Aug. 30, 1932. P. PENTLAND 1,875,131

BUILDING CONSTRUCTION

Filed Oct. 29, 1928

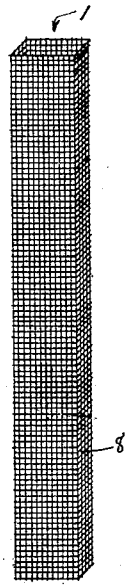


Fig. 6

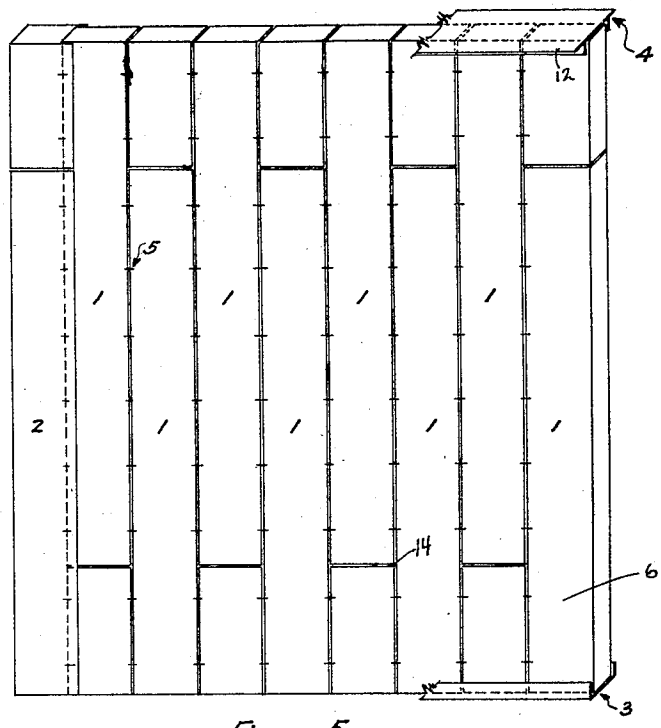


Figure 5

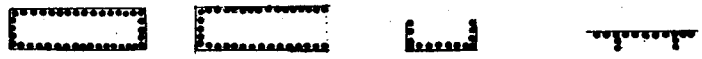


Fig. 1 Fig. 2 Fig. 3 Fig 4

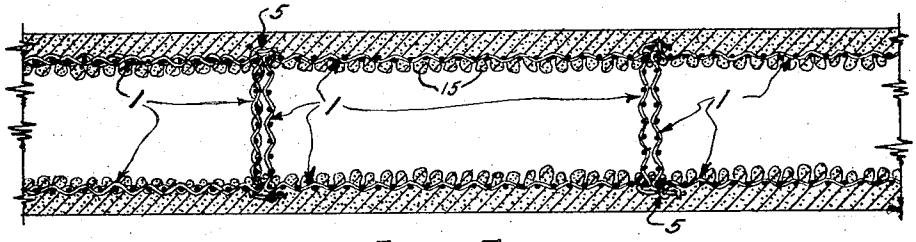


Figure 7

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UNITED STATES PATENT OFFICE

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BUILDING CONSTRUCTION

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The invention relates to a novel and useful improvement in building structures, a unit and instrumentality for forming said structures and to a method for making said structures therefrom. More especially, the invention relates to the construction of buildings wherein a light, hollow foraminated member is employed as the support for a facing of hardening plastic material.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, construction, arrangements, combinations and improvements herein shown and described.

The accompanying drawing, referred to herein and constituting a part hereof, illustrates one embodiment of the invention, and together with the description, serves to explain the principles of the invention.

Of the drawing:

Fig. 1 is a section of a building unit in accordance with the invention;

Fig. 2 is a section of a modified form of building unit;

Fig. 3 and Fig. 4 are sections of channel-like retaining members, for use with the units of Figs. 1 and 2;

Fig. 5 is an elevation of a wall or partition in accordance with the invention.

Fig. 6 is an isometric view of a building unit; and

Fig. 7 is a cross-section of a wall or partition in accordance with the invention.

The invention has for its primary object the provision of a building unit which is readily assembled to form walls, partitions and the like, and on which plaster or other suitable hardening, plastic facing material may be applied, securely retained and supported. Another object is the provision of a light, rigid, wall or partition that can be readily and economically constructed and a method of making said structure which will eliminate studding and strutting of the walls, and at the same time produce a durable, and fireproof structure which is highly advantageous. Other advantages, flowing from the invention, will be readily apparent to those skilled in the art and need not be specifically enumerated.

It will be understood that the foregoing general description, and the following detailed description as well, are exemplary and explanatory of the invention, but are not restrictive thereof.

In the exemplary embodiment shown in the accompanying drawing, a building unit comprises a hollow substantially prismoidal member 1, formed of foraminated, metallic, sheet material 8 such as wire fabric, sheet metal, metal mesh, or expanded metal lath, bent upon itself to form the hollow body. In order that these members may be easily fitted together, they are preferably made as rectangular parallelopipeds, as shown in Fig. 6, and, when so made, may be easily and readily juxtaposed to form a wall, or partition, 6, having two relatively smooth exposed sides. For saving material and making the units as light as possible, the apertures in the sheet material of which the hollow units are formed are as large as is consistent with the required rigidity and strength.

These units are preferably formed from a single standard-sized sheet of foraminated material, of the type described, which is bent upon itself to form the hollow body 1, or may be woven in tubular or hollow formation.

Other forms of the units, which are made of the same or similar material are shown diagrammatically by Fig. 2. For filling in spaces, of a size smaller than the width of the standard units shown in Figs. 1 and 6, there is provided an open-sides hollow unit 2,

which may be telescoped with the standard units 1 and fill in any desired space.

For attaching the units to the floor and ceiling and securing them in the desired position, small channel-like members are provided as shown in Figs. 3 and 4. The three-sided trough-like member 3 of Fig. 3 may be used to secure the ends of elongated units 1 to the floor, and is made of such a width that its sides 9 will snugly fit over the ends of the standard units. These channel-like members are preferably formed of foraminated material and may be secured to the floor by nails driven through their bottom or central portion 10. The channel-like member shown in Fig. 4 is particularly adapted to securing the upper ends of the standard units 1 and 2 to the ceiling and as embodied is formed of a sheet of foraminated material, the edges of which are bent inwardly, to form margins 12, and then upwardly to form retaining sides 13, which fit over and hold the ends of the standard units. These channel-like members, for preventing lateral displacement of the assembled units may also be used at the sides for increased rigidity.

In assembling these several units to form the wall or partition, a strip of the channel-like members 3 is securely fastened to the floor along the line on which the wall is to be erected and securing members 4 are attached to the ceiling directly over the members attached to the floor. When these have been correctly positioned, the elongated prismoidal units 1 are stood on end, with one of their sides engaging the wall already erected, or positioned at the proper point, the lower end being inserted within the channel formed by the trough-like member on the floor, the upper end being inserted within the upper channel. Preferably a small gap is left in the upstanding edge of one of the channels so that the top end of the unit may be first put in place, the bottom end of the unit pushed into the channel through the gap, and the unit then slid into its proper place along the channel. The next member is then placed with its narrow side against the member already erected and its top and bottom ends securely placed within the channels, and the succeeding members are erected in the same manner, filling out as nearly as possible the distance the wall is to run. If there remains a small space at the end, which is too small to allow the use of one of the standard members, it can be filled out by telescoping one of the open-sided members 2 over the last standard member secured in position.

When the necessary number of units have been placed in position to complete the wall or partition, the several units are securely connected to each other to render them substantially immovable with respect to each other. This may be, and preferably is, accomplished by joining the several sections together with wire ties 5 passed through some of the perforations in adjacent units, the wire being twisted to secure it in place.

If the units are shorter than the height of the wall or partition to be erected, short lengths of the necessary size are cut and used to fillI out the space as needed, the end joints 14 being staggered, as shown in Fig. 5 so that the end joints in adjoining rows will not be alined.

After the units have been assembled, and securely tied together, the facing of plaster, or other hardening plastic material, may be applied. One side of the wall or partition may be steadied, and the plaster or other facing material is coated on the other side, it being pressed in, to a certain extent, so it will squeeze through the apertures in the foraminated material and securely bond the facing layer to the assembled units. By reason of the projections 15, as soon as one side has been completely covered, and the facing material has partially set, the assembled units will present sufficient rigidity so that the other side of the wall or partition can be faced without steadying the side already faced.

When it is desired to employ a finishing surface of brick, marble, tile or the like, the facing may be securely attached to the units by means of the usual mortar, which will bond with the apertures of the units and additional security may be obtained by imbedding metal ties, attached to the units 1, and imbedded in the mortar joints.

The units according to the invention are highly advantageous, due to their light weight and greatly reduce the dead load in fire-proof construction.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom within the scope of the accompanying claims without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:—

1. A wall structure having a hollow framework built up of a plurality of units of openwork metallic construction made into tubular form with substantially flat sides, said units being assembled side by side with their adjacent flat sides secured together in abutting relation for mutual support, the outer flat sides falling into the same plane for forming two substantially flat continuous wall faces adapted to be completely covered with a facing of plaster or the like, the said hollow framework being completely concealed by the two facings and providing a continuous air space extending horizontally and vertically inside the wall, said facings being braced and spaced apart by the said adjacent, abutting flat sides.

2. A wall structure composed of a series of tubular, metallic units having openwork sides

and faces, said faces being substantially parallel to receive a coating, said units being arranged adjacent to each other with their sides abutting and secured together to form a continuous hollow structure with substantially parallel faces held apart by the adjacent openwork sides of the tubular units, said substantially parallel faces forming a continuous surface adapted to receive a coating of plaster or like material which may be forced through the openwork to form a secure engagement with the tubular metallic units to form a wall.

In testimony whereof, I have signed my name to this specification.

PETER PENTLAND.