June 30, 1925.

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J. CORMIE

BUILDING CONSTRUCTION

Filed Sept. 18, 1924

Fig. 4.

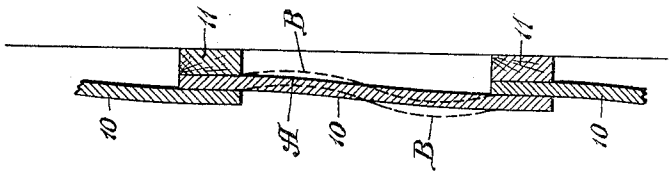


Fig. 3.

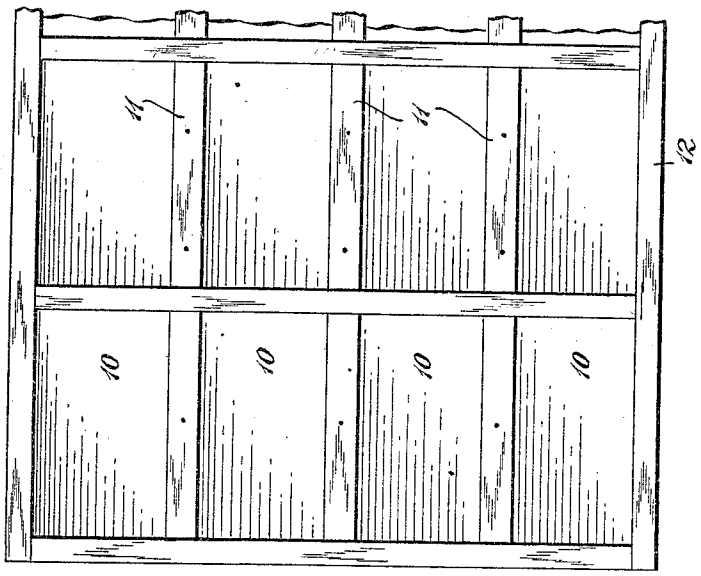


Fig. 2.

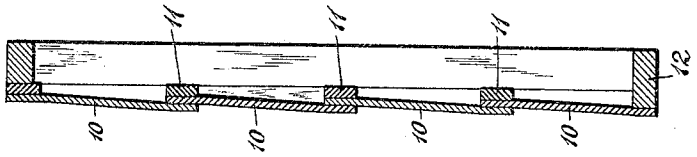
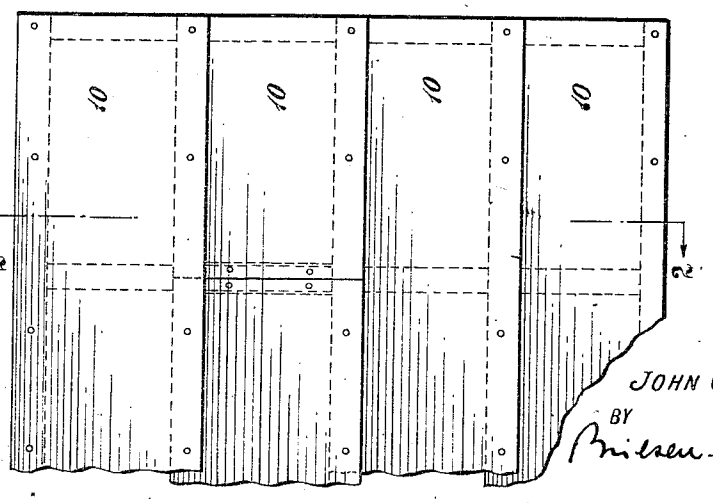


Fig. 1.



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UNITED STATES PATENT OFFICE.

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BUILDING CONSTRUCTION.

Application filed September 18, 1924. Serial No. 738,338.

To all whom it may concern:

Be it known that I, JOHN CORMIE, a subject of the King of Great Britain, and resident of Trenton, county of Mercer, State of New Jersey, have invented certain new and useful Improvements in Building Constructions, of which the following is a specification.

My invention relates to building construction and more particularly to that class of construction which involves the use of pulp boards, commonly known as wall boards, in place of the more commonly used wall coverings such as shingles, clapboards and other sidings. Ordinary pulp board, which is not completely waterproof, will expand and contract under the influence of atmospheric conditions and is therefore not suitable for general use in the form of boards for wall coverings. The tendency to expand under the influence of moisture, when resisted by fastening devices such as nails, will cause very unsightly buckling even when the board is used as an interior wall covering. The object of the invention is to provide a simple and novel arrangement whereby the warping and distortion of such wall boards may be directed in such a manner that unsightly buckling is prevented, the special advantage of this arrangement being that it enables pulp board to be used as an exterior covering for buildings. The pulp board to which I have reference, may be of any type and may be either laminated or homogeneous. My invention is of particular advantage in connection with a semi-flexible board made, for instance, by running paper pulp, wood pulp or the like into a mold and, by means of pressure, removing the majority of the water (see for instance United States Letters Patent No. 971,936, dated October 4, 1910, and No. 1,272,566 dated July 16, 1918) and subsequently drying out the remainder of the water by the application of heat. However, pulp board to which my invention relates does not include, on the one hand, pulp board which has been so thoroughly waterproofed that it will not buckle at all when exposed to the atmosphere, or, on the other hand, a board which is completely flexible, such as roofing paper, which will not retain any shape given to it unless positively held therein.

Broadly speaking, my invention comprises attaching the board by suitably spaced fastening means in one direction, preferably that of its length, and providing for an artificially created buckling in the other direction, preferably that of its width. Any tendency to buckle in the latter direction will result, substantially, in no more than an increase of the buckling already artificially present, while any tendency to buckle in the other direction is either resisted to a very large degree, or expends itself in emphasizing the artificial buckling. I am not able to explain this phenomenon. It may be due to the fact that the board is bent into the form of a double arch and thus resists lengthwise buckling or, it may be that the board finds its lines of least resistance to buckling in the other direction.

In the accompanying drawings, which illustrate an example of the invention without defining its limits, Fig. 1 is a front elevation of a portion of a building exterior covered with pulp wallboard in accordance with my invention; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a rear elevation of the structure shown in Fig. 1, and Fig. 4 is a fragmentary section, similar to Fig. 2, on an enlarged scale.

As shown in the drawings, 10 indicates wallboard or siding made of the pulp board in question. It may be cut to any suitable size and shape depending upon the use to which it is to be put and, in the illustrated example, is made in strips approximately 12 inches wide by several feet in length. The wallboards are preferably made of uniform thickness as shown in Fig. 2. They are nailed or otherwise fastened in overlapping relation to parallel supporting strips or furring laths 11, in the usual manner, but it will be noted that these strips are of rectangular cross-section and that the vertical faces thereof are in alignment. The lowermost strip or lath 12 preferably projects outwardly beyond the adjacent strip 11 at a distance equal to the thickness of a board 10; that is, said strip 12 has a surface located forwardly of the vertical faces of the strips 11 to a predetermined extent. As these wallboards possess a certain degree of flexibility they will, when secured in the manner shown, be caused to assume a lateral curvature, such as indicated approximately by the full line A in Fig. 4. When the board buckles its curvature will be exaggerated as indicated by the dotted lines B

in Fig. 4, that is to say, in a predetermined direction least liable to cause an unsightly result.

If the nails or other fastening means, by means of which the wallboard is attached to the furring strips, are sufficiently near together, there will be no substantial degree of distortion of the board in the lengthwise direction even though, without the presence of the artificially created buckling along line A, buckling in the direction of the length of the board would be so unsightly as to make it practically impossible to use the board as a sheathing for a wall. No fastening means are to be provided crosswise of the board as this would tend to impair, to a certain degree, the increase of buckling in the direction of the artificially created buckling.

The best method of determining the distance to which the nails, or other fastening means, should be applied, is by experiment. Other things being equal, the more closely the fastening means are spaced, the more nearly buckling in the lengthwise direction will be prevented. For instance, with a partially waterproof board made as above particularly described, having a width of 12 inches and a thickness of three-eighths of an inch, the nails should be spaced not further than ten inches apart, but are preferably spaced from four inches to six inches apart. The thicker or more dense or more waterproof the board, the further apart the nails may be spaced. I do not wish it to be understood that absolutely no buckling would take place in the lengthwise direction but that such buckling as may take place is so slight that it will not interfere with the practical use of the board in building construction. It will be found, however, that a board fastened by nails spaced as above stated will buckle in a very short time so as to be unsightly and practically unusable if the artificially created widthwise buckling is not present.

While I prefer to use a board, the larger surfaces of which lie in parallel planes, and then to bend the same into a double curve as I apply it to the supporting strips, I may so mold or press my board as to give it an initial double curvature, for instance one similar to that indicated by the line A in Fig. 4.

Various changes in the specific form shown and described may be made within the scope of the claims without departing from the spirit of my invention. For instance, the outer surfaces of the furring laths need not be in exactly the same plane, as the double curve of the boards may be brought about when the outer faces of such laths are slightly offset. It is obvious that for the purposes of this invention the parallel supporting strips need not consist of separate pieces, but that a number of them may form part of an integral structure, which would therefore be the mechanical equivalent thereof; thus, the boards may be applied over solid sheathing, instead of over furring laths, with the same result, especially if one lath is nailed to the bottom of the sheathing to give the proper pitch to the lowermost board.

I claim:

1. In building construction the combination of a supporting structure including a plurality of parallel supports, having surfaces located in substantially the same plane and a plurality of wallboards, said wallboards each having one longitudinal edge secured to one of said surfaces and the other edge overlapping and secured to the contiguous edge of an adjacent wallboard, each wallboard, after it is thus secured, having a double lateral curvature therein.

2. In building construction the combination of a supporting structure, including a plurality of parallel supports having surfaces located in substantially the same plane, and a plurality of wallboards whose larger surfaces define parallel planes, said wallboards each having one longitudinal edge secured to one of said surfaces and the other edge overlapping and secured to the contiguous edge of an adjacent wallboard, whereby each of said boards will be given a double lateral curvature between said surfaces.

3. In building construction the combination of a supporting structure including a plurality of parallel supports, having surfaces located in substantially the same plane, a plurality of wallboards and an additional strip having a face located forwardly of said other surfaces at a distance approximately equal to the thickness of a wallboard, said wallboards each having one longitudinal edge secured to one of said surfaces and the other edge overlapping and secured to the contiguous edge of an adjacent wallboard, each wallboard after it is thus secured having a double lateral curvature therein.

JOHN CORMIE.