

Nov. 9, 1937.

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2,098,554

HEAT INSULATING WALL

Filed July 14, 1936

2 Sheets-Sheet 1

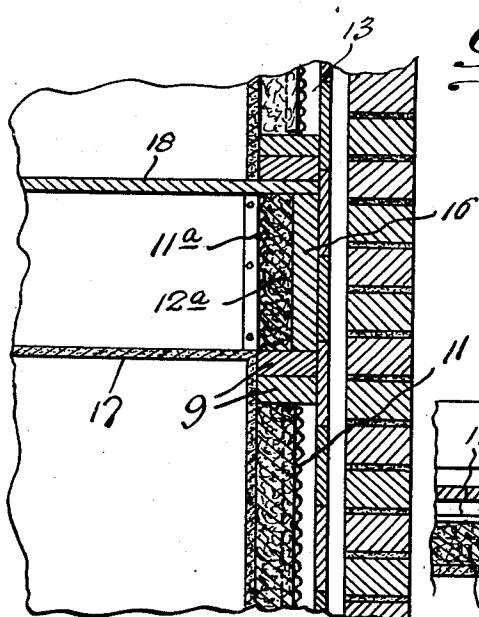


Fig. 1.

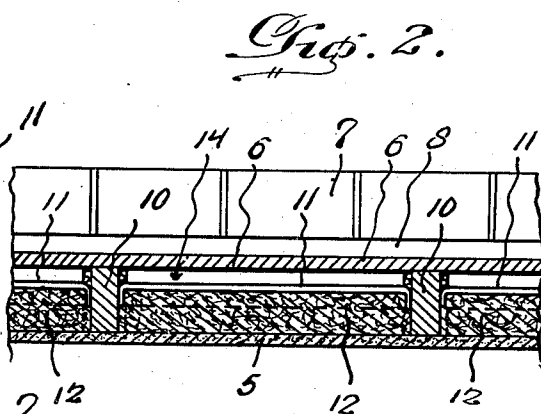


Fig. 2.

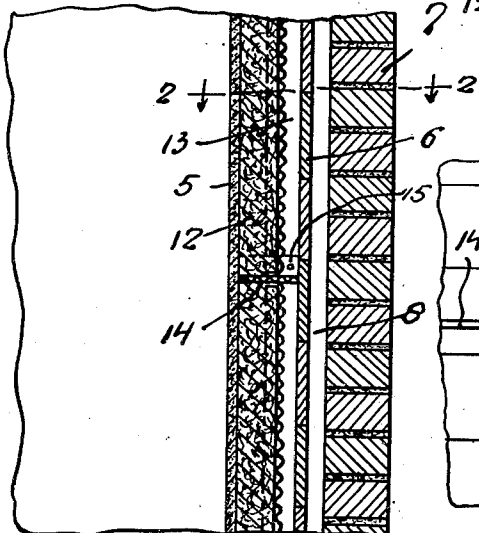


Fig. 3.

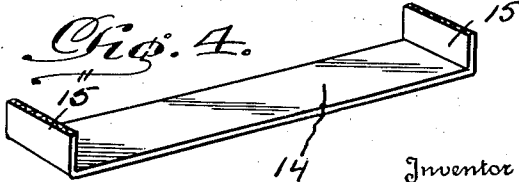
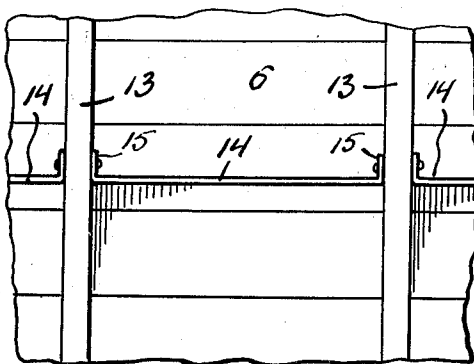


Fig. 4.

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Fig. 5.

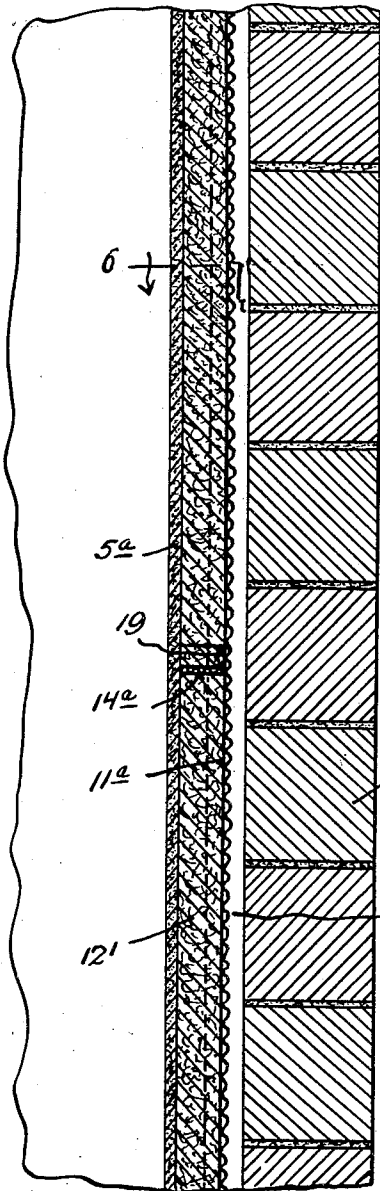


Fig. 6.

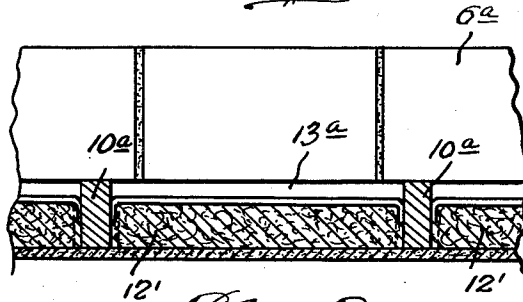


Fig. 7.

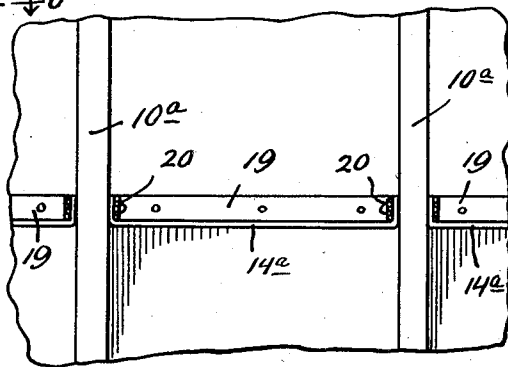


Fig. 8.

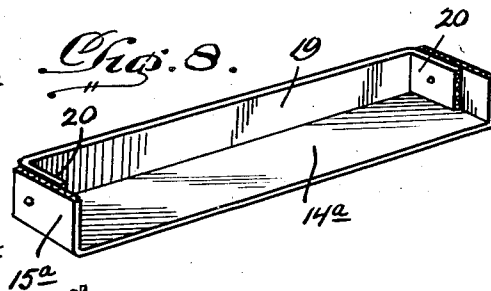
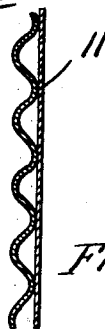


Fig. 9.



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HEAT INSULATING WALL

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2 Claims. (Cl. 72-16)

This invention relates to improvements in the construction of heat insulating walls for buildings of the type embodying a packing of rock wool or equivalent fibrous heat insulating material.

5 The primary object of the present invention is to provide a heat insulating wall of the above kind wherein simple and efficient provision is made to prevent sweating and moisture getting into the fibrous heat insulating material.

10 Another important object of the present invention is to provide a heat insulating wall of the above kind with a most simple and efficient means for sustaining the fibrous insulating material so that it will not unduly settle and pack down so as to leave objectionable open spaces and cause other objectionable results.

15 With the above general objects in view, the present invention consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings, and claimed.

In the drawings:

20 Figure 1 is a fragmentary vertical sectional view through a heat insulating wall embodying the present invention, the wall being partly broken away.

Figure 2 is a fragmentary horizontal section taken on the plane of line 2-2 of Figure 1.

30 Figure 3 is an inside fragmentary elevational view of the wall shown in Figure 1, with the inner wall member and fibrous packing omitted.

Figure 4 is a perspective view of one of the devices for sustaining the fibrous insulating material, shown in Figures 1, 2 and 3.

35 Figure 5 is a view somewhat similar to Figure 1 of a modified form of wall construction embodying the present invention.

Figure 6 is a fragmentary horizontal section taken on the plane of line 6-6 of Figure 5.

40 Figure 7 is a view similar to Figure 3 of the wall shown in Figure 5.

Figure 8 is a perspective view of one of the devices for sustaining the fibrous insulating material, as shown in Figures 5 to 7 inclusive; and

45 Figure 9 is a fragmentary longitudinal section through the corrugated cardboard used in Figures 1 and 5 as a backing for the fibrous insulating material to prevent sweating and moisture getting into said fibrous insulating material.

50 Referring to Figures 1 to 4 inclusive, the wall, except at points between adjacent stories, includes spaced inner and outer wall members 5 and 6, and has an outer brick facing 7 suitably tied to the wall proper as well as spaced from the outer wall member 6 to leave an air space 3

between said outer wall member 6 and said facing 7. The wall proper includes the usual frame composed of horizontal joists 9 and vertical studs 10, the inner wall member 5 consisting of lathing and plaster as usual anchored to the studs 10, and the outer wall member 6 consisting of the usual wood siding.

In accordance with the present invention, I provide in the space between each pair of adjacent studs 10 and between the inner and outer wall members 5 and 6 an intermediate lining or backing 11 of relatively stiff corrugated cardboard or equivalent insulating sheet material. Except at the point between adjacent stories, the packing of rock wool or equivalent fibrous insulating material is placed as indicated at 12 between the inner wall member 5 and the intermediate lining or backing 11. An air space 13 is thus left between the intermediate lining or backing 11 and the outer wall member 6, and the outer surface of the packing 12 is thus backed by the lining or backing 11 so as to prevent sweating and moisture getting into the fibrous packing material 12.

The backing or lining 11 may consist of superposed flanged sections nailed through their edge flanges to the adjacent joists 9 and studs 10.

In order to prevent the fibrous insulating material 12 from unduly settling and packing down, I provide at suitable elevated points between each pair of adjacent studs 10 and between the inner and outer wall members 5 and 6, horizontal partitions 14 formed of strips of corrugated cardboard. These partitions 14 are required to be somewhat stiffer and stronger than the lining or backing 12, and for this reason the lining or backing 12 may be formed of corrugated cardboard made up of a single layer of flat paper and a layer of corrugated paper as shown in Figure 9, while the packing supports or partitions 14 are preferably formed of corrugated cardboard made of two layers of flat paper separated by corrugated paper. As shown in Figure 1, the supports or partitions 14 may be arranged between superposed sections of the lining or backing 11 and extended outwardly of the latter to divide the air space 13 and prevent convectional air currents in the latter. Also, the partitions or supports 14 are at least provided with end flanges 15 to facilitate nailing thereof to the studs 10 so as to be properly supported in place.

At the point between adjacent stories of a building, the floor joist 16 may be arranged between the ceiling 17 of one story and the floor 18 of the next higher story, as well as at the

inner side of the outer wall member 6. In that case, the backing 11a is provided inwardly of and in spaced relation to the floor joist 16 so as to provide the space in which the packing 12a is placed.

Referring in detail to Figures 5 to 8 inclusive, the inner wall member 5a is composed of laths and plaster as usual and attached to the vertical studs 10a, the outer wall member 6a being in the form of masonry and spaced from the intermediate lining or backing 11a to provide an air space 13a between said lining or backing 11a and said outer wall member 6a. In this case, the fibrous insulating material or packing 12' is placed between the intermediate lining or backing 11a and the inner wall member 5a. Also, the horizontal packing supports or partitions 14a are provided between each pair of adjacent studs 10a, but only extend outwardly to the intermediate lining or backing 11a so as to merely divide the space between said lining or backing 11a and the inner wall member 5a. In this embodiment, the partitions or packing supports 14a are not only shown as provided with end flanges 15a for attachment to the adjacent studs 10a, but also have a further flange 19 along one longitudinal edge for attachment and reinforcing purposes, the ends of the flange 19 having extensions 20 lapped upon and secured to the end flanges 15a. The longitudinal flange 19 of each packing support or partition 14a may be attached to the intermediate lining or backing 11a, or if this form of partition or packing support is used in a wall of the type shown in Figure 1, such flange 19 may be nailed to the outer wall member 6. Obviously, the packing supports or partitions 14 or 14a may be disposed either with their flanges projecting upwardly or with said flanges projecting downwardly.

In constructing a wall in accordance with the present invention, the fibrous insulating material is of course placed between the inner wall member and the intermediate lining or backing until it reaches a predetermined height, whereupon a packing support or partition is installed. The placing of the fibrous insulating material between the inner wall member and the intermediate lining or backing is then continued above this support or partition. Obviously, the number of packing supports or partitions and their distance of spacing apart vertically may be varied to suit

requirements such as variations in the width of the space between the inner wall member and the intermediate lining or backing, etc.

In view of the foregoing, it will be seen that I have provided a most simple, inexpensive, and effective means for backing the fibrous insulating material or packing so as to prevent sweating and moisture getting into such fibrous insulating material, and for sustaining the fibrous insulating material at suitable intervals and suitable elevations so as to prevent undue settling and packing down of said fibrous insulating material.

What I claim as new is:

1. A heat insulating wall including a frame composed of horizontal joists and vertical studs, an outer wall member at the outer side of said frame, an inner wall member at the inner side of said frame and spaced from said outer wall member, an intermediate backing of corrugated cardboard extending between each pair of adjacent studs and spaced from the inner and outer wall members, a packing of fibrous insulating material filling the space between said intermediate backing and said inner wall member, and horizontal partitions of corrugated cardboard between the inner and outer wall members to prevent settling of said fibrous insulating material and to prevent convectional air currents in the space between said backing and the outer wall member, said partitions having end flanges nailed to said studs.

2. A heat insulating wall including a frame composed of horizontal joists and vertical studs, an outer wall member at the outer side of said frame, an inner wall member at the inner side of said frame and spaced from said outer wall member, an intermediate backing of corrugated cardboard extending between each pair of adjacent studs and spaced from the inner and outer wall members, a packing of fibrous insulating material filling the space between said intermediate backing and said inner wall member, and horizontal partitions of corrugated cardboard between the inner wall member and the intermediate backing to prevent settling of said fibrous insulating material, said partitions having attaching flanges at the ends and along one of the longitudinal edges thereof to facilitate nailing of said partitions to the studs and fastening thereof to said backing.

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