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Harlem et al.

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[54] **REHABILITATIVE GARMENT FOR PERSONS AFFLICTED WITH BRAIN DAMAGE**

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[63] Continuation of Ser. No. 562,097, Nov. 22, 1995, abandoned.

[51] **Int. Cl.**[6] **A41B 1/08**; A41D 1/06

[52] **U.S. Cl.** **2/69**; 2/83; 2/114; 2/125; 2/227; 2/271

[58] **Field of Search** 2/69, 94, 115, 2/114, 125, 111, 51, 300, 311, 312, 313, 314, 317, 318, 320, 16, 59, 269, 271, 227, 22, 79, 101, 83, 80, 229, 230, 231, 241; 128/873, 874, 875, 870, 878, 882; 601/23, 33, 34

[56] **References Cited**

U.S. PATENT DOCUMENTS

273,770	3/1883	Shelby	2/313
1,336,339	4/1920	Beale	2/59
1,666,017	4/1928	Lininger	2/313
1,805,766	5/1931	Groves	2/111
2,715,226	8/1955	Weiner	2/93
3,562,812	2/1971	Greggains	2/94
4,253,197	3/1981	Posta	2/69
4,258,440	3/1981	McGowen	2/114
4,330,120	5/1982	Netti	2/160
4,389,734	6/1983	Franz et al.	2/59
4,599,750	7/1986	Rahaman	2/271
4,637,078	1/1987	Southwell	2/408
4,731,882	3/1988	Ekman	2/94
4,754,500	7/1988	Brucato et al.	2/105
4,856,112	8/1989	Effie	2/59
5,001,782	3/1991	Stewart	2/69
5,010,589	4/1991	Hamilton	2/94
5,033,117	7/1991	Fairweather	2/94
5,063,919	11/1991	Silverberg	2/59
5,131,684	7/1992	Dandy, III et al.	2/312
5,144,694	9/1992	Conrad Daoud et al.	2/69
5,289,590	3/1994	Larson	2/227
5,361,418	11/1994	Luzenske	2/94
5,398,305	3/1995	Romney	2/69
5,410,758	5/1995	Dupont et al.	2/51
5,418,978	5/1995	Hochman	2/69

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[57] **ABSTRACT**

A garment designed to help in the physiological and psychological rehabilitation of a hemiplegic patient. Disposed on the shirt sleeves and the pants legs of the garment are graspable elements, such as hoops or handles. Within each of the shirt sleeves and pants legs are reinforced areas that are joined to the graspable elements. The reinforced areas branch out across the material of the shirt sleeve or the pants leg. As a result, when a pulling force is applied to the graspable element, the force is transferred throughout the sleeve or leg by the reinforced areas. This enables a sleeve to be pulled onto an arm or a pants leg to be pulled onto a leg by applying a pulling force to just one position, thereby providing the ability for a person to use a partially disabled arm when dressing. In a preferred embodiment, small weights are positioned within the garment at various points along the sleeves and pants legs. The weights provide an increased tactile sensation to the arms and legs as the arms and legs are moved. The enhanced tactile sensation promotes improved proprioception, thereby helping a hemiplegic patient recognize and control the position of their limbs when moving his/her limbs. Color coding is provided on the garment to facilitate exteroception.

13 Claims, 3 Drawing Sheets

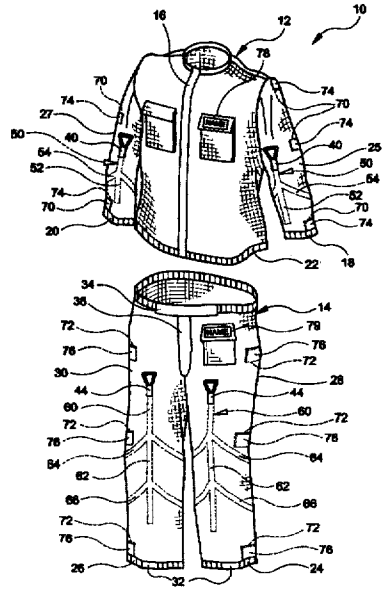

FIG-1

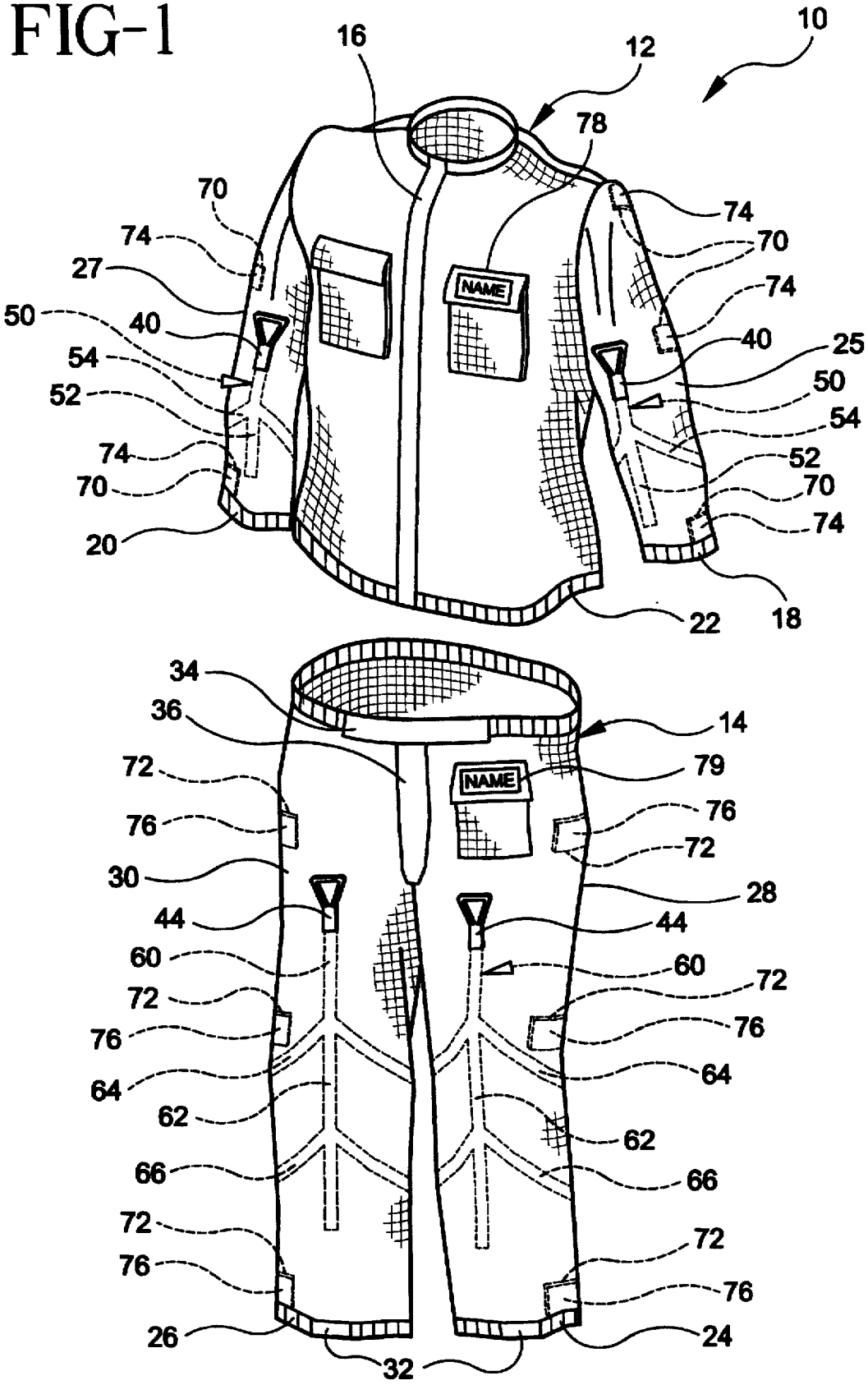
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FIG-2

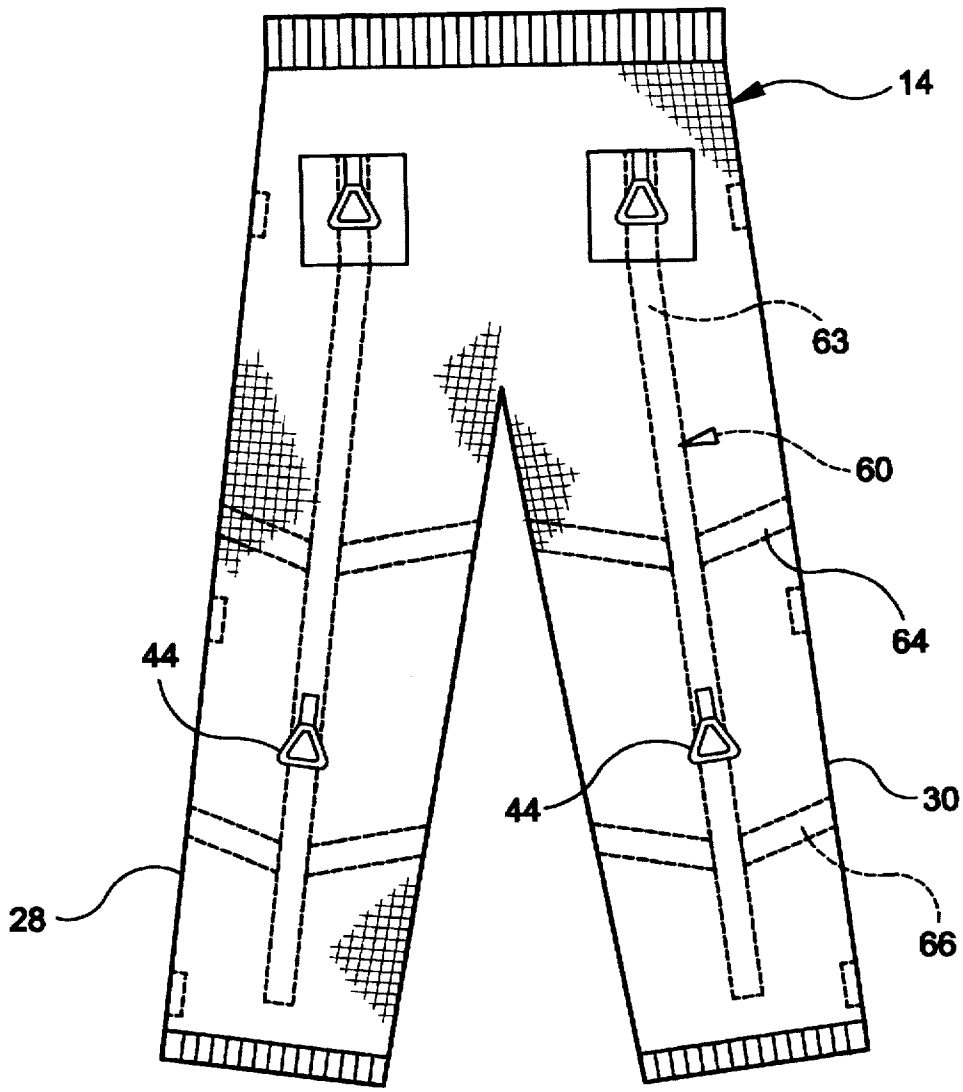
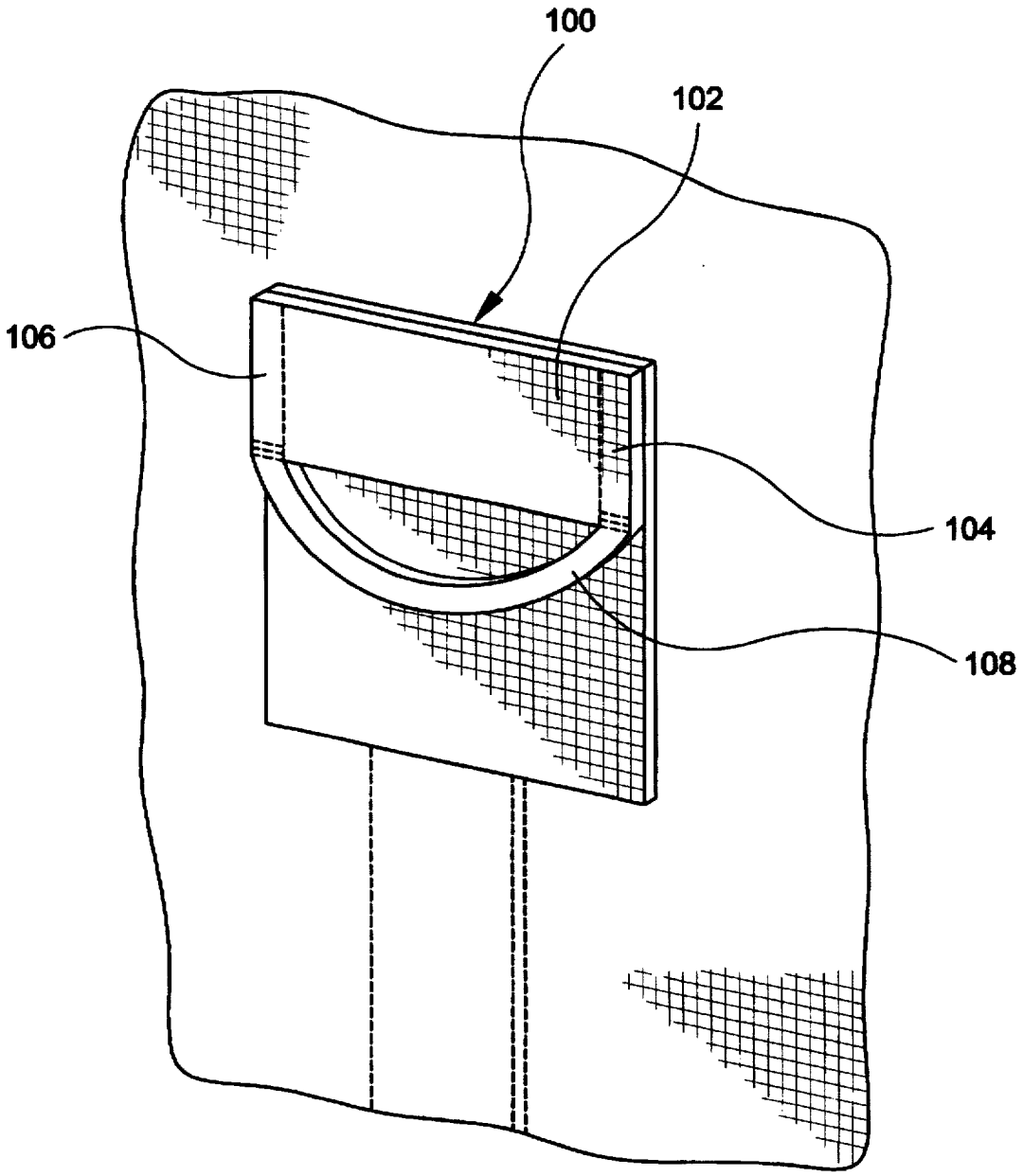


FIG-3



REHABILITATIVE GARMENT FOR PERSONS AFFLICTED WITH BRAIN DAMAGE

This is a continuation of application Ser. No. 07/562,097, filed Nov. 22, 1995, entitled REHABILITATIVE GARMENT FOR PERSONS AFFLICTED WITH BRAIN DAMAGE now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to garments specifically designed for the disabled. More particularly, the present invention relates to garments for the upper and lower torso that promote the physical, cognitive and emotional rehabilitation of people with central nervous system impairments such as those caused by a cerebral vascular accident.

2. Description of the Prior Art

Each year thousands of people incur brain damage due to trauma, stroke, transient ischemic attack, tumor growth and like afflictions. Often such brain damage results in hemiplegia or hemiparesis where the patient becomes either paralyzed or partially paralyzed on their right or left sides. Such damage to the central nervous system can have many symptoms other than partial or total physical paralysis. In many instances, a patient can experiences hemianopsia wherein the patient loses half a field of vision in both eyes. This commonly causes the patient to ignore or neglect items in the non-visible field. Since either the left or right field of vision is neglected, left/right directional confusion commonly occurs. Central nervous system damage, resulting in hemiparesis or hemiplegia also may be characterized by abnormal left/right proprioception, wherein tactile stimuli from the effected half of the body are not perceived by the brain in the normal manner. As a result, the patient may have difficulty in controlling muscle response in non-paralyzed portions of the effected body half. This leads to difficulties in maintaining balance and makes it difficult for a patient to perceive the position of his/her limbs.

As can be understood, a patient having difficulties perceiving and moving half of his/her body faces tremendous difficulties in dressing himself/herself. Dressing oneself is one of those fundamental activities that is greatly disheartening and frustrating to a person newly afflicted with central nervous system damage. However, dressing oneself is also one of those fundamental activities that must be mastered before the patient can again become self-sufficient. As such, the ability of a patient to dress himself/herself is a milestone that raises the emotional well being of the patient by showing him/her that he/she is well on his/her way to recovery and self-sufficiency.

The prior art has many garments that are intended for the physically handicapped and the infirm, however such garments are not well suited to the specific needs of a patient experiencing hemiplegia or hemiparesis. For instance, U.S. Pat. No. 4,258,440 to McGowan, entitled CLOTHES FOR THE PHYSICALLY HANDICAPPED discloses clothes with VELCRO® fastened seams that enable the clothes to be opened into flat orientations and wrapped around a disabled person. Such clothing may be beneficial to a nurse dressing a quadriplegic, however, such clothing would be more difficult to put on with one hand by a hemiplegic patient than would ordinary clothing.

U.S. Pat. No. 4,754,500 to Brucato et al., entitled SPECIAL GARMENT FOR THE DISABLED AND INFIRM discloses clothes with matching false fronts that act as bibs.

Again, such clothing is helpful in providing care to a quadriplegic but such clothing would be of no advantage to a hemiplegic patient.

It is therefore an objective of the present invention to provide garments specifically designed for the needs of a patient with hemiplegia or hemiparesis, wherein the garment is designed to be placed on the body with one hand.

It is a further objective of the present invention to provide a garment for patients suffering with hemiplegia or hemiparesis that promotes proprioception as well as exteroception and helps to counteract the left/right confusion commonly associated with ailments.

It is yet another objective of the present invention to provide garments for a patient with hemiplegia or hemiparesis that are aesthetically pleasing and not noticeably different in appearance from ordinary clothing.

SUMMARY OF THE INVENTION

The present invention is a garment designed to help in the physiological and psychological rehabilitation of a patient that had incurred an injury to his/her central nervous system. The garments of the present invention that are designed for the upper body, such as shirts, jackets and the like, contain sleeves. The garments of the present invention designed for the lower body, such as pants, contain legs. Disposed on the sleeves and the pants legs are graspable elements such as hoops or handles. Within each of the sleeves and legs are reinforced areas that are joined to the graspable elements. The reinforced areas branch out across the material of the sleeve or the pants leg. As a result, when a pulling force is applied to the graspable element, the force is transferred throughout the sleeve or leg by the reinforced areas. This enables a sleeve to be pulled onto an arm, or a pants leg to be pulled onto a leg, by applying a pulling force to just one position, thereby providing the ability for a person to use a partially disabled arm when dressing.

The present invention garment also contains color coding to facilitate right/left identification and coordination. Additionally, the garments have hook and loop fasteners to promote ease of use with one hand. Furthermore, the garments are sized to accept limbs encumbered by rehabilitative braces. In a preferred embodiment, small weights are positioned within the garment at various points along the sleeves and pants legs. The weights contact the arms and legs of the patient and provide an increased tactile sensation to the arms and legs as the arms and legs are moved. The enhanced tactile sensation promotes improved proprioception, thereby helping a hemiplegic patient recognize and control the position of his/her limbs when moving those limbs.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the present invention, reference is made to the following description of an exemplary embodiment thereof, considered in conjunction with the accompanying drawings, in which:

FIG. 1 is a front perspective view of one preferred embodiment of the present invention garment, embodied within both a shirt and a pair of pants;

FIG.2 is a rear view of the present invention pants shown in FIG. 1; and

FIG. 3 is a perspective view of an alternate embodiment of a graspable element, wherein the graspable element is a hoop formed into the structure of false pocket in order to provide the present invention garment with a more normal appearance.

DETAILED DESCRIPTION OF THE DRAWINGS

Although the functional aspects of the present invention can be incorporated into almost any garment, such as a coat, a dress, a sweater or the like, the present invention is especially well suited for incorporation into casual wear garments such as shirts and pants. Accordingly, the present invention will be described embodied into a casual shirt and pants in order to set forth the best mode contemplated for the invention.

Referring to FIG. **1**, there is shown one preferred embodiment of the present invention garment **10**. The exemplary embodiment shows the present invention garment **10** in the form of a long sleeved shirt **12** and a pair of pants **14**. The purpose of the present invention is to provide a garment system to a person suffering from hemiplegia or hemiparesis, wherein the garment system helps in the physical, cognitive and emotional rehabilitation of the patient. In FIG. **1**, the shirt **12** provided, does not contain buttons, as would a traditional shirt or blouse of the same style. Rather, the shown shirt **12** contains a vertical forward seam **16** that is held closed by hook and loop fasteners such as VELCRO®. By providing a vertical forward seam **16** with hook and loop fasteners, the vertical forward seam **16** of the shirt **12** can be more readily opened or closed with one hand. As such, the shirt **12** is particularly well suited for people with either abnormal left or right side motor controls or abnormal left-side/right-side proprioception.

It will be understood that the shown position of the seam **16** is merely exemplary for the style of shirt shown. The seam can also be positioned in the rear of the shirt or near the side of the shirt depending upon the style of the shirt being produced.

In the shown embodiment, the shirt **12** has elastic sleeve cuffs **18**, **20** and an elastic waist **22**, thereby providing the shirt **12** with the overall appearance of a jogging suit shirt or a similar athletic oriented shirt. However, it should be understood that the shirt could be formed as a dress shirt, jacket, sweater or any other garment for the upper torso. The use of elastic sleeve cuffs **18**, **20** is preferred because the elastic structure of such cuffs would help hold the cuff in position on the arm. When putting on the shirt **12** with one hand, this would be highly advantageous because the elastic structure of the cuffs **18**, **20** would prevent the cuffs **18**, **20** from falling off the immobile arm when the shirt **12** is repeatedly grasped and released by the mobile arm during dressing. The elastic cuffs **18**, **20** would therefore prevent a hemiplegic patient from experiencing the frustration of having the shirt **12** repeatedly fall out of a desired position while dressing with one hand.

The pants **14**, in the shown embodiment, also preferably have elastic cuffs **24**, **26** at the base of each leg **28**, **30**. However, a crossing flap **32** may optionally be provided on each cuff **24**, **26**, thereby enabling each cuff **24**, **26** to be adjusted between an unrestricted open condition and a restricted closed condition. The crossing flaps **32** are provided with hook and loop fasteners that enable the easy one handed manipulation of the crossing flaps **32** between the unrestricted open condition and the restricted closed condition. The ability to open each cuff **24**, **26** into an unrestricted open condition would enable each cuff to easily pass over a shoe, cast or brace as the pants **14** are being put on. Since many new patients with central nervous system damage use leg braces, the ability for the pants **14** to accommodate such braces is apparent.

The pants **14** also use a crossing flap **34** to adjust the waistline of the pants **14**. The waistline crossing flap **34** enables the waistline of the pants **14** to be opened widely, thereby enabling easy access of a brace encumbered leg. The crossing flap **34** and the fly **36** below the crossing flap **34** both include hook and loop fasteners. The use of hook and loop fasteners on both the waistline crossing flap **34** and fly **36** permits the easy one-handed opening and closing of these structures. The hook and loop fasteners also eliminate the need for buttons, hooks and zippers which are very difficult to fasten with only one hand.

A key feature of the present invention garment **10** is the use of grasping tabs on the limb portions of both the shirt **12** and the pants **14**. In the shown embodiment, two grasping tabs **40** are disposed on the shirt **12** and a plurality of grasping tabs **44** are disposed on the pants **14**. The grasping tabs **40** are attached to a forward exterior surface of each shirt sleeve **25**, **27** and to the front and back of each pants leg **28**, **30**. The grasping tabs **40**, **44** preferably are flexible hoops made of fabric or rigid hoops made of plastic or metal. Regardless of the material of the grasping tabs **40**, **44**, it is desirable that the grasping tabs have a hoop configuration, T-shaped configuration or another configuration that enables the grasping tabs **40**, **44** to be easily grasped and pulled with one hand.

On the shirt **12**, a single grasping tab **40** is positioned on each shirt sleeve **25**, **27** at a position between the shoulder and the elbow of the sleeve. The use of a single grasping tab **40** on each sleeve **25**, **27** is merely exemplary and it should be understood that multiple grasping tabs could be used on each sleeve **25**, **27** if desired.

The grasping tabs **40** are affixed to the exterior of the shirt sleeves **25**, **27** in a forward facing orientation so that they can be easily reached by the opposite arm.

Reinforcement strips **50** are disposed on each sleeve **25**, **27** of the shirt **12**. The reinforcement strips **50** are made from a flexible material or fabric that does not significantly stretch when pulled in tension. The reinforcement strips **50** are attached to the material of the sleeves **25**, **27** and may be either on the interior or exterior of the sleeves **25**, **27**. The reinforcement strips **50** are joined to the shirt sleeves **25**, **27** proximate the grasping tabs **40**. As such, when a grasping tab **40** is manually grasped and pulled, the pulling force is experienced by the reinforcement strips **50**. Although the reinforcement strips **50** can have many orientations, the shown preferred embodiment includes a vertical strip **52** that extends down the front center of each sleeve **25**, **27** from the grasping tab **40** to a point proximate the sleeve cuffs **18**, **20**. A lateral hoop **54** extends from the vertical strip **52** and circumvents each sleeve **25**, **27** at a point between the grasping tabs **40** and the sleeve cuffs **18**, **20**. As a result, when a grasping tab **40** is pulled, the pulling force is distributed down the vertical strip **52** and around the lateral hoop **54**, thereby causing the entire sleeve **25**, **27** to move upwardly in unison without binding. Consequently, a patient with hemiplegia or hemiparesis would only have to grasp and pull a grasping tab **40** in order to advance a sleeve **25**, **27** up and onto the afflicted arm. More importantly, the use of the easily gripped grasping tab **40** enables the afflicted arm to more easily engage the shirt sleeve **25**, **27**, wherein the afflicted arm may be guided to the grasping tab **40** by the non-afflicted arm. Thus, by moving the afflicted arm upwardly in any manner, the shirt sleeve **25**, **27** can be pulled onto the opposite arm. This would thereby enable a patient with hemiplegia or hemiparesis to use his/her afflicted arm in dressing even if the afflicted arm has limited movement and little or no finger control.

Referring To FIG. **2** in conjunction with FIG. **1**, it can be seen that reinforcement strips **60** are also disposed within

each leg **28**, **30** of the present invention pants **14**. The reinforcement strips **60** are made of the same material as the shirt reinforcement strips **50** and can be attached to either the interior or exterior of the pants legs **28**, **30**. The reinforcement strips **60** create reinforced regions with the pants legs **28**, **30** onto which the various grasping tabs **44** attach. As a result, when a grasping tab **44** is manually grasped and pulled, the pulling force is experienced by the reinforced areas of the pants legs **28**, **30**, via the reinforcement strips **60**. Although the leg reinforcement strips **60** can have many configurations, the shown embodiment includes a front vertical strip **62** that extends down the front center of each pants leg **28**, **30** from the thigh region to the calf region and a rear vertical strip **63** that extends down the front center of each pants leg **28**, **30** from the thigh region to the calf region. In FIG. **1**, it can be seen that two grasping tabs **44** on each leg attach to the material of the pants **14** at a point near the top of each front vertical strip **62**. Two lateral hoops **64**, **66** extend from the vertical strip **62** and circumvent each pants leg **28**, **30**. The first lateral hoop **64** extends around the pants leg **28**, **30** proximate the calf region, while the second lateral hoop **64** is positioned at a higher point just above the knee. The use of two lateral hoops **64**, **66** in the shown embodiment is merely exemplary and it will be understood that any plurality of lateral hoops can be used and those lateral hoops can extend from any point on the front vertical strip **62**.

As a result of the presence of the vertical strip **62** and the various lateral hoops **64**, **66** in each pants leg **28**, **30**, a pulling force applied to the grasping tabs **44** is distributed throughout the reinforced region of the pants leg **28**, **30**. A pulling force is therefore distributed down the front vertical strip **62** and around the lateral hoops **64**, **66**, whereby the entire pants leg below the grasping tabs **44** is moved upwardly without binding. Consequently, a patient would only have to grasp and pull a grasping tab **44** with one hand in order to advance a pants leg **28**, **30** over a leg.

In FIG. **2**, it can be seen that each of the lateral hoops **64**, **66** also join to the rear vertical strip **63** that travels down the rear of each of the pants legs **28**, **30**. Two grasping tabs **44** on each leg attach to the material of the pants **14** at a point near the top of each the rear vertical strips **63**. As a result of the presence of the rear vertical strip **62** and the various lateral hoops **64**, **66** in each pants leg **28**, **30**, a pulling force applied to the grasping tabs **44** is distributed throughout the reinforced region of the pants leg **28**, **30**. A pulling force is therefore distributed down the rear vertical strip **63** and around the lateral hoops **64**, **66**, whereby the entire pants leg below the grasping tabs **44** is moved upwardly without binding. Consequently, a patient would only have to grasp and pull a grasping tab **44** on the rear of the pants in order to advance a the rear of the pants onto the body.

As has been previously stated, it is preferred that the grasping tabs **40**, **44** on both the pants **14** and the shirt **12** be configured to be readily grasped with one hand. However, patients with hemiplegia or hemiparesis often have poor muscle control in the hand of an afflicted arm, and although the arm itself can be moved, the ability to grasp an object is lost. As a result, it is preferred that the grasping tabs **40**, **44** of the present invention garment **10** have a hoop configuration through which at least a few fingers can pass. By using a hoop configuration on the grasping tabs **40**, **44** a few fingers from the hand of the afflicted arm can be passed through the hoop configuration. Consequently, even if the afflicted hand does not have the ability to grasp an object, the afflicted hand can still be made to positively engage a grasping tab **40**, **44**. Therefore, if the afflicted arm has any ability to be moved upwardly, even if only at the shoulder, the afflicted arm and hand can be utilized in dressing. The controlled movement of the afflicted arm in dressing is rehabilitative and promotes physical rehabilitation. Furthermore, the freedom of the patient to dress and undress himself/herself is a milestone in recovery that adds greatly to the emotional and psychological aspects of rehabilitation.

An essential aspect of rehabilitation for a hemiplegic patient is the redevelopment of left/right discrimination. Since often the right or left side of the body is eliminated from the field of perception by brain damage, rehabilitation requires that the patient recognize the diminished field of perception and train himself/herself to recognize and control body movement within this diminished field of perception. The present invention garment **10** contains two features designed to aid in the rehabilitation of left/right recognition and proprioception. One feature is visual, while the second feature is tactile. The visual feature uses left/right color coding on both the shirt **12** and the pants **14**, wherein the left sleeve **25** and the left pants leg **28** have similar color codes that are separate and distinct from the color codes of the right sleeve **27** and the right pants leg **30**. In the shown embodiment, the color code is obtained by selectively coloring the sleeve cuffs **18**, **20** and the pants leg cuffs **24**, **26**. The color coding can also be embodied by the various grasping tabs **40**, **44** on the shirt sleeves **25**, **27** and the pants legs **28**, **30**. For instance, the left shirt cuff **18**, the left pants cuff **24** and the grasping tabs **40**, **44** on the left shirt sleeve **25** and the left pants leg **28** can be colored green, while the right shirt cuff **20**, the right pants cuff **26** and the grasping tabs **40**, **44** on the right shirt sleeve **18** and the right pants leg **28** can be colored red. A person dressing himself/herself then would look for the color coding to assist in the discrimination of left and right. As a result, the color coding provides exteroceptive input to the patient to assist in distinguishing left from right.

The tactile feature of the present invention garment **10** includes the use of small weights coupled to the shirt sleeves **25**, **27** and the pants legs **28**, **30**. Manufactured into the shirt sleeves **25**, **27** and the pants legs **28**, **30** are a plurality of pockets **70**, **72**. The pockets **70**, **72** are sized to retain small metal weights **74**, **76** of between one ounce and eight ounces. In the shirt **12**, the pockets **70** are positioned proximate the shoulder, elbow and wrist in each sleeve **25**, **27**. In the pants **14**, the pockets **72** are positioned proximate the hip, knee and ankle in each pants leg **28**, **30**. These weight areas are preferred because they correspond in position to the joints in the arms and legs. As a result, each time a joint in the arm or leg is moved, the weight **74**, **76** contained in the weight pockets **70**, **72** will be felt by the body. This adds an external tactile sensation to the movement of the arm or the leg. The tactile sensation provides proprioceptive input that helps the brain perceive the movement of either the arm or leg in time and space. The use of weights in the present invention garment can be selectively varied to meet the needs of an individual. For example, a person with severe hemiplegia may require large tactile sensations from the weights **74**, **76**. As such, the larger eight ounce weights would be used. As a person recovers, the need in degree of tactile sensation may decrease. Consequently, as rehabilitation progresses, the weights **74**, **76** can be progressively decreased from the eight ounce size to the one ounce size. This also provides a gauge by which the patient can measure his/her progress during rehabilitation.

The present invention garment **10** is designed to highlight normalcy and not disability. As such, the present invention garment is designed to look as close as possible to normal clothing. However, for hospital and institutional use, it is

desirable to have a patient's name displayed on the garment **10** to prevent that garment from being lost or misplaced during laundering. As a result, optional name tag panels **78**, **79** can be added to the shirt **12** and pants **14**, if desired.

As has been explained, it is important to the emotional an psychological rehabilitation of a patient that the patient resumes normal activities and is perceived by others as being normal. The present invention garment **10** is mostly normal in appearance except for the grasping tabs **40**, **44** that extend from the shirt **12** and pants **14**. To further make the present invention garment **10** appear normal, the grasping tabs can be incorporated into the structure of a pocket, thereby producing a garment that merely appears to have pockets on the shirt sleeves and pants legs. Referring to FIG. **3** there is shown an embodiment of a pocket **100** that would incorporate a grasping tab within its construction. In the shown embodiment, the pocket **100** contains a pocket flap **102** that is sewn to the garment at its two side seams **104**, **106**. Extending from the pocket flap **102** is a hoop **108**, that attaches to the two side seams **104**, **106**. This construction gives the hoop **108** the appearance of being stylish adornment on the pocket **100**. The pocket **100** itself acts as a reinforcement element within the garment. As such, the various reinforcement strips within the shirt sleeve or pants leg can be attached to any part of the pocket **100**. When dressing, a person can grasp the hoop **108** on the pocket **100** and pull up on the sleeve or pants leg in the previously described fashion.

It will be understood that the embodiments of the invention described above are merely exemplary and a person skilled in the art of garment manufacture could make many alternate embodiments using functionally equivalent components to those described. For example, the described embodiment used separate reinforcement strips that were added to a shirt and pants. In an alternate embodiment, those reinforcement strips can be made by creating seams in the shirt and pants where the material of the shirt and pants overlap. All such modifications are intended to be covered by the present invention as expressed by the appended claims.

What is claimed is:

1. A garment comprising:

a body section for covering a portion of the torso of a person's body:

a limb section that defines a generally cylindrical shaped opening adapted to be worn around the limb of a person, wherein said limb section has a first end coupled to said body section, a second end and a center region disposed in between said first end and said second end;

at least one fabric reinforcement structure having a predetermined length, wherein said at least one fabric reinforcement structure is sewn to said limb section along its predetermined length, said at least one fabric reinforcement structure including at least one fabric element that substantially circumvents said generally cylindrical shaped opening in said center region of said limb section, thereby producing a reinforced region within said limb section;

at least one graspable element coupled at a fixed position to an exterior surface of said limb section in said reinforced region, wherein said at least one graspable element has a hoop configuration through which at least one finger can be passed, whereby a pulling force applied to said at least one graspable element is directly transferred to said reinforced region, thereby distributing said pulling force to said limb section proximate said reinforced region.

2. The garment according to claim **1**, wherein said limb section has a forward surface that faces forward on the person when worn, and said at least one graspable element is disposed on said forward surface.

3. The garment according to claim **1**, wherein said limb section is a sleeve having a shoulder region proximate said first end, a cuff region proximate said second end and an elbow region disposed between said shoulder region and said cuff region.

4. The garment according to claim **3**, wherein said graspable element is disposed proximate said elbow region of said sleeve.

5. The garment according to claim **1** , wherein said graspable element is disposed between said center region and said first end.

6. The garment according to claim **4**, wherein said reinforcement structure further includes a fabric element that extends generally from said shoulder region toward said cuff region.

7. The garment according to claim **1**, wherein said limb section is a pants leg having a thigh region proximate said first end, a cuff region proximate said second end and a knee region disposed between said thigh region and said cuff region.

8. The garment according to claim **7**, wherein said graspable element is disposed on said thigh region.

9. The garment according to claim **7**, wherein said reinforcement structure further includes a fabric element that extends generally from said thigh region toward said cuff region.

10. The garment according to claim **1**, wherein said garment is a shirt having an openable seam, and hook and loop fasteners are disposed on said seam to enable said seam to be selectively opened and closed.

11. The garment according to claim **1**, further including colored regions on each said limb section that identify a left/right orientation associated with said limb section.

12. The garment according to claim **1**, further including at least one weight coupled to said limb section, wherein said weight provides a tactile sensation to a limb of a person wearing said garment.

13. The garment according to claim **7**, wherein said cuff region includes a means for selectively increasing in size, thereby enabling an oversized object to pass through said cuff region.

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