

Feb. 23, 1937.

E. D. CODDINGTON
INSULATING LATH MATERIAL

2,071,454

Filed July 9, 1934

2 Sheets-Sheet 1

Fig. 1.

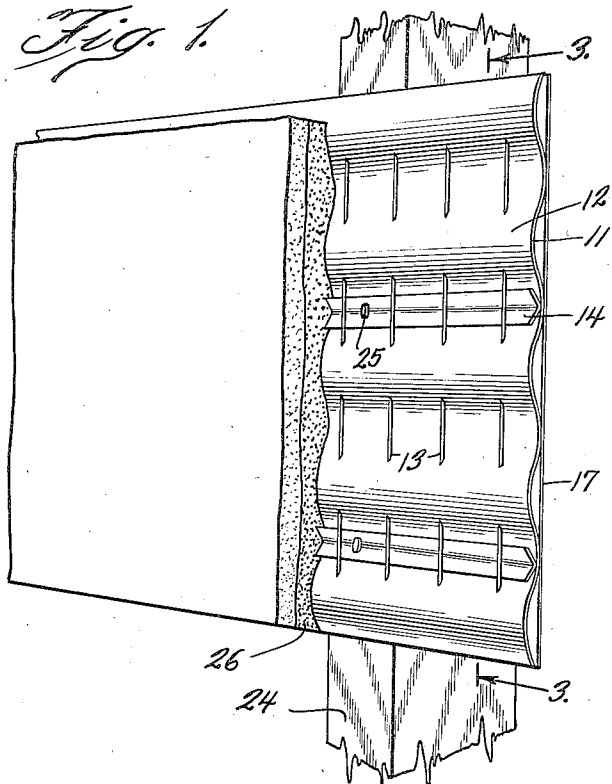


Fig. 2.

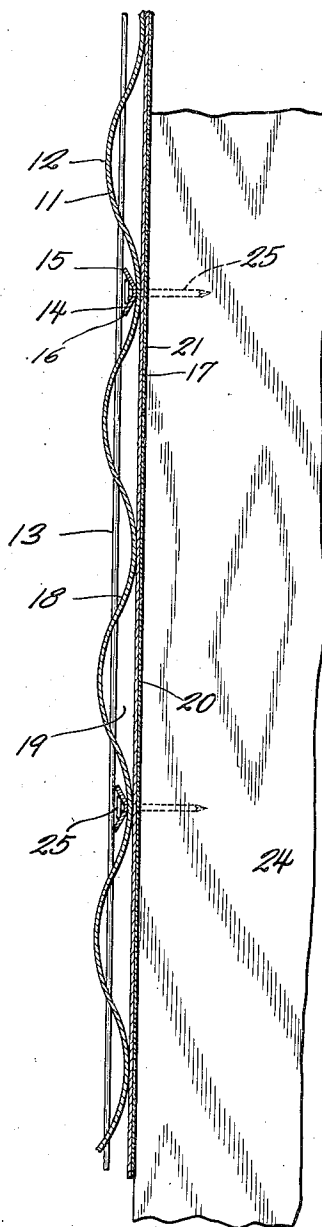
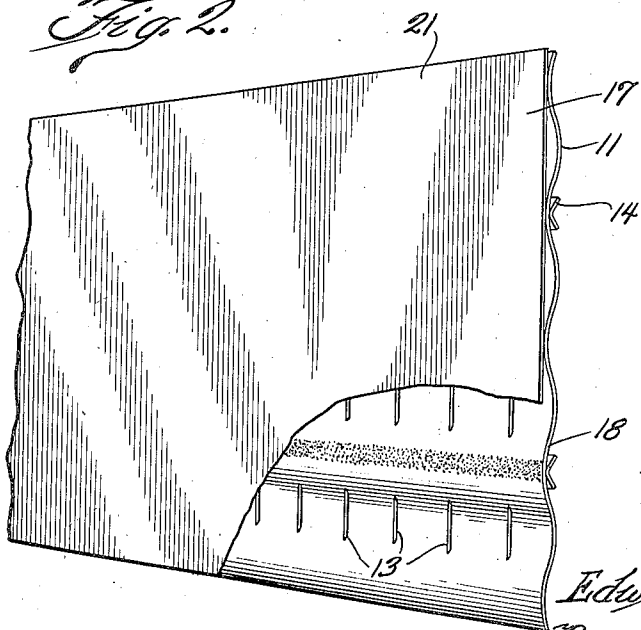


Fig. 3.

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2 Sheets-Sheet 2

Fig. 4.

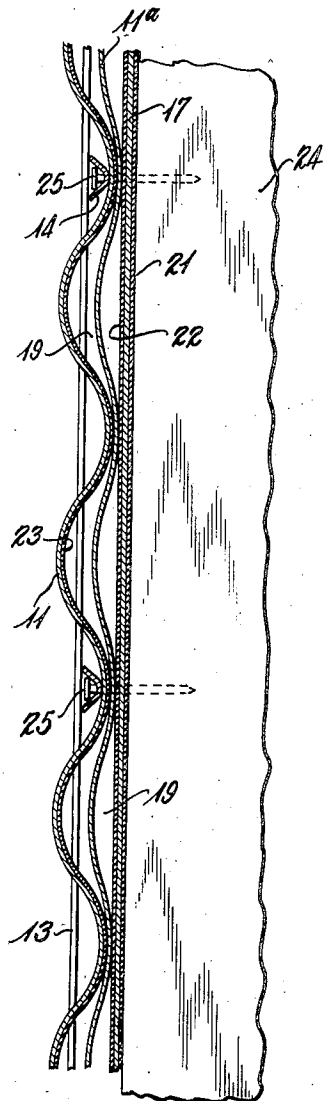
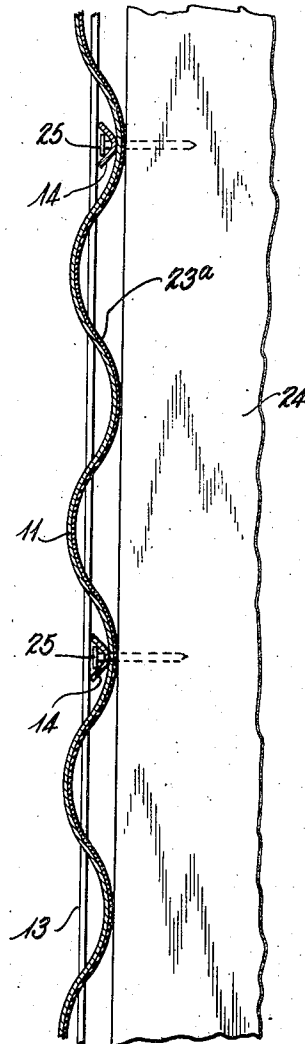


Fig. 5.



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UNITED STATES PATENT OFFICE

2,071,454

INSULATING LATH MATERIAL

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Application July 9, 1934, Serial No. 734,270

15 Claims. (Cl. 72-116)

This invention has to do with a material for lathing walls preparatory to applying plaster or stucco thereto and has to do with an improved structure for such material and for such walls.

Among the objects of the invention are an improved lath material or plaster base in sheet form; a new, economical and convenient lathing material or plaster base; a lathing material or plaster base having the insulating properties of air cells and bright metal surfaces or either of them; an improved wall construction; and an unique insulation for walls.

Other objects of the invention will appear from the description of the invention which follows.

Lathing materials or plaster bases in sheet form heretofore have been used but they were not adapted to be used or intended to provide either reflective or air cell insulation or a combination of the two for the walls in which they were used. Such materials were not water-proof or vermin-proof. Such earlier structures were liable to shrink or warp and were not particularly well suited for saving time and labor in installation.

The structure herein described overcomes all of these difficulties. Such structure consists of the parts and arrangement particularly set out hereinafter and illustrated in the several figures appearing in the sheets of drawings appended hereto.

In said drawings:

Figure 1 is a perspective view, from one side, of a section of a sheet of the improved plaster base in place in a wall and partly covered with plaster;

Figure 2 is a perspective view from the other side of the section of the sheet shown in Figure 1;

Figure 3 is a section taken on line 3-3 of Figure 1;

Figure 4 is a modified form of plaster base shown in vertical cross-section; and

Figure 5 is another modified form of plaster base shown in vertical cross-section.

Like reference characters are used to designate similar parts in the drawings and in the description of the invention which follows.

In Figure 1, that side of the sheet lathing to which plaster is applied is illustrated. Such lathing is a combination of sheets of suitable paper stock or other material, bracing wires, ribs, metal foil and fastening means. Sheet 11 may be of heavy and dense paper or some similar material, which latter, if so desired, may be chosen for greater resistance to burning. The front side 12 of sheet 11 is such that wet plaster will adhere to it. Ordinary paper surfaces free from waterproofing fill this requirement.

Threaded through the sheet 11 and spaced (generally) about an inch and a half apart are rods or wires 13 of steel or other suitable metal.

The rods or wires 13 pass from face to face of

the sheet 11 and are substantially straight, so that, as indicated in the drawings, the sheet 11 is given a wavy form, with the axis of each wave lying at right angles to the wires 13.

On the front side 12 of the sheet 11 and in the hollows of the waves formed by the wires 13 in the sheet and between the wires 13 and the sheet 11, are metal ribs 14 of a cross section that may be substantially V-shaped, as indicated in the drawings. Ribs 14 in the form shown may be of galvanized iron or steel and pass from side to side of each sheet of lathing. Where ribs 14 pass under the wires 13 they may be welded to the wires as at points 15 and 16. Such welding may be electrical.

If desired, the ribs 14 may be of other form than the V-shaped cross section shown, but such V-shape is economical and well adapted to the form of the groove in which the ribs 14 lie and has been found well suited to the purpose. In the form of lathing shown, there is a rib 14 in every other hollow. Greater strength may be provided by placing a rib 14 in every hollow, or a very light sheet could be made by spacing both wires 13 and ribs 14 farther apart. The portions illustrated have been found suitable for ordinary use.

The waves in the sheet 11 in one commercial form of the invention measure about two inches from crest to crest. The wires are passed through the slopes of the waves substantially at the point midway between crest and hollow, though as a general rule more wire is exposed in the hollows occupied by the ribs 14 than in the hollows on the back of sheet 11.

At the back of sheet 11 is a second sheet 17 attached as by an adhesive or otherwise to the backwardly extending crests 18 of sheet 11. The second sheet 17 does not follow the waves of sheet 11 but is substantially flat, so that the hollow of sheet 11 when it is regarded from its rear, forms with sheet 11 air pockets or cells 19. Neither the wires 13 nor the ribs 14 contact the second sheet 17 which forms a continuous sealing layer at the back of the lathing material. The dead air spaces or cells 19, especially when the enclosing surfaces are covered with bright metal, avert transfers of heat.

On the exposed side 20 of sheet 17 there is a sheet of polished metal foil 21. If desired, the polished or bright surface of foil 21 may be supplied by painting or spraying surface 20 with metallic paint or other material. It is believed that metal foil and particularly aluminum foil gives the brightest, most lasting, and most efficient reflective surface. The foil 21 may be of tin or zinc or other metal, but aluminum foil combines the qualities of great reflectivity, lightness, and long life to the polished side thereof and thus has been found to be highly satisfactory. Such aluminum

foil retains its reflectivity over an indefinite period in the present structure.

When the highest insulating characteristics are desired, in addition to the foil 21 applied to the exposed side 20 of sheet 17, the opposite and enclosed side of sheet 17 is covered with foil sheet 22, and also if desired, the back of sheet 11 may have a foil coating 23, as shown in Fig. 4. A sheet of foil or foil covered paper 11a may be inserted between sheets 11 and 17 to divide each air cell 19. The insulating qualities of the lathing material are excellent without the added dividing sheet and even when the foil coatings 22 and 23 are omitted.

When a lighter and cheaper, but not quite so efficient insulating lathing material is desired, the second sheet 17 is omitted and foil or other bright metal surface 23a is provided on the back side of sheet 11, as indicated in Fig. 5. When the lathing material is applied in a structure in such position that there is no air space between the back side 20 of sheet 17 and the adjacent material of such structure, the foil coating 21 on the back side 20 may be omitted. The foil is then applied to one or both of the interior surfaces of the air cells in the manner of sheets 22 and 23, as indicated in Fig. 4. Such a structure may be useful when it is desired to apply an adhesive material between sheet 17 and the wall to which it is applied.

The lathing 10 is applied to an ordinary wall structure by nailing to the studding 24. The lathing is positioned with the wires 13 running vertically and the ribs 14 horizontally. This particular method of attachment may be varied to suit a particular case, but this arrangement is highly satisfactory. The metal coated face 20 of sheet 17, or the sheet of foil at the back of sheet 11 in the lighter form is towards an open space in the wall. Fastening of the sheet to the studding is had by driving nails 25 through the center of each rib 14 and into each studding piece. Care should be taken not to unnecessarily flatten the ribs during the nailing process. Each rib 14 should be fastened by a nail to each studding piece that it crosses. On the opposite side of the studding may be another layer of lathing sheet so that there are provided opposed faces of bright metal, adding heat insulating efficiency. If the lathing is using where it would not be faced by other sheets of the same material, the openings between the studding members may be provided with other suitable means of insulation. It is desirable to maintain an air space adjacent the bright metal face of the lathing, because otherwise the insulating effect of the bright metal may be reduced or lost. The insertion of sheets of foil, either crumpled or flat, into the wall space will not disturb this air space and will provide an extraordinarily efficient insulation when used in conjunction with this lathing.

After the lathing is fastened to the studding, plaster 26 is applied to the lathing. The plaster is laid against the surface 12 of sheet 11 so that it spreads into all the crevices and under the wires 13 and the edges of the ribs 14 in the lathing. It is clear that these anchorages for the plaster, together with the holding effect of the uncoated face 12 of the paper, will maintain the plaster firmly in place. If the attachment of the first coat of plaster is had in this way, the plastering may be done in any suitable way according to the requirements of the case. There should always be a sufficient body of plaster. Care should be taken to allow enough time for hardening and

drying. Such time will be longer than that required for lathing which is open on the back because the back of this improved lathing is air proof and waterproof.

Where a corner is to be plastered, the lathing may be placed so as to meet edge to edge at the corner, or the sheets may be bent, as around a straight edge, to fit into the corner, thus strengthening the corner and insuring the plaster against cracking. A bend in the lathing should be at right angles to the ribs.

For ease in handling, the sheets of lathing may be made of selected sizes as, for instance, about four feet by two and a half or three feet. It is found advantageous to add an inch to the width and about three-quarters of an inch to the height of each sheet for overlaps. Thus the extreme dimensions of a sheet to cover an area four feet by two and one half feet would be forty-eight and three-quarter inches by thirty-one inches. The extra inch or fraction of an inch allows for an overlap between sheets while maintaining the effective dimensions in even feet and simple fractions thereof, so that the sheets will fit readily onto walls as they are now customarily built. The sheets of lathing may be cut with a tinner's ordinary shears, and in cutting a proper allowance must be made for overlap.

The recommended arrangement for applying the sheets to a wall is to run the horizontal laps in straight lines and to stagger the vertical laps, so that there will not be a straight line of overlap across a wall parallel to floor or ceiling. The tendency to form transverse cracks thus will be avoided. Where the sheets come to a window frame they may be cut to allow about a half-inch extra which is bent outwardly and then fastened. Where the wall sheets run into the ceiling sheets, the top round of wall sheets may be cut so as to allow a rather wide turnover onto the ceiling. The application should proceed from the floor to the ceiling and the ceiling sheets be put on over the wide turnover of the wall sheets.

Outside stucco or any other finish that may be applied in like manner may be spread over these improved lathing sheets. Wherever the lathing sheets are used they provide a waterproof, verminproof, light, economical and convenient base for plaster or stucco and an efficient insulation against heat and cold. The welded cross bracing they supply adds greatly to the strength of the wall.

As pointed out asbestos or other fibrous material may be used as a base in place of the paper shown. It should be treated that it may be readily coated with bright metal and take plaster. While the invention has been described in connection with what is believed to be its principal utility as a ground or base for plastic material, obviously the sheets when provided with the heat-reflective coating as described above may be utilized without having plaster applied thereto solely for its insulating effect. The term "plaster base", "lathing" and the like used throughout the specification and claims are employed simply for convenience and are not to be regarded as limiting the scope of the invention.

What is claimed as new and is desired to be secured by Letters Patent of the United States is:

1. A plaster base material comprising a sheet of fibrous material, a plurality of spaced wires each intersecting said fibrous material at a plurality of points, ribs between said wires and said sheet, and a coating of bright metal on one face of said sheet.

2. A plaster base material comprising a sheet of fibrous material covered on one side with bright metal, a plurality of spaced wires each intersecting said sheet of fibrous material at a plurality of points, and metal ribs at the uncovered side of said sheet and between said sheet and said wires and at right angles to said wires.

3. A plaster base material comprising a corrugated sheet of heavy paper, a plurality of wires at right angles to said corrugations and each intersecting said paper at each side of each of said corrugations, metal ribs in the troughs of said corrugations at one side of said sheet of paper and between said paper and said wires, a second sheet of paper at the face of said first sheet away from said ribs and forming air cells with said first sheet, and a coat of bright metal on one of said sheets.

4. A plaster base material comprising sheets of fibrous material back to back, a plurality of spaced wires each intersecting one of said sheets of fibrous material at a plurality of points, ribs between said wires and said sheet on the face thereof away from the other sheet of fibrous material, and a coating of bright metal on said other sheet of fibrous material.

5. A wall structure comprising studding members having spaces therebetween, a sheet of corrugated plaster base material coated on one side with bright metal and attached to said studding members with the bright metal coat facing the openings between said studding members, and plaster applied to the uncoated side of said lath material.

6. A wall structure comprising studding members having spaces therebetween, a sheet of corrugated lath material coated on one side with bright metal and attached to said studding members with said bright metal coat facing the openings between said studding members, a plurality of wires at right angles to said corrugations and each intersecting said corrugated material at a plurality of points, metal ribs in selected troughs of said corrugated material and between said material and said wires, and plaster upon the face of said lath material away from said studding members and anchored in place by said wires and said ribs.

7. A plaster base material comprising two sheets of paper or the like, one of said sheets providing a substantially plain flat surface and the other sheet being corrugated to provide air cells between said sheets, there being a coating of bright metallic foil upon the faces of said sheets defining said air cells.

8. As an article of manufacture, fabricated lathing material for use in building construction and comprising sheet material, a bright metallic coating on one side of said sheet material, and a plaster supporting reinforcing means of metal having exposed plaster engaging parts on the side of said material away from the bright metallic coating.

9. As an article of manufacture, fabricated plaster backing material for use in building construction and comprising fibrous sheet material, a bright metallic coating on one side of said sheet material, and a plaster supporting reinforcing means of metal having sections spaced from said sheet material to facilitate the attachment

ment of a layer of plaster, the supporting portion of said reinforcing means being on the side of the sheet material away from said bright metallic coating.

10. A wall construction comprising studding members having spaces therebetween, lathing material attached thereto and comprising sheet material, a bright metallic coating on said sheet material on the side toward said studding and facing the spaces between said studding members, plaster supporting metal reinforcing means having portions thereof spaced from said sheet material at the side thereof away from said studding, and a coating of plaster upon said sheet material and about said spaced away portions of said reinforcing means.

11. A plaster base comprising a corrugated sheet of fibrous material, a coating of bright metal on one side of said sheet, and plaster retaining reinforcing members affixed to said sheet and extending transversely of the corrugations for maintaining the corrugations therein.

12. As an article of manufacture, fabricated lathing material for use in building construction and comprising sheet material, a bright metallic coating on one side of said sheet material, and a plaster supporting reinforcing means of metal having exposed plaster engaging parts on the side of said material away from the bright metallic coating, said sheet material and bright metallic coating being in the form of substantially parallel hills and valleys and the material being adapted for incorporation into a wall construction with the hills and valleys extending horizontally so as to provide resistance to heat losses due to convection.

13. A wall structure comprising supporting members, plaster anchorage means overlying a plurality of said supporting members and secured thereto with their rear surfaces facing hollow wall spaces, the rear surface of each sheet being substantially completely covered with a heat reflecting medium which is in the form of a plurality of substantially horizontally arranged hills and valleys.

14. A plaster base comprising a corrugated sheet of fibrous material, a coating of bright metal on one side of said sheet, plaster-retaining reinforcing means for said sheet, said plaster-retaining reinforcing means comprising a series of metal elements extending between the hills a spaced distance from their crests and bridging the valleys of the corrugations, and trough-shaped metal ribs disposed between the elements and the bottoms of certain of the valleys upon one side of the sheet only.

15. As an article of manufacture, fabricated lathing material for use in building construction and comprising sheet material presenting a bright metal surface on at least one of its sides and a plaster supporting reinforcing means of metal having exposed plaster engaging parts on one side of said material, said sheet material being in the form of substantially parallel hills and valleys and the material being adapted for incorporation into a wall construction with the hills and valleys extending horizontally so as to provide resistance to heat losses due to convection.

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