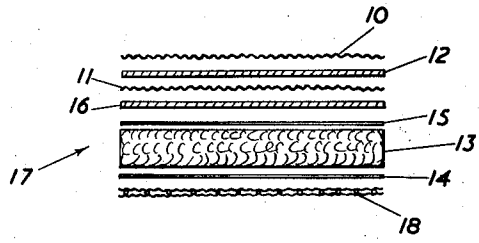
Oct. 28, 1958 C. RICH 2,858,410

FLEXIBLE MATERIAL PANEL

Filed June 7, 1955



LEGEND

KNITTED COPPER WIRE

LEAD

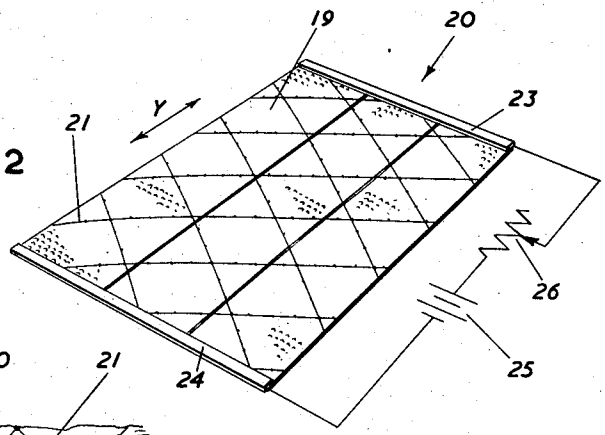
ALUMINUM FOIL

GLASS WOOL BATTING

TEXTILE

FIG. 1

FIG. 2



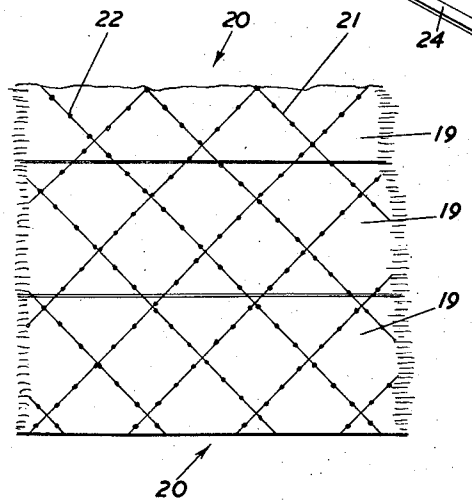


FIG. 3

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FLEXIBLE MATERIAL PANEL

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Application June 7, 1955, Serial No. 513,720

2 Claims. (Cl. 219—46)

This invention relates to a radiation absorbing material adapted for use in pressure suits, such as required by aircraft pilots.

This application is a continuation-in-part of my application Serial Number 507,405 for a Flexible Material Panel, assigned to the same assignee as this application and application Serial Number 513,719 for Metal Fabric, now abandoned, filed on even date herewith.

It is a main object of the invention to provide a material for pressure suits and the like adapted to absorb radiation such as X-ray, beta ray and like emanations to a degree permitting the wearer to work in a radiation contaminated area.

It is another object of the invention to provide a material for a body covering which is adapted to receive electrical current therethrough to provide a heating effect.

With these and other objects in view, the invention will be appreciated in more detail by reference to the following specification taken in conjunction with the accompanying drawings.

In the drawings:

Figure 1 is a legend section of a preferred construction of material of the invention;

Figure 2 is a perspective view of a strip of material of the invention revealing the nature of the outer surface thereof and diagrammatically indicating its connection in an electrical circuit; and

Figure 3 is a plan view of a portion of the material of Figure 2.

Referring to Figure 1 and the legend diagram adjacent thereto, the preferred form of material of the invention comprises an outer sheet **10** of knitted copper wire having a conventional plastic insulating coating thereon and of a fineness of about thirty-six gauge, U. S. standard wire gauge. A second similar sheet **11** is separated from the sheet **10** by a sheet of lead foil **12**. A batt **13** formed of glass wool having inner and outer coverings of aluminum foil **14** and **15** is separated from the inner knitted metal sheet **11** by a second sheet of lead foil **16**. The innermost surface of the composite structure **17** is covered by a suitable textile **18** such as an open-weave cotton cloth, canvas, duck, or the like.

Preferably, the composite structure **17** is formed in strips **19** having the warp metal thread elements of the sheets **10** and **11** running in the longitudinal direction as indicated by the arrow Y in Figure 2. Each strip is sewn or bound along its edges with any suitable threading and the separate strips are joined together along their bound edges to form the multi-strip panel **20** shown in Figure 2 sewn in the bias directions to effect a quilting indicated by the lines **21**.

By reason of the quilting operation, the structure **17** is perforated by the quilting needle to form a plurality of holes **22** whereby the panel **20** is effectively permeable.

In use, the material of the invention provides a body covering which, by virtue of batting **13** or equivalent material, provides effective body insulation. Also by virtue of the lead foil or other foil of high density material, a predetermined intensity of radiation will be absorbed, making the material useful as a body covering in radiation contaminated areas. In this respect, while it is appreciated that a predetermined intensity of gamma radiation requires a predetermined mass for absorption of same, the inclusion of lead foil in the structure illustrated, enables the wrapping of the body with such foil in a manner enabling flexing of the body members in a much more efficient manner than can be accomplished by the supporting of lead foil or the like by textile materials having little or no inherent properties of support.

As indicated in Figure 2, the knitted fabric **10** may have pliable electrode strips **23** and **24** soldered to the ends thereof and connected across a source of electrical current **25** and potentiometer **26** whereby an electrical current passing through the warp metal strands of the outer fabric **10** may cause a heating of such fabric to a controllable temperature by adjustment of potentiometer **26**. It is to be understood that in regard to the passing of an electrical current through the knitted fabric portion of the material of the invention, this specification contemplates that a magnetic field is generated about each wire element and that the overall effect of the magnetic fields of all the warp wires or conductors may form a cumulative magnetic field. Accordingly, it is intended that the material of the invention may be formed into a suit or body covering adapted to generate a magnetic field about the body of the wearer.

What I claim as my invention is:

1. A panel of material comprising: a plurality of strips joined together along their edges and each comprising a sheet of knitted metal wire formed of warp wires extending in a direction corresponding to the length of said strip; a continuous lead sheet forming a radiation absorbing medium; a thermal insulating material; means for binding said knitted sheet, said radiation absorbing medium and said insulating material together; and means for making an electrical connection to the warp wires of said knitted strip.

2. A panel of material comprising: a plurality of strips joined together along their edges and each comprising a sheet of knitted metal wire formed of individually insulated warp wires extending in a direction corresponding to the length of said strip; a continuous lead sheet forming a radiation absorbing medium; a thermal insulating material; means for binding said knitted sheet, said radiation absorbing medium and said insulating material to form a structurally coherent material therefrom; and means for supplying an electrical current to said warp wires of said knitted sheet.

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