A. A. LEMERCIER.

ELECTRICALLY HEATED CLOTHING.

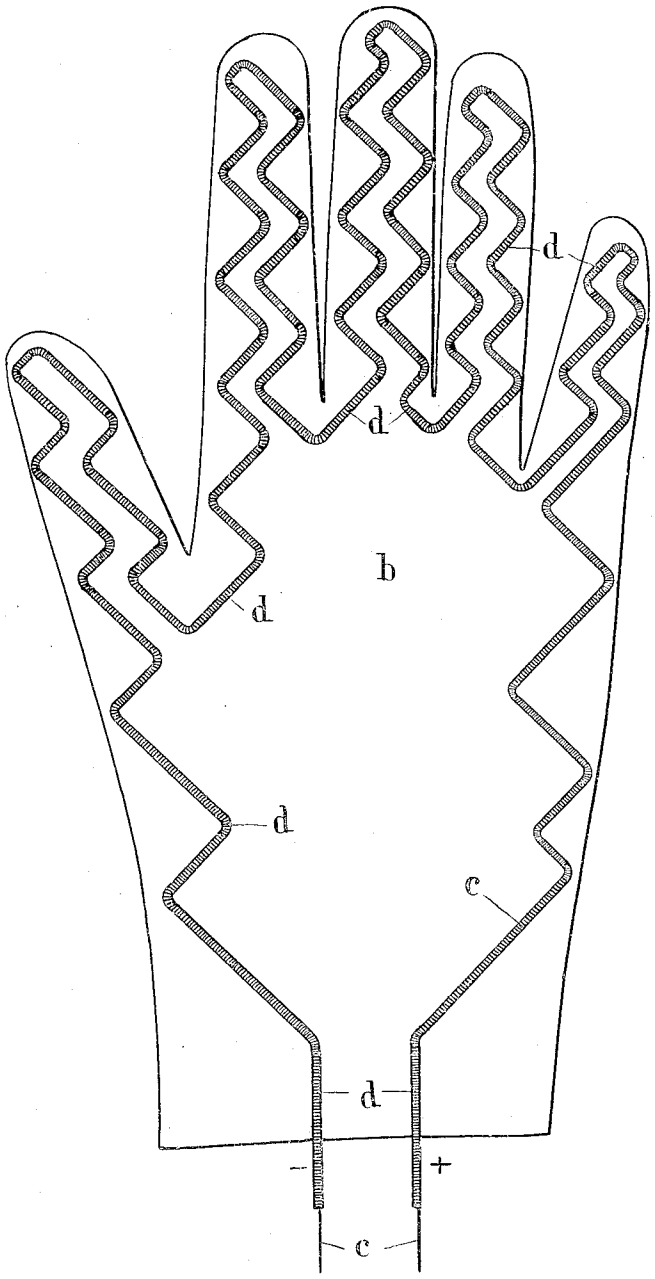
APPLICATION FILED OCT. 1, 1917.

1,284,378.

Patented Nov. 12, 1918.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig.2.

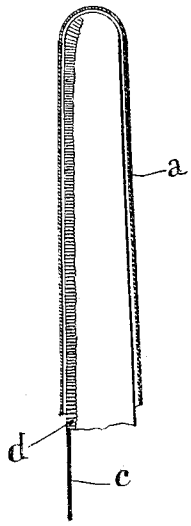


Fig.3.

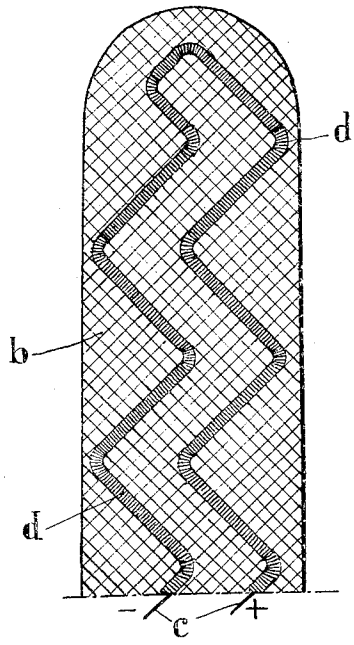


Fig.4.

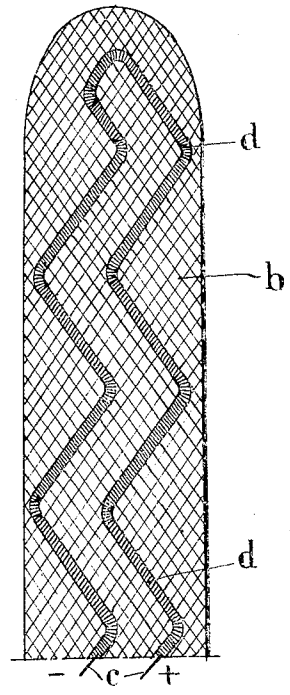
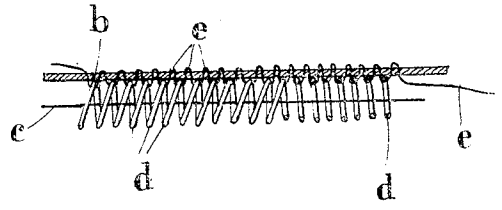


Fig.5.



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UNITED STATES PATENT OFFICE.

ANDRE AIMÉ LEMERCIER, OF PARIS, FRANCE.

ELECTRICALLY-HEATED CLOTHING.

1,284,378. Specification of Letters Patent. Patented Nov. 12, 1918.

Application filed October 1, 1917. Serial No. 194,275.

To all whom it may concern:

Be it known that I, ANDRÉ AIMÉ LEMERCIER, a citizen of the French Republic, residing at Paris, France, have invented a new and useful Improvement in Electrically-Heated Clothing, of which the following is a specification.

In the articles of clothing, such as gloves, socks, slippers, caps with ear-flaps, etc., capable of being heated electrically, the heating wires are fixed on to a fabric forming a lining, that covers the article internally. More especially in gloves, these heating wires are arranged in the fingers along the longitudinal axes of the latter, that is to say, each finger comprises a bent wire of which the two branches or limbs are rectilinear and parallel.

This arrangement rapidly causes the heating device to be put out of service for the following reason:—

In order to remove the article of clothing from the person, it is necessary to exert a pull upon it and, more especially in the case of gloves, on each of the fingers of the latter.

This pull has for its result to extend the flexible material forming the glove, as well as the fabric forming the lining of the latter.

As the heating wires are fixed on this fabric and as they are inextensible, they cannot follow this movement of extension of the fabric and break at the points where they are fixed to the latter.

This invention has for its object a method of making clothing and more especially electrically-heated gloves, characterized essentially by the fact that the fabric supporting the conducting wires forming the resistances is arranged on the bias relatively to the longitudinal axis of the article of clothing or of the fingers of the glove, and that these heating wires are fixed zig zag or in V-shaped lines (hereinafter referred to as zig zag lines) on this fabric parallel to the warp and weft threads of the latter.

By reason of this arrangement, when a pull is exerted on the supporting fabric, the heating wires follow all the movements of the warp and weft threads of this fabric and from this fact, are not liable to break.

This invention has also for its object an improved method of covering the conducting wires.

The invention is shown by way of example in the accompanying drawing applied to an electrically heated glove. In this drawing:

Figure 1 is a longitudinal vertical section of the glove.

Fig. 2 is a transverse vertical section of one of the fingers of the glove.

Fig. 3 shows diagrammatically, to a larger scale, a portion of the fabric constituting the lining of the glove and of the heating wires fixed on this fabric.

Fig. 4 shows the same wires and the same fabric when the latter is pulled longitudinally.

Fig. 5 shows diagrammatically the covering of the heating conductors.

As shown in the drawing, in the interior of the glove *a*, which is preferably made of leather, there is fixed a lining *b* of molleton or swanskin or like fabric.

This fabric is arranged on the bias relatively to the longitudinal axis of the glove *a*, that is to say so that its warp and weft threads cross such axis at an angle of 45 degrees, as shown in Fig. 3.

On the fabric *b* thus arranged, there are fixed the metal wires *c* forming the electrical resistances which enable the glove to be heated. These wires are covered as will be hereinafter explained and they are provided at their free ends with clips or terminals enabling them to be connected to a source of electric current in the ordinary manner.

The wires *c* are fixed on the fabric *b* in V-shaped or zig zag lines in such a manner as to follow alternately the warp and weft threads of this fabric, that is to say one of the limbs of one of the V-shaped sections is fixed parallel to a warp thread and the other limb of this V-shaped section is fixed parallel to a weft thread.

Fig. 3 will enable the arrangement of the fabric *b* relatively to the glove and the arrangement of the heating wires *c* on this fabric, to be readily understood.

This double arrangement prevents any accidental breakage of the heating wires.

In fact, if a pull be exerted on the fingers of the glove in order to remove the latter, the leather and the fabric forming the lining of these fingers extend to a certain degree by reason of the suppleness of the leather and of the fabric. The spaces inclosed by the warp threads and the weft

threads of this fabric, instead of forming squares, as shown in Fig. 3, are of lozenge-shape as indicated in Fig. 4.

In this change of shape of the fabric, as the heating wires *c* are alternately parallel to the warp threads and to the weft threads of the said fabric, they follow the movements of the latter, that is to say, at any moment they are not liable to break by reason of any pull exerted on the glove, since they are never stretched.

When the glove is put on again, the fingers of the latter become wider and the heating wires *c* again follow all the movements of the warp and weft threads of the fabric *b*, without being liable to break accidentally.

In order to be able to fix easily the heating wires *c* and in order to protect the hand against too violent heat which may be emitted from the wires, the latter are covered with asbestos thread *d* by means of an embroidering machine and they are fixed on the fabric *b* by an ordinary thread *e* by means of the same machine, as indicated in Fig. 5.

The arrangement of the fabric forming the support of the heating wires and the arrangement of these wires can be applied not only to gloves but also to other articles of clothing, such as caps with ear-flaps, socks, slippers, boots, etc., or even to clothing generally, or to carpets, etc.

Similarly the forms, dimensions and detail arrangements can be varied according to particular cases without departing from the nature of the invention.

I claim:

1. An electrically heated article of clothing, comprising a piece of fabric arranged on the bias relatively to the longitudinal axis of the article of clothing, and metal heating wires on the fabric parallel to the warp and weft threads thereof.

2. An electrically heated article of clothing comprising an external part of flexible material, an internal lining formed by a fabric arranged on the bias relatively to the longitudinal axis of the article of clothing, metal wires forming electrical resistances fixed in zigzag lines on this fabric parallel to the warp and weft threads of the latter, and means for fixing the heating wires and for protecting the wearer against too great heat emitted from these wires.

3. An electrically heated article of clothing, comprising an external part of flexible material, a fabric lining arranged on the bias relatively to the longitudinal axis of the article of clothing, metal wires forming electrical resistances arranged in zig zag lines on the lining parallel to the warp and weft threads thereof, an asbestos thread on the wires and forming a covering for the same, and means for securing the said wires on the lining.

4. An electrically heated article of clothing, comprising an external part of flexible material, a fabric lining arranged on the bias relatively to the longitudinal axis of the article of clothing, metal wires forming electrical resistances arranged in zig zag lines on the lining parallel to the warp and weft threads thereof, an asbestos thread on the wires forming a covering for the same, and an ordinary thread uniting the asbestos thread and the lining.

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Witnesses:
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