June 23, 1931. A. F. BEMIS 1,810,891

BUILDING CONSTRUCTION

Filed Nov. 20, 1926

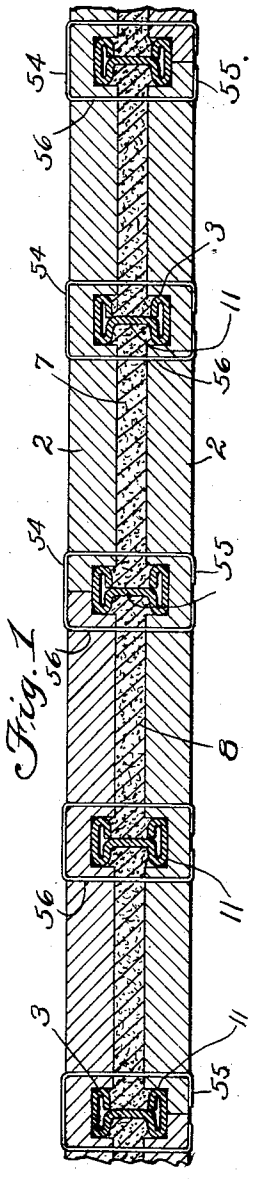


Fig. 1

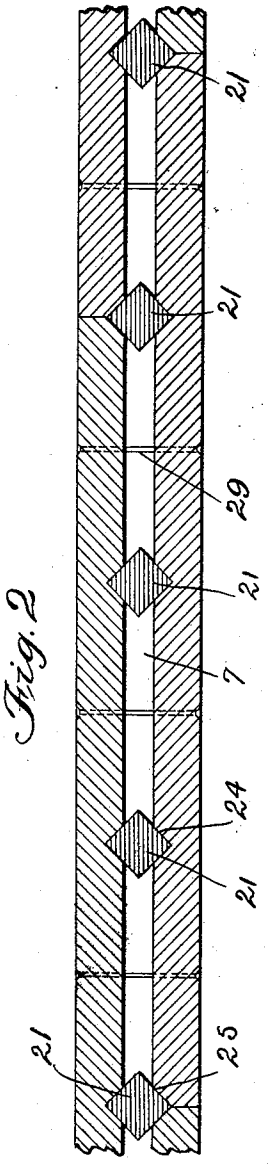


Fig. 2

Inventor
Albert F. Bemis
by Roberts, Cushman & Woodberry
Att'ys

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UNITED STATES PATENT OFFICE

ALBERT F. BEMIS, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO BEMIS INDUSTRIES, INC., OF BOSTON, MASSACHUSETTS, A CORPORATION OF DELAWARE

BUILDING CONSTRUCTION

Application filed November 20, 1926. Serial No. 149,766.

This invention relates to an improved type of building construction which is adapted to permit greater facility in building and to provide a highly satisfactory type of structure which may be adapted to a wide variety of different requirements and conditions. More particularly the present invention relates to an improved type of wall, either vertical, inclined or horizontal, which may be composed of a series of comparatively light, rather closely spaced studs having slabs of fibrous, cementitious or other material assembled thereupon and keyed thereto in a manner which will provide a high degree of rigidity without necessity for careful fitting or shaping in situ. Preferably a building construction of this character may be readily assembled from units and parts which have been preformed in a manufacturing establishment to suitable standarized dimensions, and, in its preferred form, the present invention discloses means whereby a wall built in this manner is adapted to receive an intermediate mineral core or seal such as cementitious material of the order of gypsum, ordinary hydraulic cement, etc. or, if desired, the intermediate spaces provided by this construction may be left unfilled or filled with heat insulating material to provide the wall with additional heat insulating capacity. Use of the intermediate mineral seal affords a wall which resists the penetration of moisture or humidity, and which provides a fireproof or a semi-fireproof construction. While the slabs may be formed of a wide variety of materials, for example different types of fiber board formed of wood, or other vegetable fibers with or without asbestos, gypsum, concrete or the like, or ordinary boards, or fibrous material made of partially cooked bagasse fibers; the studs themselves preferably may be light wooden pieces or metal members is of relatively small cross section which are comparatively inexpensive and which require the provision of little or no wood for the completed wall, while the intermediate mineral filler, as previously indicated, may be any one of a wide variety of materials or may be omitted in certain installations.

Further aspects of the invention pertain to means of combining a wall of the preferred form with suitable aligning means and with adjoining parts of the building frame and structure; it being further understood that the features of this invention may be variously combined in many advantageous ways with the constructions disclosed in my copending applications No. 33,173, filed May 27, 1925; No. 36,857, filed June 13, 1925; and Nos. 72,673; 72,674 and 72,678, all filed December 2, 1925.

Further objects and advantages of the invention will become apparent to those skilled in the art upon a reading of the subjoined description and claims in conjunction with the accompanying drawings, in which:

Fig. 1 is a horizontal cross section of one form of wall construction; and

Fig. 2 is a similar view of a slightly different wall construction.

Referring to the accompanying drawings, and more particularly to Fig. 1 thereof, it may be seen that the present invention relates to the provision of a wall formed about a series of rather small and closely spaced studs 11; preferably these studs are metal members of standardized cross-sectional form, having the larger dimension disposed is a direction normal to the plane of the wall. Disposed upon the studs are suitable slabs 2 of building material. These slabs may be of various convenient dimensions, with greater dimension disposed either vertically or horizontally, often being made of a story in height and of a width equal to the distance between several studs. Preferably the vertical edges of the slabs are rabbeted as indicated by the numeral 3 to engage the corners of studs located at their edges, while a suitable number of intermediate grooves 4 are provided upon the inner surfaces of the slabs to engage and interfit with studs 1. The slabs at opposite sides of the wall preferably are arranged to have their breaks located in staggered relation or adjoining different studs in order to aid the provision of a weather-tight construction. The depth of the grooves 4 and the corresponding dimensions of the studs 1 are so proportioned that a space

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7 is provided between the slabs, which may be of comparatively restricted width or of width to conform to any strength or other requirement and is adapted to receive any suitable material which may be poured therein, preferably to provide a mineral seal. Ordinary cement, gypsum or the like, are suitable for this purpose. The slabs may be secured to the studs by any suitable means, as by U-shaped staples 54, passing through openings 56 in the slabs and straddling the studs, with their ends clenched over upon the slabs, as designated by numeral 55, or by wire fastenings 29 (Fig. 2) which extend between portions of the slabs intermediate the studs.

An alternative form of the invention is disclosed in Fig. 2, the studs 21 in this wall construction being of substantially square cross-section and having their surfaces disposed diagonally in relation to the plane of the wall so that corners of the studs are adapted to interlock with suitable recesses 24 provided upon the slabs, which are beveled at their vertical edges, as designated by the numeral 25, for a similar purpose. Fig. 2 also discloses the manner in which the space 7 between opposite layers of slabs may be left unfilled to provide heat insulation, such an arrangement being especially satisfactory in a building of one story.

The various elements of the wall construction may be formed of any suitable material. Often the upstanding studs will be of wood and often of steel, while the slabs may consist of any conventional fiber board, gypsum slabs, or the like, and in many cases preferably may be formed of partially cooked bagasse fibers, or of synthetic lumber such as disclosed in my copending application.

The intermediate cementitious filler which provides a practically continuous mineral seal may also be of any suitable material, gypsum or concrete being especially desirable for this purpose in many installations. When a filler of this character is used in conjunction with metal studs, the wall may be provided with a continuous intermediate fire and moisture resistant seal.

I claim:

1. A wall construction comprising a row of parallel studs, a layer of slabs upon each side of the row, said slabs having intermediate grooves in interfitting engagement with certain of the studs, and having marginal portions cut away to engage studs at their edges.

2. A wall construction comprising a row of parallel studs, a layer of slabs upon each side of the row, said slabs having intermediate grooves in interfitting engagement with certain of the studs, and having marginal portions cut away to engage studs at their edges, said cut away marginal portions being in staggered relation upon opposite sides of the wall.

3. A building construction comprising a row of studs of rectangular cross section, said studs having their larger cross-sectional dimension disposed vertically in relation to the plane of the row, slabs of building material upon either side of the row, said slabs being grooved to interfit with and to enclose the studs and being spaced from slabs upon the opposite side of the row.

4. A building construction comprising a row of studs of rectangular cross-section, said studs having their larger cross-sectional dimension disposed vertically in relation to the plane of the row, slabs of building material upon either side of the row, said slabs being grooved to interfit with and to enclose the studs and having edge portions rabbeted to fit the corners of studs.

5. A building construction comprising a row of studs of rectangular cross-section, said studs having their larger cross-sectional dimension disposed vertically in relation to the plane of the row, slabs of building material upon either side of the row, said slabs being grooved to interfit with the studs, and having edge portions rabbeted to fit the corners of studs, said rabbeted edge portions occurring in staggered relation upon opposite sides of the wall.

6. A wall construction comprising a row of parallel metal studs, a layer of slabs upon each side of the row, and spaces between the layers of slabs and between the studs, said spaces being filled with fire-resistant, cementitious material of mineral origin, whereby the wall is provided with a continuous, intermediate mineral seal.

7. A wall construction comprising a row of parallel metal studs, a layer of slabs upon each side of the row, said slabs having an interfitting engagement with portions of the studs, and spaces between the layers of slabs and between the studs filled with fire-resistant cementitious material, whereby a continuous intermediate fire- and moisture-resistant seal is provided.

8. A wall construction comprising a row of parallel metal studs, a layer of slabs upon each side of the row, and spaces between the layers of slabs and between the studs filled with fire-resistant cementitious material, and U-shaped staples straddling the studs and passing through the slabs, the ends thereof being clenched over upon the slabs whereby the slabs are retained in place upon the studs.

9. In a building construction, the combination of spaced walls comprising slabs in end to end abutment, the slabs having opposed grooves in adjacent faces thereof, and studs disposed in the grooves.

10. In a building construction, the combination of spaced walls comprising slabs in end to end abutment, means providing opposed grooves in adjacent faces of the slabs, one of the grooves extending along the line of

abutment of slabs of one wall, and studs disposed in the grooves.

11. In a building construction, the combination of spaced walls comprising slabs in end to end abutment, the lines of abutment of slabs of one wall being staggered with respect to the lines of abutment of slabs of the other wall, means providing pairs of opposed grooves in adjacent faces of the slabs, some of the pairs of opposed grooves extending along the lines of abutment of the slabs of one wall, others of the pairs of opposed grooves extending along the lines of abutment of the slabs of the other wall, the remainder of the pairs of opposed grooves being disposed between said some and said others of the pairs of opposed grooves, and studs disposed in the pairs of opposed grooves.

Signed by me at Boston, Massachusetts, this fourth day of November, 1926.

ALBERT F. BEMIS.