Aug. 9, 1949. R. H. DEAL 2,478,808

HEATING ELEMENT SUPPORT UNIT
FOR OVENS AND THE LIKE
Filed March 29, 1948

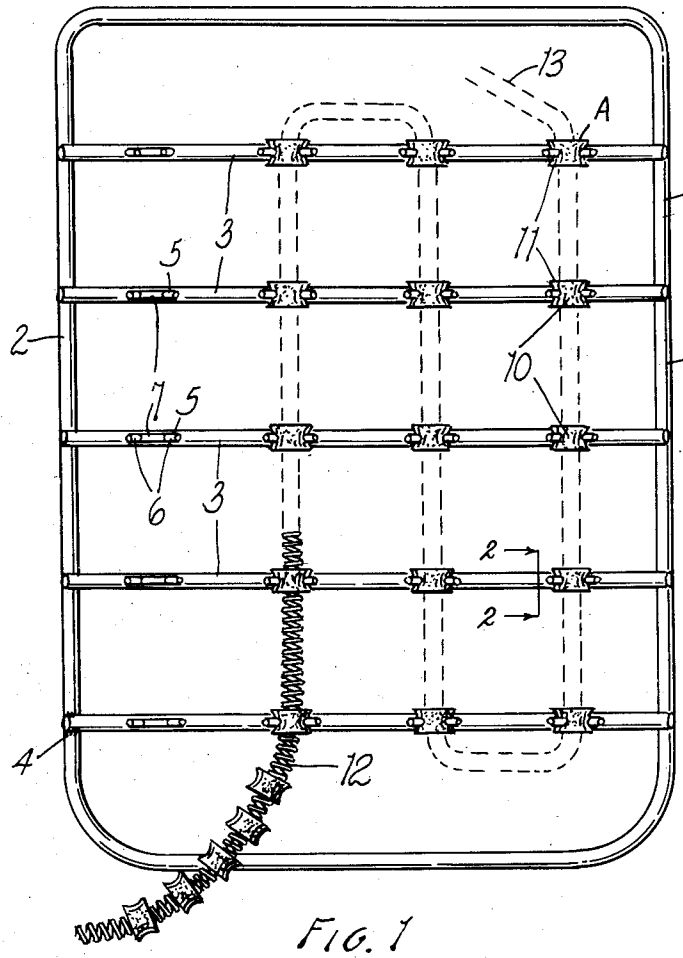


FIG. 1

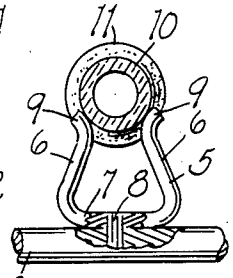


FIG. 3

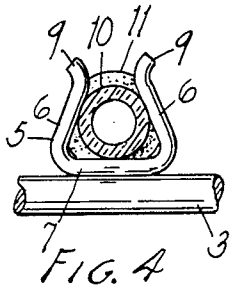


FIG. 4

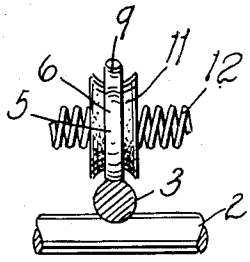


FIG. 2

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HEATING ELEMENT SUPPORT UNIT FOR OVENS AND THE LIKE

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3 Claims. (Cl. 219—19)

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This invention relates to improvements in heating element support unit for ovens and the like.

The main objects of my invention are:

First, to provide a heating element support unit for ovens and the like which is efficient for supporting the heating element and at the same time one which permits a very rapid assembly of the heating element and the insulators therefor with the support without tools.

Second, to provide a heating unit of the class described which may be economically produced and at the same time is effective in supporting the heating element in effectively insulated relation to the supporting parts.

Third, to provide a unit of the class described which minimizes labor and time in the assembly of the heating element with the support.

Further objects relating to details and economies of my invention will appear from the description to follow. The invention is defined in the claims.

A structure embodying my invention is illustrated in the accompanying drawing in which—

Figure 1 is a plan view of one embodiment of my invention having a heating element partially assembled therewith and illustrating steps in the assembly or method of assembly, portions of the heating element being shown by dotted lines.

Figure 2 is an enlarged fragmentary view in vertical section on line 2—2 of Figure 1.

Figure 3 is a fragmentary view partially in section illustrating one of the steps or stages of assembling an insulator with a supporting clip.

Figure 4 is a fragmentary view partially in section illustrating an insulator completely assembled with its supporting clip.

The embodiment of my invention illustrated and described is an oven heating unit and comprises a border frame 1 formed of wire or light rod and comprising opposed side members 2—2, a plurality of rod like cross members 3 extend between the side members 2 and are welded thereto as indicated at 4 in Figure 1. These cross members are arranged in spaced parallel relation. Each cross member is provided with a plurality of U-shaped clips 5 having outwardly converging arms 6 and flat bights 7. The flat bights are disposed upon and longitudinally of the cross rods and secured thereto by the welds indicated at 8.

The arms of the clips are springable and preferably substantially straight throughout the major portion of their length but merge with the diverging tips 9 providing throats adapted to receive the reduced centered portions 10 of the insulators 11. The arms are springable so that

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their outer ends may be sprung apart to permit the entrance of the insulators to the clips, the converging portions 6 serving to springably engage the reduced portions of the insulator and force them downwardly upon the bights of the clips. The sets of clips mounted on the cross members are desirably arranged so that corresponding clips of the sets are aligned as shown in Figure 1.

In the embodiment illustrated, the border frame cross members and the clips are formed of wire or light rod stock and are economical to produce and assemble. The heating element 12 is of the coiled resistance wire type so that it may be easily conformed for assembling with the support. In the structure illustrated, 20 insulators and supporting clips therefor are provided. In assembling these the insulators are threaded upon the heating element and are successively engaged with the clips, for example, beginning with the clip first at position A, Figure 1, the first insulator on the heating element is pushed into the clip and successive insulators being engaged with successive clips. One end of the resistance element as 13 is extended to be connected with suitable terminal or contact posted, the other end being preferably extended and connected after the heating element is completely assembled. This arrangement of parts enables the very rapid assembling of the heating elements by unskilled persons without the use of tools and without liability of injury to the insulator or the heating element. When assembled, the heating element is affectably supported and protected, but should occasion require, it may be easily removed and a new element substituted without the aid of a skilled mechanic or operator and without likelihood of injuring the supporting parts.

The structures embodying my invention are economical in parts and assembly and enable the very rapid and efficient assembly of the heating element and its insulators. I have illustrated and described my invention in a highly practical embodiment thereof. I have not attempted to illustrate or describe other modifications or adaptations which I contemplate as it is believed that this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired for particular installations.

Having thus described my invention what I claim is new and desire to secure by Letters Patent is:

1. A heating unit of the class described comprising, a border frame having opposed side members, a plurality of cross rods disposed in parallel

spaced relation and having their ends fixedly secured to said opposed side members, and a plurality of sets of U-shaped clips formed of springable wire disposed in upright longitudinally spaced relation on said cross rods, said clips having flattened bights disposed longitudinally of the cross rods and welded thereto and having substantially straight inwardly converging springable arms adapted to springably receive an insulator between them and springably urge the elements downwardly upon the bights, the arms having outwardly diverging tip portions, the inner sides of which merge with the inner sides of the arms of the clips in curved lines, corresponding clips of the sets being arranged on the rods in substantial alignment.

2. A heating unit of the class described comprising, a frame having a plurality of rods disposed thereon, and a plurality of substantially U-shaped clips formed of springable wire disposed in upright relation on said rods, a plurality of grooved insulators, each of said clips having the looped portion thereof secured on said rods and having substantially straight inwardly converging springable arms adapted to springably receive one of said grooved insulators between them and springably urge the grooved insulator downwardly against the loop, so that the bottom of the groove will be clamped between said arms and said looped portion of said clip, cooperating clips of the set being arranged on the rods in the desired pattern.

3. A heating element support of the class described comprising a supporting structure, a plurality of springable substantially U-shaped clips having inwardly converging arms disposed at desired supporting positions on the supporting structure, and a plurality of grooved spool-like insulators removably inserted in and held by the clips, the springable arms of the clips being spaced apart in their inner portions a distance greater than the diameter of the grooved portion of the insulator and having their converging portions defining a throat less than such diameter and spaced outwardly from the bight of the clip a distance greater than one-half of the diameter whereby an insulator inserted through the throat of the clip is springably held and retained and is urged thereinto with parts of the arms and the bight of the clip within the groove of the insulator and arranged to clamp the insulator between said arms and bight.

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