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R. W. McLAUGHLIN, JR

2,113,068

INSULATION

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Fig. 2.

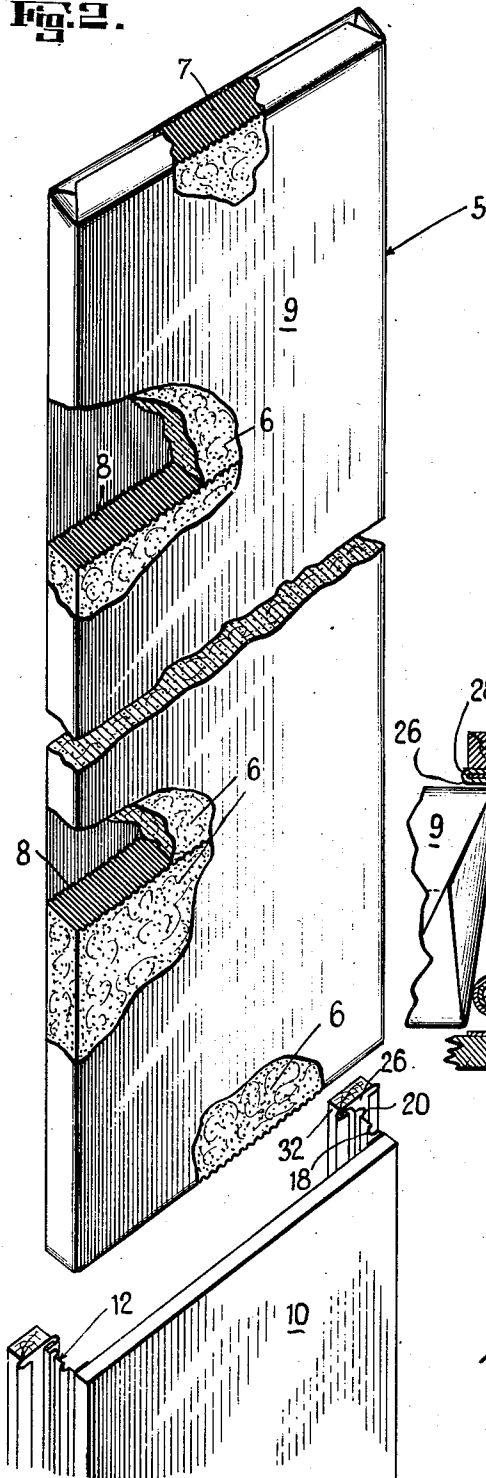


Fig. 1.

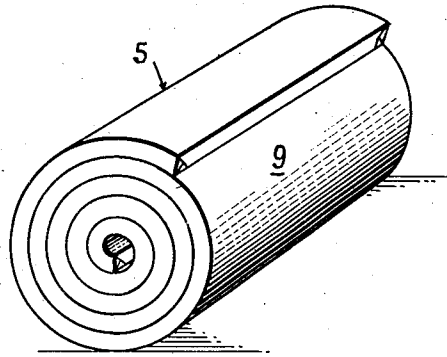
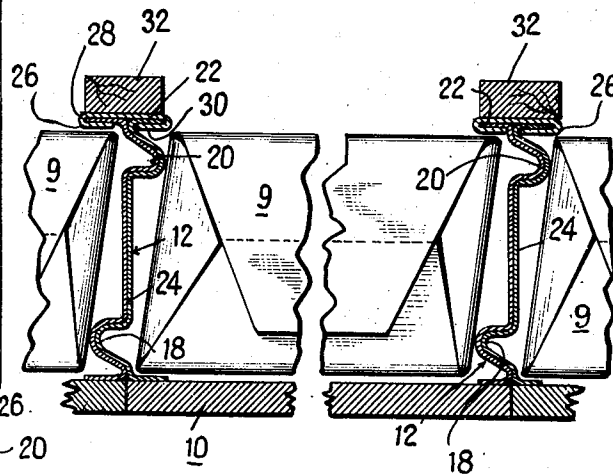


Fig. 3.



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INSULATION

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1 Claim. (Cl. 154—44)

This invention relates to a building construction and more specifically to a building construction having heat insulation properties.

In general, it is an object of the invention to provide a device of the character described, which will efficiently perform the purposes for which it is intended, which is simple and economical of construction, which can be expeditiously, conveniently and safely manipulated, and which can be readily manufactured and assembled.

Another object is to provide a heat insulating unit to be used in the construction of prefabricated buildings; to provide such a unit which may be exposed to the weather for such periods as may be necessary during the erection of a building; and to provide such a unit wherein more or less loose insulating material is retained in its original distribution while it is being installed and after the building is completed and wherein that material is sealed from the atmosphere so that, on the one hand, it is not lost or undesirably scattered while it is being installed and, on the other hand, it does not become contaminated or harmed while it functions as insulation.

Another object is to provide insulating material having the before-mentioned properties as discrete elements immediately available to become permanent or removable parts of prefabricated, or other, construction units.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claim.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description, taken in connection with the accompanying drawing, in which:

Figure 1 is a perspective view of a wrapped insulating body embodying one form of the invention in condition for shipment;

Fig. 2 is a perspective view, with parts broken away, of the body shown in Fig. 1 but in flat condition and shown above the construction unit into which it is to be inserted; and

Fig. 3 is a plan view of the body and unit shown in Fig. 2 after the former has been inserted into the latter.

During the erection of a building, it is often impossible to prevent at least some of the parts from being exposed to the weather. Outside clap-

boards, roofing, etc., cannot always be applied immediately. The work usually ceases during the night. Storms come up during the day and drench inner construction elements before the outer, harder, ones can be put on. Wind tends to distribute light-weight material where it is not wanted. It is highly desirable that these contingencies be provided for wherever possible. Loose heat insulating material is particularly subject to these conditions. When blown away, it is difficult, if not impossible, to recover, and in places where it is not wanted, it may do harm. Furthermore, it should not be allowed to be wet before it is enclosed in its wall, partition or other final lodging.

The present invention contemplates the use of articles of manufacture which overcome or avoid the above difficulties.

In the drawing, 5 denotes a wrapped insulating body. In this body, the main source of insulation is any more or less loose heat insulating material, for example mineral wool 6. The body may assume any convenient shape, that illustrated in the drawing being a slab. It has been found that a slab nine feet long, two feet wide and about two inches thick may be easily handled and transported. In order to give the body certain rigidity, stiffening elements may be employed at the ends of the slab or package. Elements 7 are shown at the ends of the slab. These are preferably of low heat conductivity and may be corrugated. A corrugated paper of some stiffness answers this purpose. Other stiffening elements 8 may be positioned throughout the body of the material 6. These may extend from front to back and from side to side across the slab and may be positioned at intervals of eighteen inches along the length of the slab. These do not interfere with the rolling up of the body, as shown in Fig. 1.

The body 5 also comprises a wrapping 9, which may be of any material, preferably flexible, moisture-resistant and rodent-proof, such for example as a suitable building paper or a heavy waxed paper or the like. The wrapping 9 may be sealed together with moisture-proof glue so as to shut off material 6 from the surrounding atmosphere.

It is intended that the wrapped body may be used in a house or other building, the great majority of the parts of which may be manufactured into relatively large-sized units at the factory and which may be erected simply by the interlocking of these together at the site of the building, without the use of bolts, rivets, nails, or the like.

A principal unit, as shown in Fig. 1, comprises a panel 10, which may be of plywood, board or

other suitable material, and two stud elements 12 which are attached to the panel by any convenient means, such as nails or rivets, or by a suitable adhesive, along the long edge of the panel. This trough-like element may be used in the roofing where the panel becomes the support for the roof proper. It may be used in the ceiling.

The unit may be used as an outer wall, in which case any suitable covering elements such as brick veneer, metal lath, stucco, shingles or siding may be positioned parallel to panel 10. The unit may be used in constructing a floor. The units are in general interchangeable.

As shown in Fig. 3, the unit is in an upright wall with the ends of adjacent units being shown in contact therewith. Studs 12 may be of sheet metal such as steel, each having a surface attached to a surface of the panel by mechanical means or a suitable adhesive. The use of the word "stud" is intended to include joists and any similar beam-like elements. The stud elements are positioned at the ends of the panel elements, and the structural units are assembled in adjacent position, with the stud elements of adjacent units abutting. The concavities 18 of adjacent stud elements are near the panels 10 and face in the same direction and nest or interlock, one with another, the one extending out over the edge of the panel and the other in from the edge of the panel. Each stud element has a second concavity 20 closely adjacent its other end, spaced from and parallel to, but facing oppositely from the first-mentioned concavity in that stud. Immediately beyond the concavity 20, i. e., distal from the panel 10, each stud element is bent parallel to the panel 10 in a flat portion 22. Each stud element may have a flat portion 24 between the two concavities.

It will be seen that the stud on the right of the central unit fits into the stud element on the left hand edge of the next unit to the right. A locking or keying member 26, preferably also of thin sheet metal, is used to hold the two adjacent studs together. This member may be very simple, comprising a flat surface 28 with ends 30 bent around the flat ends 22 of the contacting stud. If desired, a piece of wood 32 may be attached to the key 26 as by a nail or other element before the element is affixed in place. The element 32 may extend the length of the key 26 and may be of any material to which there may be screwed or nailed, or otherwise attached, the second panel or wall closure element.

At the factory, the panel 10 is attached to its two studs 12. A plurality of such units are sent to the site of the building, aligned vertically, in the case of a wall, side by side, with the studs fitting into each other. A locking element 26, with attached strip of wood 32, is slipped down so as to lock each unit with the next unit by holding together the two distal parts of the two

adjacent studs. In the case of an outer wall, the outer wall surface may then be attached to the wooden strips 32 so as to form a series of hollow, upright compartments.

The insulating body may be inserted into the trough-like unit from and through the space between the wooden piece 32 or it may be slid end-wise down into the space between the studs 12 and the panel 10. The wrapped body may be secured to the rest of the unit by an adhesive or by any convenient securing means, such as nails or the like, or it may merely rest in unsecured relation to the building structure.

Since the space defined by the stud elements 12 is, due to their shape, not rectangular in cross-section, the wrapped heat insulating body may have a similar cross-section. This cross-section in the example illustrated is in the form of a parallelogram but not a rectangle.

Since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claim is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

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

In a device of the character described, the combination comprising a slab of mineral wool, said slab being much longer from end to end than it is wide from side to side and being at least several times as wide from side to side as from front to back, said wool slab being compacted together but being of such flexibility that it may be wound into a compact spiral, a wrapping of moisture-proof, rodent-resisting, heavy, fibrous material entirely covering said slab, said wrapping being sufficiently flexible to permit said device with said wool slab therein to be wound as an entire unit upon itself as a compact spiral, stiffening elements of corrugated paper covering the ends of said slab and being within said wrapping, and a plurality of spaced stiffening elements of corrugated material and of low heat conductivity each extending entirely through said slab of mineral wool from side to side and from front to back so as to prevent the passage of any of said mineral wool past any one of said plurality of stiffening elements, each having an area as large as the area of cross-section of said slab, said wrapping overlying itself at its edges, the overlying portions of said wrapping being tightly sealed with a moisture-proof adhesive.

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