Jan. 11, 1938. J. H. MAGNUSON 2,104,878

PREFABRICATED BUILDING

Filed March 4, 1937

Fig. 1.

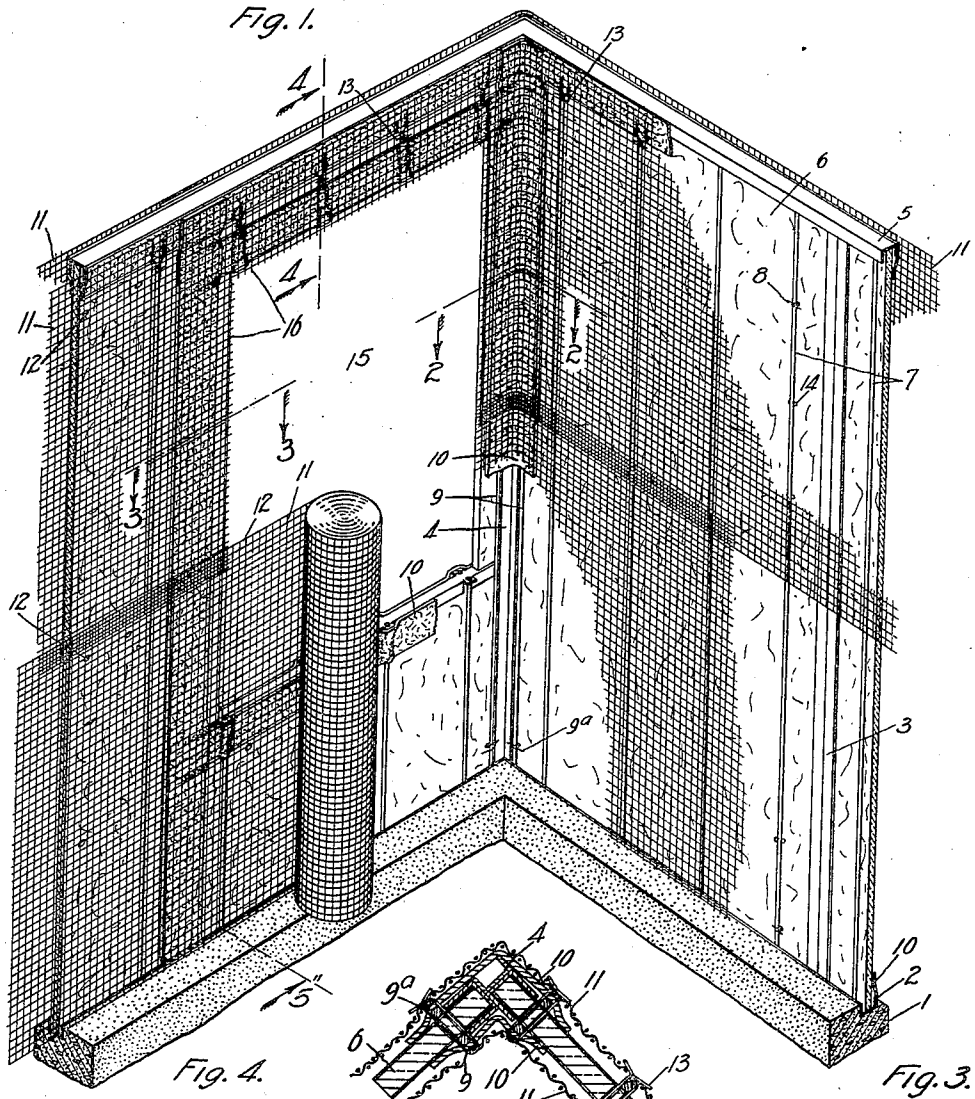


Fig. 4.

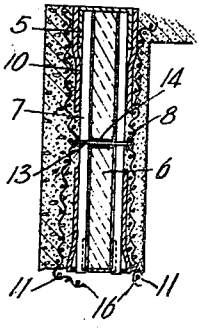


Fig. 2.

Fig. 5.

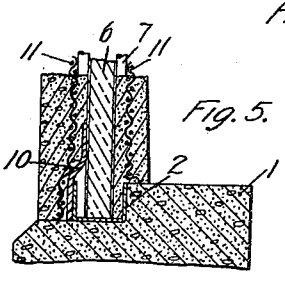
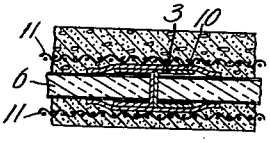


Fig. 3.



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PREFABRICATED BUILDING

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Application March 4, 1937, Serial No. 129,094

8 Claims. (Cl. 72—1)

My invention relates to prefabricated buildings.

It has heretofore been proposed to construct such buildings having a metal wall frame presenting panel apertures and having panels disposed in these apertures; anchoring or clinching material being carried by the opposite faces of the panels and spaced therefrom by reenforcing and spacing rods, and forming a unit therewith when shipped. This anchoring material heretofore has been in the form of small sheets of wire mesh but slightly larger than the panel boards, which overlie the panel boards and have protruding edges adapted to overlie the frame; these sheets forming a part of each panel unit and being adapted to be coated with and clinch cementitious material on the opposite faces of the wall after the anchoring material carrying panels have been assembled into the wall frame. As a result, it has not only been necessary to cut the reenforcing material into these small sheets, but further to assemble and attach these sheets to the panel board with exactness at the factory and then maintain the parts of the units in this relation. Moreover, difficulty has been experienced due to malformation of the sheets, and particularly the protruding edges thereof, during shipment and erection, while the added weight of the anchoring material has increased shipping cost and further increased the difficulties in erection. In such constructions, it has also been proposed after the erection of the anchoring material carrying panels in the frame, to cover the opposite faces of the through connected members of the wall frame with strips of felt or other insulating material to prevent condensation on the inner wall surface. As a result, with the mesh covered units in place in the frame, it has been necessary to roll out all of the four protruding edges of the anchoring material on each panel unit, in order to expose the portions of the metal frame to be covered with felt, and this has involved considerable difficulty. Further, after the felt has been applied, it has been necessary to roll back these rolled out edges. Thus, considerable difficulty and expense has been encountered, these operations requiring considerable time, and particular difficulty being experienced where the edge portions overlie one another between adjacent panels, lacing or sewing together of the overlapping edge portions being desirable to hold them in the desired relation.

My invention has among its objects to eliminate the above difficulties and markedly expedite and facilitate the erecting operation and thereby materially reduce the cost of such a building. A further object of my invention is to provide an improved construction whereby it is made possible to omit the sheets of anchoring material from the panel units, and thereby not only reduce the expense incident to the production and erection of the same in the wall, but also to eliminate all necessity for either rolling out the anchoring material at the panel edges, or rolling back the same, or sewing or lacing it. A further object of my invention is to produce an improved construction wherein, while obtaining these advantages, it is also made possible to obtain a definitely improved wall surface over the metal frame parts through the elimination of the overlapping portions of the anchoring material, all tendency of the cementitious material to crack along the studs, due to unevenness of the overlapped anchoring material, being eliminated. A still further object of my invention is to produce a construction having the above advantages and further having the additional advantage of enabling the belt to be quickly and readily applied without any interference from the anchoring material, and then enabling the latter to be applied in a simple and quick operation in a continuous strip or strips covering, if desired, the whole height of the wall and extending over a plurality of panels and their cooperating frame structure, or, if desired, clear around substantial portions of the building. Still further objects of my invention are to provide such a construction which, while having the advantages set forth, will permit the anchoring material to be applied directly from a roll of the same and with markedly increased facility, while also making it possible to provide apertures therein for closures, such as doors and windows, with marked facility and a minimum of expense. These and other objects and advantages of my improved construction will, however, hereinafter more fully appear.

In the accompanying drawing, I have shown for purposes of illustration one embodiment which my invention may assume in practice.

In the drawing,—

Figure 1 is a perspective view of an inside wall of a building of my improved construction, the same being shown in process of erection and certain portions of the frame and panels being covered with felt and anchoring material, while other portions of the same remain uncovered;

Figure 2 is a sectional view on line 2—2 of Figure 1, showing a transverse section through the wall at the corner stud when the wall struc-

ture is ready for the inner and outer cementitious coatings;

Figure 3 is a sectional view on line 3—3 of Figure 1, the cementitious coatings however also being shown;

Figure 4 is a sectional view on line 4—4 of Figure 1, the wall here also being coated, and

Figure 5 is a sectional view on line 5—5 of Figure 1, likewise after coating.

In this illustrative construction, it will be noted that a suitable foundation 1 carries usual bottom or sill channels 2 having oppositely disposed intermediate studs 3 of channel form therein and cooperating with corner studs 4, likewise of channel form, while upper plate forming channels 5 receive the upper ends of the studs and cooperate therewith to present channel apertures in which insulating panels 6, carrying vertical reenforcing and spacing rods 7 on their opposite faces, are disposed, with the edges of the panel board 6 received within the several channels 2, 3, 4, and 5.

In my improved construction, the panel units as built and shipped, comprise only the insulating board 6 and the rods 7 thereon and connected thereto by suitable connecting means, as, for example, wires 8 spaced along the rods and extending through apertures in the panel board. Thus, it will be evident that, not only is all necessity eliminated for cutting the anchoring material into sheet form and quite precisely fitting it onto the panel board so that its edges protrude the proper distance beyond the edges of the latter, but that all necessity for shipping or erecting the unit in this heavier form is eliminated, as well as the difficulties due to bending of the anchoring material during shipment or erection.

With the panel unit in this improved form, the frame and panels are assembled substantially as heretofore, in the relation shown in Figure 1. However, during this process of assembly, a plurality of additional rods 9 is inserted adjacent each corner panel 4. As illustrated in Figure 2, one of these rods is disposed in the outside wall parallel to and closely adjacent the outer flange of one of the channel members comprising this corner stud, and another rod 9 is similarly disposed relative to the other outer flange of the channel, while corresponding rods 9 are similarly disposed relative to the inner flanges of both channels. Note here that these rods 9 are in addition to the rods 7 nearest the vertical edges of the adjacent panels and carried on a standard panel 6, and that preferably the rods 9 are not fixed to the panel unit before these rods are inserted, instead being simply moved into the position shown in Figure 2 close against their channel members and with their opposite ends received in the channels 2 and 5, before the top channel is lowered into place. However, if desired, these rods 9 may also be attached to the panel units before shipment, and they are preferably attached to the same after erection by tying wires 9a similar to the wires 8 used to fix the rods 7 to the panel boards. After the wall frame and panels have been thus erected, then the felt strips 10 are disposed over the desired surfaces of the metal frame, the same herein being laid over the studs and channels in a usual manner and also over the additional rods 9 as shown in Figure 2, this operation being markedly facilitated and expedited by the absence of the anchoring material previously forming a part of the panel unit.

When the entire felt stripping has been applied as desired, I next apply the anchoring material, herein in the form of one or more continuous strips of suitable wire mesh 11, spaced by the rods 7 and 9 and covering a plurality of panels and their associated frame structure with a single thickness of wire. Here note that, if desired, this mesh may be of such height as to enable the entire wall surface between the foundation and plate, to be covered in one operation and while unrolling a single roll of the wire along the wall. However, it will be noted that herein I have shown two strips of such wire mesh 11 used to form the anchoring material. In practice, the roll or rolls, disposed vertically against the wall, are unrolled along the latter, the wire fabric being suitably attached to the wall as the wire is unrolled against the wall. Preferably, however, I temporarily nail the wire mesh to the insulating board 6 at as many points, indicated at 12, as may be necessary, and thereby make it possible for the entire wall to be covered very quickly, later having holding wires 13, corresponding to the usual holding wires 8 and 9a and those heretofore used on the unitary panels, inserted after the entire wall has been thus covered with wire on both surfaces thereof, to bind the wire mesh to the rods 7 and the boards 6. To facilitate this operation, I also preferably connect the rods 7 by only a few holding wires 8 and leave a plurality of additional apertures 14 in the board so that after the wire mesh coverings have been applied, wires may be inserted through these apertures to connect all of the parts together in the same manner used in previous anchoring material carrying units.

As a result of my improvement, it will be noted that not only is the manufacturing cost of the units, as shipped and erected, materially reduced, but that the operation of erecting them into the metal frame is materially expedited and facilitated due to the elimination of the mesh. Further, it will be observed that the operation of applying the felt is markedly facilitated and expedited, while it is also made possible very quickly and easily to cover the entire wall surface with a continuous strip or strips of wire mesh. Note further that this results in an improved and more unitary and stronger wall, and one whereby, due to the improved disposition of the anchoring material uniformly in a single smooth layer, it is made possible to provide improved coatings of cementitious material having better lasting qualities. Attention here is particularly directed to the elimination of inequalities in the thickness of the wire mesh and resultant inequalities in quality and thickness of the cementitions coatings, it being found that difficulties with cracking of the latter heretofore experienced along the studs is markedly reduced by my improved construction. By applying the anchoring material in sheet form, it will also be evident that the necessary apertures for closures, in certain panels, such, for example, as the window aperture 15, may also be readily provided by simply cutting out the wire mesh, as shown at 16, to form the desired aperture after the wire mesh has been applied. Stopping the mesh at one edge of the aperture, and starting to unroll a new strip at the far edge thereof, as well as the use of narrower rolls where necessary, also enables the aperture to be formed in the mesh while minimizing cutting in connection with the apertures. Attention is further directed to the fact that my improved construction also makes it possible to

obtain better inside and outside corners than have heretofore been obtainable due to the overlaps heretofore provided. It will also be noted that my improved rod construction at the corners strengthens the latter, while also permitting the felt and single layer of wire, to be satisfactorily disposed in the corner, and also eliminating any need for either sewing or the use of a reenforcing rod at the apex of the corner in order to permit the overlapping portions to be wrapped about this rod. These and other advantages of my improved construction will, however, be clearly apparent to those skilled in the art.

While I have in this application specifically described one embodiment which my invention may assume in practice, it will be understood that this form is shown for purposes of illustration, and that the same may be modified and embodied in other forms without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:—

1. In a prefabricated building, a wall structure comprising a frame presenting panel apertures, panel means in said apertures carrying anchoring material spacing means, and continuous sheet means of anchoring material overlying a plurality of panel means and said frame and spaced by said spacing means.

2. In a prefabricated building, a wall structure comprising a frame presenting panel apertures, panel means in said apertures carrying anchoring material spacing means, condensation preventing means carried on said wall and overlying and conforming to portions of said frame, and continuous sheet means of anchoring material overlying a plurality of panel means and said condensation preventing means and frame and spaced by said spacing means.

3. In a prefabricated building, a wall structure comprising a frame having vertical studs and transverse members cooperating to present panel apertures, panel means in said apertures carrying anchoring material spacing means, and continuous sheet means of anchoring material carried on said wall and overlying said panel means in a plurality of apertures and spaced by said spacing means and disposed in a single thickness over substantially the entire area of said studs.

4. In a prefabricated building, a wall structure comprising a frame having vertical studs and transverse members cooperating to present panel apertures, panel means in said apertures carrying anchoring material spacing means, continuous sheet means of anchoring material carried on said wall and overlying said panel means in a plurality of apertures and spaced by said spacing means and disposed in a single thickness over substantially the entire area of any intermediate stud, and condensation preventing means overlying said studs and disposed between the latter and said sheet means.

5. In a prefabricated building, a wall structure comprising a frame having vertical studs and transverse members cooperating to present panel apertures, panel means in said apertures carrying anchoring material spacing means, condensation preventing strips carried on said frame and overlying said studs and transverse members, and continuous sheet means of anchoring material carried on said wall and overlying said panel means in a plurality of apertures and said condensation preventing strips and spaced by said spacing means and disposed in a single thickness over substantially the entire area of said studs.

6. In a prefabricated building, a wall structure comprising a frame having vertical studs and transverse members cooperating to present panel apertures, panel means in said apertures carrying anchoring material spacing means, and continuous sheet means of anchoring material carried on inner and outer faces of said wall and overlying said panel means in a plurality of apertures and spaced by said spacing means and disposed in a single thickness over substantially the entire area of any intermediate stud, one of said studs comprising a corner stud and having said single thickness of said anchoring material overlying each inner and outer face of said stud.

7. In a prefabricated building, a wall structure comprising a frame presenting panel apertures including studs and transverse members cooperating therewith, panel means in said apertures carrying spaced anchoring material spacing rods including rods adjacent the opposite side of each of said studs, one of said studs being a corner stud and having supplemental rods at opposite sides of the outside and inside of said corner stud and between the latter and said adjacent rods, and continuous sheet means of anchoring material covering said panels and frame and having single thicknesses of anchoring material overlying said studs.

8. In a prefabricated building, a wall structure comprising a frame presenting panel apertures, panel means in said apertures carrying anchoring material spacing means, continuous sheet means of anchoring material overlying a plurality of panel means and said frame and spaced by said spacing means, one of said panel means having a closure receiving means therein presenting an aperture, and said continuous sheet means having an aperture formed therein conforming to said last mentioned aperture.

J. HARRY MAGNUSON.