



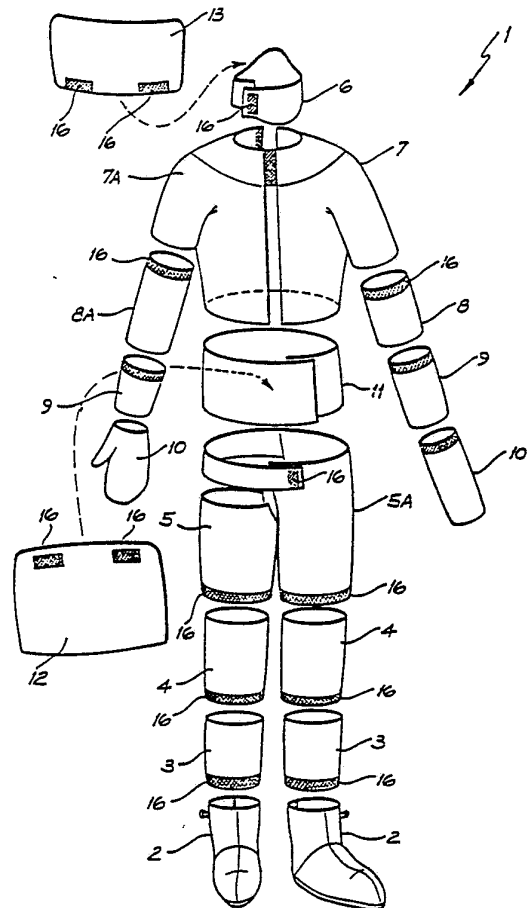
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(54) Title: A THERMAL SUPPORT SUIT

(57) Abstract

A thermal support suit (1) for providing support and heat to a person's body in order to alleviate pain and to provide support to stressed parts of the body. The thermal suit (1) comprises a plurality of heat retaining members (2-11) which are separately applied to a part of the body requiring their application. The members (2-11) have attachments (16) which are connectable to join the adjoining members (2-11) to form the thermal suit (1). Preferably, each member (2-11) comprises an inner layer (30) and an outer layer (31) which are sealed around the periphery to form a cavity (32). The cavity (32) has a resealable closure (36) to enable the cavity (32) to be filled with water or air as required.



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A THERMAL SUPPORT SUIT

The present invention relates to arthritis, and in particular, to a thermal support suit which helps alleviate the symptoms of arthritis.

BACKGROUND ART

Arthritis is a very painful affliction for sufferers and is connected with inflammation of body joints. It has been found that if the joints of the arthritis sufferer are kept warm, the problems associated with arthritis, namely the pain and reduced mobility of the joints, are greatly relieved.

It has also been found that people suffering from sports injuries, and the like, or any abnormality regarding bone structure, receive relief and support when the particular bone structure is kept warm. Support of the bone structure also aids in this relief.

It is also possible to increase the speed of recovery of any injuries or problems associated with animals, in particular, inflamed joints or the like.

OBJECT OF THE INVENTION

It is an object of the present invention to provide a thermal suit which substantially reduces the affliction of arthritis sufferers.

According to one aspect of the present invention there is disclosed a thermal suit comprising a plurality of heat retaining members shaped to conform to a person's body and having releasable attachment means, whereby each said heat retaining member is releasably attachable to an adjoining like member and all of said plurality of members or part thereof form said thermal suit.

DISCLOSURE OF THE INVENTION

Preferably the heat retaining members support the person's body as well as retaining heat.

Preferably the members are formed from an inner layer and an outer layer sealed together around their peripheries, and a releasable closure means through which the cavity formed between said inner and outer layer can be inflated

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with air or filled with heated liquid.

BRIEF DESCRIPTION OF THE DRAWINGS

One embodiment of the present invention will now be described with reference to the drawings in which:

Fig. 1 is an exploded front view of a thermal suit of a preferred embodiment,

Fig. 2 is a front perspective view of a boot of the thermal suit illustrated in Fig. 1, and

Fig. 3 is to transverse cross-section through the forearm of a patient wearing an elbow support.

BEST MODE OF CARRYING OUT THE INVENTION

The thermal suit 1 as illustrated in the drawings comprises a plurality of heat retaining sections. The heat retaining sections are of two varieties whereby they are applied to the body limbs or to the trunk by either slipping on or wrapping around the various body portions of the patient or wearer.

The suit 1 as illustrated in Fig. 1 comprises two boots 2, two calf support sections 3, two knee support sections 4 and a thigh support section 5 and a hip support section 5A, all these members 2,3,4 and 5A being shaped to extend around the corresponding body portion of the patient (not illustrated).

The suit further includes for the upper part of the body a neck support 6, two shoulder support sections 7 and 7A, an elbow support 8, an upper arm support 8A, a lower arm support 9, two gloves 10 and a back support 11.

Each of the support sections 3-11 preferably have attached to them VELCRO (Registered Trade Mark) attachments 16 so that each adjacent pair of support sections 2-11 can be releasably secured to the other. When all the support sections 2-11 are secured by the attachments 16, all the various support sections 2-11 form a suit 1. Naturally, not all the support sections are necessary for each particular patient because not all patients suffering from arthritis are disabled in all joints.

As illustrated in Fig. 1, a pillow support 13 is attachable to the neck support 6 and a seat section 12 is attachable to the back section 11 to provide cushioning. Preferably the back section 11 and seat section 12 are inflatable by either air, water or like fluid.

In relation to the boot 2 which is illustrated in Fig. 2, the boot 2 has a zip fastener 20 extending down the heel of the boot which has been found to be easily manipulated by a person suffering from arthritis. The person's foot is inserted into the boot 2 and fastener 20 closed. The boot 2 is preferably inflatable and is then inflated with air or partially filled with hot water.

As seen in Fig. 3, each of the body sections 2-11 is preferably formed from an inner layer 30 and an outer layer 31 sealed together around the periphery of each to form a cavity 32. A resealable closure 36 is provided in the outer layer 31 to enable the cavity 32 to be filled or evacuated.

The preferred material for the outer layer is sheet neoprene 5mm in thickness. A suitable material is available for wet suit manufacture. The preferred material for the inner layer 30 is sheet neoprene 3mm in thickness having the inner surface covered with medical plush. This material is sold under the trade name "K1". It will be appreciated that partially filling the cavity 30 with hot water (not illustrated) causes the neoprene to expand slightly thereby pushing the inner layer 30 into intimate contact with the patient's body 33 since the inner layer 30 is also preferably thinner, the water loses heat predominantly towards the patient's body 33 warming not only the skin and flesh but also the bones 34. Furthermore movements by the patient causes air trapped between the skin and plush to move thereby stimulating blood circulations.

If desired several medical spinal braces such as those sold by Boehringer Mannheim can be located in the back support 11 or in a knee support if such support is desirable following vertebrae fusion or a knee operation.

INDUSTRIAL APPLICABILITY

The areas of application of the thermal suit 1 and the parts thereof, include use in connection with people who are suffering from arthritis as well as any other injuries. The suit 1 has particular application to sports injuries where it is possible to alternate filling the cavity 30 with hot and cold water as desired. The invention is equally applicable to race horses and other animals.

The foregoing describes only one embodiment of the present invention and modifications obvious to those skilled in the art can be made thereto without departing from the scope of the present invention.

CLAIMS

1. A thermal suit comprising a plurality of heat retaining members shaped to conform to a person's body and having releasable attachment means, whereby each said heat retaining member is releasably attachable to an adjoining like member and all of said plurality of heat retaining members or part thereof form said thermal suit.
2. A thermal suit as claimed in claim 1, wherein said members are formed of an inner layer and an outer layer sealed together around their peripheries, and a releasable closure means through which the cavity formed between said inner and outer layers can be inflated with air or filled with either heated or cold water.
3. A thermal suit as claimed in either claims 1 or 2, wherein the heat retaining members support the body or limb as well as retaining heat.
4. A thermal suit as claimed in any one of the preceding claims, wherein a plurality of bracing members are locatable within either the inner or outer layer of the heat retaining members to add further support to the body or limb which the heat retaining member is surrounding.
5. A thermal suit as claimed in any one of the preceding claims, wherein the heat retaining members are of two varieties whereby one variety is applicable to the body limbs and the other variety is applicable to the body trunk.
6. A thermal suit as claimed in any one of the preceding claims, wherein said suit includes a pair of boots which are inflatable and have a fastener extending down the heel of the boot.
7. A thermal suit as claimed in any one of the preceding claims, wherein the outer layer is preferably made of sheet neoprene 5mm in thickness, whilst the inner layer is preferably sheet neoprene 3mm in thickness.
8. A thermal suit substantially as described with reference to the accompanying drawings.

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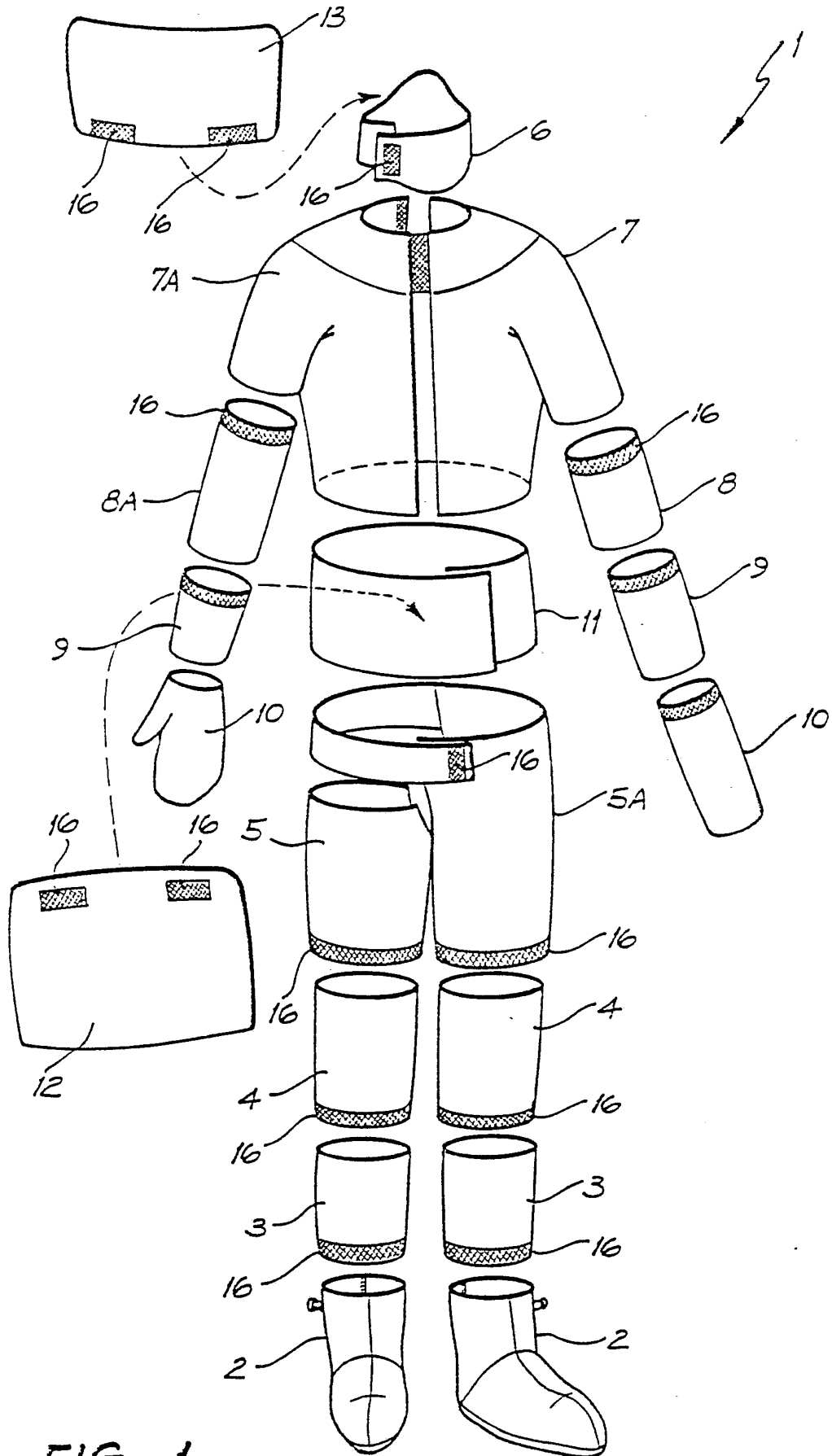


FIG. 1

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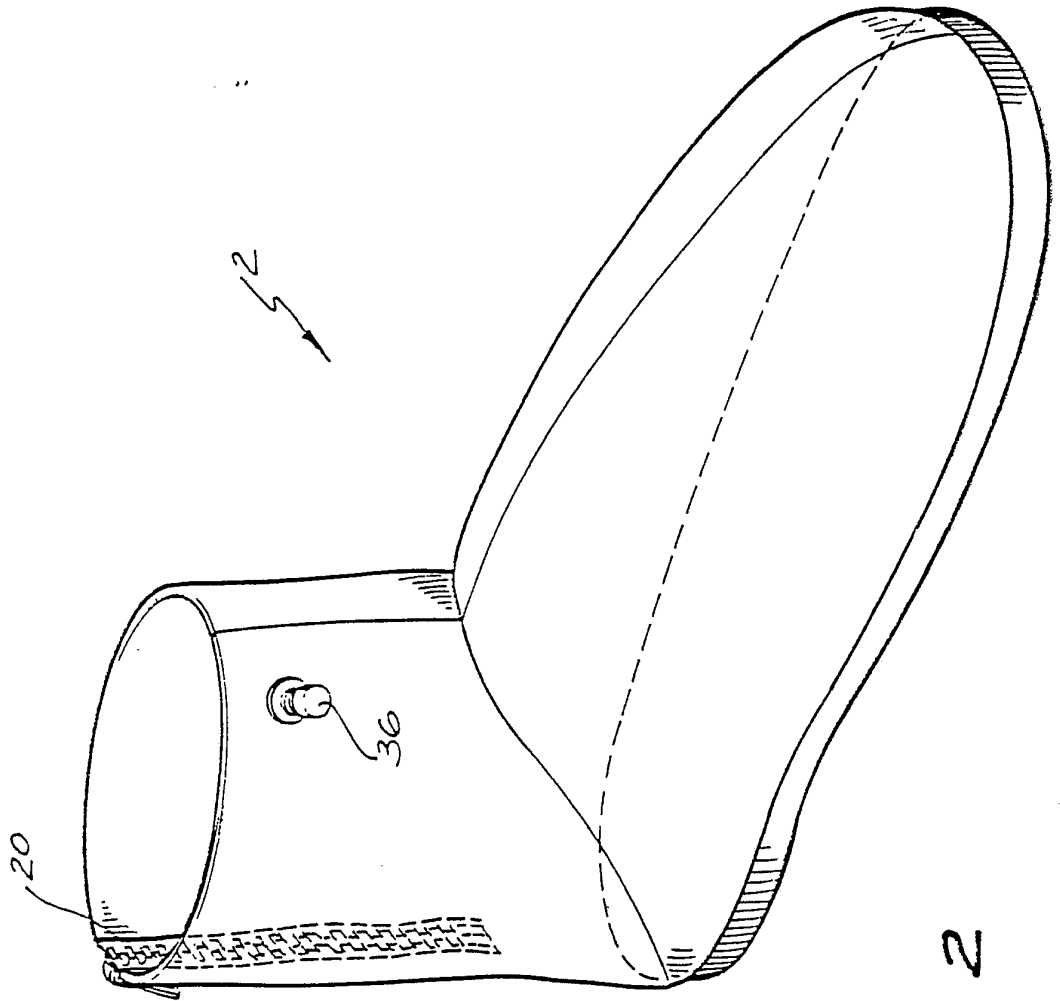


FIG. 2

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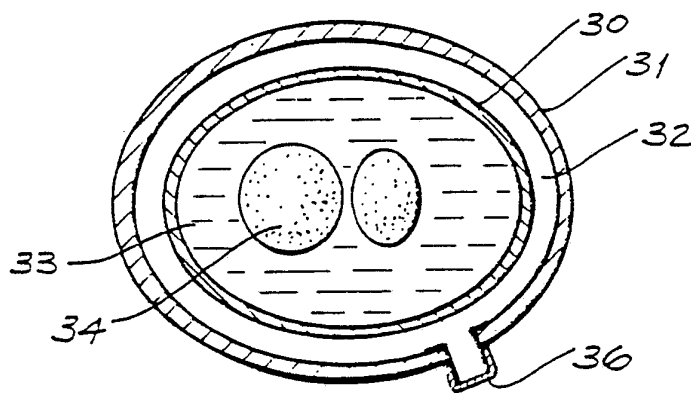
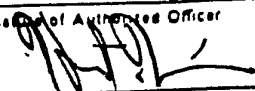


FIG. 3

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INTERNATIONAL SEARCH REPORT

International Application No PCT/AU 88/00193

I. CLASSIFICATION OF SUBJECT MATTER : <small>Several classification symbols apply, indicate all *</small>				
<small>According to International Patent Classification (IPC) or to both National Classification and IPC</small>				
Int. Cl. ⁴ A41B 9/08, 13/00, A61F 7/00, A61H 36/00, 31/00, B63C 11/04				
II. FIELDS SEARCHED				
<small>Minimum Documentation Searched *</small>				
<small>Classification System</small>	<small>Classification Symbols</small>			
IPC US Cl.	A41B 9/08, 13/00, A61H 36/00, 31/00, B63C 11/04 383/96, 128/403, 2/109, 2/403			
<small>Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched *</small>				
AU : IPC as above				
III. DOCUMENTS CONSIDERED TO BE RELEVANT *				
<small>Category **</small>	<small>Citation of Document, ** with indication, where appropriate, of the relevant passages **</small>	<small>Relevant to Claim No. **</small>		
X	US,A, 551939 (WEBER) 24 December 1895 (24.12.95)	(6)		
Y	US,A, 3874000 (ALTMAN) 1 April 1975 (01.04.75)	(1-8)		
Y	CH,A, 614848 (A.G.R. LOFINO) 28 December 1979 (28.12.79)	(1-8)		
Y	FR,A, 1541165 (R. YALLOVZ) 4 October 1968 (04.10.68)	(1-8)		
Y	US,A, 4644589 (PETTIS) 24 February 1987 (24.02.87)	(1-8)		
Y	US,A, 4145763 (ABRAMS et al) 27 March 1979 (27.03.79)	(1-8)		
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IV. CERTIFICATION				
<p><small>Date of the Actual Completion of the International Search</small></p> <p style="text-align: center;">27 September 1988 (27.09.88)</p> <p><small>International Searching Authority</small></p> <p style="text-align: center;">Australian Patent Office</p>	<p><small>Date of Mailing of this International Search Report</small></p> <p style="text-align: center;">18 OCTOBER 1988 (18-10-88)</p> <p><small>Signature of Authorised Officer</small></p> <p style="text-align: center;"> C. IRWIN</p>			