

[54] CYCLIST'S HEATED SUIT

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Related U.S. Application Data

[63] Continuation of Ser. No. 332,899, Feb. 15, 1973, abandoned.

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[51] Int. Cl. H05b 1/00

[58] Field of Search 219/211, 527-529; 128/379; 2/2.1 A

FOREIGN PATENTS OR APPLICATIONS

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[57] ABSTRACT

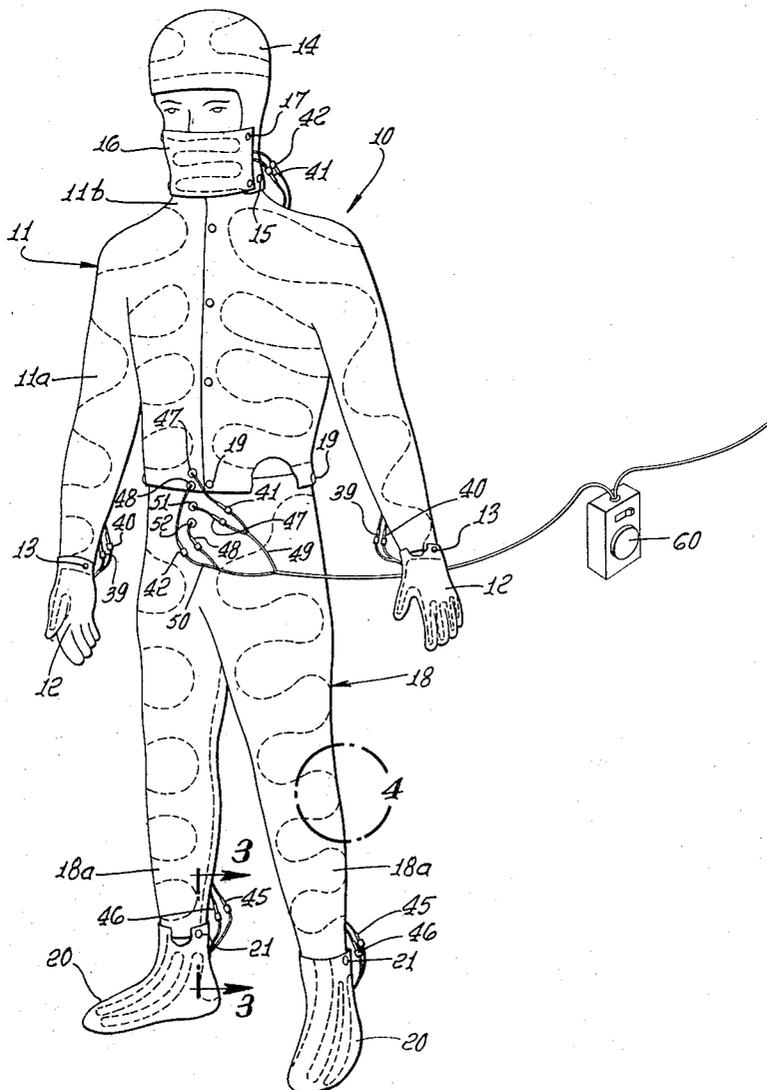
An electrically heated suit system is modular to enable selective wearing of different portions of the suit, without impairment of the heating function of the worn sections.

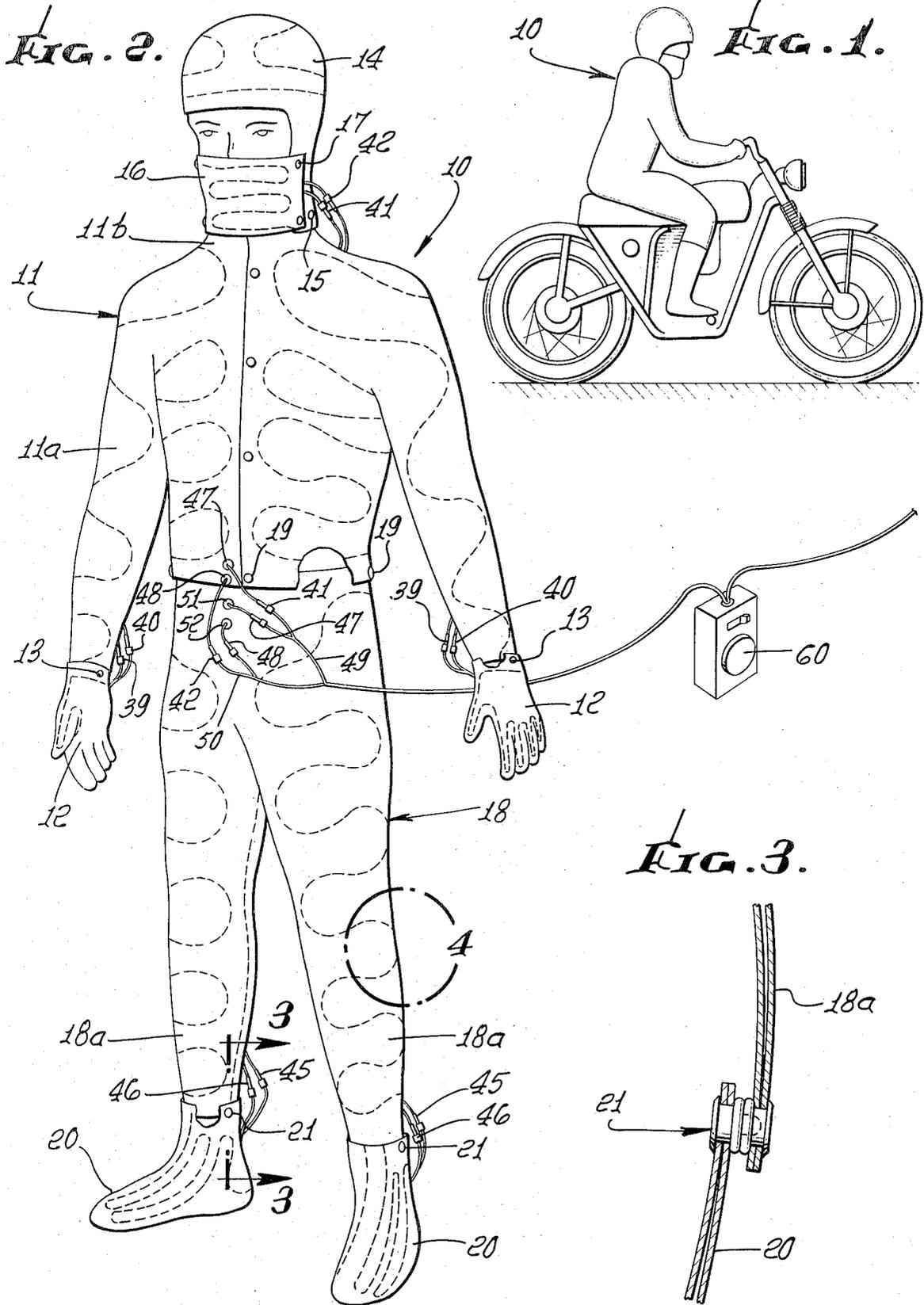
[56] References Cited

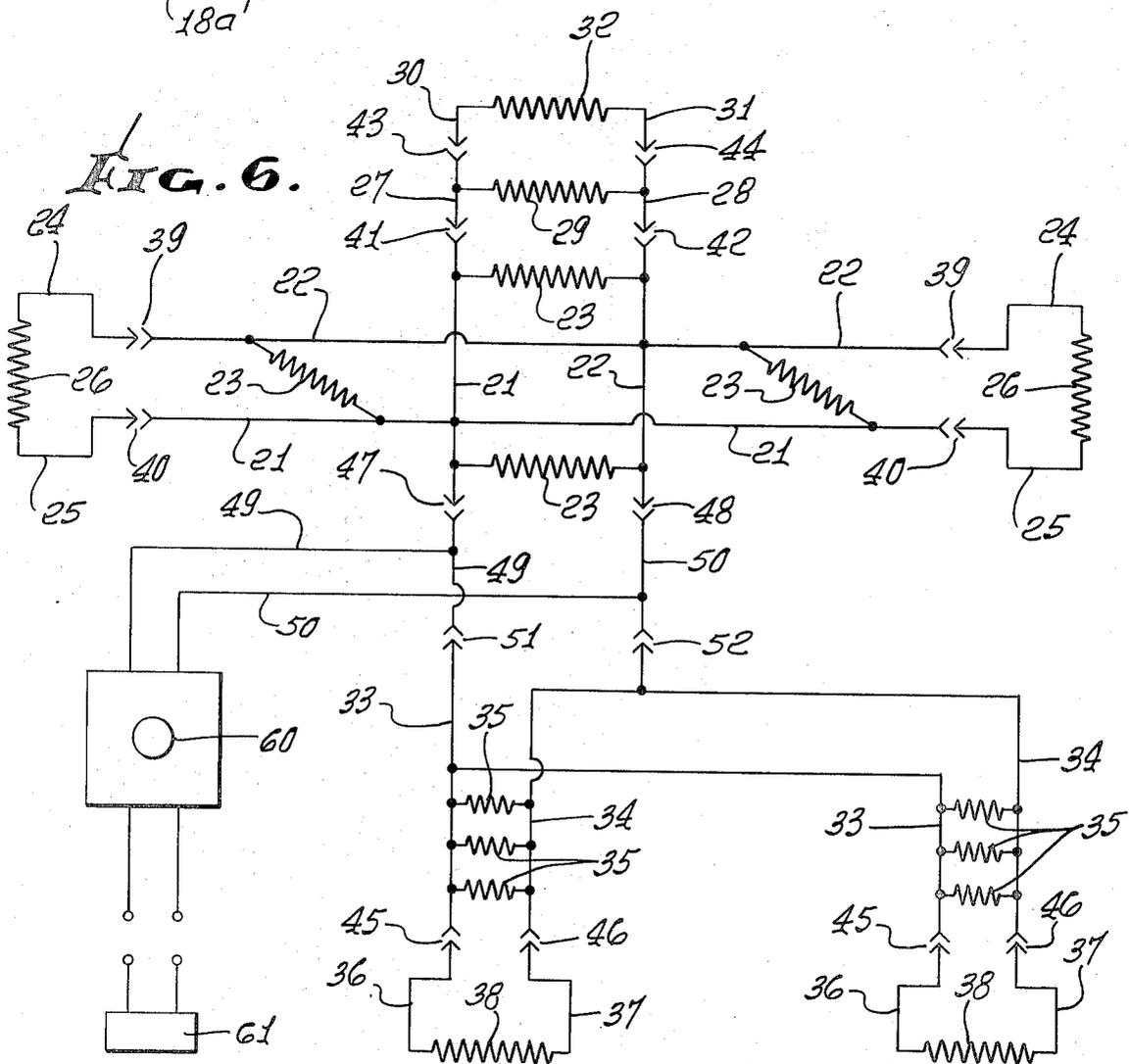
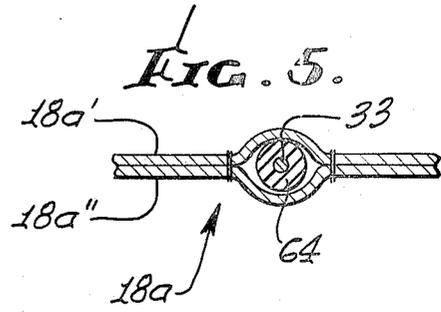
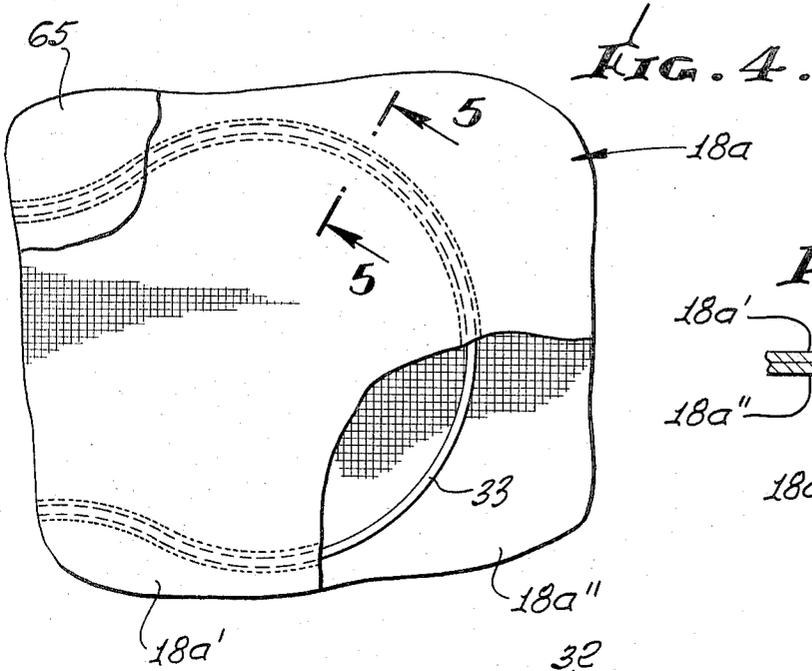
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4 Claims, 6 Drawing Figures







CYCLIST'S HEATED SUIT

This is a continuation of application Ser. No. 332,899, filed Feb. 15, 1973 and now abandoned.

BACKGROUND OF THE INVENTION

This invention relates generally to heated clothing, and more particularly concerns a heated suit system which is modular and which enables selective wearing of certain sections of the suit without impairment of the heating function.

There is a need for heated garments in many sports and other activities, such as for example, motorcycling, snowmobile operation and the operation of construction equipment out of doors in cold climates. On the other hand, a complete heated suit may become locally uncomfortable to the wearer, to the extent that he requires heating of only a selected portion of a complete suit. To my knowledge, no prior heated clothing system embodies the unusual advantages in structure, function and result such as one found in the present system, and which overcome the above as well as other problems associated with prior equipment.

SUMMARY OF THE INVENTION

It is a major object of the invention to provide a heated suit system overcoming the above problems and incorporating numerous unusual advantages as will appear. Basically, the clothing comprises multiple sections each adapted to cover a different portion of the human body; electrical wires carried by the sections and including interconnected bus and heater wires; separable electrical connections between the bus wires of adjacent clothing sections; and, input electrical connections to the bus wires of at least one of the clothing sections. As will appear that one section may cover the wearer's waist and may be associated with a jacket and/or trouser section; electrical input leads may be connected with the input electrical connections which are releasable, and a current control may be connected with at least one of the input leads for suit temperature control, considering that greater current or power will be required the more suit sections are employed; the suit sections are typically separately fastened together, as will be seen, and they may include glove, hood, face mask and slipper sections as well as jacket and trouser sections.

These and other objects and advantages of the invention as well as the details of an illustrative embodiment will be more fully understood from the following description and drawings, in which:

DRAWING DESCRIPTION

FIG. 1 is a side elevation showing a motorcyclist whose suit embodies the invention;

FIG. 2 is a showing of the FIG. 1 suit, with same wiring details illustrated;

FIG. 3 is an enlarged section on line 3—3 of FIG. 2;

FIG. 4 is an enlarged fragmentary section, partly broken away, on line 4—4 of FIG. 2;

FIG. 5 is an enlarged cross-section on line 5—5 of FIG. 4; and

FIG. 6 is a wiring diagram.

DETAILED DESCRIPTION

In the drawings, the suit 10 comprises multiple clothing sections each adapted to cover a different portion

of the human body. For example, the suit 10 includes a jacket 11 to the arms 11a of which gloves 12 are attached as by snap fasteners 13, and to the neck 11b of which a hood 14 is attached as by snap fasteners 15.

Also, a face mask 16 is attached to the hood as by snap fasteners 17. The suit also includes trousers 18 having snap fastener attachment to the jacket at 19; and slippers 20 having snap fastener attachment to the trouser legs 18a at 21. The latter are shown in detail in FIG. 3, although other forms of fasteners may be employed.

Electrical wires are carried by each clothing section, and include bus wires and heater wires connected therewith (as for example between the bus wires). This is tabulated as follows, with added reference to FIG. 6:

Clothing Section	Bus Wires	Heater Wires
jacket 11	21,22	23
gloves 12	24,25	26
hood 14	27,28	29
face mask 16	30,31	32
trousers 18	33,34	35
slippers 20	36,37	38

In addition, separable electrical connections are established between the bus wires of adjacent clothing sections, as tabulated as follows:

Adjacent bus wires	Separable connectors
22 & 24	39
21 & 25	40
21 & 27	41
22 & 28	42
27 & 30	43
28 & 31	44
33 & 36	45
34 & 37	46

Further, input electrical connections are established to the bus wires of at least one of the clothing sections, and in the drawings such input connections are established at 47 and 48 between input leads 49 and 50 and jacket buses 21 and 22, respectively; and in addition are also established at 51 and 52 between input leads 49 and 50 and trouser buses 33 and 34, respectively. All of the connectors are of the releasable plug-in type, as indicated in the drawings, so that, for example, if connections 51 and 52 are released, the trousers and slippers will not be heated; and if connections 47 and 48 are released, the jacket and the gloves, face mask and hood will not be heated. It is also seen that various of the connections 39 and 40, 41 and 42, 43 and 44, and 45 and 46 may be unplugged to prevent heating of the associated clothing elements.

A current control is provided as at 60 in series with input leads 49 and 50 to control the power or current supplied to the suit so as to vary the heating as required by the number of clothing sections remaining electrically connected with the input leads, as described. An AC or DC power source is indicated at 61, and may for example comprise a battery on the motorcycle. Merely as illustrative, a fully operating suit will draw between 1 to 1.5 amperes at about 12 volts.

The wires (bus and heater or resistance) may be embedded between clothing layers, as indicated in FIGS. 4 and 5 where bus wire 33 extends between trouser leg layers 18a' and 18a''. Note that insulation 64 may sur-

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round the bus wire, and this construction may also be employed throughout. The clothing may comprise a liner for outer clothing, or it may comprise the main garment, with an insulative outer layer as at 65 in FIG. 4.

The plug-in type connectors may include plugs and receptacles, with snap or screw-in retention. One commercial type connector is a product of E.F. Johnson Company, and bears jack and plug numbers 108-0902-001, 108-0903-001, 108-0302-001, and 108-0302-001.

From the above, it is clear that the invention provides very simple and advantageous selectively wearable clothing sections which are selectively heated in response to electrical interconnection of the clothing sections.

I claim:

- 1. In heated clothing, the combination comprising
 - a. multiple clothing sections each adapted to cover a different portion of a human body, and snap fastener means releasably fastening certain of said sections together in series sequence permitting sequential removal thereof,
 - b. electrical wires carried by each section and includ-

- ing only two electrically parallel bus wires and heater wires connected thereacross,
- c. separable electrical connections between the bus wires of adjacent clothing sections,
- d. input electrical connections to the parallel bus wires of at least one of said clothing sections, and
- e. the bus wires carried by successive of said certain sections being connected in electrical series by said separable electrical connections each of which includes a male part and a female part respectively located further from and closer to said input electrical connections, said parts openly accessible outwardly of said clothing sections for plugging and unplugging without disturbing the snap fasteners,
- f. said certain clothing sections including a jacket, a hood, and a face mask.
- 2. The combination of claim 1 wherein said certain clothing sections include gloves.
- 3. The combination of claim 2 wherein said certain clothing sections include trousers and slippers.
- 4. The combination of claim 1 wherein said parts are carried on slack portions of said bus wires that are spaced openly outwardly of the clothing sections.

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