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J. S. WAGNER

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REFRIGERATOR WALL STRUCTURE

Filed Jan. 27, 1930

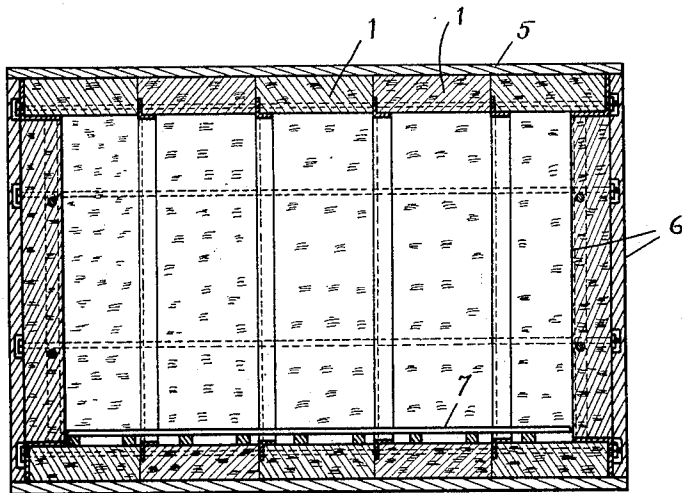


Fig. I.

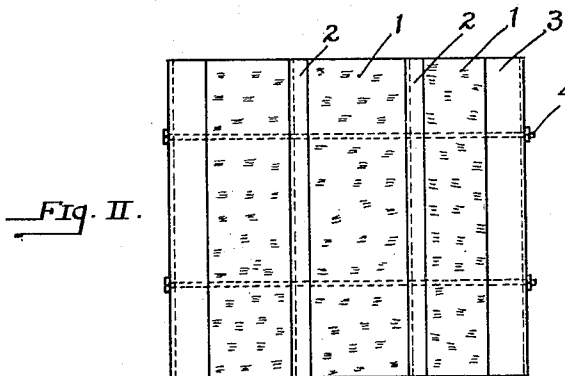


Fig. II.

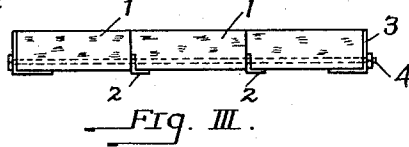


Fig. III.

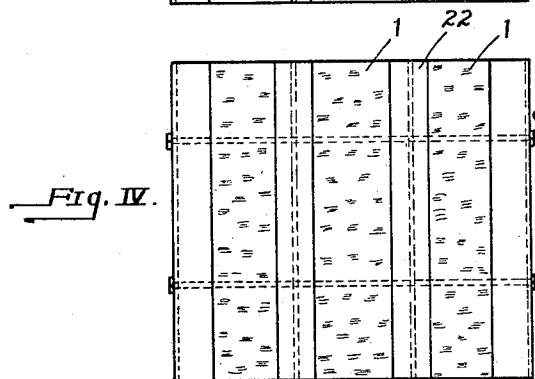


Fig. IV.

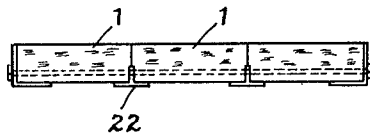


Fig. V.

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UNITED STATES PATENT OFFICE

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REFRIGERATOR WALL STRUCTURE

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My invention relates to the structure of heat-insulating walls. The objects in view are effectiveness in the matter of heat insulation, economy in production, and durability in service. The invention finds practical application in the building of cold boxes for domestic use, and, remarking that the structure of the invention may be as well employed in building a hot box—that is to say, a chamber within which elevated temperature is to be maintained—I proceed with a description of a box of the former sort.

In the accompanying drawings Fig. I is a view in vertical section, showing in simple form a cold box built in embodiment of my invention; Figs. II and III are views in side and in end elevation of a section of the essential portion—that is to say, of the heat-insulating portion—of the wall of the box of Fig. I, and showing more clearly the manner of assembly; Figs. IV and V are views similar to Figs. II and III, illustrating a modification in detail.

Referring, first, to Fig. I the walls of the box are built, essentially, of blocks 1 of heat-insulating material. It is essential that the material be sufficiently coherent to admit of formation into self-sustaining blocks. Beyond that, it may be and preferably will be a cellular material of vegetable origin, and in that class I have found blocks made of granular cork mixed with a binder and molded under heat and pressure to permanent form most suitable. Such blocks of cork are durable, in the sense that they are coherent and will maintain their shape, but they are relatively soft, and may not easily be united edge to edge to make a durable structure, at least not without seriously impairing the sufficiency of the structure as a heat-insulating wall.

My invention consists in assembling with blocks of cork set edge to edge, as particularly shown in Figs. II and III, lengths 2 of angle iron. Each of these lengths of angle iron overlies an inner corner of one of two adjacent blocks; each overlies, to the small extent necessary, the inner face of the block and extends to the small extent necessary into the seam in which the edges of the adja-

cent blocks meet. The flange of the angle iron does not extend throughout the thickness of the block nor throughout the breadth of the seam; but, beyond the flange, the edges of the block come into immediate abutment, as is clearly seen in Fig. III. Thus at these seams there is no free path of heat escape, even of the small dimension of the flanges of these angles. The assembly of blocks may at the ends require the more widely extending flanges of angles 3. The assembly is secured by bolts 4, penetrating transversely the blocks 1 and the intercalated flanges of angles 2 and at their ends engaging the flanges of angles 3.

In Figs. IV and V I show that the lengths of angle iron may be of two-angle or T shape 22, in which case the cross-bar of the T overlies the faces of two adjacent blocks, while the stem extends into the seam between the blocks.

The outer surface of the wall so built up is of cork, essentially, which of course is a soft material, easily abraded and damaged, absorbent, and easily soiled and disfigured. Accordingly, for ordinary domestic use, the box is built in the practical embodiment of Fig. I, where the essential cork wall of the character described is contained in a shell of such suitable material as sheet steel. This durable shell of a material which is inevitably of high heat conductivity, encases and protects the heat-insulating wall of cork which is inevitably of great fragility.

One or both of the ends 6 of the box may be removable, to constitute a door. A rack within the box on suitably raised strips or cleats may serve to support bottles of milk or other containers or articles which are to be kept cold.

The cooling medium is not shown, and forms no part of the invention. It may, for instance, be a body of dry ice within a container suitably arranged within the chamber of the cold box. Instead of such cooling means, a coil of hot water arranged within it would constitute the box a hot box.

I claim as my invention:

1. A heat-insulating wall structure including a plurality of blocks of insulating material set edge to edge, a plurality of lengths of

angle iron, one flange of each angle iron over-
lying the face of one of said blocks and the
other flange of the angle extending between
the meeting edges of adjacent blocks, such
5 flange being less in width than such meeting
faces of the blocks, in consequence of which,
throughout a portion of their extent, the
blocks meet edge to edge with no interposed
web of metal between, and a uniting bolt ex-
10 tending through the bodies of adjacent blocks
and through the flanges of the angle irons as-
sembled therewith.

2. A heat-insulating wall structure includ-
ing a plurality of blocks of relatively fragile
15 insulating material meeting edge to edge, a
plurality of lengths of angle iron, each over-
lying an inner corner of one of said blocks
and extending between the meeting edges of
adjacent blocks, but terminating at an inter-
20 mediate point in the seam of such meeting
and not reaching the outer surface of said
blocks, bolting means uniting such assembly,
and a casing of relatively hard material
overlying the outer face of such assembly of
25 blocks.

In testimony whereof I have hereunto set
my hand.

JAMES S. WAGNER.

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