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W. H. DUNCAN

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ELECTRICALLY HEATED GARMENT

Original Filed April 23, 1951

Fig. 1

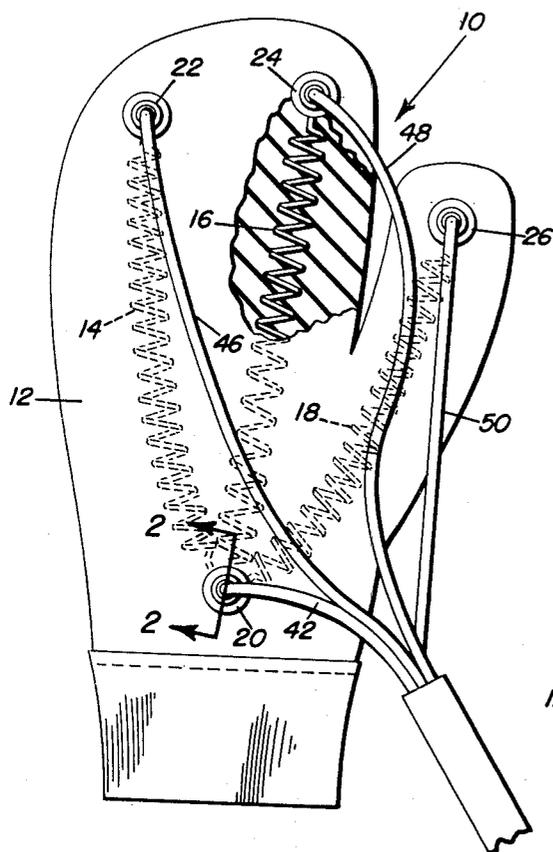


Fig. 2

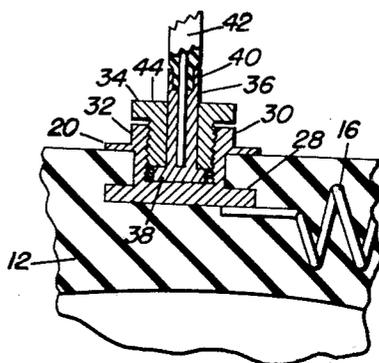
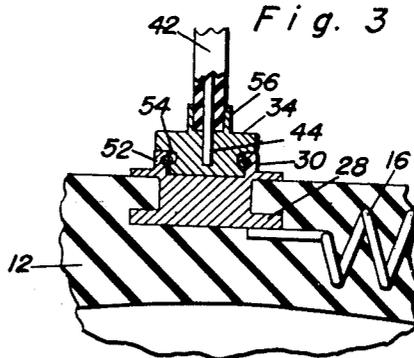


Fig. 3



William H. Duncan

INVENTOR.

BY *Chance A. O'Brien*
and Harvey B. Jackson
Attorneys

UNITED STATES PATENT OFFICE

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ELECTRICALLY HEATED GARMENT

William H. Duncan, Kansas City, Mo.

Original application April 23, 1951, Serial No. 222,444. Divided and this application March 6, 1953, Serial No. 340,830

1 Claim. (Cl. 219—46)

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This invention relates to new and useful improvements and structural refinements in electrically heated garments, and the principal object of the invention is to facilitate convenient and highly efficient control of the heating effect in any predetermined portion of the garment, so as to assure proper heating of predetermined portions of the body.

The term "garment" as used herein is employed broadly to designate any kind or type of covering for any particular portion of the body, an example illustrated in the accompanying drawing assuming the form of a glove adapted to be worn on the hand. However, the teachings of the invention may be applied, without structural modifications, to other garments such as shoulder pads used by ball players, knee pads, leggings, footwear and the like.

Some of the advantages of the invention resides in its extreme simplicity of construction, in its convenient and efficient operation, and in its adaptability to economical manufacture.

This application is a division of my co-pending application, Serial No. 222,444, which was filed on April 23, 1951.

With the above more important objects and features in view and such other objects and features as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings in which:

Figure 1 is a plan view of the invention embodied for illustrative purposes in a glove, the latter being partially broken away;

Figure 2 is a fragmentary sectional detail, taken substantially in the plane of the line 2—2 in Figure 1; and

Figure 3 is a fragmentary sectional detail, similar to that shown in Figure 2, but illustrating a modified embodiment of the terminal.

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the general reference character 10 designates a garment, in this instance a glove, which is constructed of any suitable insulating material such as rubber, or the like, and includes a wall 12 in which are embedded a plurality of electric resistance elements 14, 16 and 18.

These elements are connected at one end thereof to a common terminal 20, while the other ends of the elements are connected to the respective

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terminals 22, 24 and 26 which are located at spaced points on the glove.

The terminals 20, 22, 24 and 26 are similar in construction, each including a base portion 28 which is embedded in the wall 12 and an outwardly projecting, hollow portion which constitutes a socket 30.

The socket 30 is provided with internal screw threads 32 to receive an externally screw-threaded nut 34 which is rotatably positioned on a terminal post 36 provided with an enlarged head 38.

The outer end portion of the post 36 is provided with a counterbore 40 to receive a conductor 42 and the wire 46 of the conductor is firmly secured in the post 36.

The post 36 facilitates rotation of the plug 34 without twisting the conductor 42, and after the plug is screwed in position in the socket 30, the head 38 of the post 36 establishes an electrical connection between the socket and the plug and, consequently, between the conductor 42 and the resistance elements 14, 16, 18.

Additional conductors 46, 48, 50 are connected to the respective terminals 22, 24, 26 in the same manner as the conductor 42 is connected to the terminal 20, and it will be apparent from the foregoing that when electric current passes through the various conductors, the several elements 14, 16 and 18 will become heated. However, by simply disconnecting any one or more of the terminals 22, 24, 26, the associated resistance elements 14, 16, 18, respectively, may be selectively and individually deenergized.

Also, if desired, only one of the conductors 46, 48, 50 may be used in conjunction with the conductor 42, such one conductor being selectively connectible to the terminals 22, 24, 26.

The accompanying Figure 3 discloses a modified form of terminal construction, the same including a base portion 28a and a hollow socket 30a, the latter being provided at the inside thereof with a resilient snap ring 52 to engage an annular groove 54 in the plug 34a.

The plug is formed integrally with a tubular sleeve 56 to receive an end portion of the conductor, while the wire 44 of the conductor is embedded in the plug as shown.

In this instance there is no need for rotatability of the plug with respect to the conductor, since the plug is received in the socket 30a in a "snap" fashion.

It is believed that the advantages and use of the invention will be clearly understood from the foregoing disclosure and accordingly, fur-

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ther description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

Having thus described the invention, what is claimed as new is:

In an electrically heated garment constructed from rubber-like electrically non-conductive material, an elongated electric heating element of wire embedded within the thickness of said material, and a pair of terminals provided on said garment and having the ends of said element electrically connected thereto, each of said terminals comprising an internally screw-threaded socket having a closed bottom wall, an outturned marginal rim provided at the bottom of the socket, and an outturned annular flange provided on an intermediate portion of the socket, the bottom portion of the socket and said rim being embedded in the material of the garment

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and said flange abutting the surface of said material, a conductor including a wire core and an insulated jacket thereon, a connector provided at one end of said conductor and including a tubular member having said wire core secured therein and provided at one end thereof with a counterbore receiving said insulating jacket, an enlarged contact head provided at the other end of said member, and a coupling nut rotatably mounted on said member, said nut threadedly engaging said socket and said contact head being clamped against the closed bottom wall of the socket by said nut, whereby to separably connect said conductor to said terminal.

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References Cited in the file of this patent
UNITED STATES PATENTS

| Number | Name | Date |
|-----------|-------------|---------------|
| 1,011,574 | Carron | Dec. 12, 1911 |
| 1,287,356 | Lawson | Dec. 10, 1918 |
| 1,288,045 | Kuhn et al. | Dec. 17, 1918 |
| 2,028,347 | Pelosi | Jan. 21, 1936 |
| 2,287,915 | Taylor | June 30, 1942 |
| 2,299,162 | Marick | Oct. 20, 1942 |