, said foam pad configured to cooperate with said palm area and said finger area.

20. The apparatus of claim 19 wherein said first glove material has a gripping surface.

21. The apparatus of claim 20 wherein said second and third glove material is a stretch knit fabric.

22. The apparatus of claim 21 wherein said foam pad includes a plurality of lateral slices configured to allow flexion and extension of the hand, and wherein the slices are formed through said first density section and into said second density section.

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