United States Patent [19]

Weiss

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[54] HEATED ARTICLE OF APPAREL

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[52] **U.S. Cl.** **126/206**

[51] **Int. Cl.** **A61f 7/06**

[58] **Field of Search** 126/204, 206, 208

[56] **References Cited**

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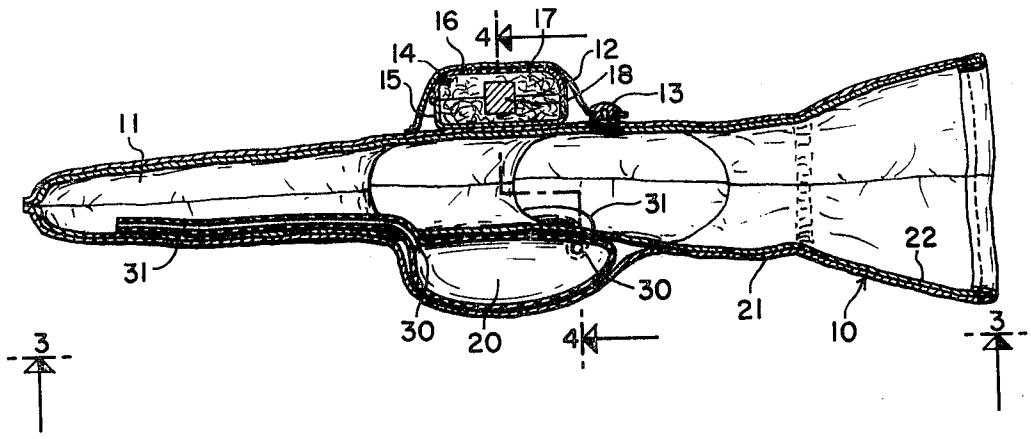
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[57] **ABSTRACT**

An article of apparel, preferably in the form of a glove with fingers, has a pocket on the back thereof, a combustible tablet within an air-permeable container is disposed within the pocket, a tubular conduit extends from the pocket, around to the palm portion of the glove, a flexible, resilient pump or bladder is disposed in said palm portion and said conduit is connected to the input portion of the bladder. The bladder has either output openings or elongated hollow output fingers for directing heated air arriving from the conduit, toward and into the fingers of the glove for heating them. The bladder is manually operated by one or more repeated squeezes of the user's hand when said finger heat is desired.

4 Claims, 5 Drawing Figures



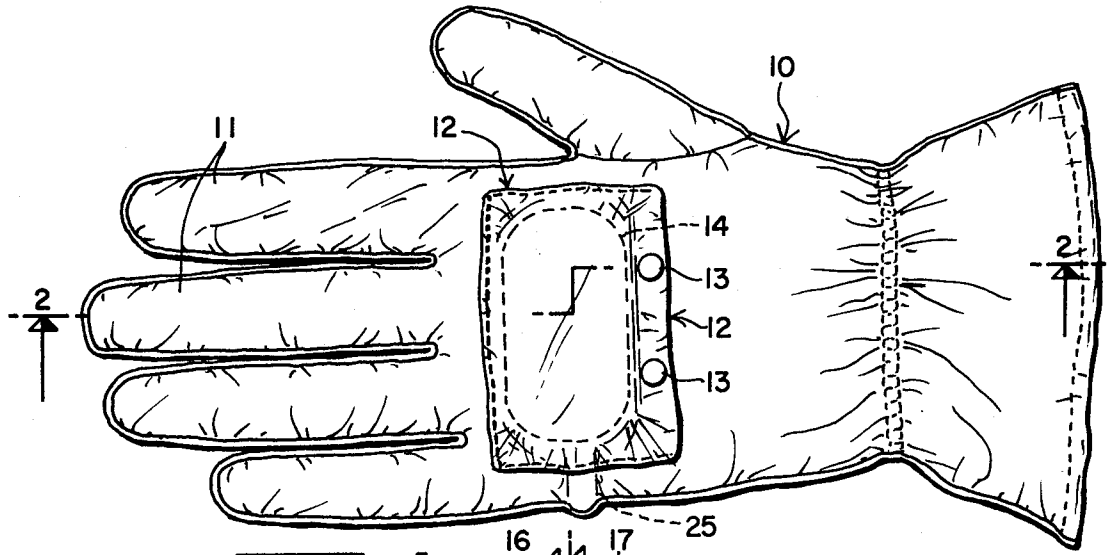


Fig. 1.

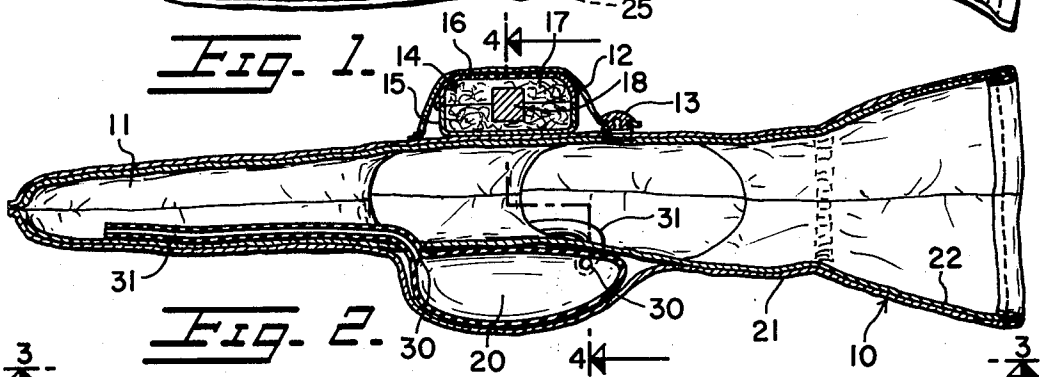


Fig. 2.

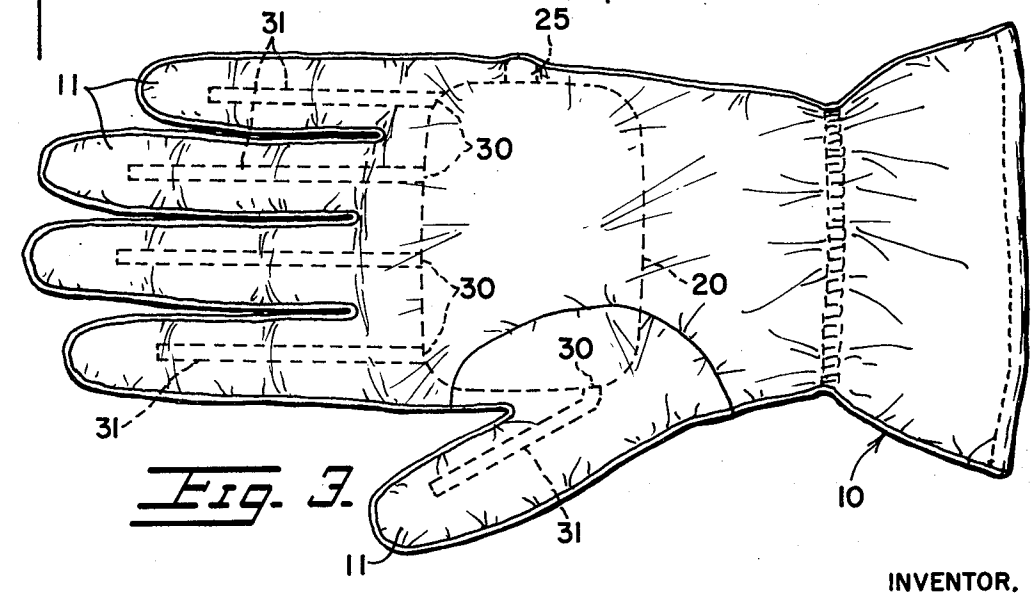


Fig. 3.

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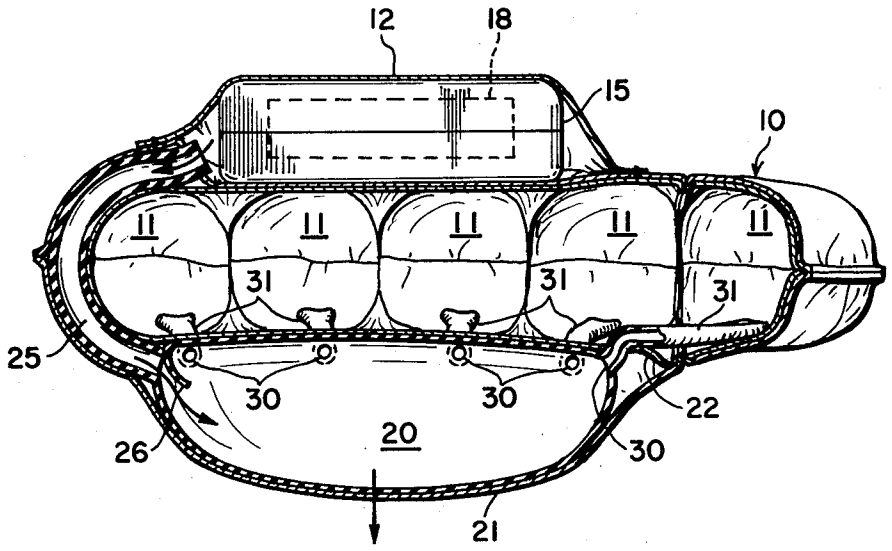


Fig. 4.

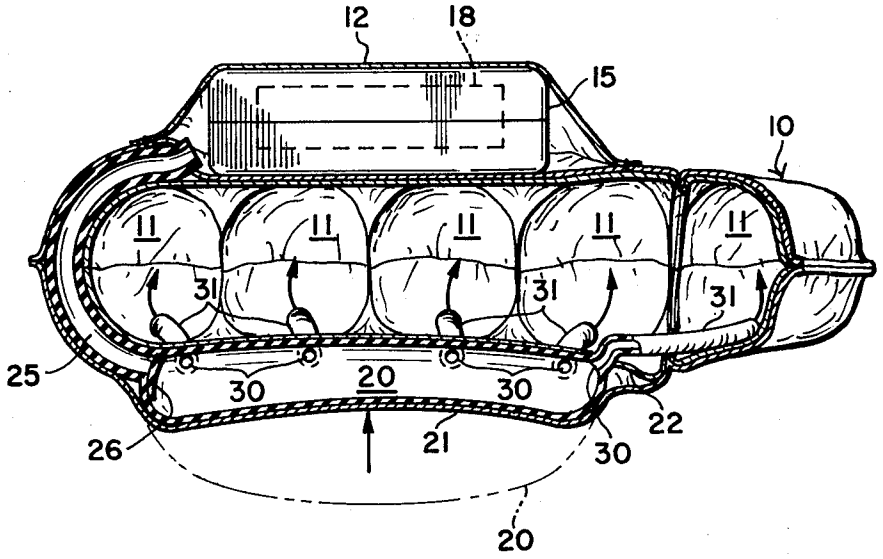


Fig. 5.

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HEATED ARTICLE OF APPAREL

BACKGROUND OF THE INVENTION

It has long been desired to provide adequate heating means for the human body, particularly the fingers of the hands in very cold weather, and in a finger type of glove as opposed to a mitten. Solutions have been suggested, such as incorporating a combustible liquid in a metal container and inserting the container or otherwise disposing it within a glove. This practice has been rejected as dangerous and was generally considered to be a failure. Chemical heating means have also been attempted as a substitute therefor but have likewise been unsuccessful.

With the foregoing in mind, I have devised a finger type glove construction (but which may be applicable to other articles of apparel), wherein a combustible source of heat is disposed in a pocket at the back of the glove. Of course, such an arrangement would be inadequate for heating the fingers. However, I further dispose a pump in the form of a flexible resilient bladder adjacent the palm of the glove. A tubular conduit connects the back disposed hot air pocket to the input of the front, or palm disposed bladder.

When the user squeezes his hand, as by forming a fist, the bladder impels heated air which was drawn from the pocket at the back of the glove through said tubular conduit, into the fingers of the glove, thus warming the fingers of the glove wearer. When the bladder is released, it again draws heated air from the back pocket, thus re-charging the bladder preparatory to the next squeeze by the wearer. Each squeeze thus impels heated air to the fingers and may be repeated as desired.

Preferably, connected to the output of the bladder, are a series of hollow tubes which extend into the fingers so that the heated air is properly directed although output openings alone may partially serve this objective.

The above and further objects of the present invention will be apparent from the following description of the drawings and the specification.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational or plan view of a finger type glove provided with heating means pursuant to this invention;

FIG. 2 is a cross-sectional view as taken along the line 2—2 of FIG. 1;

FIG. 3 is a plan view of the palm side of the glove as taken along the line 3—3 of FIG. 2;

FIG. 4 is an enlarged cross-sectional view as taken along the line 4—4 of FIG. 2, the bladder being in a normal, expanded position; and

FIG. 5 is a view similar to FIG. 4 but illustrating the squeezing or contracted position of the bladder.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The invention is shown as applied to a glove 10 having the usual separated fingers 11. At the back of the glove is provided a pocket 12 which is sewn at three sides thereof, and which is closed as by snap fasteners 13 at the open end of the pocket.

Pocket 12 serves as a container for a combustibly operated heating capsule or cartridge 14. Capsule or cartridge 14 is well known in the art. It comprises a metallic hinged container 15 which has a number of side openings 16 for admitting oxygen. The metal container sides may further be covered by air permeable fabric. The cartridge is substantially filled with fire resistant material, such as glass fiber or glass wool 17. The container is formed at its center with a recess so as to receive a rectangularly shaped combustible tablet 18. Tablet 18, as is well understood, is a highly combustible hydrocarbon binder. It may be extinguished at any desired time by smothering it or container 15 from access to oxygen, or simply discarding the ignited tablet since they cost very little. In normal operation, the snap-fastened open end of pocket 12 admits sufficient air to maintain combustion although the pocket itself may be somewhat air permeable as by a few small openings. When a lighted match is set to tablet 18, it ignites, at which time the user closes the container and inserts it into the pocket 12. However it must be understood that any other type of heating means, even when only body generated, may be employed in this invention, as long as the source of heat is higher than the ambient temperature. For example, the source of heat could be a warmer portion of the hand itself, even the palm, and the heat therefrom would be impelled toward the fingers as will hereinafter be described.

Within the palm of glove 10 is disposed a bladder 20 which is of resilient rubber or the like. It will be observed that glove 10 conventionally has an outer layer 21, usually of leather, and an inner layer 22, which is usually of fabric. These are separated at the palm portion of the glove as illustrated in FIG. 2, and the bladder 20 is disposed therebetween. Otherwise, the leather and fabric layers are adhered or connected in a conventional manner throughout the glove.

Bladder 20 serves as a pump to extract or draw heated air from pocket 12, which is of course internally heated by means of the capsule 14. Communication between pocket 12 and bladder pump 20 is effected by means of a tubular conduit 25 which may be of resilient rubber or plastic or the like, and which extends along the side portion of the glove as illustrated in FIG. 4. A one-way flap valve 26 is located at the input end of pump bladder 20 as illustrated in FIG. 4. Conveniently, conduit 25 may be integral with bladder 20 and may be sewn or otherwise secured at its other end to the pocket 12 as illustrated in FIG. 4.

It will be recognized, therefore, that when the wearer of the glove squeezes his hand as if he were forming a fist, flap valve 26 closes while the normally inflated bladder becomes compressed as illustrated in FIG. 5 and a stream of heated air is impelled forwardly. When he releases his grip, the flap valve 26 opens, as illustrated in FIG. 4, and the heated air streams into bladder pump 20, thereby inflating it again.

The forward or output end of bladder pump 20 is formed with a series of output openings 30 which respectively face and thereby communicate with the fingers 11 of glove 10 as illustrated in FIG. 3. In order to improve the hot air directing action to the fingers, a series of hollow tubes 31 extend from openings 30 directly into the respective fingers 11. Tubes 31 may be of resilient plastic or of rubber and may be integral with

bladder pump 20. Their length is not at all critical and they may extend into fingers 11 to any desired degree. They are of course soft and flexible and of a diameter small enough not to interfere with entry of the user's fingers into the glove. Their wall diameter is very thin, so that as illustrated in FIG. 4, the suction produced by the inflation of bladder pump 20, substantially flattens or collapses them relative to their pressure forced condition illustrated in FIG. 5. The purpose thereof is to prevent return of the finger air through the tubes 31, but instead to maintain completely heated air within pocket 12 as drawn through the side conduit 25. However, individual flap valves may be used.

I have shown what is considered a preferred embodiment of this invention but it is obvious that numerous changes and omissions may be made therein without departing from its spirit. For example, the invention may well be applied to a high boot, with the combustible cartridge at the outside of the top end of the boot, while the bladder is disposed within the boot, under the wearer's foot, to be repeatedly contracted and expanded as the wearer walks about.

What is claimed is:

1. An article of apparel comprising at one portion thereof an enclosed source of heat which is higher than the ambient temperature, a manually operable pump means separated from said source of heat, input heat means for said pump means comprising an avenue of communication between said source of heat and said pump means, and output heat means on said pump means to direct said input heat means to a different portion of said apparel, said enclosed source of heat comprising a combustibly operated device which is enclosed in a pocket, said manually operable pump means comprising a flexible, resilient bladder connected at its input to said pocket by a conduit, and said output heat means comprising at least one opening at the output end of said bladder for directing said heat means to said different portion of said apparel, said article being a fingered glove, said pocket being disposed at the back of said glove, said combustibly operated device comprising a combustible tablet enclosed within a rigid container which is air permeable, and said pump bladder being disposed adjacent the palm of the glove whereby manual pressure of the user's hand by squeezing the bladder will transfer the heat from said pocket to the finger portion of the glove.

2. An article of apparel according to claim 1 and wherein said output heat means from said bladder further comprises a plurality of hollow tubes extending toward and entering the fingers of the glove so as to provide heat thereto.

3. An article of apparel according to claim 2 and including a one-way valve at the input end of said bladder for transferring heated air only in the direction of said hollow tubes and thence to the fingers of said glove.

4. An article of apparel according to claim 3 and wherein said hollow tubes are of thin, flexible, resilient material of a thinness so as to substantially flatten and discourage the return flow of air therethrough when squeezing pressure on said pump bladder is released by the user.

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