April 17, 1928. 1,666,199

F. W. FITZPATRICK

BUILDING UNIT AND CONSTRUCTION

Filed Sept. 22. 1926

Fig. 1.

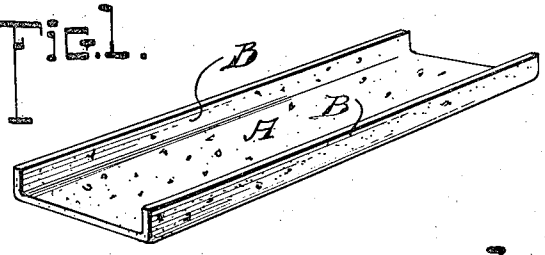


Fig. 2.

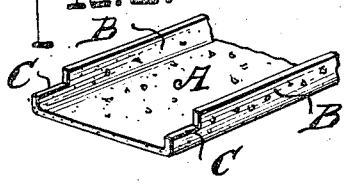


Fig. 3.

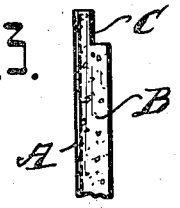


Fig. 4.

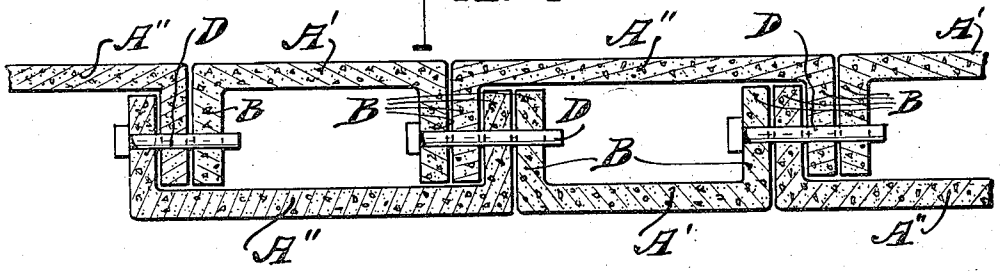


Fig. 5.

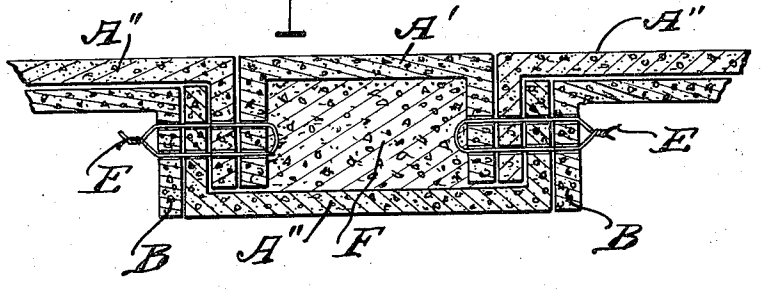
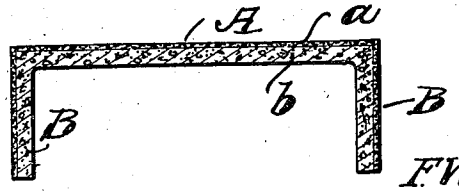


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANCIS W. FITZPATRICK, OF EVANSTON, ILLINOIS.

BUILDING UNIT AND CONSTRUCTION.

Application filed September 22, 1926. Serial No. 137,044.

The present invention has to do with building construction and involves primarily a novel form of building unit and assemblage thereof, to be made of concrete, burnt clay or any suitable substance and so designed as to form not merely a slab wall surface, but also a structural member, or bearing walls susceptible of carrying great loads.

In the practical embodiment of my invention, an assemblage of units made in accordance therewith will provide a hollow wall construction having all the usual advantages of affording insulation by way of dead air spaces, rendering a building in which the unit is incorporated warm in winter and cool in summer.

My invention comprises as the building unit thereof a channel member or unit consisting of a body with edge flanges, and this unit will be preferable in two widths or sizes so that the flange or lateral edge portions of assembled units may be overlapped and interlocked and connected together peculiarly to provide the hollow wall structure before referred to.

My building unit, or channel member, moreover, is designed to be made of a length to extend from floor to floor of a building, in performing its function as a structural or reinforcing member, its upper and lower ends being interlocked with suitable framing or structural steel or iron work composing the skeleton of the building of which the unit forms a part.

With the foregoing in view a full understanding of this invention will be had upon reference to the following description in conjunction with the annexed drawings in which:

Figure 1 is a perspective view of a channel unit or member embodying the invention.

Figure 2 is a view showing the construction of the unit at its ends when the latter are intended to interlock with the framework of the building on which the unit is to be placed.

Figure 3 is a fragmentary view of the construction illustrated in Figure 2.

Figure 4 is a top plan view of a wall construction involving the assemblage of building units embodying this invention.

Figure 5 is a view similar to Figure 4, but illustrating how certain of the channel units assembled in the wall structure may be filled in between the same with concrete, or the like, to provide columnar support. This figure also illustrates a modified form of fastening means between the several units to connect them together.

Figure 6 is a horizontal sectional view of a modified form of unit.

Referring to Figure 1 the view is intended to illustrate one of my building units which is composed of a channel body A provided with side edge flanges B extending substantially the entire length thereof. This unit may be made in different widths and in different lengths, but a convenient size would be 18″ to 24″ in width and 8′ or 10′ in length. With such length the unit is susceptible to being placed in an assemblage of such unit vertically in a wall structure and its ends may be seated in interlocking relation to the horizontal girders or members of a steel or iron frame work such as employed in fireproof building construction of today. When it is desired to thus interlock the ends of the channel unit A with the metal framework of the building the said ends may be notched out as shown at C and Figures 2 and 3.

In the practical use of my building units I assemble them substantially in the manner illustrated in Figure 4 which involves a very pecular method of interlocking the edge flange of units of different sizes. Thus I arrange a relatively narrow unit A′ between relatively wider units A″ with the edge flanges B having their adjacent faces opposite to one another to form one face or side of the final wall. Then I provide a similar assemblage of units A′ and A″ with their edge flanges facing toward the body portions of the first mentioned units A′ and A″ and overlapping the edge flanges of the latter. In this manner the relatively wider channel unit or member A″ at one side or face of the wall receives between its edge flanges B the four edge flanges of three opposed channel units, viz: the two edge flanges of a single narrow unit and the adjacent edge flanges of the two wider channel units at opposite sides of the said narrow channel unit.

With the units assembled as described in relation to Figure 4 it is apparent that the edge flanges of the units at one face or side of the wall extend in a direction opposite to those of the channel units at the other face or side of the wall. Inasmuch as the various edge flanges all overlap it is obvious that I may avail of any convenient method of attaching these flanges together and for such

purpose I show in Figure 4 what may be characterized as removable bolts or fastening pins D provided at one end with a head if desired, or not. Such a wall construction embodying the assemblage of units as set forth provides a hollow structure of advantage in view of the air spaces created between the body portions of the opposing building units A′ and A″.

In Figure 5 I have illustrated an arrangement of channel or building units similar to that of Figure 4, excepting that the flanges B of the various units are connected by wire ties looped through the flanges and having the ends twisted together, said ties being designated at E. Moreover in this construction of Figure 5 I show how cement or other filling material F may be deposited in the space between any two opposite units A′ and A″ to form a solid column, having all of the structural and functional effects obtained from a column formation.

In Figure 6 I show a channel or building unit A wherein the outer surface portion is made of substantially neat cement, designated *a*, whilst the body portion of the unit is made of aggregates that may include cement, sand and wood pulp, asbestos fiber, mineral wool fiber, the same designated *b*. If desired the channel units may be made entirely of concrete aggregates, or it is within the purview of the invention that the unit be a burnt clay product.

The advantages of my invention will be quite evident from the foregoing description of the structural details and the method of assembling the building units in an actual steel construction, and it is to be understood that I do not limit myself to the employment of such units in a wall alone, because they may be availed of when so arranged in a floor slab construction, a roof slab construction, or elsewhere as a part of a building structure. The term "wall" as used herein, therefore, is a relative term in the sense of body structure more than anything else, whether the body structure be a wall, a roof, a floor slab, or the like.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A wall construction comprising an assemblage of channel units, each channel unit being made up of a relatively long body having spaced edge flanges and the said units being arranged so that the units at the outer side of the wall have their edge flanges projecting inwardly and the units at the inner side of the wall have their edges projecting outwardly, the said edge flanges overlapping one another and means securing the said edge flanges together and passing transversely through the overlapped portions.

2. A wall construction substantially as set forth in claim 1 in which the securing means for connecting edge flanges comprise pins passing through to interlock the flanges and thereby hold the channel units, of which they form a part, together.

3. A wall construction consisting of an outer face composed of channel units arranged edge to edge, said channel units having edge flanges extending laterally therefrom and arranged substantially flat against one another and an inner face consisting of channel units arranged edge to edge, and having edge flanges projecting outwardly therefrom and arranged substantially flat against one another and also arranged beside the edge flanges of the channel units of the outer face of the wall, the edge flanges of the units of the inner face of the wall projecting in a direction opposite from those extending from the channel units at the outer face of the wall.

4. A wall construction consisting of an outer face composed of channel units arranged edge to edge, said channel units having edge flanges extending laterally therefrom and an inner face consisting of channel units arranged edge to edge, and having edge flanges projecting outwardly therefrom and arranged beside the edge flanges of the channel units of the outer face of the wall, the edge flanges of the units of the inner face of the wall projecting in a direction opposite from those extending from the channel units at the outer face of the wall, the channel units at the inner face of the wall being alternately narrow and wide, and those at the outer face of the wall being alternately narrow and wide, and the assemblage of said units being such that a wider channel unit at one face of the wall receives between its edge flanges the edge flanges of a narrower channel unit and an edge flange at the end of each wider channel unit on opposite sides of said narrower channel unit.

5. A wall construction substantially as claimed in claim 4, wherein the edge flanges of the units at the inner and outer face of the wall are connected together.

6. A wall construction made up of opposing outer and inner faces of like constructions and arrangements, each face composed of a series of alternately wide and narrow channel units, each having laterally projecting flanges, each wide unit receiving between its flanges the flanges of two opposing wide units, and also receiving between its said flanges an entire opposing narrow unit.

7. A wall construction composed of a plurality of channel units disposed in opposed relation to each other with their flanges abutting, and a series of narrower units of similar form disposed in the channels of the first named units, and common means for securing all of said units together.

In testimony whereof I affix my signature.

FRANCIS W. FITZPATRICK.