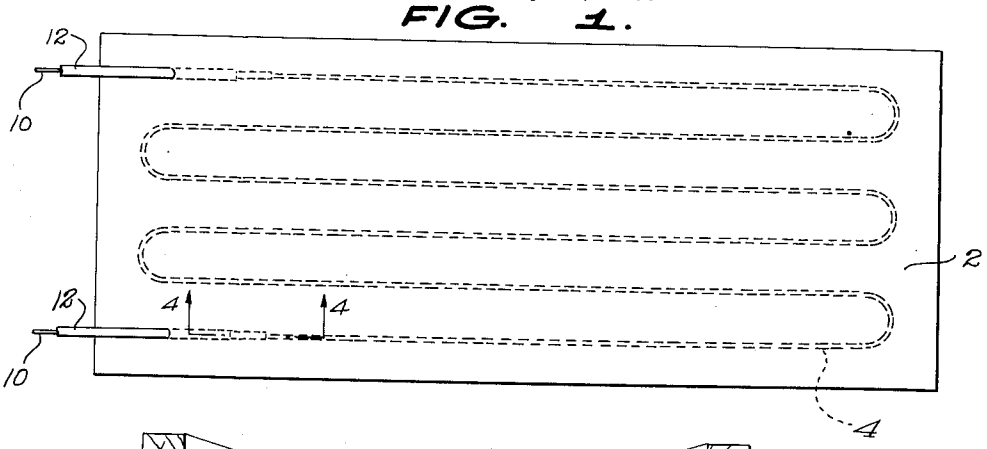
Sept. 25, 1962 G. P. DEACON 3,056,011

ELECTRIC HEATING PANEL

Filed July 22, 1960

FIG. 1.



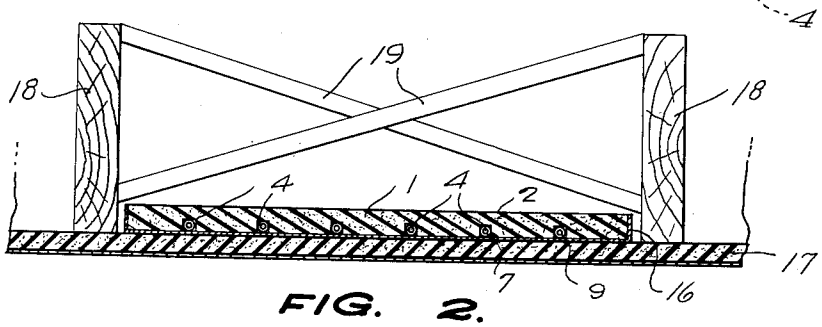
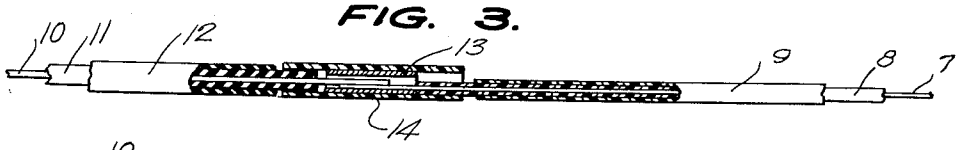


FIG. 2.

FIG. 3.



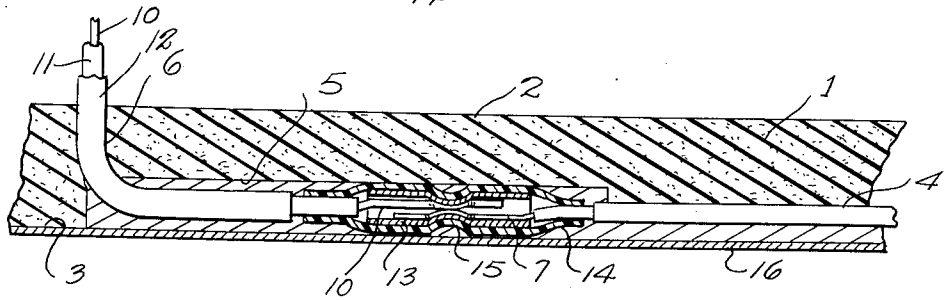


FIG. 4.

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ELECTRIC HEATING PANEL

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2 Claims. (Cl. 219—19)

The present invention relates to electrical heating devices and is more particularly directed to electrical radiant heating panels.

The principal object of the invention is to provide a radiant heating panel that can be placed on a ceiling and will direct heating rays through the ceiling into the area therebeneath and which panel can be quickly and economically produced without requiring special skills or tools.

A further and important object of the invention is to provide flat heating panels of various sizes which can be mounted on existing or new ceilings alone or in groups to produce the required amount of heat in the room below and which panels completely house and insulate the electrical heating wires therein with only non-heating leads being on the exterior of the panel for connection to a source of electrical current.

Further objects of the invention will be in part obvious and in part pointed out in the following description of the accompanying drawings in which:

FIG. 1 is a top view of a heating panel according to the present invention.

FIG. 2 is a cross-sectional view of a portion of a ceiling with a heating panel thereon.

FIG. 3 is an enlarged detail view partially in section of the position of a heating wire end, lead wire end and connector prior to being affixed together.

FIG. 4 is an enlarged detail sectional view of a portion of a heating panel taken on line 4—4 of FIG. 1.

Referring now more particularly to the accompanying drawings in which reference numeral 1 indicates a plasterboard having a flat upper face 2 and lower face 3. This board is formed of an electrical insulating by thermal-conducting plaster and is of a thickness sufficiently for having a serpentine recess 4 extending lengthwise and throughout the width of said board in face 3, leaving a substantial amount of the board above and between said recess. At each end of recess 4 and adjacent one end of board 1, the recess is deepened as at 5. A pair of openings 6 each extend from one of said deepened recesses 5 to the top face of said board.

A heating element consisting of an electrical resistance heating wire 7 encased in a thermal-plastic insulating tube 8 which in turn is encased in a nylon-jacket 9, is mounted within and extends the length of recess 4.

A pair of non-heating wire leads 10 each capable of connection to a source of electrical current also has an insulating cover 11 which may or may not also be encased by a further insulation 12. Each wire 10 with its insulating covering extends through one of said openings 6 within a deepened recess 5 where a bared end portion of the wire 10 overlaps a corresponding bared end portion of the wire 7. These wire end portions extend within a copper tube 13 when an insulating tubular jacket 14 encases the ends of wires 10 and 7 and the connector 13 as shown in FIGS. 3 and 4. By crimping connector 13 at 15, the overlapping wire end portions are forced into fixed contact.

A sheet material 16, for example, of paper or aluminum foil extends completely across face 3 of said board and is affixed thereto by an adhesive or the like, completely covering recesses 4 and 5 and the elements therein.

An example of a suitable wire for wire 7 may be a Nichrome resistance wire having a resistance sufficient to produce 2.55 watts per foot of wire and a wattage for the entire board 1 can be determined by the amount of wire placed in recess 4.

To employ the present heating panel board 1 is placed with sheet 16 on and in contact with a ceiling which may be a plasterboard 17 supported by joists 18 and braces 19 with each board 1 positioned between each pair of said joists. As many panels can thus be positioned upon a ceiling as is found necessary to produce sufficient heat for the area below said ceiling.

Wires 10 of panel 1 are then connected to a suitable electrical circuit, whereupon electric will be conveyed to the heating wires 7 which, due to their resistance to the passage of current, will become heated and disburse heat through their insulation 8 and 9 and through the board 1 as well as through sheet 16. To assist in directing the heat from board 1 to the ceiling 17, rock wool or the like heat insulation can be placed upon the top of panel 1.

Wires 10 can be connected to conventional switches and thermostats in their connection to a source of electrical current and also can be connected with other panels in the same circuit. However, it is to be noted that the heating wires 7 are entirely contained within the panel board 1 and thus possible injury to persons or adjacent structural elements is prevented since the wires 10 are non-heating wires and are fully insulated.

The present device is capable of considerable modification and such changes thereto as come within the scope of the appended claims is deemed to be a part of the present invention.

I claim:

1. An electrical radiant heating panel comprising a flat electrically insulating panel of good thermal conductivity and having an open side elongated narrow sinuous recess extending in and along the major portion of one face thereof, an electrical resistance heating wire positioned entirely in and extending lengthwise of said panel recess, said panel having a pair of openings extending from said panel recess to the other face of said panel, non-heating lead wires for connection to a source of electrical current each extending into and through one of said panel openings, means connecting each of said leads to an end of said heating wire entirely within said panel recess and a paper sheet attached to said panel first mentioned face covering said panel recess open side and the wires therein providing a supporting base for said panel.

2. An electrical radiant heating panel comprising a flat plaster panel having an open side serpentine recess in one face extending lengthwise thereof, said plaster panel further having a pair of openings each extending from the other face of said plaster panel leading to an end portion of said recess, an electrical resistance heating wire positioned entirely within and extending lengthwise of said recess, a pair of non-heating lead wires each extending through one of said plaster panel openings with an end contacting an end of said heating wire and having its other end exteriorly of said plaster panel other face for connection to a source of electrical current, means connecting the contacting ends of said lead

wires and said heating wire entirely within said plaster panel and a sheet of paper affixed to and covering said plaster panel recess open side and the wires therein.

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