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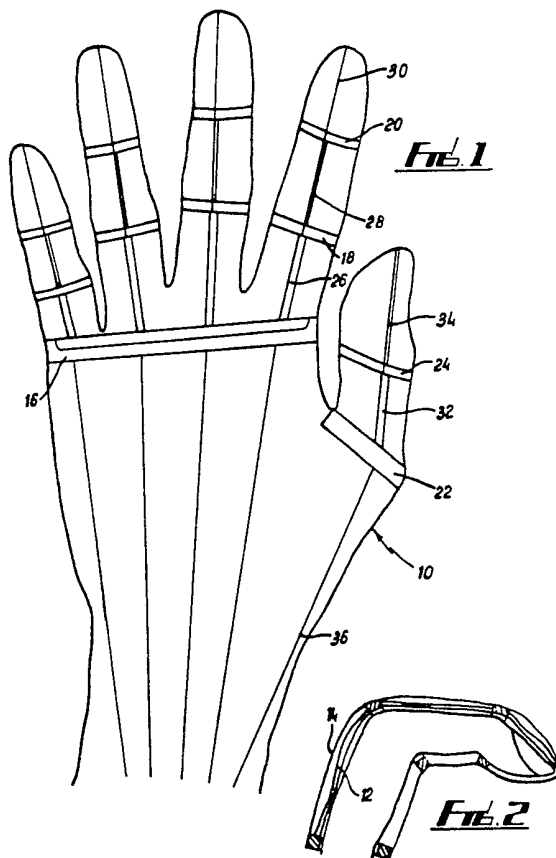
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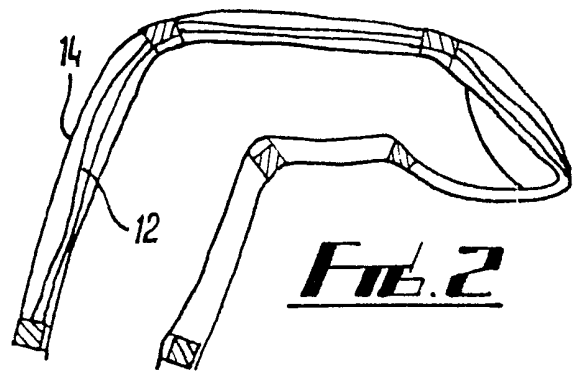
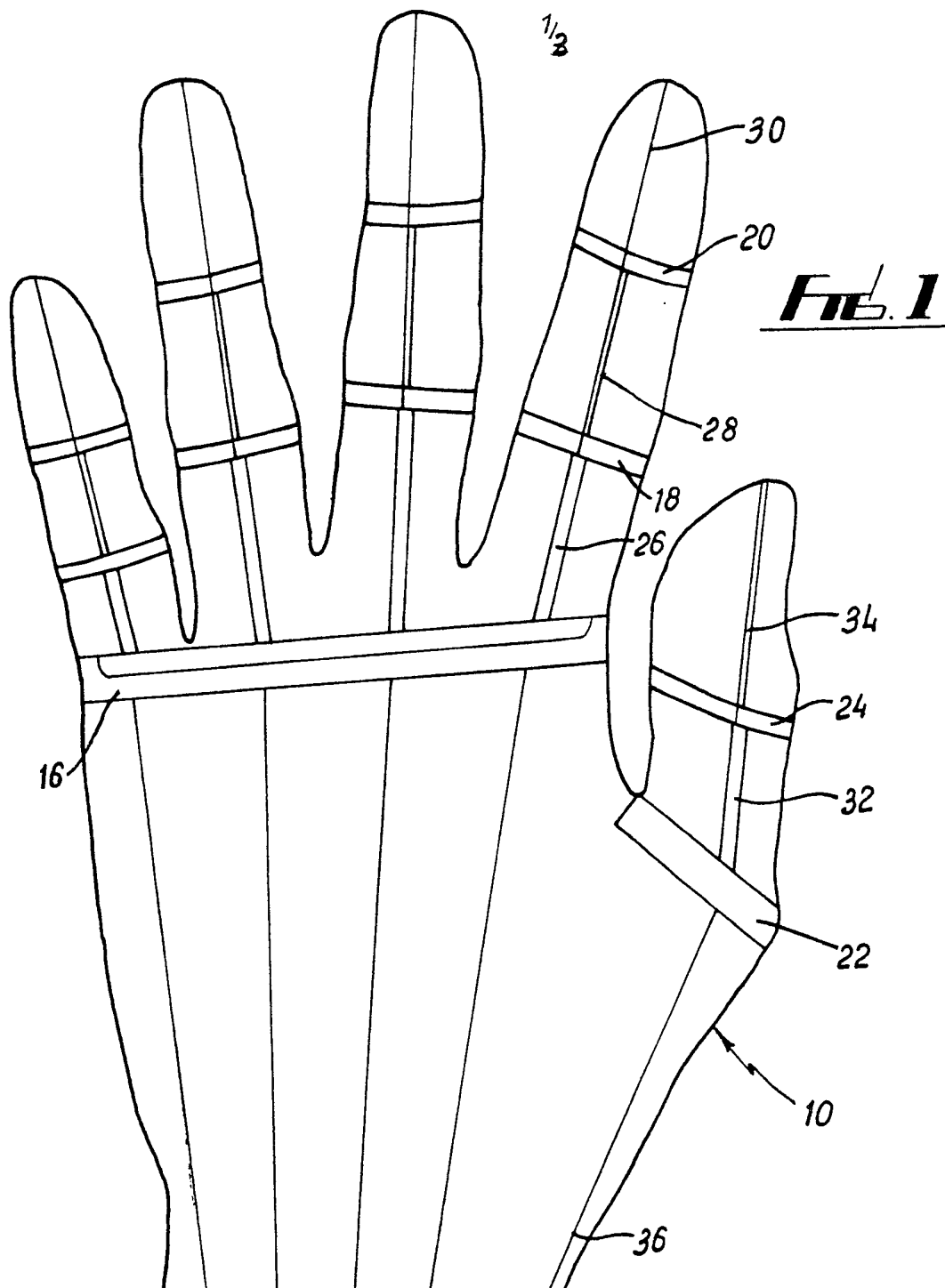
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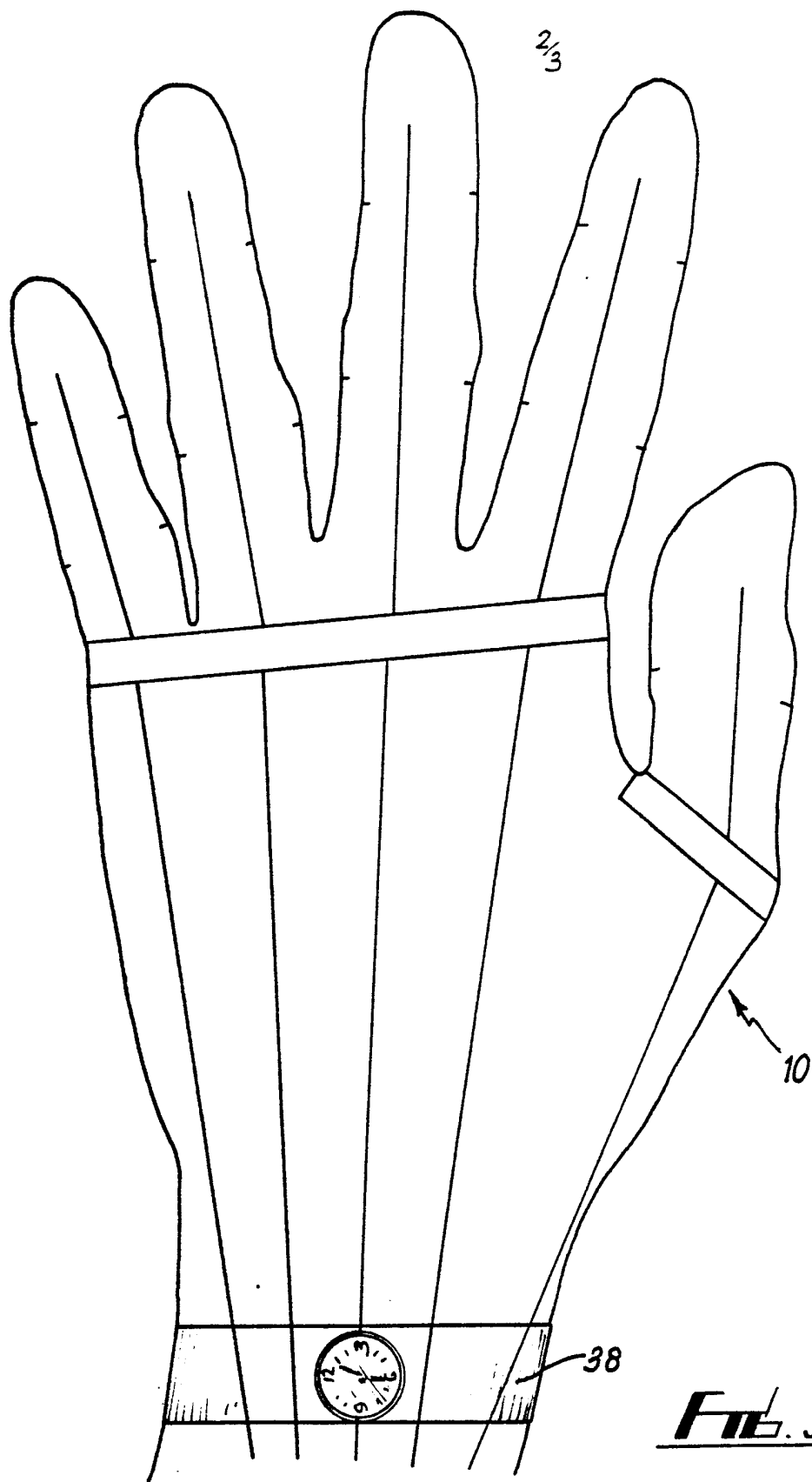
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(54) Glove for exercising the hand

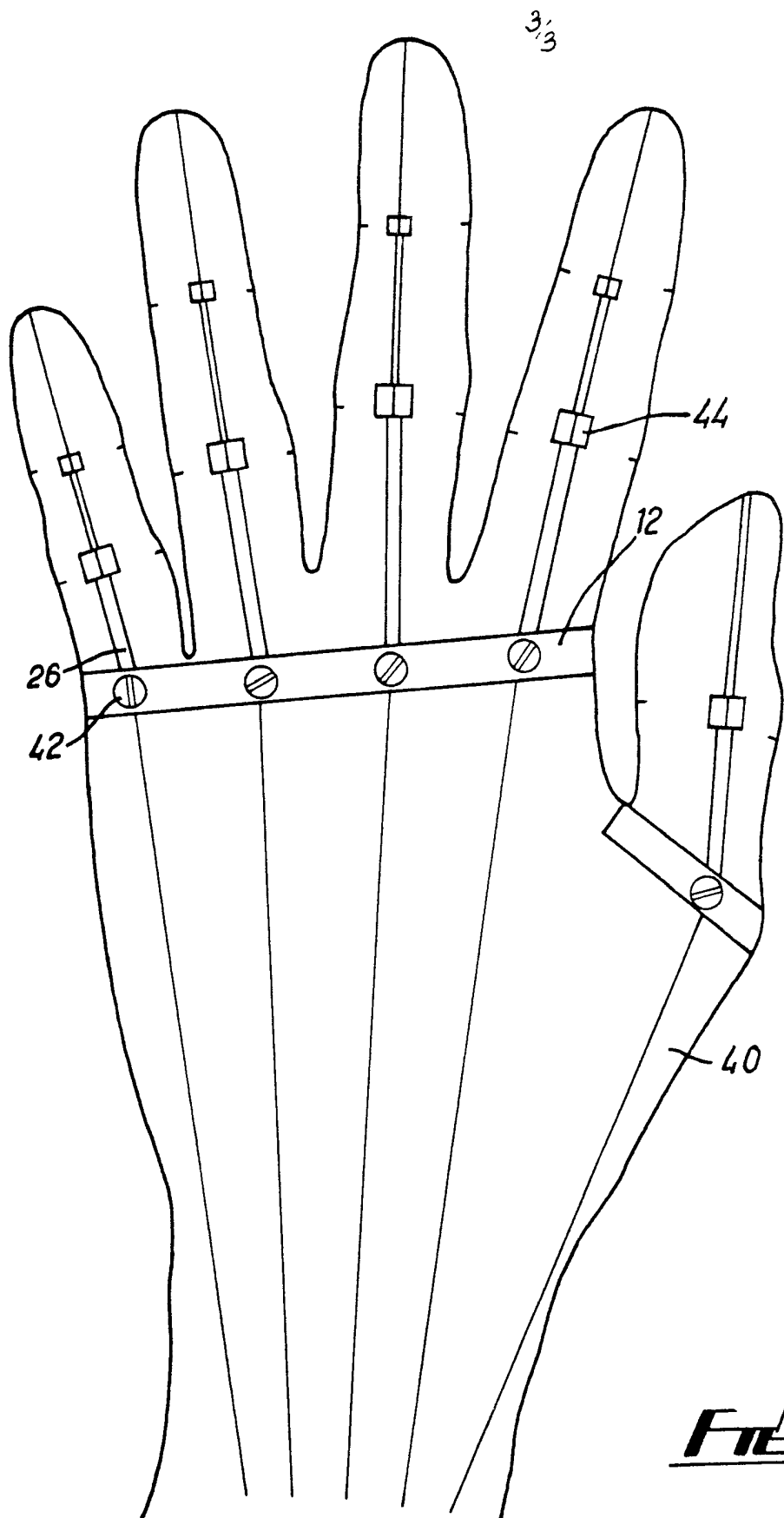
(57) A glove 10 is provided with resilient members 26, 28, 30 extending along each finger. The members 26, 28, 30 connect respectively between bands 16, 18, 20 around the glove at positions corresponding to the finger joints, and to the finger end, to produce resistance to bending of the finger for exercise and therapeutic purposes.







**FIG. 3**



**FIG. 4**

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## Gloves

This invention concerns improvements in or relating to gloves.

In this specification the term 'finger' is intended to also include a thumb and the part of a glove intended for a thumb, and it should be realised that this part of the glove will obviously be suitably adapted for a thumb which only has one joint along its length rather than the two in a finger.

Elderly people often have problems with their hands particularly if they are not regularly exercised. For example the fingers tend to adopt a bent position and movement of the joints can become difficult. Also athletes and particularly boxers require to exercise their hands to develop the muscles therein. Hand held grippers are known but these have often not been found to be entirely satisfactory. Further, people not fitting into either of the above categories may want to regularly exercise the joints of their hands.

According to the present invention there is provided a glove having resilient means so arranged as to be flexed by the bending of a finger of the glove.

Preferably the resilient means extend for at least a

part of the length of one or more fingers of the glove, and preferably extend on the side of the glove corresponding to the back of the hand.

The resilient means may extend between the parts of the glove which correspond in use to the joints in the hand of the wearer of the gloves, and may comprise, for each finger, a first member extending from the point corresponding to the knuckle, to the point corresponding to the next joint in the finger, a second member extending therefrom to the furthest joint in the finger, and a third member extending therefrom to the end of the finger.

The first member is desirably more resilient than the second member and the second is preferably more resilient than the third. The resilience of at least some of said members may be adjustable.

Desirably, the resilient means comprises strips of a resilient material.

A band may be provided on the glove substantially corresponding to the position of the knuckles of a wearer and one end of the first resilient members is preferably connected thereto. Resilience adjustment means may be provided on the band.

Further bands of material may also be provided around the fingers of the glove at locations corresponding to the finger joints of a wearer, and the resilient members may be connected respectively between the knuckle band and, the bands of the finger joints, and between the latter and the ends of the fingers.

The glove may comprise two layers of material at least over the part thereof corresponding to the back of the hand and the resilient means may be located between the layers.

Alternatively the resilient means may comprise an inflatable means which may extend substantially along each of the fingers of the glove. The inflatable means may comprise a single inflatable member, and either a pump or a valve may be provided therefor on the glove towards the part thereof corresponding to the wrist.

The resilient means is preferably arranged to urge, in use, the fingers of the wearer into a straight condition substantially parallel to the back of the hand.

Embodiments of the present invention will now be described by way of example only with reference to the accompanying drawings in which:-

Fig. 1 is a diagrammatic view of a partially disassembled glove according to the invention:

Fig. 2 is a diagrammatic cross-sectional side view of a part of the glove of fig. 1 in use;

Fig. 3 is a plan view of the glove of figs. 1 and 2:  
and

Fig. 4 is a diagrammatic plan view of a partially disassembled further glove.

Figs. 1 to 3 show a glove 10 intended for use by elderly people. The part of the glove corresponding to the back of the hand has a double thickness comprising inner and outer layers 12, 14 respectively. The outer layer 14 is removed in fig. 1 for clarity. A strip of material 16 is provided on the layer 12 in a position corresponding substantially to the position of the wearer's knuckles. Bands 18, 20 are provided on the layer 12 around the fingers at locations corresponding substantially to joints in the fingers of a wearer. A corresponding strip 22 and a band 24 are provided for the thumb.

First resilient members 26 extend between the strip 16 and the respective bands 18. Second resilient members 28 extend between the bands 18 and the respective bands 20, and third resilient members 30 extend between the bands 20 and the respective ends of the fingers. Corresponding first and second resilient members 32, 34 are provided for the thumb. The resilient members are formed of strips of a flexible plastics material. The first members 26, 32 are broader, thus providing more resilience, than the second members 28, 34, which in turn are broader than the third members 30. Strengthening wires 36, one corresponding to each finger, are provided, extending from the strip 16 along the back of the hand to maintain the glove's shape.

The resilient members 26-34 are of a strength and length such that they urge the wearer's fingers into a straight position parallel to the back of the hand. This prevents the wearer's fingers from becoming permanently bent and also enables the wearer to exercise the fingers by bending them against the force exerted by the resilient members. The gloves are of simple construction and can thus be inexpensively and attractively made. As an example a watch 38 can be provided on the glove as shown in fig. 3.

Fig. 4 shows a similar glove 40 suitable for use by athletes. The first resilient members 26 are adjustably connected to the strip 16 by engagement with screws 42. The turning of which varies the length of the member 26 extending between the strip 12 and the next joint on the finger. In this glove the bands 18, 20, 24 have been replaced by pads 44. The adjusting screws 42 enable the force exerted by the members 26 to be varied to provide the required exercise. The arrangement shown in both gloves 10 and 14 could be provided in conventional dress gloves so that people could exercise their hands during ordinary exercise.

In a further embodiment (not shown) an inflatable member is provided between the inner and outer layers of the glove. The inflatable member is shaped to extend along the back of each of the fingers to provide, when inflated, resistance to bending thereof. Each finger connects to a single chamber on the back of the hand and a valve, or a pump of a similar type to those used when testing blood pressure, is provided to permit inflation of the member. Obviously the degree of inflation will determine the amount of resistance to bending offered by the glove.

Various other modifications may be made without departing from the scope of the invention. For example, the resilient members may be sprung steel strips, and may be differently mounted on the glove. The glove may be made from any suitable materials. Adjustment could be provided for all of the resilient members. Alternatively the resilient members could be removable so that different strength resilient members can be used in different situations.

CLAIMS

1. A glove having resilient means so arranged as to be flexed by the bending of a finger of the glove.

2. A glove according to Claim 1, in which the resilient means extend for at least a part of the length of one or more fingers of the glove.

3. A glove according to Claim 1 or Claim 2, in which the resilient means comprises strips of a resilient material.

4. A glove according to any of Claims 1 to 3, in which the resilient means extend on the side of the glove corresponding to the back of the hand.

5. A glove according to Claim 4, in which the resilient means extends between the parts of the glove which correspond in use to the joints in the hand of the wearer of the gloves.

6. A glove according to Claim 5, in which the resilient means comprises, for each finger, a first member extending from the point corresponding to the knuckle, to the point

corresponding to the next joint in the finger, a second member extending therefrom to the furthest joint in the finger, and a third member extending therefrom to the end of the finger.

7. A glove according to Claim 6, in which the first member is more resilient than the second member.

8. A glove according to Claim 6 or Claim 7, in which the second member is more resilient than the third member.

9. A glove according to any of Claims 6 to 8, in which the resilience of at least some of the members is adjustable.

10. A glove according to any of Claims 5 to 9, in which a band is provided on the glove substantially corresponding to the position of the knuckles of the wearer and one end of the first resilient members is connected thereto.

11. A glove according to Claim 10, in which resilience adjustment means are provided on the band.

12. A glove according to Claim 10 or Claim 11, in which

further bands of material are provided around the fingers of the glove at locations corresponding to the finger joints of a wearer.

13. A glove according to Claim 12, in which the resilient members are connected respectively between the knuckle band and, the bands of the finger joints, and between the latter and the ends of the fingers.

14. A glove according to Claim 1 or Claim 2, in which the resilient means comprises an inflatable means.

15. A glove according to Claim 14, in which the inflatable means extends substantially along each of the fingers of the glove.

16. A glove according to Claim 14 or Claim 15, in which the inflatable means comprises a single inflatable member.

17. A glove according to any of Claims 14 to 16, in which a pump or a valve is provided for the inflatable means on the glove towards the part thereof corresponding to the wrist.

18. A glove according to any of the preceding Claims, in

which the glove comprises two layers of material at least over the part thereof corresponding to the back of the hand and the resilient means are located between layers.

19. A glove according to any of the preceding Claims, in which the resilient means is arranged to urge, in use, the fingers of the wearer into a straight condition substantially parallel to the back of the hand.

20. A glove substantially as hereinbefore described with reference to figures 1 to 3 of the drawings.

21. A glove substantially as hereinbefore described with reference to figure 4 of the drawings.

22. Any novel subject matter or combination including novel subject matter disclosed in the foregoing specification or claims and/or shown in the drawings, whether or not within the scope of or relating to the same invention as any of the preceding claims.