Jan. 17, 1967 D. E. AHLQUIST 3,298,150

WALL INSULATION STRUCTURES AND METHOD OF USING SAME

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Fig.1

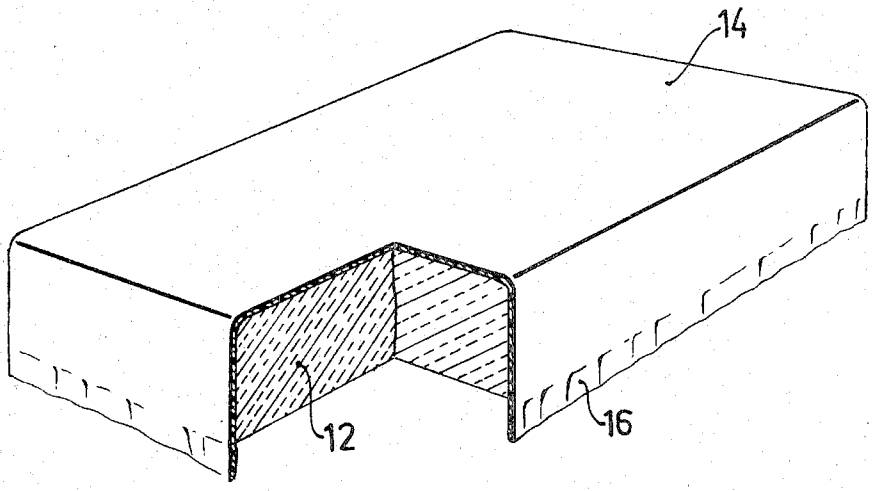
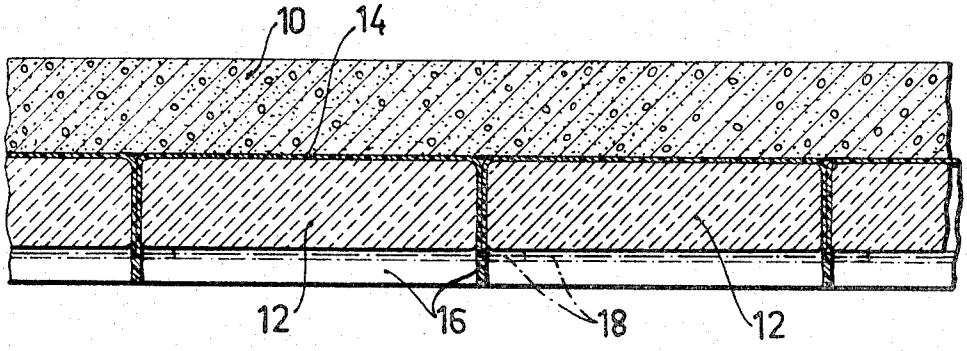


Fig.2



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WALL INSULATION STRUCTURES AND METHOD OF USING SAME

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4 Claims. (Cl. 52—506)

This invention relates to a method of insulating walls.

More particularly this invention relates to improvements in a method of insulating walls, especially of cold storage rooms, by means of insulations in the shape of units, such as blocks or slabs of cork or expanded plastic, bodies of multilayer type, or sheetings and similar units of mineral wool, for example.

For the purpose of counteracting penetration of moisture through the insulating layers of a cold storage room and a deterioration caused thereby of the insulating capacity of the insulation it is already usual to apply a so-called diffusion barrier on the warm side of the insulation. This barrier is normally applied on the interior side of the supporting wall of the cold storage room and must be built up with utmost care since minor interruptions or fissures in the barrier annihilate the effect aimed at to a substantial degree. Therefore use is made of a plurality of layers of paper provided with coatings of asphalt on both sides of each layer, for example, or of board covered with aluminum foil. The barrier has hereintobefore always been manufactured on the place or erection whereunder there was no possibility to survey and control the efficiency thereof to a desirable extent.

One main object of the invention is to bring about an improvement in the respects in consideration while employing the known construction with individual envelopes of sheet material difficultly permeable to moisture and wrapped around the insulation units.

According to a main feature of the invention the envelopes are located on the sides of the units facing the wall and one another, respectively, said envelopes at the side of the insulation facing the room being united with one another in a moisture-proof manner along the edges of adjacent envelopes. This ensures that the insulating layer and the insulated room are screened off from the warm humid surrounding atmosphere by means of a diffusion barrier which with simple means is made highly effective. After that the insulation units have been applied onto the supporting wall of the cold storage room one is in a position conveniently to control that the joints between the envelopes are completely tight so that no moisture can penetrate along this way into the room or the insulation, respectively. The latter is open towards the room and is thus covered only by the lining forming the inner surface of the room. The minor quantity of moisture which in spite of any barrier penetrates into the insulation is then capable without meeting any particular resistance to migrate further into the room instead of being collected within the insulation.

Further objects and advantages of the invention will become apparent from the following description considered in connection with the accompanying drawing, which forms part of this specification and of which:

FIG. 1 is a perspective and partly cut view of an insulation unit provided with an envelope made according to the invention.

FIG. 2 is a cross-sectional view of a wall constructed according to the invention.

Referring to the drawing, reference numeral **10** denotes a supporting wall skeleton of a cold storage room and

is made of concrete, for example. The insulation is constituted by units **12** suitably having the form of rectangular blocks or slabs which are rigidly secured onto the inner face of the wall skeleton **10**. These units have beforehand been provided with a thin envelope **14** of a preferably thermoplastic sheet or foil material which covers the sides of the units facing the wall skeleton **10** and one another, respectively, but which leaves open the interior side which faces the room.

The envelope is secured to the block **12** by gluing, for example. Further the blocks may be secured onto the wall skeleton **10** by means of a bonding agent provided between said skeleton and the envelopes. It is of advantage that the envelope **14** is not perforated by nail joints or the like in order surely to prevent any leakages from coming into existence in the diffusion skin.

The insulation units **12** with their envelopes **14** may with advantage be delivered in prefabricated state from a factory. The envelope has an edge portion **16** projecting around the open side of the insulation unit which portion under delivery may be bent down but which after the mounting of the units is bent outwards to the position shown in the figures with continuous lines. The portions **16** thus projecting inside the insulating material are in pairs united together along adjacent edges so that completely tight joints are created between the adjacent insulating units. Since the material is thermoplastic said jointing may be effected by exposing the portions **16** to heat and pressure between two heated pressing surfaces, rollers or like members so as to cause said portions to melt together. They may then be bent down towards the insulation to take the position indicated by the dash-and-dotted lines **18**.

According to the invention there is obtained a diffusion bar or barrier cohering over the wall surface though no cover with this capacity is applied onto the concrete wall **10** during the erection of the insulation.

Prior to the application of the inner cover of the cold storage room onto the insulation layer one is capable of controlling with ease whether or not the envelopes **14** are tightly united with one another along the joints.

If the insulating material is inflammable as such, the envelopes may be caused to serve as means for subdividing the insulation into sections separated from one another in a fire-proof manner. The envelopes may then be made of a fire-proof plastic sheet material, such as polyvinyl chloride, or be constituted by a metal sheet.

One individual envelope may enclose a plurality of insulation units. If such an envelope is common for a while wall it is provided with edge portions projecting inwards and which are tightly connected with the edges of the envelopes of the insulation units of the walls abutting at right angles against said wall.

While one more or less specific embodiment of the invention has been shown and described, it is to be understood that this is for purpose of illustration only, and that the invention is not to be limited thereby but its scope is to be determined by the appended claims.

What I claim is:

1. An insulation for walls and similar surfaces comprising a plurality of blocks of insulating material disposed in side-by-side relation, each of said blocks being contained in an envelope having a portion extending over and covering one face of the block and disposed against the wall, each block having a face disposed toward the room, the envelope also being provided with side panels covering the sides of the block, each side panel being of greater width than the side of the block over which it is disposed to thereby provide projecting flap portions on said envelope extending beyond the room-facing face of the block, said projecting portions being united together.

2. An insulation as provided for in claim 1, wherein only the projecting flap parts of the side panels are secured together and said parts are directed inwardly to overlie the room-facing side of the block.

3. A block of insulation for a wall, said block having an envelope covering composed of a flexible plastic material extending over one face of the block as well as over the sides thereof, said envelope having side portions provided with extended free flaps projecting beyond one face of the block, said flap portions constituting the sole source of connection of the envelope to an adjacent envelope placed in juxtaposition to it.

4. The method of insulating a wall or similar surface comprising mounting a plurality of envelopes in side-by-side relation against a wall, with each envelope having flap parts extending freely beyond one face of a block of insulation fitted in the envelope, attaching said projecting flap portions only together to thereby unite the envelopes wholly by the joinder of said projecting flap parts, and then bringing the joined flap parts inwardly over a face of the block.

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