Feb. 20, 1940. F. N. LEWIS 2,191,080

ELECTRODE APPLICATOR FOR USE IN SHORT WAVE RADIO THERAPY

Filed April 29, 1937 2 Sheets-Sheet 1

Fig. 1

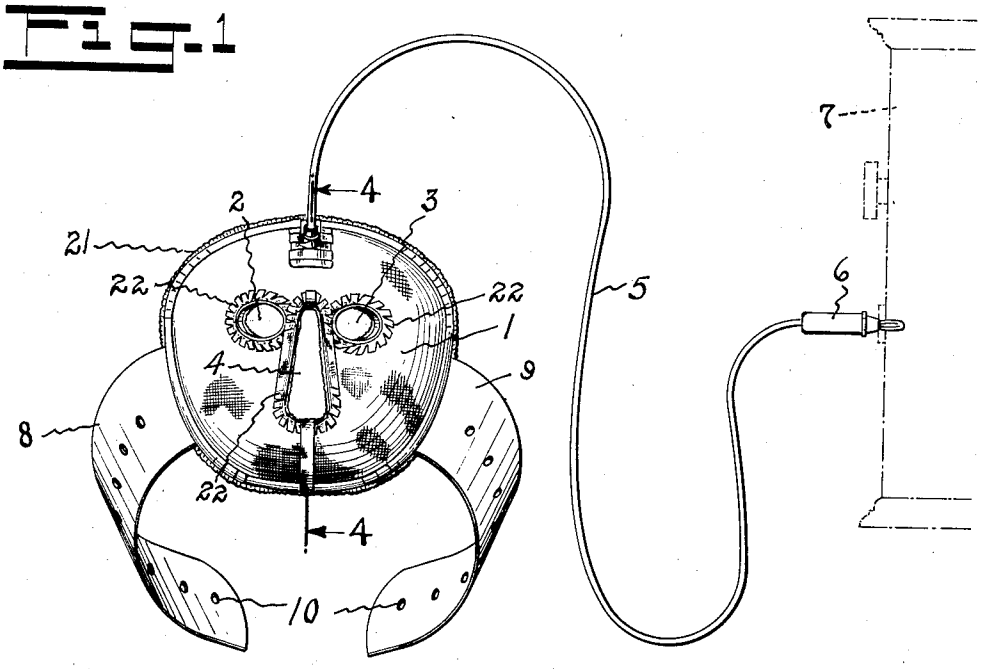
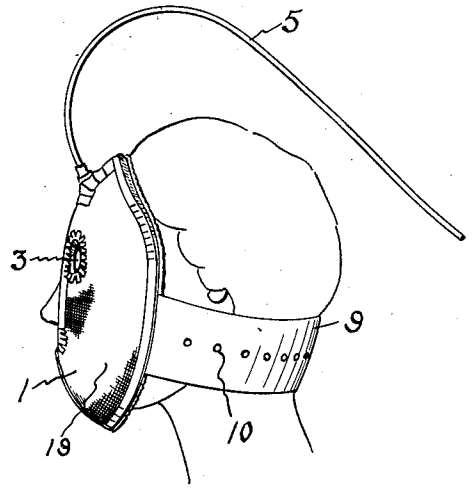


Fig. 2



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Fig. 3

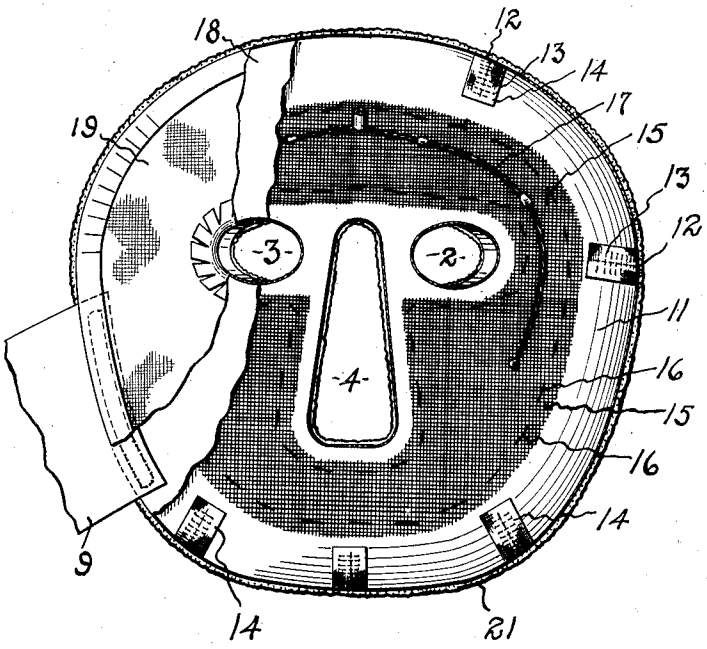


Fig. 4

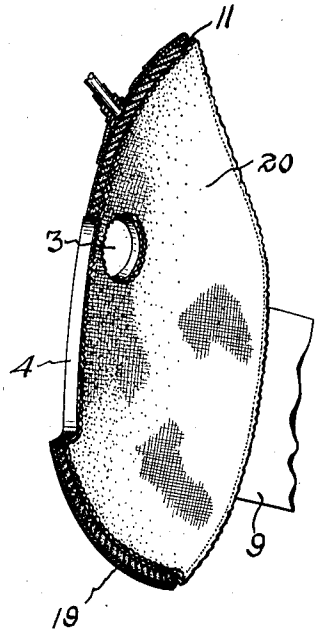
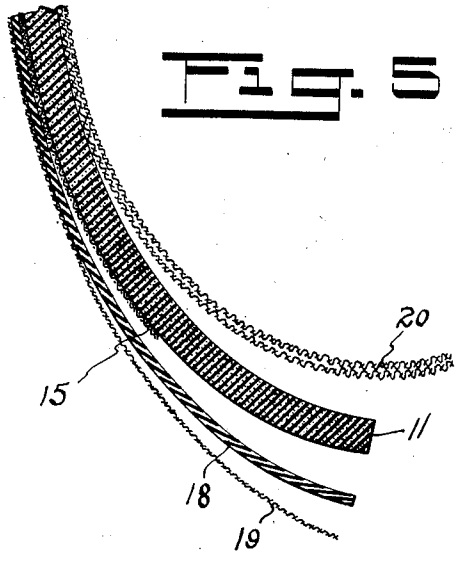


Fig. 5



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UNITED STATES PATENT OFFICE

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ELECTRODE APPLICATOR FOR USE IN SHORT WAVE RADIO THERAPY

Florence N. Lewis, New York, N. Y.

Application April 29, 1937, Serial No. 139,641

2 Claims. (Cl. 128—380)

The invention relates to applicators for use in short wave radio therapy and more particularly to a high frequency electrode applicator formed in the shape of a mask to fit over the face and which is adaptable for use in connection with a short wave radio therapy emitter apparatus to irradiate the skin, tissues, bones and muscles located in the region of the face.

One of the objects of the invention is to provide a high frequency electrode applicator in the form of a face mask for short wave radio therapeutic purposes which may be easily and quickly constructed, immediately prior to its use and so that it will properly fit the particular contour of face to which it is to be applied.

A further object of the invention is to provide a high frequency electrode applicator in the form of a mask for the face which mask is provided with an inner lining of a soft absorbent cloth fabric material which may be easily and quickly removed when it becomes soiled and a new lining of a similar material substituted therefor.

Another object of the invention is to provide a high frequency electrode face applicator which is of a flexible construction and which has sufficient pliability and flexibility so that it may be held in intimate, and even, contact with the entire surface of the face.

A further object of the invention is to provide a high frequency electrode face mask applicator which is exceedingly simple and inexpensive to construct and which also combines resiliency in structure, light weight and efficiency in practical operation.

Other objects of the invention will appear more fully hereinafter.

The invention consists in the novel features and parts and combination of the same as will be more fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification in which characters of reference indicate corresponding parts in all of the views.

Figure 1 is a front elevation of the face mask electrode applicator construction embodying the features of my invention;

Fig. 2 is a side elevational view of the mask electrode applicator showing the same applied to the face of a user thereof.

Fig. 3 is a front elevational view of the electrode applicator showing the outer layers of the mask construction broken away to indicate the interior construction.

Fig. 4 is an enlarged broken sectional view showing the several layers of material which are used in forming the mask electrode applicator.

Fig. 5 is a view further indicating the positions of the several layers of materials which are employed in the applicator structure with respect to each other.

Referring more particularly to the drawings the reference numeral 1 indicates generally the mask electrode applicator of my invention. The mask is provided with openings 2, 3 and 4 therethrough which are positioned so as to accommodate the eyes and the nose of the wearer of the mask. Secured to the mask in a manner hereinafter to be described, is a flexible conductor cable 5 which is covered with a suitable insulating material. The conductor cable is provided with a connector plug 6 for connecting the same with a source of high frequency oscillations such as is provided in a short wave radio therapy apparatus which is generally indicated in the drawings at 7. As is understood by those skilled in the art, the short wave therapy apparatus is also provided with a second electrode applicator (not shown) which is used in conjunction with the mask electrode applicator when said apparatus is employed for therapeutic purposes.

The mask electrode applicator has secured thereto the strips or flaps 8 and 9, which are preferably made of an elastic material such as rubber, and which are adapted to be connected together around the head of the user so that said mask may be resiliently held in contact with the face. The elastic strips or flaps 8 and 9 may be adjustably attached together in any suitable manner by securing the attaching means through the holes 10 formed therein.

The mask electrode applicator is constructed with a thick interior layer 11 of sponge rubber which when the mask is made up to fit the face of a particular user is cut to a shape which will substantially conform to the shape of the face. The layer of sponge rubber is provided with the spaced slits 12 arranged around the periphery thereof and said slits provide means whereby the outer peripheral edge of the layer of sponge rubber may be further shaped so as to make it conform more accurately with the shape of the face to which the mask is to be fitted. When the edge portion of the sponge rubber layer has been properly adjusted to make said rubber layer conform to the contour of a particular face, the portions thereof adjacent to the slits 12 are sewed together in their adjusted relation by means of suitable thread as indicated at 13 and

then the stitches made by said thread are covered over with adhesive tape 14 or with any other suitable covering which may be made to adhere to the surface of the layer of sponge rubber. The layer of sponge rubber is also cut so as to provide the openings 2, 3 and 4 therethrough.

Secured to the outer face of the layer of sponge rubber is a layer of metallic mesh electrical conductor material 15. This metallic mesh material is cut out at its central portion so as to provide an opening which will surround the openings 2, 3 and 4 in the layer of sponge rubber but with the edges thereof inside of and positioned away from the edges of the said openings formed through the sponge rubber. In practice I prefer to secure the metallic mesh layer of material to the rubber layer 11 by means of a series of thread stitches indicated at 16, although any other suitable method of attaching the same to the sponge rubber may be employed. Soldered to the layer of metallic mesh electrical conductor material 15 are the ends 17 of the conductor cable 5.

Mounted over the outer face of the layer of sponge rubber 11 and covering the layer of metallic mesh electrical conductor material is a thin layer of rubber 18 which is fastened to the rubber 11 by stitching or adhesive or other like means. The layer of rubber 18 is provided with openings therethrough which coincide with the openings 2, 3 and 4 of the layer 11 of sponge rubber and is also shaped to conform with the shape of said sponge rubber layer.

The outside surface of the rubber layer 18 is covered with a suitable cloth material 19 such for instance as cotton or linen, and said material may be secured to said layer of rubber 18 by a suitable adhesive. Openings coinciding with the openings 2, 3 and 4 in the rubber layer 18 and sponge rubber layer 11 are provided in said outside covering of cloth and also a further opening is provided therein and through the rubber layer 18 through which the conductor cable 5 extends.

The inside face of the sponge rubber layer 11 is provided with a covering consisting of an absorbent cloth material 20. Said absorbent material is secured to the surface of the sponge rubber layer by means of a suitable adhesive so that it may be readily removed when it becomes soiled and a new covering substituted therefor.

The elastic strips or flaps 8 and 9 may be securely fastened to the mask assembly by being sewed to the edge portions of the inner face of the covering 19.

The outer edges of the plurality of layers of material forming the mask may be bound together by means of adhesive tape indicated at 21 which is applied over said edges and to the outer and inner surfaces of the mask. This adhesive tape binding also provides a smooth peripheral edge for the mask which will prevent said edge from scratching or otherwise injuring the skin of the face when the mask is being worn. The edges of the layers of material at the openings 2, 3 and 4, are also bound together by adhesive tape as indicated at 22 and said adhesive tape binding also provides said edges with a smooth surface which will prevent the same from scratching the skin.

It will be seen from the foregoing description of the electrode mask applicator of my invention that an efficient mask electrode is provided for use in treating the skin tissues, bone and muscles of the face by high frequency irradiation and without danger of the metallic electrical conductor material of the mask applicator coming in direct contact with the skin. Also, said mask electrode applicator construction may be quickly and easily made up at the time the mask is to be used and due to its pliability and flexibility it may be shaped or molded during its construction so that it will properly fit the particular shape or contour of the face to which it is to be applied. In addition to these features of the construction, the inside covering of the mask consisting of the absorbent cloth material which comes in direct contact with the skin of the face is so secured to the layer of sponge rubber that it may be easily and quickly removed and a fresh clean covering substituted in place thereof if desired.

It is to be understood that when the electrode face mask applicator of my invention is used over the face in effecting therapeutic treatments thereto, the other electrode applicator of the short wave radio therapy apparatus will be applied either at the back of the neck, on the shoulder, or on the back of the person being treated and that the short wave high frequency emissions from the short wave therapy apparatus will be transmitted through the conductor 5 and through the mask and thus irradiate the parts over which the mask is applied.

Having thus described my invention what I claim is:

1. An electrode applicator for use in short wave radio therapy consisting of a body formed in the shape of a mask adapted to fit over the face and having a plurality of layers of flexible insulating material provided with openings therethrough to accommodate the eyes and nose, a layer of flexible metallic electrical conducting mesh material positioned between the layers of insulating material and secured to the inner face of one of said layers of material, means for connecting said electrical conducting mesh material to a source of high frequency electrical energy, a layer of fabric material secured to the outer surface of the said body, a layer of fabric material secured to the inner surface of said body, and a binding of fabric removably secured over the coinciding edges of the several layers of insulating material and fabric.

2. An electrode applicator for use in short wave radio therapy consisting of a body having a plurality of layers of flexible insulating material formed in the shape of a mask adapted to fit over a face, a layer of flexible metallic electrical conducting material secured between said layers of insulating material and being connected to a conductor cable, a fabric covering for the outside and inside surface of said mask applicator and binding means adhesively applied to the edges of said insulating material and fabric coverings to bind the said layers and coverings together.

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