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[54] **THERAPEUTIC POSITIONING GLOVE**
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2/160, 161, 159; 273/67, 68, 166

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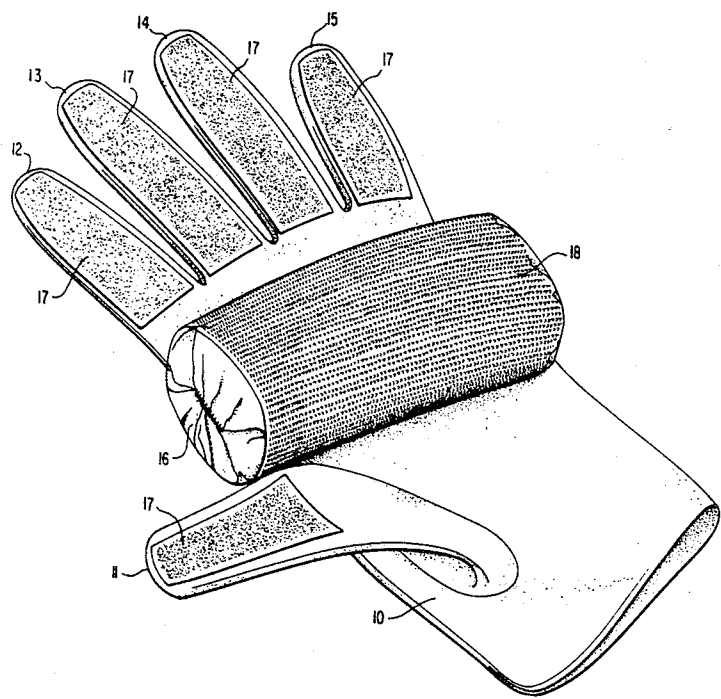
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ABSTRACT: The disclosure relates to a therapeutic positioning glove having securing means on the palm, thumb and finger portions for detachably securing a yieldable and resilient cushion.



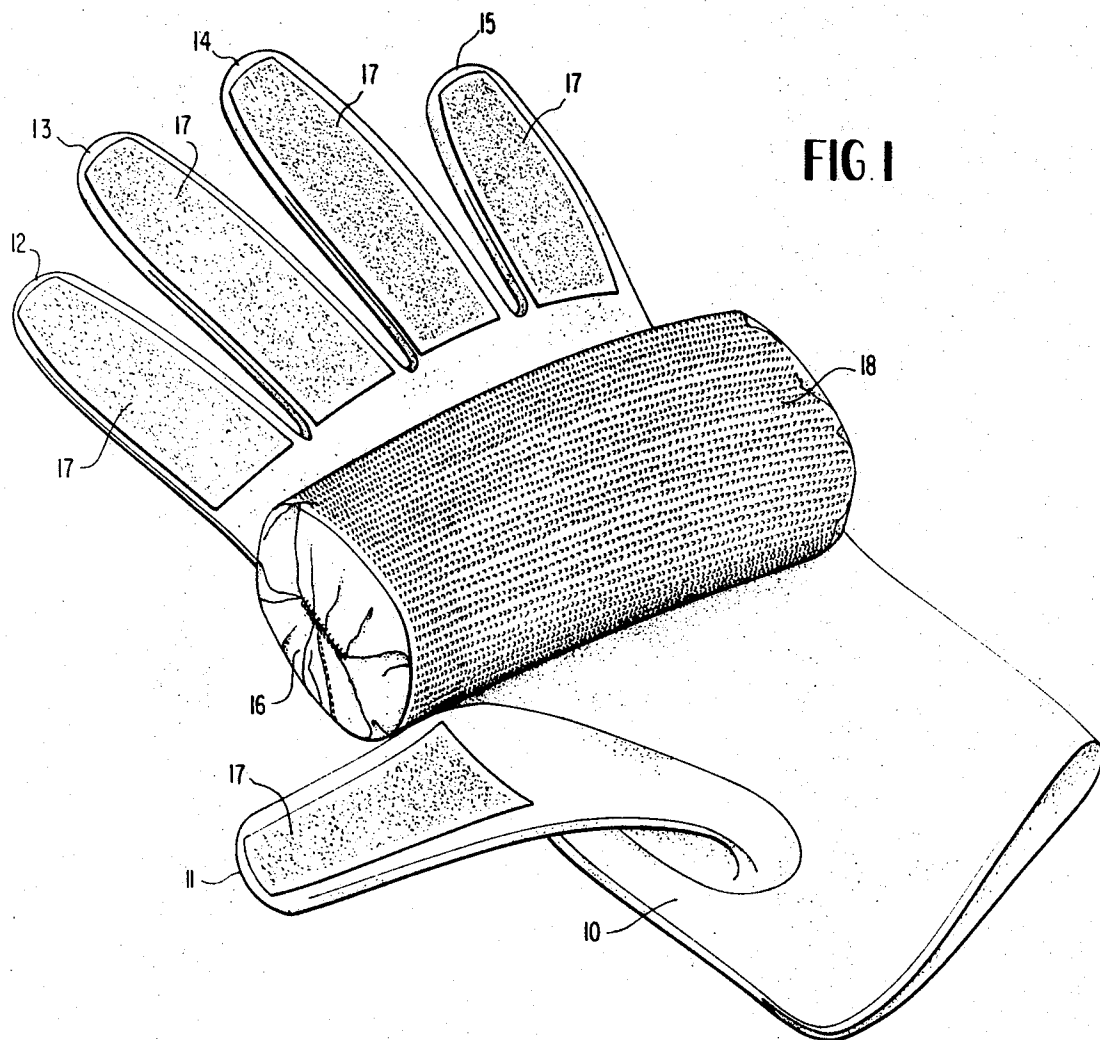


FIG. 1

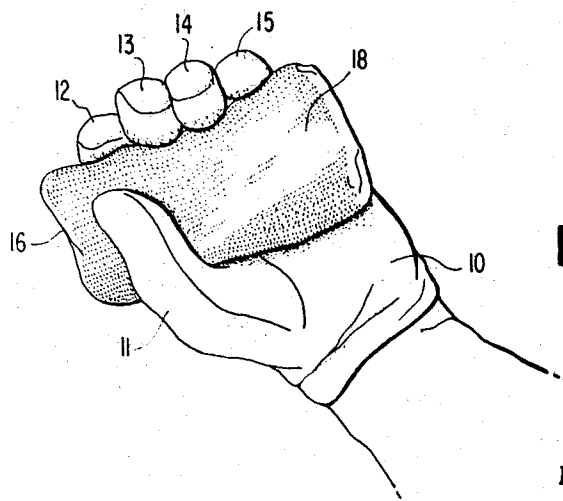


FIG. 2

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THERAPEUTIC POSITIONING GLOVE

This invention relates to a therapeutic positioning glove and more particularly, to a glove for positioning the hand of the wearer about a deformable cushion to prevent permanent distortion of the hand.

Many diseases and injuries cause temporary paralysis of the hand. Examples are spinal cord injury, cardiovascular disease, and nerve injury to the upper extremities. During this temporary paralysis, the thumb and fingers have a tendency to draw into the palm of the hand or to extend away from the palm of the hand. If the temporary paralysis lasts for an extended period, the thumb and fingers can permanently assume this unnatural position. While physical therapy can sometimes correct these deformities, therapy is not always successful. Accordingly, a need exists for some means for preventing these deformities resulting from temporary paralysis.

Even when the hand is not deformed by temporary paralysis, physical therapy usually is necessary to restore the normal function of the hand. At present, exercise rolls often are employed for this purpose. However, with patients who have suffered relatively severe hand damage these exercise rolls are not entirely satisfactory since they must be positioned in the patient's hand by a nurse or therapist and may easily be dislodged from the hand by the patient.

Accordingly, it is an object of this invention to provide a device for preventing or minimizing deformities to the hand resulting from temporary paralysis thereof.

It is a further object of this invention to provide a means for exercising the hand when feeling and use return after temporary paralysis.

In attaining the objects of this invention, one feature resides in a therapeutic positioning glove having a yieldable and resilient cushion secured in its palm and provided with means for detachably securing the thumb and finger portions of the glove to the surface of the cushion to thereby maintain the hand of the wearer in a fixed position and prevent distortion.

Another feature of this invention resides in a therapeutic positioning glove, as described above, wherein the yieldable and resilient cushion is a roll affixed to the palm of the glove and useful in exercising the hand.

Other objects, features and advantages of the invention will be apparent to those skilled in the art from the detailed description of the invention which follows and from the drawings, wherein:

FIG. 1 is a perspective view of the palm side of the therapeutic positioning glove of this invention; and

FIG. 2 is an illustration of the therapeutic glove of this invention grasped about the exercise roll.

As illustrated in FIG. 1, the therapeutic positioning glove 10 of this invention has thumb portion 11 and finger portions 12 through 15. Yieldable and resilient cushion 16, illustrated as a roll, is secured to the palm portion of glove 10. Securing means 17 are provided on the palm side of thumb portion 11 and finger portions 12 through 15. The exposed surface 18 of yieldable and resilient pad 16 is receptive to securing means 17.

When therapeutic positioning glove 10 is placed on a temporarily paralyzed hand and the hand clenched about yieldable and resilient cushion 16, as illustrated in FIG. 2, securing means 17 will maintain thumb portion 11 and finger portions 12 through 15 in contact with surface 18 of cushion 16. In this manner, the patient's hand will be maintained in this position and distortion of the fingers and thumb minimized or prevented.

Preferably, cushion 16 is in the form of a roll and made from a yieldable and resilient material such as foam rubber or flexible polyurethane foam. The roll should be of a size sufficient to prevent distortion of the clenched hand and to maintain the hand in a normal grasping position. After feeling and use return to the hand, the patient may exercise the hand muscles by alternately squeezing and releasing the roll. Since the roll is secured to glove 10, the patient cannot dislodge the exercising device from his hand. Moreover, it is unnecessary that a nurse or therapist place the exerciser in the patient's hand since it

will already be there, having been a part of the therapeutic positioning glove which the patient wore during temporary paralysis.

Generally, glove 10 of this invention is fabricated of cloth, preferably a stretchable and porous fabric which will be comfortable to wear for a prolonged period of time. However, other materials such as plastic sheets can be used in fabricating glove 10.

In the preferred embodiment of this invention, thumb 11 and fingers 12 through 15 are detachably secured to surface 18 of cushion 16 by means of plastic or fabric fasteners of the type described in U.S. Pat. Nos. 2,717,437, 3,009,235, 3,083,737 and 3,154,837. These fasteners are well known and consist essentially of two pieces of tape, such as nylon tape. One piece, for example the covering 17, is covered with a myriad of finely woven filaments formed into permanent hooks. The other piece, for example the surface 18 of cushion 16, is covered with soft loops. When pressed together, the two tapes form a shear-resistant bond. However, the tapes separate readily by simply peeling them apart.

In pressure-attachable material as described, the component containing the hooks is called the hook part and the component containing the loops, which is feltlike in appearance, is called the pile part. Hence, the hook part is pressed into the pile part and in so doing, the hook part is said to be mated with the pile part. The hooks engage the loops and the bond so formed is extremely resistant to shear but easily loosened by tearing.

By using the mating hook and pile fastener, thumb 11 and fingers 12 through 15 can be secured to cushion 16 during temporary paralysis of the patient's hand. After feeling and use return to the hand, the mating hook and pile fasteners maintain the patient's hand in proper position for exercising with cushion 16. When it is desired to remove glove 10, the fingers and thumb are easily disengaged from the cushion by simply tearing apart the mated hook and pile fasteners. Obviously, it makes no difference which of the hook part or the pile part is affixed to the fingers and thumb, as long as the mating part is affixed to the cushion.

While hook and pile fasteners are preferably used in this invention, the thumb and fingers can be detachably secured to the cushion by other appropriate means. For example, mechanical fasteners such as snaps or buttons can be used or a pressure-sensitive adhesive can be coated onto the fingers or thumb or surface of the cushion.

Thus, the present invention provides a simple and inexpensive device for maintaining a patient's hand in a normal position during temporary paralysis and for exercising the hand after feeling and use return.

While the invention has been described and illustrated with reference to certain preferred embodiments thereof, those skilled in the art will appreciate that various modifications and changes and omissions can be made in the therapeutic positioning glove of the invention. For example, finger portions 12 through 15 can be a single integral chamber for the patient's fingers, in which case the glove would be in the form of a mitten. Accordingly, it is not intended that the invention be limited except by the scope of the following claims.

I claim:

1. A therapeutic positioning glove comprising a glove having thumb and finger portions, a yieldable and resilient cushion affixed to the palm of said glove, and securing means operable between the cushion and said portions for detachably securing said thumb and finger portions to said cushion when said portions contact the cushion, said securing means being capable of holding the thumb and finger portions in position on the cushion in the absence of grasping pressure applied by the wearer.

2. The therapeutic positioning glove as defined in claim 1 wherein said cushion is of a size sufficient to maintain the hand of the wearer in a normal grasping position when said thumb and finger portions are secured to said cushion.

3. The therapeutic positioning glove as defined in claim 1 wherein said cushion is a yieldable and resilient roll adapted for exercise of the hand.

4. The therapeutic positioning glove as defined in claim 3 wherein said securing means is comprised of a fastening material on the thumb and finger portions of said glove and a swatch of mating attachment on said roll, said mating attachment being detachably securable to said fastening material.

5. The therapeutic positioning glove as defined in claim 3 wherein said securing means is comprised of a hook material and a pile material which are detachably securable to each other, one of said hook material and pile material being on

said thumb and finger portions, and the other of said hook material and pile material being on said roll.

6. The therapeutic positioning glove as defined in claim 1 wherein said cushion is a yieldable and resilient roll adapted for exercise of the hand and of a size sufficient to maintain the hand of the wearer in a normal grasping position when said thumb and finger portions are secured to said roll and said securing means is comprised of a hook material and a pile material which are detachably securable to each other, one of said hook material and pile material being on the palm side of said thumb and finger portions, and the other of said hook material and pile material being on said roll.

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