Feb. 2, 1932. C. F. MAYER 1,843,430

INSULATING WALL

Filed Feb. 25, 1929

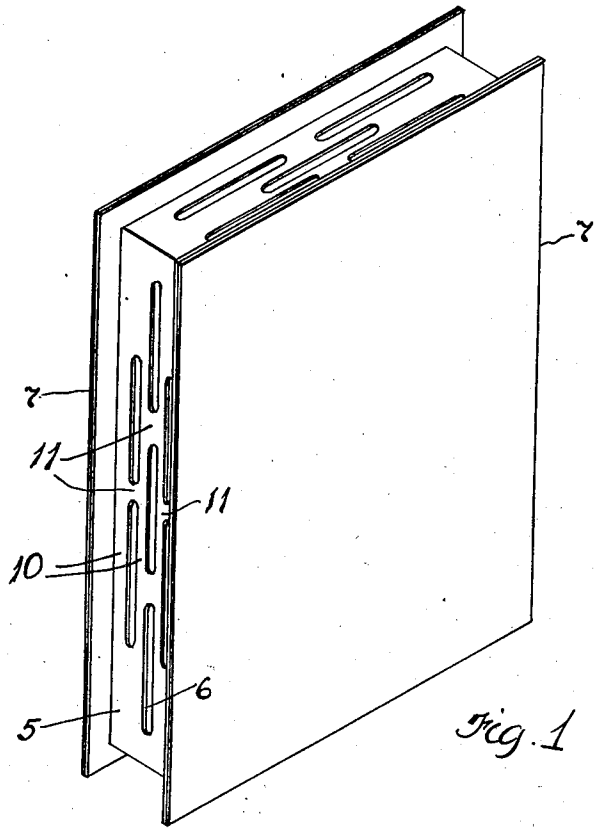


Fig. 1

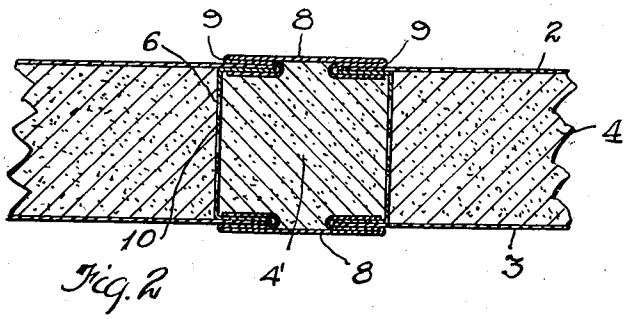


Fig. 2

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Patented Feb. 2, 1932 1,843,430

UNITED STATES PATENT OFFICE

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INSULATING WALL

Application filed February 25, 1929. Serial No. 342,525.

In Patent Number 1,468,573, I have set forth an insulating wall construction having sections adapted to be built up as desired, and to further lessen heat conduction through the wall, it is advised that asbestos packing strips be placed between interlocking metallic edges. In some complicated situations, it is difficult or impossible to properly apply flexible packing strips, and simplification of assemblage is advantageous. My present invention relates to construction which minimizes assembling difficulties under all conditions and facilitates satisfactory installation even with unskilled labor. It makes possible moreover a structure of low conductivity, and without undue cost. Other objects and advantages will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the features hereinafter fully described, and particularly pointed out in the claims, the following description and the annexed drawings setting forth in detail certain structure embodying the invention, and being illustrative however of but one of the various ways in which the principle of the invention may be employed.

In said annexed drawings, Fig. 1 is a perspective view of a unit or panel in accordance with my invention; and Fig. 2 is a section across a joint between assembled panels.

In the embodiment illustrated, metal plates 2, 3, in spaced relation have an insulative filler 4 interposed, the latter being of asbestos, or magnesia or preferred composition. Along or adjacent the edges, bridging means of low thermal conductivity is positioned, such means being of metal in order to carry such structural loads as are incidental to a wall construction of this character, and preferably the bridging means is made up of skeletonized metal strips 5, these having their cross sectional continuity interrupted or modified by cut-outs or openings, for instance elongated openings 6 somewhat closely set, and in staggered relation. Placing the emphasis on the metal which is left rather than on the openings, the strips 5 may be regarded as comprising longitudinal portions such as 10 and transverse portions such as 11. It will thus be seen that each of the short transverse connections 11 extends only between two adjacent longitudinals 10 so that there is no direct heat path across the strip 5 as would be the case in a construction having continuous elements bridging the edge between the walls 7—7. For convenience, such groups of plates and bridging elements can be made up as units or panels, and by employing bridging pieces in the form of channels, suitable attachment may be readily had by light welding, riveting or the like at intervals, and in this manner a convenient metallic sheathed insulating section is available as a standardized unit capable of assemblage in wall structures of various dimension.

In assembling, the panels or unit sections are set up with their edges 7 in opposed relation, and joining strips 8 having slotways 9 in their marginal portions are engaged over the opposed flanges, thereby locking section to section. Preferably, such joining strips are of sheet metal of suitable gauge, and formed by bending and rebending the marginal portions, to provide oppositely directed slotways, as indicated. A certain amount of resiliency is also of advantage in the slotway portions, as furthering the frictional grip upon the engaged edge portions. An insulative filling 4′ is supplied in the spaces between joining strips, and the structure thus finally presents a continuous wall of substantially the same characteristics at each point, and as will be obvious, the thickness of wall may be carried to any further extent desired by use of additional layers of the panels or units.

As thus seen, a conveniently assembled structure can be had, suitable for low temperature or high temperature insulation, and by suitable choice of metallic gauge adaptable to such load requirements as may be incurred. In enamelling ovens, baking chambers, drying ovens, core ovens, etc., the varying shape requirements are readily provided for by reason of the convenient unit type elements, and when assembled, even with usage under temperature conditions imposing a severe gradient, heat transfer through the walls

may be held to highly favorable limits, the low-conductivity bridging elements providing unfavorable transfer paths irrespective of conditions incurred.

Other modes of applying the principle of the invention may be employed, change being made as regards the details disclosed, provided the means stated in any of the following claims, or the equivalent of such, be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. Construction of the character described, which comprises spaced metal plates, insulative filling therebetween, and metallic connecting means having low thermal conductivity bridging between said plates at the edges and confining said filling, said connecting means comprising more than two transverse portions longitudinally spaced and discontinuous members transversely connecting said longitudinals.

2. Construction of the character described, which comprises spaced metal plates, insulative filling therebetween, and skeletonized metallic bridging pieces along the edges, said bridging pieces comprising transverse portions all of which are shorter than the panel edge width.

3. Construction of the character described, which comprises spaced metal plates, insulative filling therebetween, and metallic channel bridging pieces along the edges having narrow elongated slots parallel to the sides of the bridging pieces and in staggered relation.

4. Construction of the character described, which comprises spaced metal plates, insulative filling therebetween, joining strips having marginal slotways to engage the edges of the plates, insulative filling between said strips, and skeletonized metallic bridging pieces between said plates, said bridging pieces comprising more than two transversely spaced longitudinal members and transverse members each connecting two only of said longitudinals.

5. Construction of the character described, which comprises spaced metal plates, insulative filling therebetween, joining strips having marginal slotways to engage the edges of the plates, insulative filling between said strips, and metallic channel bridging pieces having narrow elongated slots parallel to the sides of the bridging pieces and in staggered relation.

Signed by me this 21st day of February, 1929.

CARL F. MAYER.