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L. E. MENDENHALL

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BRICK CONSTRUCTION

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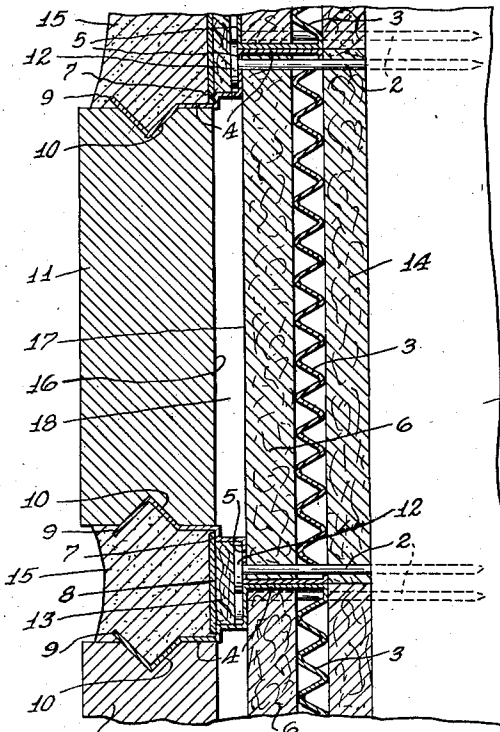


Fig. 1.

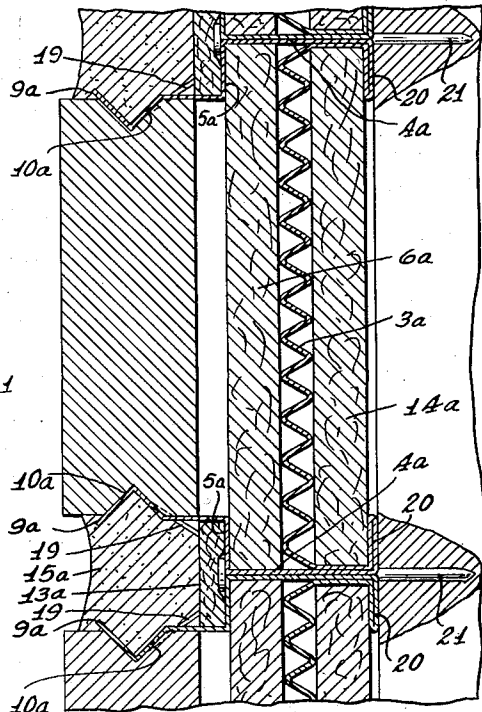


Fig. 2.

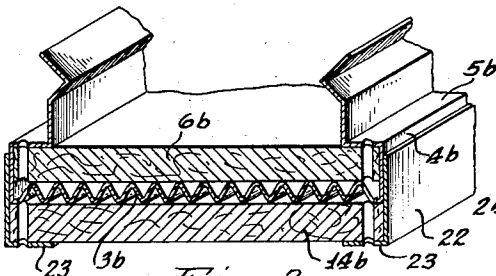


Fig. 3.

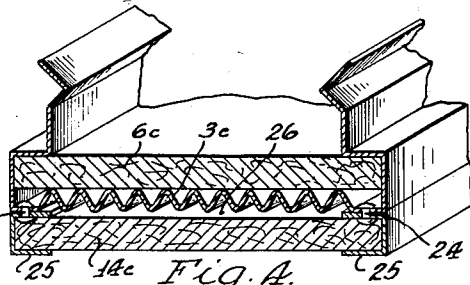


Fig. 4.

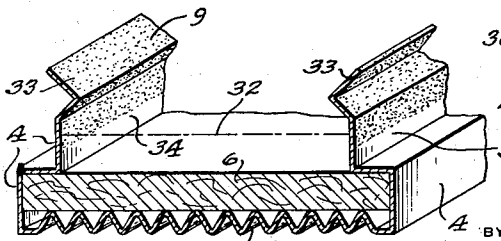


Fig. 5.

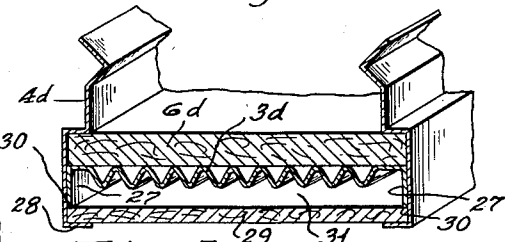


Fig. 6.

INVENTOR

Lloyd E. Mendenhall

Barthelme & Bachert

ATTORNEYS

UNITED STATES PATENT OFFICE

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BRICK CONSTRUCTION

Lloyd E. Mendenhall, Partridge, Kans., assignor
to David A. Wallace, Detroit, Mich.

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13 Claims. (Cl. 72-19)

The present invention relates to metal reinforced wall members and the walls built therefrom and constitutes an improvement on the co-pending applications of David A. Wallace, Serial No. 54,182, filed December 13, 1935, and Serial No. 60,969, filed January 27, 1936.

The primary object of the present invention is to provide means for assembling bricks or other facing elements into a wall structure, the means being formed of channel like members which are adapted to be secured directly to the studs or supports of a building frame whereby the bricks or facing elements may be snapped thereinto after the channel members have been assembled in the wall. Accordingly the formation of the brick wall is materially simplified inasmuch as the necessity for skilled labor for laying the bricks or facing elements is obviated and the conventional foundation for a brick wall is not necessary because each row of bricks is individually supported by the channel members which are secured directly to the studs or supports of the building frame. The individual support of each row of bricks or other facing elements has the advantage that mortar may be placed in the voids between the bricks or facing elements after the wall has been completely assembled, the result being that the mortar has no effect on the spacing of the bricks and therefore the wall is not subject to sagging when the mortar sets. Generally speaking, walls incorporating the above advantages are disclosed in the co-pending applications above referred to and this invention has more to do with the particular formation of the channel like member for supporting the bricks or other facing elements and also to the means for insulating them, both as to heat and cold and also as to sound.

An important object of the present invention is to provide a wall assembly comprised of bricks or other facing elements and metal supports therefor and for insulating material, the insulating material being supported by the metal supports in a manner to provide dead air spaces, which increase the ability of the assembled wall to prevent the transmission of heat or cold there-through and also sounds.

Still another object of the present invention is to provide a channel for the above purpose having flexible side walls with retainer portions into which bricks or other facing elements may be snapped after the channels have been assembled in a wall, the said channels being provided with rust proof portions which prevent oxidation of the portions thereof which are contacted by

mortar which is subsequently placed in the voids between the bricks. In connection with the treatment for preventing oxidation of the channel walls, the side walls of the channels are partially galvanized, that is to say, a sufficient surface thereof is galvanized to prevent contact of mortar therewith so as to obviate oxidation of the walls or chemical action which might result from acid, lime, etc., which might be present of the mortar. However, galvanizing the walls of the channel which is formed of steel draws the temper therefrom and destroys to a certain extent the resiliency thereof so that it becomes necessary in order to permit the snapping in function of the bricks or other facing element to provide for resiliency in portions which are not galvanized and also to prevent the mortar from contacting with the ungalvanized resiliency providing portions.

With the above and other ends in view the invention is more fully disclosed with reference to the accompanying drawing, in which

Figure 1 is a vertical cross section of a wall;

Fig. 2 is a vertical section illustrating a modification;

Figs. 3, 4 and 5 are sections each illustrating different embodiments of the invention, and

Fig. 6 is a section illustrating the galvanized portion.

Like characters of reference are employed throughout to designate corresponding parts.

Referring to Fig. 1, the numeral 1 designates a vertical support or stud of a building. Secured thereto by nails 2 are a plurality of channel members each comprising a corrugated web portion 3 and side walls 4 having integral shoulders 5 providing for the retention of a layer of fibrous insulating material 6 in contact with the corrugated web 3. The side walls of the channels are provided with external shoulders 7 against which insulation retainers 8 engage and with retainer portions 9 adapted to engage in grooves or recesses 10 in bricks or facing elements 11. The nails 2 are provided with comparatively large diameter heads 12 and are driven through previously formed apertures in the channel members in close proximity to the side walls 4 so that the heads 12 on the nails inserted in one channel member overlap and engage the exterior surfaces of the shoulders 5 on the next adjacent channel member. Between the shoulders 5 on adjacent pairs of channel members and beneath the retainer 8 is provided a layer of fibrous insulating material 13. A layer of fibrous insu-

lating material 14 is interposed between each web 3 and the support 1 to which it is secured.

In assembling a wall embodying the elements above described the channel is first secured to the support 1 and the facing elements 11 are snapped between the side walls of the channel which are resilient so that the retainers 9 on the side walls engage the surfaces of the grooves 18 and support the facing elements. The insulating material 13 is then put in place with its retainer 8 and the voids between the bricks are filled with mortar 15. After the mortar becomes set it prevents flexing of the side walls of the channels so that the retainers 9 are positively held in the grooves 10. It will be noted that the rear faces 16 of the facing elements are supported by the retainers 9 in spaced relation to the surfaces 17 of the insulating material 6 and that an air pocket 18 is thus provided.

The channels for supporting the facing elements extend across the entire width of the wall to be formed and any desired number of facing elements may be placed in end to end relation in each channel. When the bricks are placed in end to end relation in the channels they are spaced apart in the usual manner and the spaces therebetween are filled with mortar. This mortar between the ends of the bricks enters the space 18 and tends to block it off at the end of each brick. This feature has the advantage that it breaks the space 18 into a series of relatively short air pockets and precludes the possibility of air circulating therethrough which might convey heat or cold.

In the form illustrated in Fig. 2 the construction is almost identical to that described above. In this form the corrugated web 3a has side walls 4a with a shoulder 5a supporting a layer of insulation 6a on the inside of the web. A layer of fibrous insulation 13a is placed between adjacent pairs of channels and is held in place prior to the insertion of mortar 15a by flexible fingers 19 which are struck out from the side walls 4a adjacent to the retainer portions 9a. In addition the side walls 4a are extended beyond the web 3a and then bent over to provide portions 20 for retaining the insulation material 14a with respect to the web 3a. The form disclosed in Fig. 2 is assembled in a wall in a manner similar to that described above, the only exception being that nails 21 are driven between adjacent pairs of channel members rather than through preformed openings therein as was described in connection with Fig. 1.

Referring to Fig. 3 there is illustrated a channel of the character above described having a web portion 3b and side walls 4b formed with shoulders 5b for retaining insulating material 6b between the side walls. In this form the insulating material 14b is retained with respect to the web 3b by angular elements 22 which are welded to the side walls 4b and which have portions 23 engaging the under surface of the insulating material 14b.

Referring to Fig. 4 there is illustrated a channel member having a corrugated web 3c and means for supporting a layer of insulation 6c with respect thereto in the manner above described. Secured by rivets 24 to the outside surface of the web 3c are two channel members 25 into which the ends of the insulating material 14c project. The channel members 25 serve to retain the insulation 14c with respect to the main channel in a manner providing an air pocket 26 be-

tween the outside surface of the web 3c and the insulation 14c.

In Fig. 5 there is illustrated a channel wherein the side walls 4d are formed as separate units and are united by a web 3d of corrugated formation and having side flanges 27 which are welded to the inner surfaces of the side walls 4d. The side walls 4d have their lower edges turned inwardly at 28 to support a fibrous insulating element 29. The edges of the insulating element 29 are interposed between the returned portions 28 and the bottom edges 30 of the flanges 27 on the web portion 3d and the insulation is thus maintained in spaced relation to the web 3d whereby to provide an air pocket 31.

In Fig. 6 there is illustrated a feature of the invention which is applicable to all the forms above described. The channel formation and insulation are substantially the same as that described in connection with Fig. 1 and therefore the same reference characters may be applied thereto. The line 32 on Fig. 6 represents the plane of the inner surface of the facing element which might be received between the retainers 9 on the side walls 4. Due to the fact that mortar contains acid, lime or other chemicals which tend to cause rapid oxidation of the retainer portions 9 the said retainer portions are galvanized as indicated by the stipling on the drawing. The side walls 4 have a zone 33 which is also galvanized, the said zone extending beneath the plane 32 of the facing element. Referring to Fig. 1 it will be seen that the insulation 13 and its retainer 8, or to the insulation 13a in Fig. 2, it will be seen that such insulation prevents mortar from passing the plane of the inside surface of the bricks or facing elements. It is therefore impossible for mortar to contact with the portions 34 of the side walls and they need not be galvanized. Due to the fact that galvanizing steel tends to draw the temper therefrom the galvanized portions of the channel members do not incorporate any high degree of elasticity but the ungalvanized portion 34 tends to resiliently support the relatively non-resilient portions so that the bricks may be snapped into the retainers 9 and the said retainers will be firmly held by resilient pressure of portions 34 in engagement with the walls of the grooves 10.

Although specific embodiments of the invention have been illustrated and described, it will be understood that various changes may be made in the details of construction without departing from the spirit of the invention and such changes are contemplated.

What I claim is:

1. In combination, a support, channel members secured to said support, facing elements having portions projecting into said channel members and supported thereby, and layers of insulation between said channel members and said support and between the faces of said facing elements and the bottoms of said channels respectively.

2. In combination, a support, channel members secured to said support, said channel members comprising a pair of side walls united by a web portion and being secured to said support, a layer of insulation between said channel member and said support, facing elements projecting between the side walls of said channel member and supported thereby, and a layer of insulation between said facing elements and the webs of said channels.

3. In combination, a support, channel members

secured to said support, said channel members comprising a pair of side walls united by a web portion and being secured to said support, a layer of insulation between said channel member and said support, facing elements projecting between the side walls of said channel member and supported thereby, and a layer of insulation between said facing elements and the webs of said channels, said last named layer of insulation being supported by said channels in spaced relation to the facing elements whereby to provide a dead air pocket.

4. In combination, a support, channel members secured to said support, said channel members comprising a pair of side walls united by a web portion and being secured to said support, a layer of insulation between said channel member and said support, facing elements projecting between the side walls of said channel member and supported thereby, and a layer of insulation between said facing elements and the webs of said channels, said web portion being corrugated whereby to space apart said layers of insulation and to provide a plurality of dead air spaces.

5. In combination, a support, a plurality of channel members secured to said support in parallel relation, facing elements received in said channel members and supported thereby, a layer of insulation between the bottoms of said channels and said facing elements and spaced from said facing elements whereby to provide dead air spaces, mortar between said facing elements, and insulating means between adjacent pairs of channel members disposed to prevent contact of said mortar while in plastic condition with predetermined portions of said channel member.

6. In combination, a support, a plurality of channel members secured to said support in parallel relation, facing elements received in said channel members and supported thereby, a layer of insulation between the bottoms of said channels and said facing elements and spaced from said facing elements whereby to provide dead air spaces, mortar between said facing elements, and insulating means between adjacent pairs of channel members disposed to prevent contact of said mortar while in plastic condition with predetermined portions of said channel member, the portions of said channel members which are contacted by said mortar being coated with a rust proofing medium.

7. In a construction of the character described, a channel comprising a pair of flexible side walls united by a web portion, said side walls having retainer portions adapted for the reception of facing elements, and means for supporting a layer of insulation on each side of said web.

8. In a construction of the character described, a channel comprising a pair of flexible side walls united by a web portion, said side walls having retainer portions adapted for the reception of facing elements, means for retaining a layer of insulation between said side walls, and means for supporting a layer of insulation on the outside face of said web.

9. In a construction of the character described, a channel comprising a pair of flexible side walls united by a web portion, said side walls having retainer portions adapted for the reception of facing elements, means for retaining a layer of insulation between said side walls, and means for supporting a layer of insulation on the outside face of said web, said web having a series of corrugations therein spacing said layers of insulation apart and providing a plurality of dead air pockets.

10. In a construction of the character described, a channel comprising a pair of flexible side walls united by a web portion, said side walls having retainer portions adapted for the reception of facing elements, means for retaining a layer of insulation between said side walls, and means for supporting a layer of insulation in parallel spaced relation to the outside surface of said web.

11. In a construction of the character described, a channel comprised of a pair of side walls united by a web portion, said side walls having retainer portions adapted to engage facing elements, said retainer portions of said side walls and the zone immediately adjacent thereto being rust proofed, and the portions of said side walls between the rust proofed portions and said web being resilient whereby to yieldably space apart said retainer portions.

12. A channel member comprising resiliently flexible side walls united by a web portion, said side walls having retainer portions, facing elements received in said retainer portions, means for retaining an insulating member between said side walls and in spaced relation to said facing elements, and means for retaining an insulating element on the exterior face of said web.

13. A channel member comprising resiliently flexible side walls united by a web portion said side walls having retainer portions, facing elements received in said retainer portions, means for retaining an insulating member between said side walls and in spaced relation to said facing elements, means for retaining an insulating element in parallel spaced relation to said web, and means for retaining insulation between adjacent pairs of channels.

LLOYD E. MENDENHALL.