UNITED STATES PATENT OFFICE.

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INSULATING SUPPORT FOR ELECTRIC RESISTANCE HEATING ELEMENT.

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This invention relates to supports and has particular reference to an improved insulating support for an electric resistance heating element especially, although not necessarily, designed for supporting heating elements of the type set forth and described in my co-pending application, Serial No. 182,016.

One of the principal disadvantages of and objections to resistance heating element supports of the type now in general use, resides in the tendency of the heating element to overheat at the points where it extends through the insulators, due to the confined condition of the element at these points which prevents proper radiation and rapid oxidation by the excessive heat generated. It is therefore one of the objects of the present invention to so form the opening in an insulator member as to prevent confinement of the heating element and at the same time to induce a draft or circulation of air which promotes a freer radiation.

As a further object the invention comprehends a support and insulator for electric resistance heating elements for supporting the heating element in grid form, which includes frame and insulator members constructed in such a manner as to facilitate their economical assembly, rigid connection and co-relation.

Other objects of the invention reside in the simplicity of construction, the general efficiency derived therefrom, and the economy with which the same may be produced.

With the above recited and other objects in view, reference is had to the following specification and accompanying drawings in which there is exhibited one example or embodiment of the invention which is in no way intended as a limitation upon the scope of the appended claims as it is to be clearly understood that variations and modifications which properly fall within the scope of said claims may be resorted to when found expedient.

In the drawings—

Fig. 1 is a plan view of the support;

Fig. 2 is a sectional view therethrough taken approximately on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged fragmentary cross sectional view;

Fig. 4 is a fragmentary sectional view taken approximately on the line 4—4 of Fig. 3;

Fig. 5 is a perspective view of one of the 55 insulator blocks removed from the frame.

Referring to the drawings by characters of reference, 10 designates an electric resistance heating element or elements which are adapted to be arranged in grid form, supported and insulated. The insulating support therefore as illustrated, consists of a main frame 11, which carries a plurality of cross bars 12 of substantially channel form. The cross bars include a flat body portion or bight 13 and marginal flanges 14. Insulator blocks 15 are employed which are constructed of any suitable insulating material and which have one face 16 of a width approximately equal to the distance between the marginal flanges 14 of the bars 12. The opposite face 17 is of less width than the face 16, and this is preferably although not necessarily accomplished by beveling the side edges 18 of the blocks. A medial boss 19 projects outwardly from the face 16 of the block and the boss together with the main body of the block is formed with an axial opening 20, which is of a slightly greater diameter than the diameter of the heating element 10 at the medial portion and which opening flares outwardly in opposite axial directions. The bars 12 have their bights or bodies 13 formed with longitudinally spaced openings 21 to receive and accommodate the bosses 19 for the purpose of preventing longitudinal movement or shifting of the insulator block 15. In the finished form of the insulating support the flanges 14 of the cross bars 12 are bent inwardly to engage the opposite side edges of the insulator blocks for retaining said blocks within the cross bars against accidental displacement.

Under this construction and arrangement it will be observed that the insulator blocks are economically and effectually correlated or assembled with the cross bars of the frame to build up and properly provide an insulating support for supporting an electric resistance heating element in grid form, by forming the openings 20 as illustrated and described of double fared configuration. The points where the heating element extends through the insulator members are prevented from overheating to such an excessive degree as to cause an unduly rapid oxidation and consequent deterioration of the element at these points. Furthermore, the particular
shape of the openings induces a draft or circulation of air which assists materially in increasing the radiation or dissipation of the heat at these points.

What is claimed is:

1. In an insulating support for electric heating elements, channel-shaped apertured frame elements including marginal flanges, insulator members arranged in the frame members and each having a boss on its inner face fitting through the frame apertures, the said insulator members each having an outer face of a reduced width presenting inwardly diverging side edges against which the flanges are bent inwardly to embrace and retain the insulator members in place.

2. In an insulating support for electric heating elements, channel-shaped apertured frame elements including marginal flanges, insulator members arranged in the frame members and each having a boss on its inner face fitting through the frame apertures, the said insulator members each having an outer face of a reduced width presenting outwardly beveled side edges against which the marginal flanges of the frame elements are bent to embrace the insulator members in place.

3. In an insulating support for electric resistance heating elements, apertured frame bars of substantially dove-tailed shape in cross section, insulator blocks of similar cross sectional shape arranged within the frame bars, and bosses formed on the insulator blocks and projecting through the apertures of the frame bars to prevent longitudinal movement of the insulator blocks with respect to the frame bars.

4. In an insulating support for electric resistance heating elements, apertured frame bars of substantially dove-tailed shape in cross section, insulator blocks of similar cross sectional shape arranged within the frame bars, and bosses formed on the insulator blocks and projecting through the apertures of the frame bars, the said insulator blocks and their bosses each having a double outwardly flared opening axially thereof through which the heating element extends.

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