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E. MOWERY

1,761,838

WALL INSULATION

Filed Feb. 11, 1929

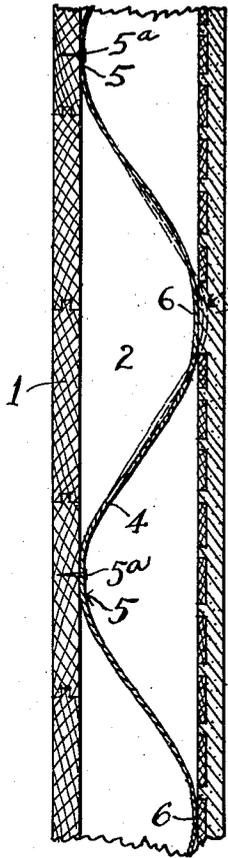


FIG. 1.

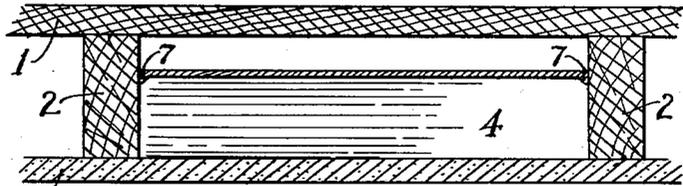


FIG. 2.

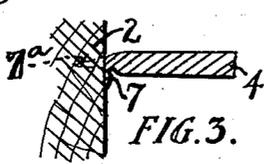


FIG. 3.

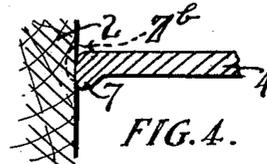


FIG. 4.

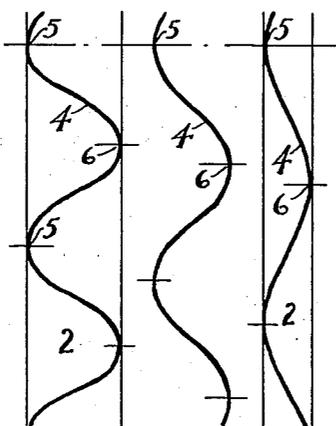


FIG. 5. FIG. 6. FIG. 7.

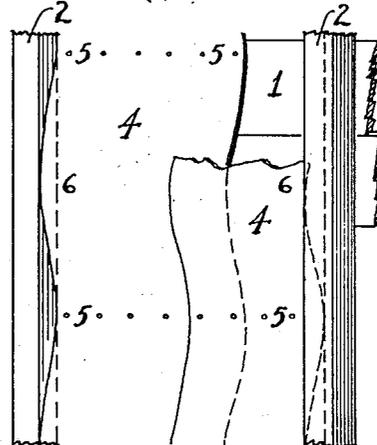


FIG. 8.

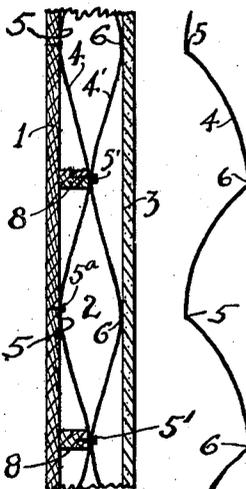


FIG. 9. FIG. 10. FIG. 11.

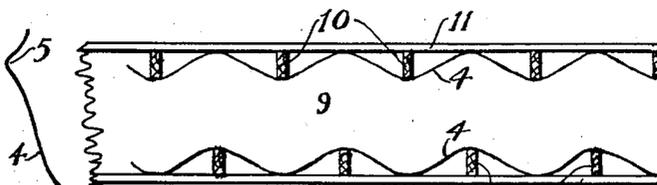


FIG. 12.

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UNITED STATES PATENT OFFICE

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WALL INSULATION

Application filed February 11, 1929. Serial No. 339,075.

This invention relates to wall insulation, and includes walls, floors, roofs, and partitions, etc. of particularly wooden buildings.

The object of my invention is the provision of simple and efficient means for greatly minimizing the danger of fires, extreme cold, minimizing the use of fuel, and in hot weather or tropical climates, tending greatly to keep the building cool, by excluding heat.

With the foregoing and other objects in view, my invention comprises certain novel constructions, combinations and arrangements of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a vertical, transverse sectional view of a wall structure, constructed in accordance with the present invention, which illustrates the principle as it appears in either a wall, partition, floor, or roof parallel to the studs, joists or rafters.

Figure 2 is a horizontal transverse sectional view taken through Figure 1.

Figure 3 is a fragmentary, horizontal sectional view, showing the edge of the insulating sheet with a tapering edge or tongue for producing a very tight joint against the contact wood member such as a stud, while

In Figure 4, a similar view is shown of a soft thick edge formed on a sheet.

Figure 5 is a diagram showing the sheet or board as used in connection with a large or wide stud, joist or rafter.

Figure 6 is a diagram of a standard sheet or board used with an ordinary rafter, stud or joist.

Figure 7 is a diagram showing the sheet or board used in connection with a smaller stud, joist or rafter.

Figure 8 shows a plurality of sheets with overlapping edges, used for larger spaces, occurring between contiguous joists or studs or rafters.

Figure 9 is a vertical, sectional view of a wall structure, showing two sheets in the same space with nailing blocks for securing the sheets in position.

Figures 10 and 11 are diagrams showing modifications of the sheets.

Figure 12 is a diagram, partly in section, showing a quantity of bent or corrugated sheets or boards, crated for shipping.

Referring to the drawings by numerals, 1 designates the outer unit of the building, whether it be the sheathing, clapboard or roof, against which are the studs, joists or rafters 2, with the inner finished surface element 3, such as the wall of the room or the ceiling or the like.

The sheet or board 4 is of any heat insulating material of sufficient thickness and rigidity to hold its preferred shape, but with sufficient springiness to allow it to bend from the position indicated by dotted line 6^a to the fixed position at 6, as a result of pressure from the application of finishing material constituting the inner wall or face 3. The corrugated or irregular sheets or boards are pressed into place between studs, joists or rafters 2, until point 5 comes in contact with outer boarding or sub-flooring, as 1, and is secured to 1 with nails or staples 5^a.

The board or sheet 4 will be manufactured in strips slightly larger than the customary space between studs with the deformable edges 7 either tapered to a point, as shown at 7^a, Fig. 3, or formed with a soft and thick or bushy edge, as shown by dotted line 7^b, so that the original sheet, as shown by said dotted lines, will be depressed by pressure, required to force the sheets between studs into the fixed position, as shown by solid lines 7, in the two embodiments, Figs. 3 and 4, thus insuring tight contact to the studs, joists or rafters. For smaller spaces between studs, sheets may be cut, or for larger spaces, two sheets or more may be used with lapping edges, as shown in Figure 8.

In Figure 6, the diagram shows the shape of preferred sheet, while in Figure 5, the diagram shows the position or shape taken by the sheet when used between larger studs, joists or rafters, while in Figure 7, the diagram shows the sheet bent into a smaller space, as when used in conjunction with smaller studs.

Figure 9 shows possible application of two

sheets 4 and 4' in the same space with nailing blocks 8, for securing the second sheet at 5'.

In Figures 10 and 11, modified forms of the sheet are shown; in Figure 11, I have shown the sheet as having less surface contact with boarding 1, and inside finish 3, thus giving better insulating results.

In Figure 12, I have shown a plurality of corrugated sheets or boards 9 crated for shipping; 10 are blocks of the same depth as the pitch of the corrugations, and 11 are strips to hold blocks 10 in place, thus providing a compact, secure and economical method of packing for shipping. The insulating effect will be produced both by the quality of insulation in the sheet itself and by dividing the whole (including the space between the outer and inner wall units) stud spaces into tight, horizontal dead air spaces. By dividing the whole flue-like spaces between the studs, joists or rafters into a number of cells at right angles to the length of studs, joists or rafters, fire would have to burn through from one space to the next in order to spread in the spaces, and would tend to smother itself by exhausting oxygen and generating carbon dioxide. This fire stopping quality would be increased by impregnating sheets with fire resisting chemicals.

This sheet or board can be manufactured in several different widths and different size corrugations to fit all customary spaces between three inch to six inch studs and six inch to twelve inch rafters or joists. Odd shapes and spaces may be readily fitted.

The sheet or board can be applied with a minimum of waste, cutting or fitting, and no cleats or nailing strips are required, although a very tight fit in between the studs and the outer and inner wall units is obtained, especially by reason of my peculiarly formed edges, as shown in Figures 3 and 4. These edges act as clamps or binders, whereby an air-tight joint is produced, as well as practically making it impossible for any displacement of the sheet without great manual strain.

My sheet or sheets may be manufactured of waste lumber material, chemically treated, or other fibrous material, suitable for insulating sheets or boards, and if generally used would result in a substantial saving of lumber otherwise wasted and fuel wasted in heating poorly insulated houses or buildings.

This sheet or construction would be in convenient form to use for sound-proof partitions, built with staggered studs, as a sound deadening felt placed between the studs. In this case, the sheets would be placed horizontally, not shown, with the corrugations vertical, and the sheets overlapping, as indicated in Figure 8.

My sheets or boards may be easily packed in a compact manner for shipping to reduce damage in transit, and insures delivery in

good condition, at a minimum transportation charge.

While I have described the preferred embodiments of my invention and illustrated the same in the accompanying drawings, certain minor changes or alterations may appear to one skilled in the art to which this invention relates during the extensive manufacture of the same, and I, therefore, reserve the right to make such changes or alterations as shall fairly fall within the scope of the appended claims.

What I claim is:

1. As a new article of manufacture, an insulating sheet having partitioning-engaging edges varying in shape from the body of said sheet, and said partitioning-engaging edges being capable of bending when crowded against partitioning elements for entirely holding said sheet in place.

2. As a new article of manufacture, an insulating sheet provided with tapering flexible opposite edges adapted to be bent against partitioning elements for entirely holding said sheet in position.

3. An insulating sheet provided with deformable edges, and said deformable edges adapted to cause a gripping action on partitioning means when said sheet is therebetween.

In testimony whereof I hereunto affix my signature.

ELDRED MOWERY.