No. 676,183. Patented June 11, 1901.

J. T. FERRES.

BUILDING PAPER.

(Application filed Feb. 16, 1901.)

(No Model.)

Fig. 1

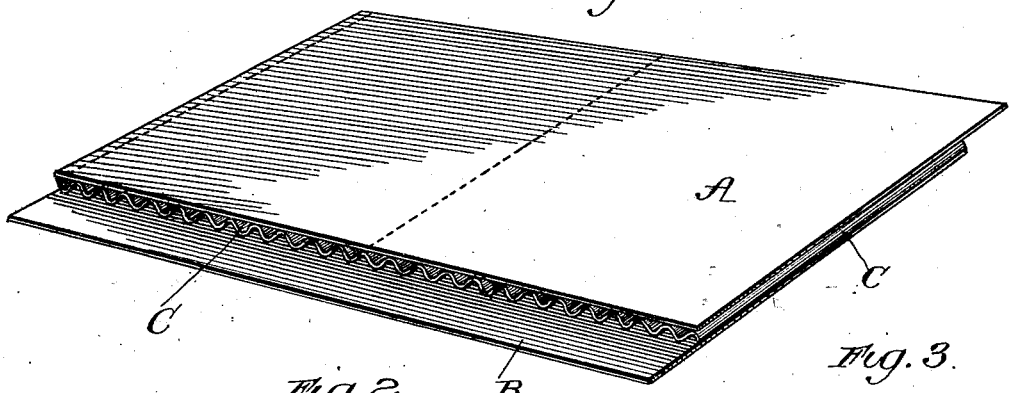


Fig. 2

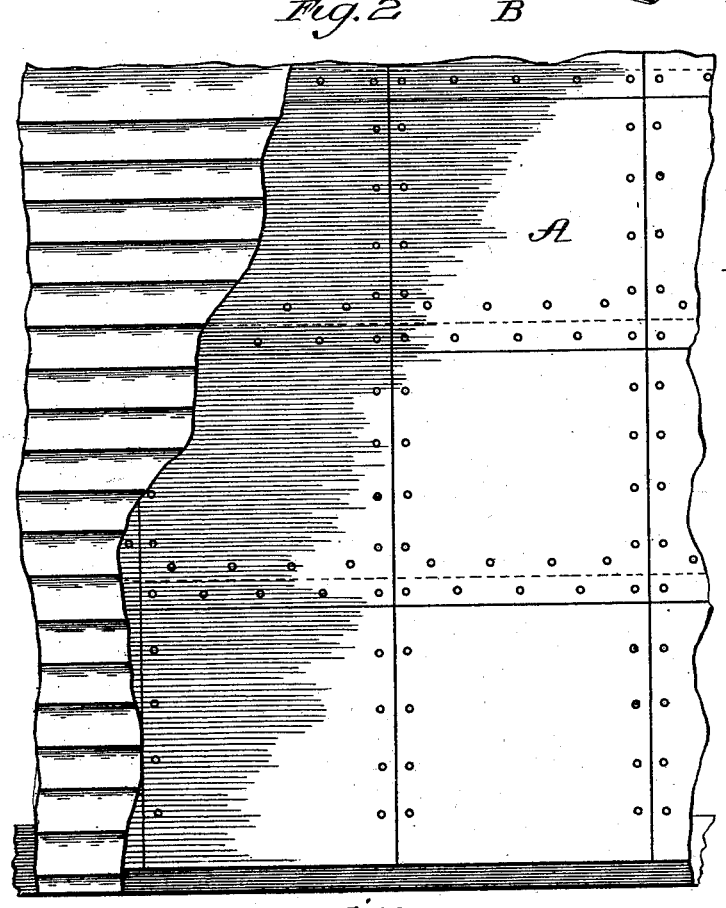


Fig. 3.

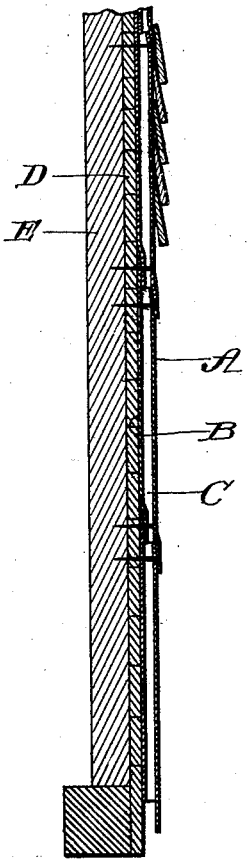
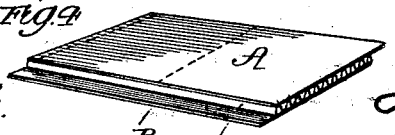


Fig. 4



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UNITED STATES PATENT OFFICE.

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BUILDING-PAPER.

SPECIFICATION forming part of Letters Patent No. 676,183, dated June 11, 1901.

Application filed February 16, 1901. Serial No. 47,610. (No specimens.)

To all whom it may concern:

Be it known that I, JEFFREY T. FERRES, a citizen of the United States, residing at Anderson, in the county of Madison and State of Indiana, have invented a certain new and useful Improvement in Building-Paper, of which the following is a description, reference being had to the accompanying drawings, forming part of this specification.

My invention has for its object the production of an improved building-paper intended to be employed in place of the common tarred paper which is now used in the construction of frame buildings for the purpose of rendering their walls more nearly air-tight and impervious to moisture. The building-paper now in common use for this purpose is not entirely satisfactory, even when a board sheathing is first applied to the outer face of the framework of the building and the paper applied to such board sheathing and the weather-boarding then nailed on over the paper, and when in the cheaper classes of buildings this board sheathing intermediate the weather-boarding and the frame of the building is omitted and the paper has to be tacked directly to the outer face of the framework of the building and has nothing to support it between the joists and other separated parts of such framework the paper is apt to get torn and mutilated prior to or during the application of the weather-boarding, and after the weather-boarding is applied it is easily affected by air and moisture penetrating the joints in the weather-boarding. So, too, there being nothing to hold the overlapping edges of the sheets of paper together along their horizontal joints they are apt to sag away from each other between the joists and leave open spaces between them, and thus to a great extent defeat the purpose of their employment. I purpose to employ in place of this common building-paper stiff sheets of boards of double-faced corrugated paper, each provided upon two of its opposite edges with extensions of the respective backing or facing sheets of the paper adapted to form tight joints between the successive sheets or boards and prevent the passage of air and moisture between them, all as hereinafter more fully explained.

In the accompanying drawings, Figure 1 represents a continuous strip or sheet of double-faced corrugated paper intended for my improved building-paper as the same is delivered from the machine; Fig. 2, an elevation of the side of a frame building having sheets or boards of said paper applied to it; Fig. 3, a vertical section showing the completed wall of such building with my improved building-paper interposed between the weather-boarding and the framework of the building, and Fig. 4 a modified form of sheet or board with the corrugations extending longitudinally of the paper.

The same letters of reference are used to indicate identical parts in the several views.

The double-faced corrugated paper shown in Fig. 1 is formed upon any suitable machine—such, for instance, as that illustrated and described in my pending application, Serial No. 709,196, filed March 15, 1899; but instead of employing upper and lower facing-sheets A B of the same width as the intermediate corrugated sheets C said upper and lower sheets are of greater width than the intermediate sheet and project at opposite edges of the latter, as shown. This continuous strip or sheet of double-faced paper or board may be of the usual or any suitable width—say from twenty-four to thirty-six inches—and it can be cut transversely into separate boards or sheets of any desired size for the purpose described, as indicated by the dotted lines in Figs. 1 and 2. The width of these separate boards or sheets will be immaterial where the wall of the frame building is to be provided with the board sheathing heretofore described, since it will then be immaterial where the vertical joints between the vertical rows of boards or sheets may happen to come; but where no such board sheathing is employed then the corrugated boards or sheets will be cut of such width as to conform to the distances between the joists or uprights of the framework, so that the vertical joints between the vertical rows of such boards or sheets may coincide with such joists or uprights and the edges of the sheets be tightly nailed to such uprights. In applying these boards or sheets to the building the boards will be placed in position for the extensions

of the facing-sheets A B to project at the upper and lower edges of the board, and the boards will be so applied that the inner facing-sheets of the boards will project at the top of the sheets and the outer facing-sheets at the bottom.

Referring to Figs. 2 and 3, the application of the boards to a building will be readily understood. The work is preferably begun at the bottom and the lowermost board in a given vertical row nailed securely to the sheathing D and joists E by a horizontal row of nails along its lower edge and two vertical rows along its opposite sides or by the vertical rows alone in event no sheathing is employed and the board is to be secured to the joists alone. The next board above is then applied, with the lower edge of its body portion abutting against the upper edge of the body portion of the lower board and with its back resting against the upwardly-projecting extension of the inner facing-sheet of the lower board, while the depending extension of its own outer facing-sheet overlaps and rests against the upper part of the body portion of the lower board, and in this position the second board is nailed to the sheathing and joists by vertical rows of nails at its opposite sides and by two horizontal rows at its lower edge, the lower one of said horizontal rows of nails passing through the depending extension of the outer facing-sheet of the upper board and the upper portion of the body of the lower board and the upper one of said rows of nails passing through the lower portion of the body of the upper board and the vertically-projecting extension of the inner facing-sheet of the lower board, as clearly indicated in Fig. 2 and shown in Fig. 3. The succeeding boards in vertical rows are applied and secured in like manner until the top of the wall of the building is reached, and then the next adjacent vertical row is applied in the same manner, or, if desired, the boards may of course be applied in successive horizontal rows in substantially the same manner. In either event the adjacent edges of the vertical rows of boards will abut squarely together, as shown in Fig. 2, and be nailed to the sheathing or joists by vertical rows of nails, and when the entire wall of the building is covered with these sheets or boards there will not only be provided a stiff and durable and substantially air-tight sheathing or covering, but one which contains within itself an air-space, (within the corrugations of the sheets or boards,) which will aid materially in preventing the temperature of the inside of the wall of the building from being affected by the temperature at the outside thereof, and thus serve to protect the interior of the building from the effects of external cold in winter and external heat in summer.

Where no board sheathing D is employed, the horizontal joints between the adjacent horizontal rows of boards cannot be made so secure and air-tight as where the board sheathing is employed, since the overlapping edges of the boards cannot then be nailed together, as above described; but even in such case my improved sheets or boards are much superior to the sheets of common building-paper now employed, since they are much stronger and more rigid, and therefore more durable and less liable to become torn or otherwise mutilated. The horizontal joints between the adjacent rows of boards are much tighter than such joints can possibly be maintained between the sheets of the paper now in use, and the advantages of the dead-air space within the sheets or boards themselves, above described, are attained to substantially the same degree as where the board sheathing D is employed.

In ordinary building-paper now in use a preparation of coal-tar is ordinarily employed for coating and waterproofing the paper, which serves such purpose, but also renders the paper highly inflammable. In the manufacture of my improved paper after the corrugated sheet or board shown in Fig. 1 has been made I pass it between rollers running in a preparation of asphaltum and asbestos-dust, which coats both surfaces of the sheet and renders them waterproof and to a very considerable degree fireproof as well. This coating, containing asphaltum, will also render the paper vermin-proof so long as the paper retains the odor of asphaltum; but for the purpose of rendering the paper permanently vermin-proof I mix corrosive sublimate in the paste which is employed for pasting the facing-sheets to the opposite sides of the corrugated sheet in the original manufacture of the paper. The corrosive sublimate thus employed not only renders the paper vermin-proof, but operates as a disinfectant also.

The corrugated sheet of paper shown in Fig. 1 is corrugated transversely as it passes through the corrugating-machine, and the facing-strips applied to its opposite sides therefore project from the opposite edges of the corrugated sheet at the ends of and at right angles to the corrugations, so that when the sheets or boards are applied to a building, as in Figs. 2 and 3, the corrugations extend vertically from the bottom to the top of the wall of the building and furnish free passage for air, the corrugations being open at both top and bottom and permitting the air contained in them to freely rise as it becomes warm and to escape at the top and fresh air to be drawn in at the bottom. This arrangement is advantageous where it is desired to permit circulation of air in the wall of the building for the purpose of preserving a minimum temperature within the building, as in the construction of summer-cottages, ice-houses, cold-storage buildings, and the like. For some purposes, however, it is desirable to provide the walls of a building with dead-air spaces, in which the air is not permitted to circulate freely, and in such cases the building-paper shown in Fig. 4 may be employed. In this paper the corrugations of the middle sheet

are formed longitudinally of the paper in its initial manufacture—as, for instance, by the method and apparatus shown and described in Letters Patent No. 654,884, of July 31, 1900, to Ferres and Ferres—and the extensions of the facing-sheets at the opposite sides of the corrugated sheet therefore extend longitudinal of and parallel with the corrugations instead of at right angles thereto, as in the sheet of Fig. 1.

When the sheets or boards formed from the paper shown in Fig. 4 are applied to the wall of a building in the same manner as the paper of Fig. 1, heretofore described, the corrugations will extend horizontally along the wall of the building instead of vertically, and thereby serve to form dead-air spaces in which the air is not permitted to circulate freely. This arrangement will be employed where it is desirable to provide the wall of a building with such dead-air spaces for the purpose of protecting the interior of the building from external heat and cold.

While designed primarily as a substitute for the ordinary building-paper now in use, as described, it will be manifest that the continuous strip of double-faced paper (shown in Figs. 1 and 4) having the oppositely-projecting facing-sheets, may be employed for other purposes and cut to suitable size therefor.

Having thus fully described my invention, I claim—

1. As a new article of manufacture, a continuous strip or sheet of double-faced corrugated paper provided with facing-sheets of greater width than the intermediate corrugated sheet and projecting beyond the opposite edges of said strip, substantially as and for the purpose described.

2. As a new article of manufacture, a sheet or board of double-faced corrugated paper provided at its upper and lower edges with extensions of the opposite facing-sheets thereof and adapted to be applied to the wall of a building in the manner and for the purpose described.

3. As a new article of manufacture a sheet or board of double-faced corrugated paper provided at its upper and lower edges with extensions of the opposite facing-sheets thereof and coated with a waterproofing and fireproofing material, substantially as described.

4. As a new article of manufacture, a sheet or board of double-faced corrugated paper provided at its upper and lower edges with extensions of the opposite facing-sheets thereof and coated with a waterproofing and fireproofing material composed of asphaltum and asbestos-dust or equivalent material, substantially as described.

5. As a new article of manufacture, a sheet or board of double-faced corrugated paper provided at its upper and lower edges with extensions of the opposite facing-sheets thereof and having its opposite facing-sheets pasted to the intermediate corrugated sheet with paste containing corrosive sublimate, and coated with a waterproofing and fireproofing material, substantially as described.

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