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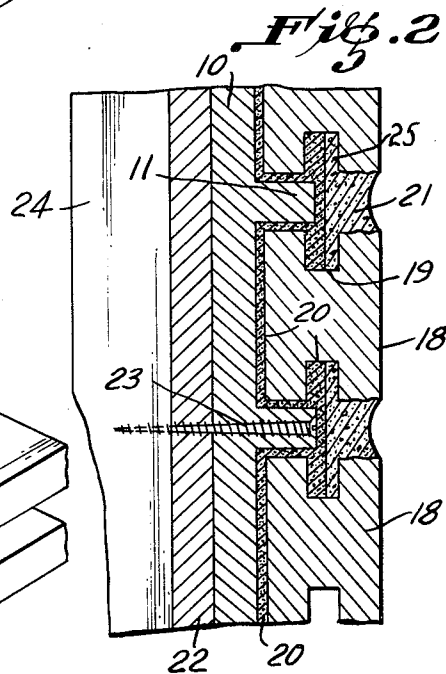
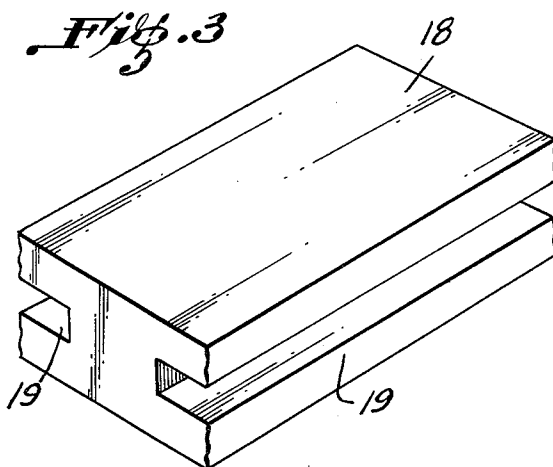
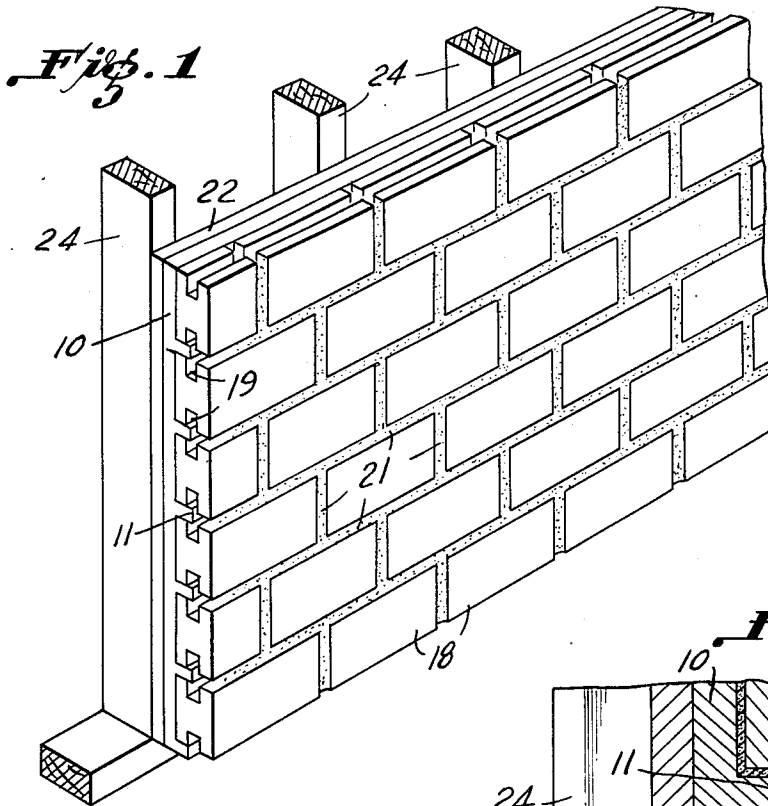
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2,938,376

PREFABRICATED SIDING FOR BUILDINGS

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2 Sheets-Sheet 1



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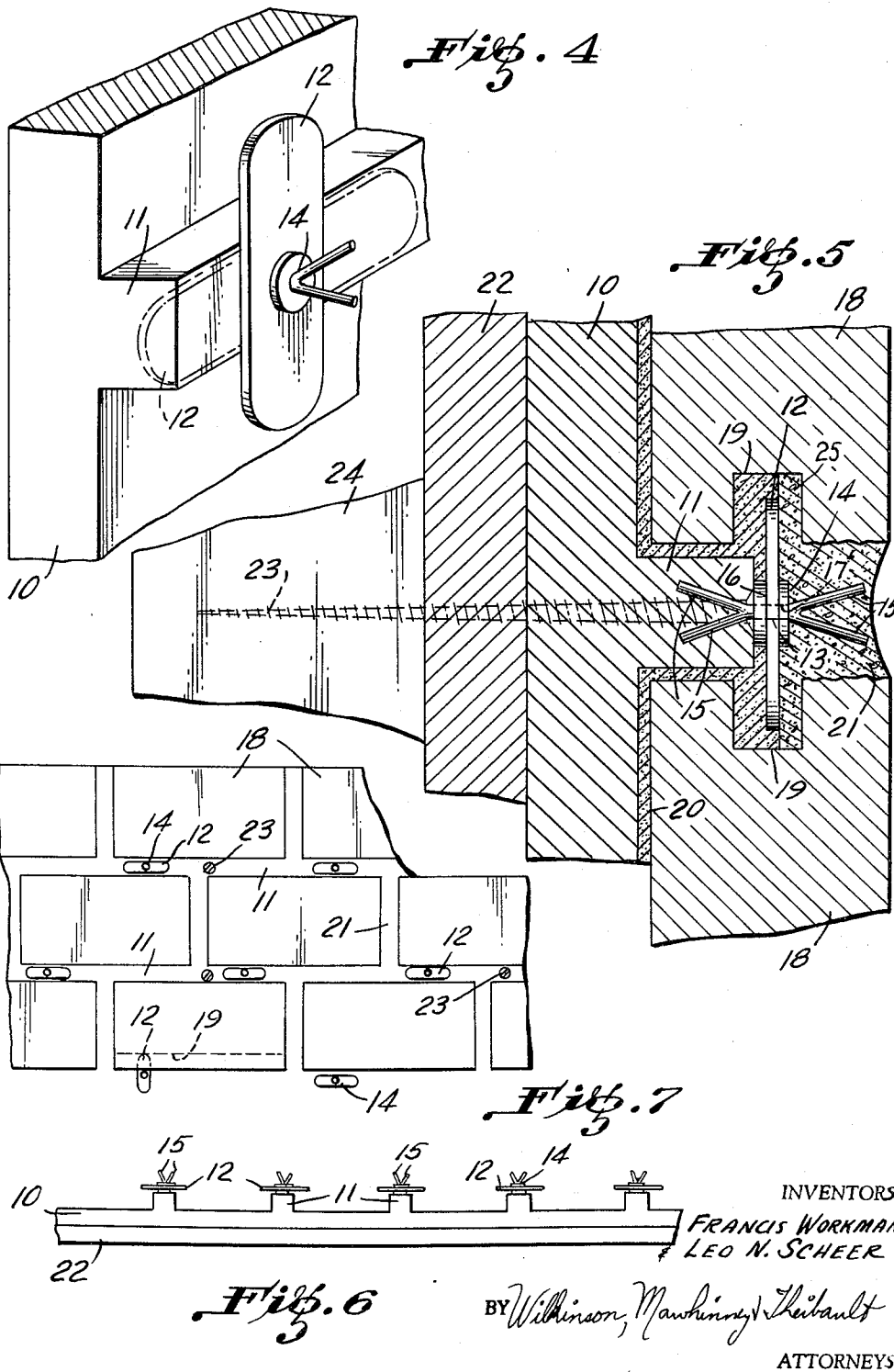
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PREFABRICATED SIDING FOR BUILDINGS

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2 Claims. (Cl. 72-19)

The present invention relates to prefabricated siding for buildings.

Heretofore sidings, of a prefabricated type, have lacked sufficient strength and durability to hold the bricks or other building elements in place during transportation and incident to handling in the erecting and installation of the same, and it is an object of the present invention to cure this deficiency and provide an integrated structure of backing, bricks and the bonding elements that will effectually prevent the stone or brick from coming loose from the backing, while at the same time providing a completely waterproofed construction which will permit expansion and contraction and will withstand any temperatures encountered in the environment or climates where buildings may be erected having use for this character of siding. Similarly the siding is flexible and can be fitted to walls that are warped or otherwise uneven. Where the paneling is to be attached to a long wall, a flexible expansion joint can easily be utilized if the wall is uneven.

Another object of the invention is to provide a prefabricated siding and method or process for producing the same in which is embodied and incorporated stone and tile in addition to brick to enhance the appearance of the siding and thus increase its marketable value while making the improved siding adaptable for indoor as well as outdoor use.

It is a still further object of the invention to incorporate in an improved siding certain interlocking features by which the bricks or other building elements employed are not only bonded strongly to the backing but are also mechanically anchored thereto to insure a closely knit integrated structure which is light, strong and easily handled both transportationwise and in the laying up in the wall.

The invention has for its further purpose and object to provide an improved process for the fabrication of such siding in which few and simple steps are required for the assembly, bonding and anchoring of the several elements into the prefabricated structure, all of which steps may be conducted in a central factory, the siding being thereupon transportable to location for incorporation in the building structure. The invention will also eliminate the need of additional foundation to carry the panels.

The building units will be approximately $\frac{1}{3}$ their normal thickness, decreasing cost and, more important, weight, while not affecting the utility of the prefabricated structure.

The type of locking or key device will permit the replacement of individual building units without the necessity of removing the entire row of bricks.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views:

Figure 1 is a fragmentary isometric view of prefabricated siding constructed in accordance with the present invention and attached to a building studding.

Figure 2 is a fragmentary vertical section taken through same on an enlarged scale.

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Figure 3 is an isometric view of a form of brick or building element employed.

Figure 4 is also a fragmentary isometric view showing a form of backing employed with a rib and swivelly mounted clip or anchor.

Figure 5 is a sectional view taken on an enlarged scale through one of the joints showing the locking anchor in place with installed mortar and adhesive.

Figure 6 is an edge elevational view of the backing showing the ribs and clips or anchoring elements in the turned locking position.

Figure 7 is a fragmentary front elevational view of the siding showing some of the locking elements in original position and others turned into the interlocking position.

Referring more particularly to the drawings 10 designates a backing member of board having ribs 11 projecting out forwardly from the same to be in a horizontal running position when the siding is laid up in the wall.

To the ribs 11 are swivelly secured clips or anchors 12, for instance of flat sheet metal so that the same may be rotated to the positions indicated in full and dotted lines in Figure 4. For this purpose it is convenient to employ a swivel pin having a shank 13, a head 14 and divided or forked legs 15 into backing and extending up into mortar. A disc or perforated washer 16 may also be employed in this connection, being mounted on the shank 13 between the end of the rib 11 and rotatable clip 12. The use of such disc or washer will facilitate the turning of the clips or anchors 12. The clips or anchors 12 have openings 17 therethrough receivable on the shanks 13 of the swivel pins as a bearing for the clips. If it is found more feasible the clip attachment 12 will be accomplished by the manufacturer of the backing material when the material has just been formed and has not yet hardened. The legs 15 of the clip 12 will extend both into the backing material 10 and into the mortar 21 to form a bond between same as shown in Figures 5 and 4.

Bricks or other masonry element 18, shown more particularly in Figure 3 are adapted to be mounted to the backing board 10 and these bricks 18 are preferably formed with longitudinal grooves 19 which, when laid up in the wall, run in a substantially horizontal direction with the adjacent grooves 19 of the adjoining bricks 18 disposed opposite one another and in close though spaced relation, such spacing being governed by the widths of the ribs 11 and the interposed adhesive 20 therebetween. These grooves 19 may receive both the adhesive 20 and the mortar or cement 21 as indicated more particularly in Figure 5, the adhesive and mortar forming keys in the grooves to bond the bricks 18 to permanent alignment and also to provide a permanent interlocking joint with the spread clips or anchors 12 as also shown in Figure 5.

As an optional additional element, where needed, there may be provided an insulating board 22 affixed to the inside surface of the backing board 10 in any appropriate manner. Nails or other fastenings 23 may be employed to secure the siding to the studs 24 or any type masonry wall.

In carrying out the improved process the backing board 10 may be laid in a substantially horizontal position upon the ground, floor or other support at a central point or factory where the improved siding may be manufactured in quantities. The ribs 11 will be upstanding and the clips or anchors 12 are then attached to the upper exposed ends of the ribs 11 at suitable spaced points therealong. The attachment is made by inserting the legs 15 of the swivel pin through the opening 17 in a selected clip or anchor 12, it being understood that initially the legs 15 are in close substantially parallel relationship like the similar parts of a paper clip. These legs

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are similarly insertable through the opening in the washer 16 if it is desired to employ such discs or washers.

In driving the swivel pins into the ribs 11 the legs 15 will become spread in the manner indicated in Figure 5 so as to render the installation permanent. Other methods of attaching clip to ribs can be used. The clips or anchors 12 can thereupon be rather readily rotated upon the shanks 13 of the swivel pins. Ordinarily these clips or anchors 12, which are preferably of substantially the same width as the width of the ribs 11 may occupy the dotted line position indicated in Figure 4 in which such clips or anchors extend longitudinally in alignment with the lengths of the ribs 11. However, when use is required these clips or anchors 12 are rotated through approximately 90 degrees to the cross-wise position indicated at full lines in Figures 4 and 5.

The upper surface of the backing board 10 is coated with adhesive 20 which is run up along the sides of the ribs 11 and up to the top of the swivel clip (anchor).

The bricks 18 are thereupon installed upon the adhesive 20 with the side edges of the bricks being brought up close against the adhesive coated walls of the ribs 11 as shown in Figure 5. Before or after the assembly of the bricks 18 to the backing board 10, the clips or anchors 12 are turned to the crosswise position shown in full lines in Figures 4 and 5, in which position the portions of the clips or anchors 12 which extend beyond the sides of the ribs 11 enter substantially centrally in the grooves 19 of the adjoining bricks 18 which abut at opposite sides of the same rib 11. Mortar or cement 21 is thereupon poured into the spaces between adjoining bricks 18 above the anchors and ribs 11 so that this mortar or bonding material will flow into the opposed grooves 19 of adjoining bricks 18 and form keys 25 therein which will prevent the bricks 18 from having any relative inward or outward movement with respect to the siding unit. This cement also flows to the clips or anchors 12 and consolidates above the anchors and outwardly beyond the edges thereof which preferably do not extend all the way through the grooves 19. The keys 25 therefore also interlock with the anchors 12, the bricks 18 being therefore bonded to the backing board 10 by adhesive 20 and also by the cement or mortar bond 21 as well as by the keys 25 and the interlocking anchors 12.

Also the adhesive 20 will bond with the keys 25 where the same are brought into contact in the grooves or recesses 19.

While the insulating board 22 is optional, it will enable a builder to apply the improved panel directly to the studing of a house or building.

It will be appreciated from the foregoing that the invention provides a non-breakable backing on which to place any design of brick work, stone, ceramic or other facing building units. The panel also contains waterproof and weatherproof adhesives that are much stronger than necessary. The use of such adhesive added to the improved anchoring system through the use of keys attached to the ribs enable the panel to withstand much rougher handling than will normally occur. The entire panel will be more rigid and will stand more abuse than four-inch thick brick or ceramic wall under shock conditions for ease of handling and transportation.

It is also understood that the ribs for the bricks will or may occur both between the vertical and bed joints.

The building units used in this prefabricated stone wall may and in most cases will be approximately $\frac{1}{3}$ of the thickness of the ordinary building units. This feature will reduce the cost and weight of the completed wall but will still retain the appearance of ordinary brick or stone wall. The utility of this prefabricated wall will not be affected by the above because experience has shown that brick, even though exposed to radically changing temperature and inclement weather, wear very little even over a number of years.

The key or anchor device used in this invention pro-

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vides a much stronger bond than provided in existing inventions.

The method of anchoring and attaching the building units to the backing permits the replacement of individual bricks without the necessity of removing the entire row of bricks.

The manufacture of this prefabricated wall requires fewer integral steps permitting fabrication at a factory of a practical, usable, and non-breakable prefabricated wall with greater ease of transportation.

This prefabricated wall with its improved interlocking and/or key device with improved backing and waterproof adhesive provides a waterproof and moisture proof wall which is more rigid and stronger than an ordinary brick wall.

Although we have disclosed herein the best form of the invention known to us at this time, we reserve the right to all such modifications and changes as may come within the scope of the following claims.

What is claimed is:

1. In a prefabricated structure for use as an exterior wall for buildings, a backing board having a plurality of spaced ribs projecting outwardly therefrom, pins extending into said outwardly projecting ribs and projecting outwardly beyond said ribs, a clip member rotatably secured to each of said pins intermediate the ends thereof so that each pin extends outwardly beyond its clip member, a plurality of building blocks assembled on said backing board and disposed against the sides of said ribs, said building blocks having grooves formed therein on opposed sides thereof so that said building blocks are formed in an H configuration when viewed in cross section, the grooves of adjacent blocks being located in opposed relation and receiving the ends of said clip member therein, and bonding means disposed between said blocks and filling said grooves therein about said clip members, said grooves, said clip members, the extension of said pins, and said bonding means defining a key for retaining said blocks in position on said backing board.

2. In a prefabricated structure for use as an exterior wall for buildings, a backing board having a plurality of spaced ribs projecting outwardly therefrom, pins secured in said ribs, a portion of said pins extending outwardly substantially beyond the outer surface of said ribs, clip members mounted on said pins and being rotatable with respect thereto, said clip members being initially positioned on said pins parallel with respect to said ribs, a plurality of building blocks assembled on said backing board and positioned in close proximity to the sides of said ribs, said building blocks having grooves formed on opposed sides thereof, the grooves formed in adjacent blocks being positioned in opposed relation and receiving the ends of said clip members when said clip members are rotated from the initial position thereof to a position perpendicular with respect to said ribs, and bonding means disposed between said blocks and filling said grooves therein about said clip members and encompassing the extending portions of the pins to secure said blocks in position on said backing board.

References Cited in the file of this patent

UNITED STATES PATENTS

779,268	Elliott	Jan. 3, 1905
1,836,964	Grigsby et al.	Dec. 15, 1931
1,896,188	Shanklin	Feb. 7, 1933
2,257,598	Frease	Sept. 30, 1941
2,293,331	Dahlberg	Aug. 18, 1942
2,475,708	Lichaczewski	July 12, 1949
2,569,941	Mastrangelo et al.	Oct. 2, 1951
2,635,908	Zuber	Apr. 21, 1953

FOREIGN PATENTS

531,768	Great Britain	Jan. 10, 1941
1,031,995	France	Mar. 25, 1953