June 10, 1930. L. LANE 1,763,469

FLAT ASBESTOS CEMENT ROOF AND WALL SHEET

Filed Feb. 9, 1928

Fig. 1,

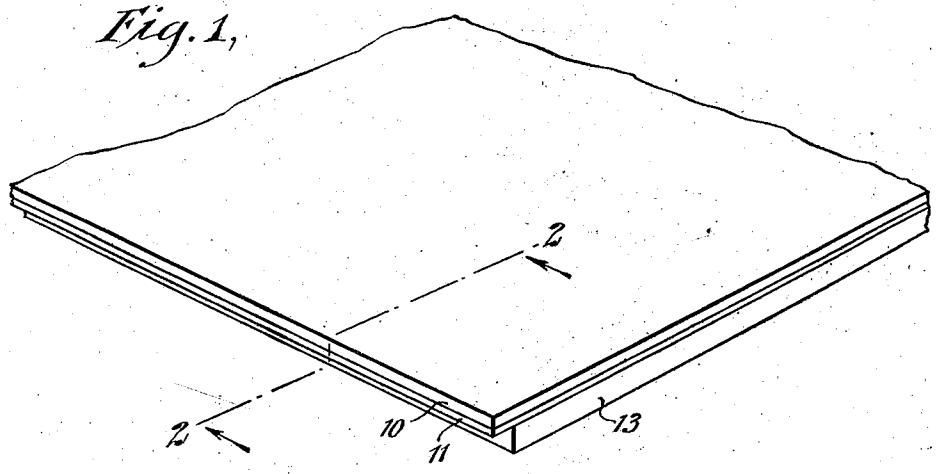
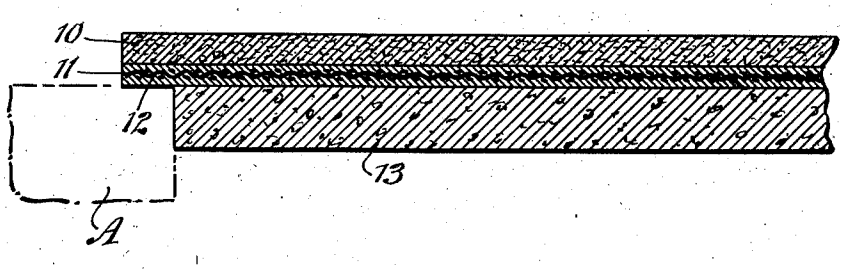


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE

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FLAT ASBESTOS-CEMENT ROOF AND WALL SHEET

Application filed February 9, 1928. Serial No. 253,101.

My invention relates to an improvement in the manufacture of flat asbestos-cement roofing and walling sheets of a form to be applied directly to the vertical supporting frame member of a building without sheeting or other horizontal supports underneath and without overlapping of the sheets at their sides. These relatively thin, flat asbestos-cement sheets of single thickness unitary material when used as stated above, are characterized by certain defects that have very much limited their use for the purposes stated and caused them to be more or less unsatisfactory when so used. One of these defects is that in their single unitary thickness of material they are too flexible and too brittle so that when made of any usable practical width they are too easily bent and broken by heavy wind and other loads and strains or by impacts. Another defect is that their imperviousness to water absorption is too low and unreliable, and another defect is that the thermal non-conductivity of the sheets is too low to properly insulate the building against heat and cold.

It is the principal object of my invention to overcome these stated defects so that the use of the flat asbestos-cement sheets in question in the way and for the purpose stated may be widened and their usefulness improved.

Reference is to be had to the accompanying drawings forming a part of this specification, it being understood that the drawings are merely illustrative of one example of the invention:

Figure 1 is a perspective view of a fragment of the flat asbestos-cement roof and wall sheet and formed in accordance with my invention; and

Figure 2 is an enlarged section on the line 2—2 of Figure 1.

To secure the objects of my invention in my improved form of flat asbestos-cement sheet, I apply to the inner side of the outer primary flat sheet 10, and preferably using the rougher surface thereof as ordinarily produced for the inner side, a properly proportioned coat or layer of a suitable magnesium, oxy-chloride-silex-silica sand, or high alumina Portland cement mortar 11 of a considerably higher tensile strength than the primary sheet 10, and of a suitable thickness proportional to that of the primary sheet, and I imbed in said layer 11 a woven metal wire mesh reinforcing element 12 of size sufficient to materially increase by the well known properties of metal reinforcement of cement work the stiffness and transverse strength of the outer asbestos-cement sheet, and thus united to form therewith a substantial and material increase of the tensile strength in the compound form of sheet so produced.

To the above metal reinforced cement coat or layer before its primary set I apply a sheet 13, or a series of elements to constitute a sheet, of a high grade preferably vegetable base thermal non-conductor, such as corkboard or the like, using that kind of cement mortar in each case best adapted to adhere to both the asbestos-cement primary outer sheet 10 and also the kind of inner insulating sheet used. The said insulating lining sheet 13 is preferably made of a narrower width than the primary sheet so as to leave a bearing portion of the primary reinforced sheet in direct contact upon the vertical frame supporting member.

The assemblage of united elements above described results in a thermal resistivity many times that of a simple single thickness sheet generally employed for the same purpose. Not only is the excessive sun heat thus stopped from entering the building but all humidity inside as now resulting from constant rains outside permeating the sheets to the inside is completely stopped by the united insulating lining, while all internal condensation now of common occurrence underneath the naked asbestos-cement sheets is completely eliminated because the inner insulated surface of the united sheet is kept at or near the room temperature regardless of the humidity within and the colder air without, the layers affording thus with their added strength a satisfactory and economical roofing and siding sheet.

It will be apparent that any desired additional insulation or surface finish needed may be applied to the inner surface of my

improved sheet in between the supports as required.

I would state furthermore that while the illustrated example constitutes a practical embodiment of my invention, I do not limit myself strictly to the exact details herein illustrated, since, manifestly, the same can be considerably varied without departure from the spirit of the invention as defined in the appended claims.

I claim:

1. An improved article of manufacture comprising a flat compound shelter-sheet for the outside covering of roofs and walls consisting of a pre-formed unitary asbestos-cement shelter sheet, an inner surface sheet made of a thermal non-conducting material, the said two sheet elements being cemented together at their uniting faces by means of an intermediate layer of quick-hardening cement having greater tensile strength than the asbestos-cement sheet and having embedded in said uniting layer of cementing material a tension reinforcing element.

2. An improved article of manufacture comprising a flat compound shelter-sheet for the outside covering of roofs and walls consisting of a pre-formed unitary asbestos-cement shelter sheet, an inner thermal sheet made of vegetable material, the said two sheet elements being cemented together at their uniting faces by means of an intermediate layer of quick-hardening cement having greater tensile strength than the asbestos-cement sheet and having embedded in said uniting layer of cementing material a tension reinforcing element.

3. An improved article of manufacture comprising a flat compound shelter-sheet for the outside covering of roofs and walls consisting of a pre-formed unitary asbestos-cement shelter sheet, an inner sheet made of thermal insulating material, the said two sheet elements being cemented together at their uniting faces by means of an intermediate layer of quick-hardening cement having greater tensile strength than the asbestos-cement sheet and having embedded in said uniting layer of cementing material a tension reinforcing element.

4. An improved article of manufacture comprising a flat compound shelter-sheet for the outside covering of roofs and walls consisting of a pre-formed unitary asbestos cement shelter-sheet, an inner surface sheet made of thermal non-conducting material, the said two sheet elements being cemented together at their uniting faces by means of an intermediate layer of quick-hardening cement having greater tensile strength than the asbestos-cement sheet, the inner surface sheet stopping short of said asbestos-cement sheet at the two side edges thereof to provide an attaching portion for the outer asbestos cement sheet, and a reinforcing element embedded in said uniting layer of cement material.

Signed at Habana, Cuba, this first day of February, 1928.

LOUIS LANE.