

[54] **HAND RESTRAINING MITT**

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[51] **Int. Cl.**..... A61f 5/37  
[58] **Field of Search**..... 128/133; 273/54, 273/165; 2/20, 159, 18, 19, 21; 15/227, 16

[57] **ABSTRACT**

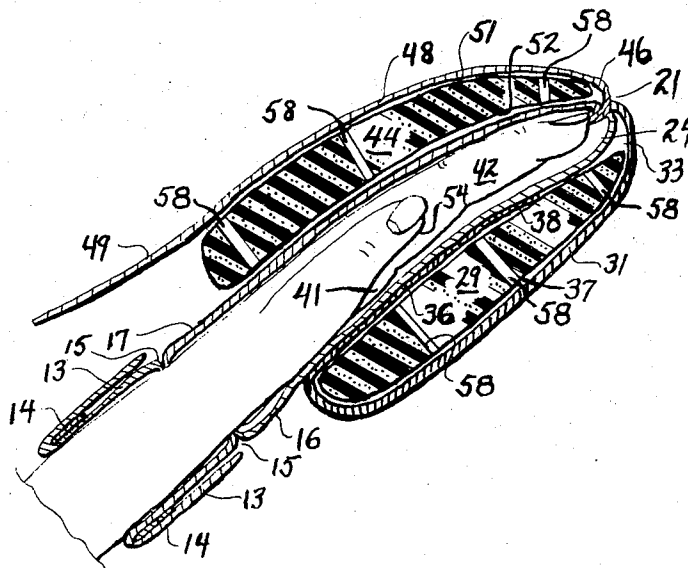
For use by arthritics or patients whose thumb and fingers on both hands need to be restrained to prevent harm a mitt has a snugly fitting cuff with a security strap. At least the palm side of the mitt includes a chamber either inflated with air or filled with a resilient block of foam-like material with the palm side shaped to conform to the natural curvature of the wearer's hand. For maximum comfort and restraint, a comparable pocket structure is formed on the back side of the mitt to receive a pad serving to support the back of the wearer's hand.

[56] **References Cited**

**UNITED STATES PATENTS**

3,564,613	2/1971	Fowler.....	273/54
1,053,204	2/1913	Morrison.....	128/133 X
3,182,657	5/1965	Zurbuchen.....	128/133
2,493,977	1/1950	Kochman.....	2/18
972,224	10/1910	Pease.....	2/18

**7 Claims, 9 Drawing Figures**



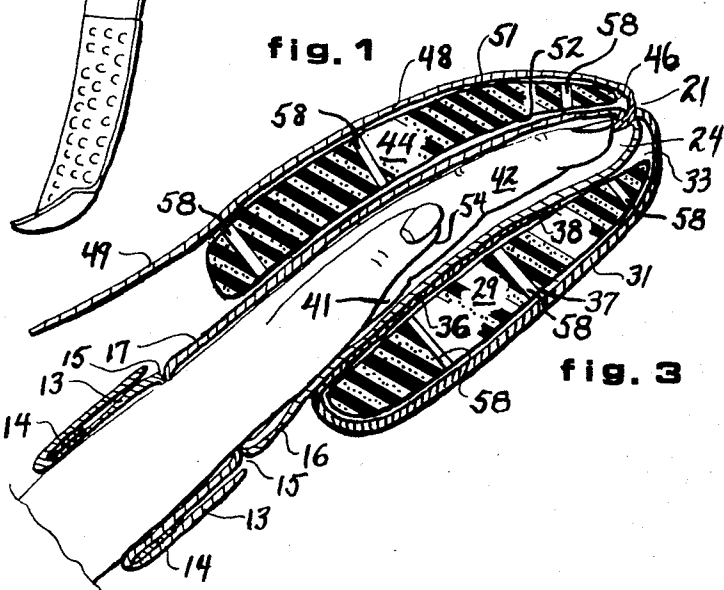
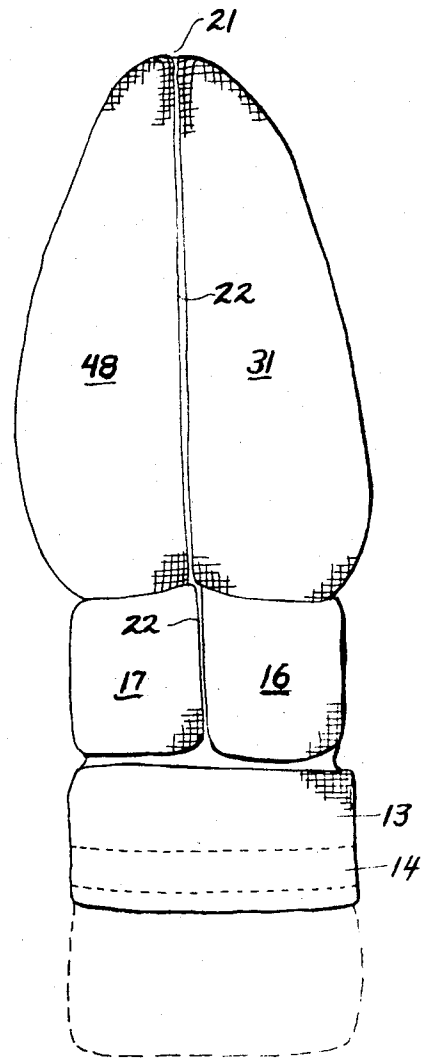
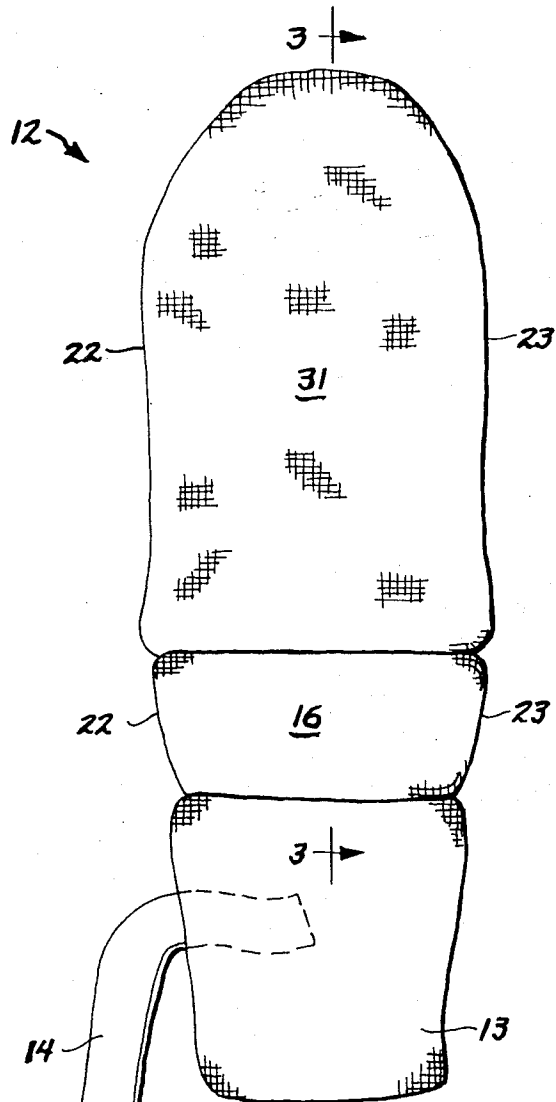


fig. 1

fig. 2

fig. 3

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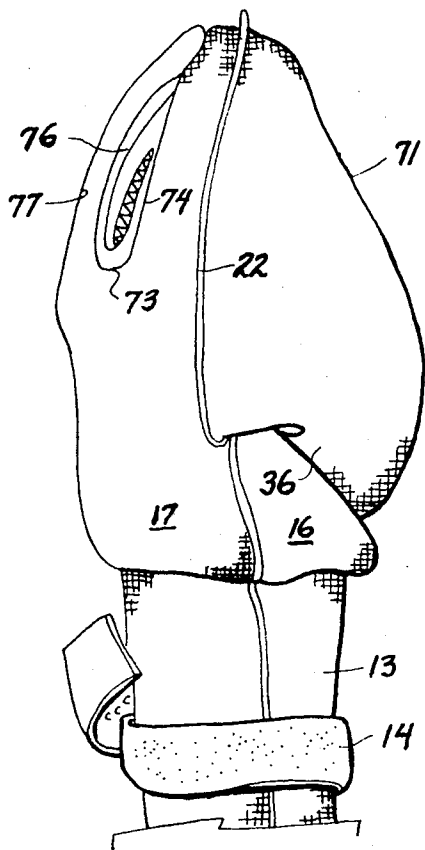


fig. 5

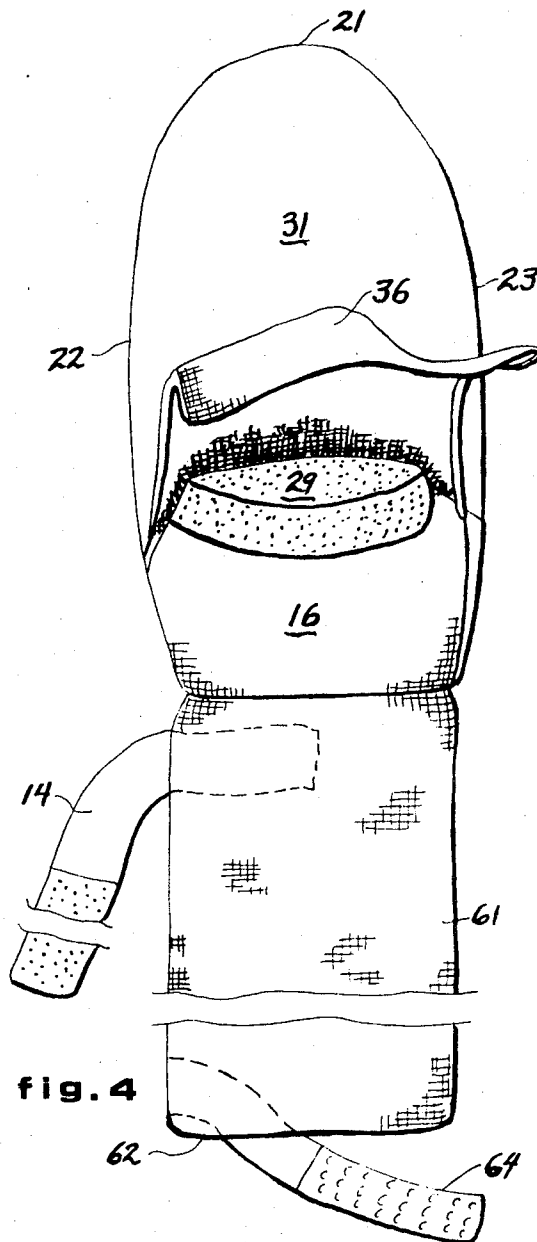


fig. 4

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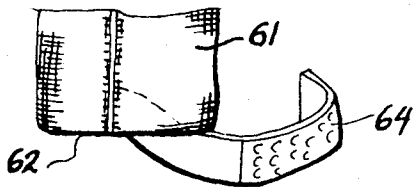
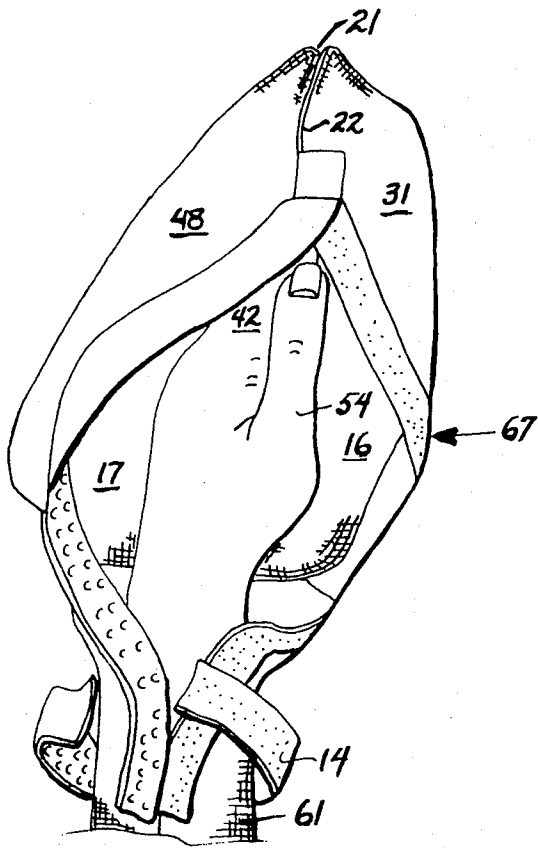


fig. 6

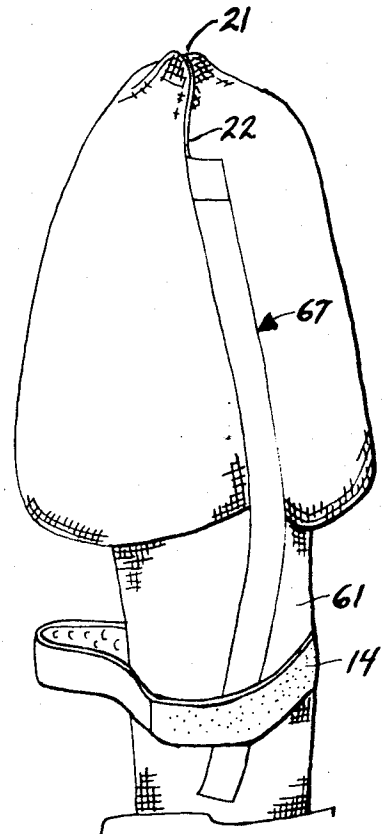


fig. 7

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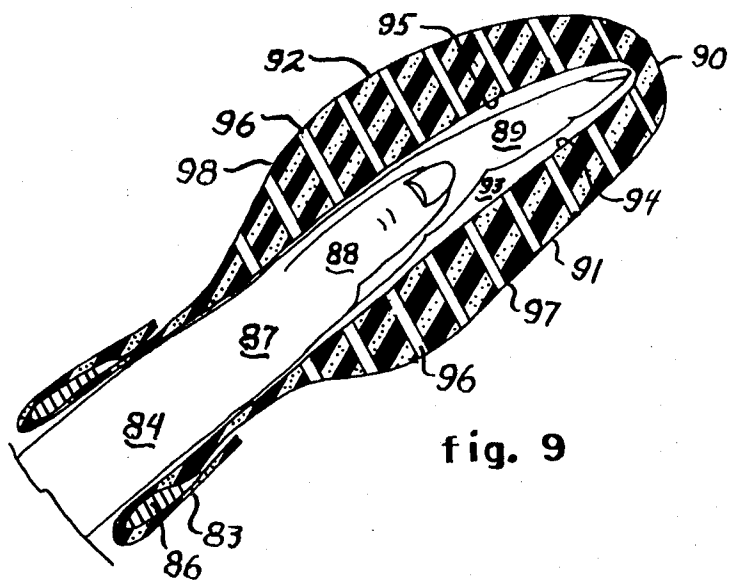


fig. 9

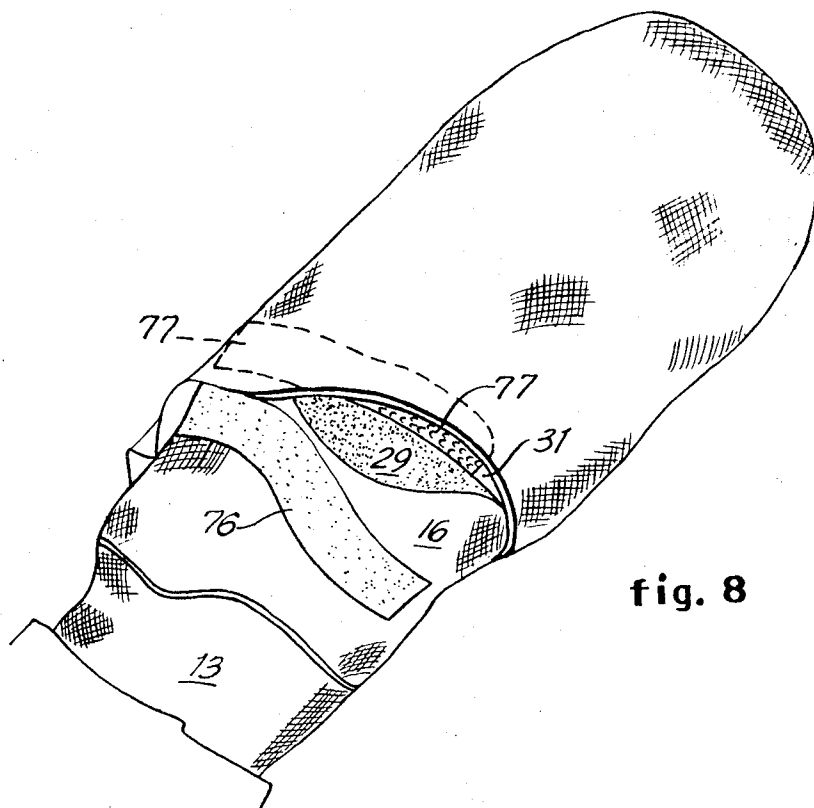


fig. 8

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## HAND RESTRAINING MITT

The invention relates to improvements in mitts for protecting, and partially immobilizing the wearer's hands.

The market place as well as the patent literature is replete with hand control mitts, exemplary being John T. Posey Pat. No. 3,176,683 dated Apr. 6, 1965 for Restraining And Exercising Mitt and Antanas G. Matukas U.S. Pat. No. 3,476,108 dated Nov. 4, 1969 for Hand Restraint.

In addition to effective hand restraint, however, comfort of the patient for protracted periods of time is of great importance.

It is therefore an object of the invention to provide a hand restraining mitt which can be worn for long periods of time without causing discomfort.

It is another object of the invention to provide a mitt which is economical yet is effective to prevent a patient from causing harm, such as by scratching or by removing intravenous needles, catheters, tubes and the like.

It is a further object of the invention to provide a mitt which can readily and easily be put on and taken off by a nurse, or other aide, but which is very difficult for the wearer to remove.

It is yet a further object of the invention to provide a mitt which can be laundered without any special laundry equipment or techniques.

It is still another object to provide a mitt which is also suitable for use with arthritics and with children.

It is another object of the invention to provide a generally improved hand restraining mitt.

Other objects, together with the foregoing, are attained in the embodiments described in the following description and shown in the accompanying drawings, in which:

FIG. 1 is a front elevational view of one form of mitt;

FIG. 2 is a side elevational view of FIG. 1, but with the wrist strap fastened and the cuff end rolled up to cover the strap;

FIG. 3 is a fragmentary, stylized sectional view, the plane of the section being indicated by the line 3—3 in FIG. 1, but with FIG. 3 further illustrating the back tuck flap in open position to provide access to the back pocket, and the cuff rolled up over the security strap;

FIG. 4 is a fragmentary front elevational view comparable to FIG. 1, but disclosing the manner in which a tuck flap is opened to permit removal of the resilient foam pad to enable the mitt to be laundered, and showing an elongated cuff;

FIG. 5 is a side elevational view of a modified form of mitt wherein the fingers fit into glove-type sockets formed in the mitt;

FIG. 6 is a side elevational view of a further modification wherein a lateral edge of the mitt can be opened, as shown, to permit access, easy installation and removal of the mitt;

FIG. 7 is a view comparable to FIG. 6 but showing the side closure in closed condition;

FIG. 8 is a view comparable to FIG. 4 but showing a variant form of pocket closure; and,

FIG. 9 is a view comparable to FIG. 3 but showing a modified form.

While the hand restraining mitt of the invention is susceptible of numerous physical embodiments, depending upon the environment and requirements of use, substantial numbers of the herein shown and de-

scribed embodiments have been made, tested and used, and all have performed in an eminently satisfactory manner.

The mitt of the invention, generally designated by the reference numeral 12, includes in a preferred embodiment, a cuff 13 of stretch type fabric such as "Dacron", "Nylon", "Lycra" or similar material. The cuff 13 has mounted thereon a strap 14 which is snugly wrapped around the cuff after the mitt is placed on the wearer's hand, thereby closing the cuff securely over the wrist. Conveniently, the strap is of "Velcro" material. After the strap is wrapped and fastened around the wrist, the open end of the cuff is rolled up over the strap 14, as appears most clearly in FIG. 2, thereby precluding the wearer from gripping the strap with his lips or teeth and unfastening the strap.

Stitched as at 15 on the forward end of the cuff, is an opposed pair of panels, namely, a front panel 16, or first panel, to cover the palm of the hand and a rear panel 17, or second panel, overlying the back of the hand. The material from which the front and rear panels are made can be of any suitable type including cotton, "Nylon," "Dacron" or the like.

Also within the contemplation of the invention, although not illustrated, is the use of an air-impermeable material formed so as to define an air sac covering both the palm and the back of the hand when the sac is inflated. Appropriate ventilation openings extend entirely through both walls of the sac. This apertured construction, together with the provision of a soft inner lining, such as flock or flannel, on the inner wall surfaces in contact with the skin, afford comfort to the user and help to keep the temperature inside the mitt closer to ambient temperature. The inflatable form of mitt can be inflated and permanently sealed at the time of assembly, or could include a suitable valve, with inflation of the sac effected as desired by gaseous injections from an aerosol type of can.

In a preferred form of embodiment, the forward, or distal, ends 21 of the palm panel 16 and the back panel 17 are stitched together and the lateral margins 22 and 23 are also joined, as by stitching, thereby forming a hand-receiving compartment 24.

Within the compartment 24 formed by the cuff 13 and the connecting panels 16 and 17, the user's hand and wrist are located, as appears most clearly in FIG. 3.

In order to make it very difficult for the wearer to utilize his finger and opposed thumb capability, and thereby cause harm, I have provided a palm cushioning feature including a removable foam rubber block 29 covered by a front outer panel 31, or third panel, of suitable material. The front outer panel 31 is stitched at the forward end 21, and along the opposite side seams 22 and 23 of the palm panel 16 and back panel 17. The foam rubber block 29 is located within a chamber 33 defined by the palm panel 16 and the front outer panel 31 and is retained in the chamber 33 during use by an elongated flap 36 extending from the after end of the front outer panel 31, the flap being recurved and tucked under the foam rubber block, as appears most clearly in FIG. 3.

Preferably, the foam rubber block 29 is not only convex on its outer surface 37 but also on its inner surface 38, thereby enabling the wearer's palm 41 and fingers 42 to conform to their natural curvature when the hand is in relaxed condition (see FIG. 3).

In comparable fashion, it is ordinarily desirable to provide a second foam rubber body 44, or pad, located during use in a back pocket 46 defined by the back panel 17 and an outer rear panel 48 stitched at its forward end as at 21, and along its lateral margins along the seams 22 and 23. As before, a rearwardly extending flap portion 49 (see FIG. 3) can be recurved and tucked under the pad 44 to hold the pad in place. The outer surface 51 of the pad 44 is convex in contour, whereas the inner surface 52 is concave, as shown, thereby following the natural curvature of the back of the hand.

When the foam rubber block 29 and pad 44 are to be removed, so as to launder the mitt, the respective elongated flaps 36 and 49 are unfurled (see FIGS. 3 and 4) and the foam bodies 29 and 44 are withdrawn.

When the foam members are to be installed, the flaps are opened and the forward, converging ends of the foam block 29 and foam pad 44 are inserted into the respective chamber 33 and pocket 46, after which the respective flaps 36 and 49 are recurved and tucked in under the corresponding foam rubber bodies so as to hold them securely in place.

As will be apparent, the extensive padding or cushioning afforded by the foam rubber members effectively prevents the wearer from seizing or grasping or holding anything because not only is the thumb 54 restrained against lateral separation from the adjacent one of the fingers 42 by the lateral snugness afforded by the adjacent seam portion 22, but the wearer is also prevented by the block 29 from tightly closing his hand or curling his fingers in an effort to try to grasp an object.

Appropriate apertures 58, or air channels, extend inwardly through the foam rubber bodies 29 and 44 and afford ventilation to the wearer's skin, thereby minimizing any discomfort from perspiration and heat.

FIG. 4 illustrates a variant form of cuff 61 wherein the cuff forms approximately one half the entire length of the device. Where additional security is thought necessary, this elongated cuff arrangement is frequently utilized. After the mitt is installed and the primary security strap 14 is snugly encircled around the wrist and secured, the open end 62 of the cuff 61 is pulled forwardly over the primary strap 14 and over the forward converging portion of the mitt, at which point a secondary security strap 64, mounted adjacent the cuff end 62, is wrapped around the forward end of the forwardly extending cuff and secured to itself. This construction affords a very secure restraint.

FIG. 5 illustrates a modification wherein the palm side 71 of the device is cushioned, as before, by a resilient body or block, with the tuck flap 36 turned back and underneath the resilient block adjacent the palm area. Instead of having a rear pocket, however, as in the form previously described, the rear panel 17 is stitched to the front, or palm, panel 16 in a pattern 73 such as to define individual, glove-type finger sockets. In the form shown in FIG. 5, the thumb and index finger are confined in a single socket between the seam 22 and the stitch line 74. The middle finger, in turn, is lodged within the next socket defined by the stitch line 76 and the stitch line 77, and the other two fingers are received in two additional sockets similarly formed by stitching.

FIGS. 6 and 7 disclose the open and closed modes, respectively, of another modified form of mitt, this form providing a side opening along the lateral margin

generally corresponding to the seam 22 previously described.

As before, the distal or forward end portions 21 of the first (palm) panel 16, the second (back) panel 17, the front outer panel 31 and the back outer panel 48 are stitched together to enclose the forward portion of the mitt. Likewise, the side seam 23 (see FIG. 1) is defined by the stitching together of the corresponding lateral margins of the panels 16, 17, 31 and 48.

In the FIG. 6 and 7 form of device, however, the side corresponding to the seam 22 is provided with a suitable closure 67, such as a zipper type of fastener, or of "Velcro" tape material, as illustrated herein. As shown in FIGS. 6 and 7, the elongated type of cuff 61 can also be used, if desired, with the side opening form of mitt, the open cuff end 62 being pulled forwardly over the hand portion of the mitt after closing the "Velcro" tape, as appears in FIG. 7, followed by securing the secondary tape 64 around the open end portion of the cuff. As appears most clearly in FIG. 6, the side opening feature enables the nurse, or aide, visually to observe and if necessary correct the placement of the thumb and fingers so that when the side is closed the hand will be comfortable yet securely lodged between the two resilient pads.

Although not shown, a variation on the mitts shown in FIGS. 1-7 comprises sewing the tucked-under flaps 36 and 49 to the respective panels 16 and 17, thereby permanently encasing the enclosed resilient material.

FIG. 8 discloses a preferred form of pocket closure structure wherein matching "Velcro" fastening strips 76 and 77 are provided on both the front and back of the mitt. In FIG. 8 the strips 76 and 77 are shown as being located respectively on the palm panel 16 and the adjacent inner surface of the outer front panel 31. Note that no tuck flap is required since sealing is effected by mating engagement of the "Velcro" strip 76 and 77 by urging them firmly together. Removal of the two enclosed pads is readily effected, in customary fashion, by separating the two strips on both the front and the back side of the mitt and withdrawing the corresponding foam blocks.

FIG. 9 illustrates another variant form of mitt wherein the flexible cuff 83 snugly encompasses the wearer's wrist 84 and, as before, has secured thereon a "Velcro" security strap 86. After the mitt is installed, the strap 86 is fastened and the cuff is recurved forwardly so as to cover the strap and render access difficult. Preferably, the cuff 83 is of an elastomeric material as is the forward portion of the mitt which covers the palm 87 and the thumb 88 and fingers 89. This forward portion joins at the forward end 90 of the mitt and is formed so as to provide an enlarged front pad 91 and an enlarged back pad 92. The wearer's hand is confined within a central chamber 93 whose boundaries are defined by a front inner panel 94, or surface, on the front pad and a rear inner panel 95, or surface, on the back pad. Ventilation within the chamber 93 is afforded by a plurality of channels 96 extending from the front outer panel 97, or face, to the front inner panel 94, and from the rear outer panel 98 to the rear inner panel 95.

The lateral portions of the front pad 91 meet and merge with the corresponding lateral portions of edges; back pad 92 so that, as before, the lateral edges of the two inner panels 94 and 95 meet adjacent the lateral portions of the wearer's hand, and the lateral edges of the two outer panels 97 and 98 meet along the later

outer margins as well as at the distal end portion 90 so as to afford a smoothly contoured exterior configuration. The FIG. 9 form of mitt is preferably molded with the cuff and the pads joined together as an integral unit

It can therefore be seen that I have provided an efficient yet economical and versatile mitt capable of being made from many different kinds of materials, and which can beneficially be utilized under a wide variety of usages and environments.

What is claimed is:

1. A hand restraining mitt comprising:

- a. a cuff;
- b. a palm panel extending forwardly from said cuff to a forward end, said palm panel including lateral edges;
- c. a back panel extending forwardly from said cuff to a forward end, said back panel including lateral margins, said palm panel and said back panel being joined along at least one of said lateral edges and the adjacent one of said lateral margins to define a compartment capable of enclosing a wearer's hand in extended position;
- d. a front outer panel attached at least along said lateral edges of said palm panel to define a chamber between said palm panel and said front outer panel;
- e. a block of resilient foam-like material disposed within said chamber;
- f. an outer rear panel attached at least along said lateral margins of said back panel to define a pocket between said back panel and said outer rear panel; and,
- g. a pad of resilient foam-like material located within said pocket, said block and said pad having sufficient length, width, thickness and mass to prevent

a wearer's hand from closing to a grasping position.

2. A mitt as in claim 1 in which the after ends of said front outer panel and said outer rear panel are elongated to an extent sufficient to be recurved over and folded under the adjacent after ends of said block and said pad, respectively; and wherein said block and said pad are removable from said chamber and said pocket, respectively, when said after ends of said panels are unfolded.

3. A mitt as in claim 1 in which said resilient block of foam-like material and said resilient pad of foam-like material are integrally formed with said palm panel and said front outer panel and with said back panel and said outer rear panel, respectively; and wherein said mitt includes air cooling channels extending through said panels, said block and said pad to afford ventilation to said compartment.

4. A mitt as in claim 1 in which said block of resilient foam-like material includes a convex side located adjacent said palm panel; and said pad of resilient foam-like material includes a concave side adjacent said back panel.

5. A mitt as in claim 1 including a wrist confining strap mounted on said cuff.

6. A mitt as in claim 5 in which said cuff is elongated to an extent sufficient at least to cover said wrist confining strap when said cuff is recurved forwardly over itself.

7. A mitt as in claim 1 in which at least one of said lateral edges of said palm panel and the adjacent one of said lateral margins of said back panel includes a closure member affording access, when open, to said compartment.

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