Dec. 9, 1947. C. TEMPLE 2,432,354

HOLLOW BUILDING WALL

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Fig. 1.

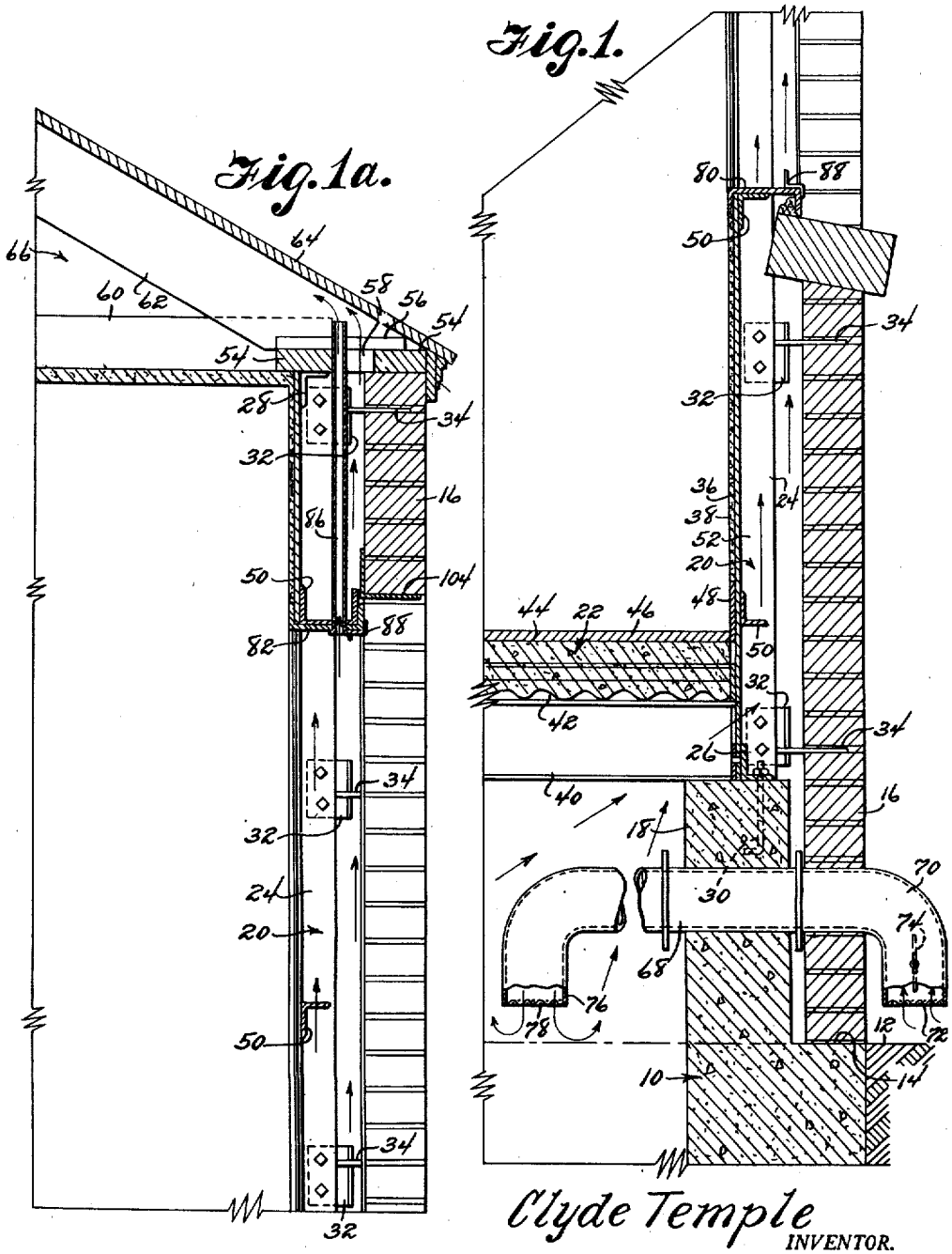


Fig. 1a.

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Fig. 2a.

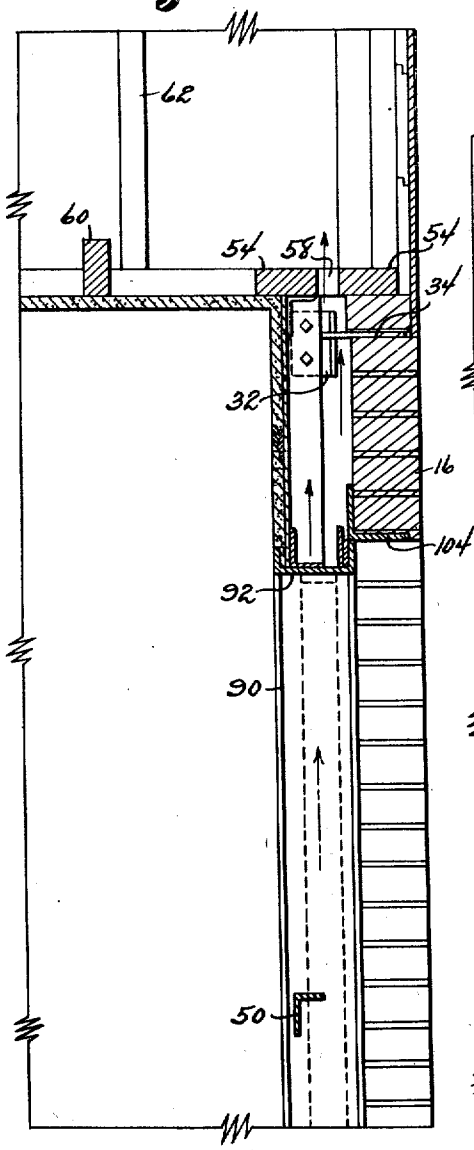
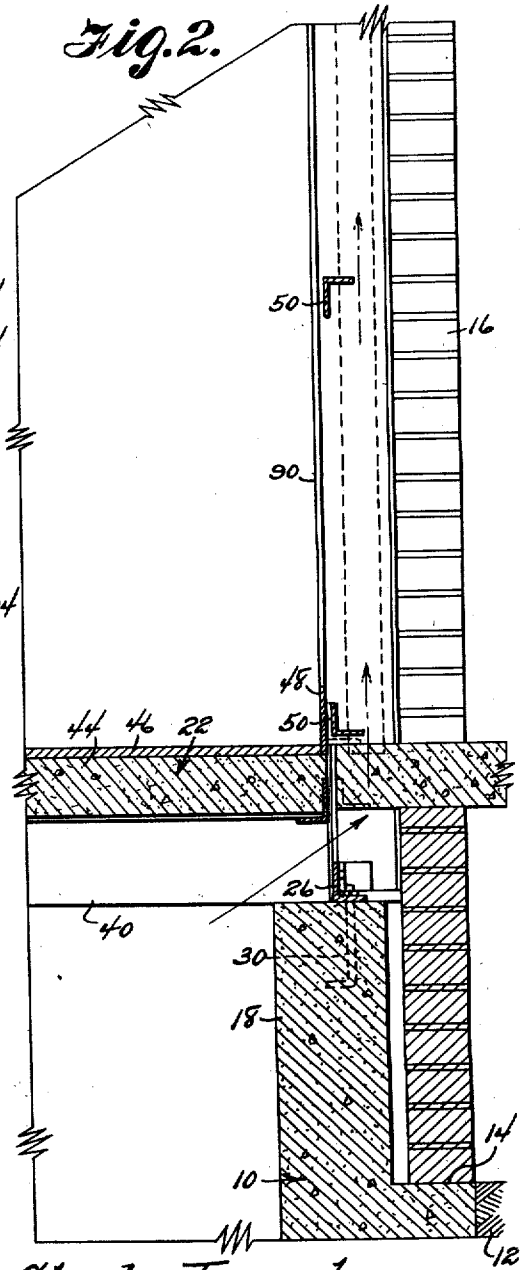


Fig. 2.



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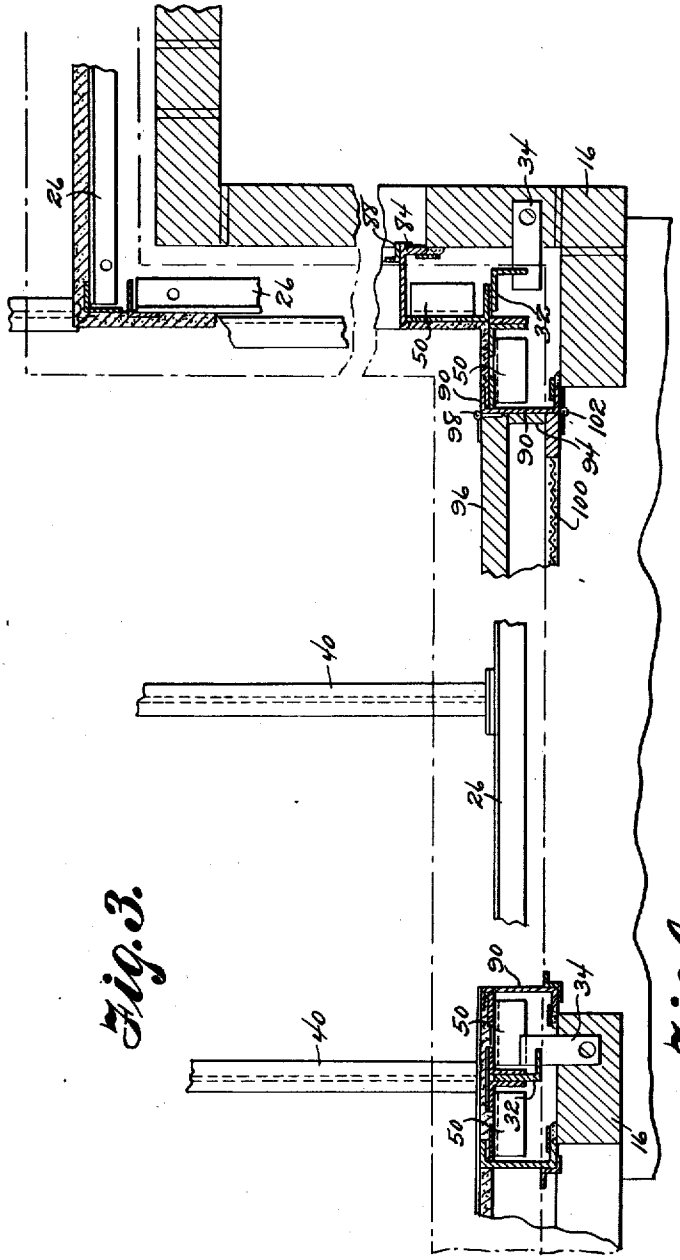


Fig. 3.

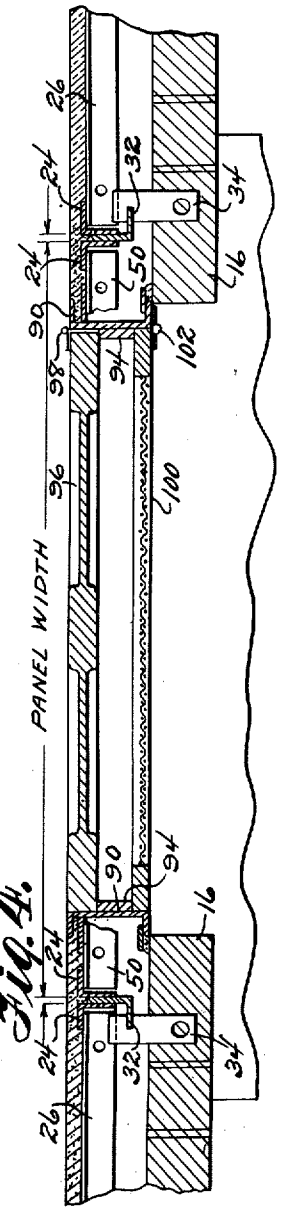


Fig. 4.

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Patented Dec. 9, 1947

2,432,354

UNITED STATES PATENT OFFICE

2,432,354

HOLLOW BUILDING WALL

Clyde Temple, Tulsa, Okla.

Application July 20, 1943, Serial No. 495,514

1 Claim. (Cl. 72—16)

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My invention relates to air conditioned buildings, and has among its objects and advantages the provision of an improved wall structure designed to facilitate the circulation of air therethrough.

An object of my invention is to provide a building wall structure provided with air circulating spaces, together with novel means for taking outside air from a position close to the ground surface and bringing the air to a central position within the basement of the building from which point the air is drawn into the walls about their lower margins for circulation upwardly through the respective walls.

A further object is to provide a novel wall structure made up of pre-fabricated metallic panels in which metallic door and window frames are installed in their respective panels at the time of fabrication of the panels so as to greatly simplify the erection of building walls. The steel panels are provided with metal lath secured thereto in the shop. The steel panels for a house of given design are delivered to the place of erection with the door and window frames in place and the metallic lath attached thereto. This enables the erection crew to set up the panels in a relatively short period of time, after which the brick or stone veneer is erected.

In the accompanying drawings:

Figure 1 is a vertical sectional view through the lower portion and the foundation of a side wall and through the window opening therein;

Figure 1*a* is a vertical sectional view of the upper portion of the side wall and constituting a continuation of Figure 1;

Figure 2 is a vertical sectional view of the lower portion of an end wall taken through the door opening;

Figure 2*a* is a sectional view constituting a continuation of Figure 2;

Figure 3 is a horizontal sectional view taken through a corner of the building at the door and window jambs; and

Figure 4 is a horizontal sectional view through the door jamb structure.

In the embodiment selected for illustration, Figure 1 illustrates a foundation 10 and the ground level at 12. The foundation 10 includes a ledge 14 upon which is erected the brick wall or veneer 16, with the foundation having an upstanding wall part 18 upon which the panels 20 and the floor structure 22 are mounted. The panels 20 comprise vertical angles 24 and bottom and top angles 26 and 28, respectively. The bottom angles 26 are fixedly secured to the foundation wall portion 18 through the medium of anchor bolts 30. Clip angles 32 are secured to the substantially abutting angles 24 of the respective panels 20 for connection with wall ties 34 anchored in the brick or veneer wall portion 16. The clip angles 32 are bolted to the adjacent panels 20 so as to fixedly secure the panels one to the other. Each of the panels 20 is provided with metal lath 36 constituting an anchor for plaster 38.

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The floor structure 22 includes joists 40 supported at their ends on the foundation wall 18 and spaced at desirable intervals. Corrugated iron 42 is mounted on the joists 40 and a concrete slab 44 is poured on the corrugated iron, with the finishing floor 46 built on the concrete slab. In Figure 1, a metallic baseboard 48 extends about the perimeter of the finishing floor 46 and lies flush with the inside surface of the plaster 38. The baseboards 48 are bolted to the angles 24 in the respective walls. Girts 50 are also secured to the angles 24 of the respective panels 20. All the panels are devoid of metal lath immediately above their respective lower angles 26 to provide openings between the respective joists 40 for the inlet of air in the spaces 52 between the respective panels 20 and the brick or veneer 16.

In Figure 1*a*, beams 54 are respectively mounted on the angles 28 and the brick or veneer 16, to which beams are secured ties 56. The beams are spaced to provide air circulating openings 58. Ceiling joists 60 are mounted on the inside beams 54, and rafters 62 are also secured to the beams 54. Any suitable roofing 64 may be mounted on the rafters 62. It will thus be seen that the spaces 52 between the panels 20 and the brick or veneer 16 have communication with the attic space 66 through the medium of the openings 58. Suitable ventilators will be provided in the roof structure of the building for the exit of air circulating upwardly through the wall structure of the building.

In Figure 1, a large conduit 68 extends through the foundation wall portion 18 and includes a downwardly extending end 70 exteriorly of the brick or veneer 16 and terminating close to the ground surface 12. A screen 72 is provided in the end 70, and the latter may also be provided with a damper 74 for controlling the admission of outside air. This conduit is preferably located in the north wall of the building to secure the advantage of the colder air present along the ground surface of this wall. The inner end of the conduit 68 also includes a downwardly extending end 76 provided with a screen 78, with

the end **76** preferably located more or less centrally of the basement of the building so as to deliver the incoming air to the basement at points equal distances from the respective walls of the building.

In Figure 1, a window sill **80** is secured to the vertical angles **24** of its respective panel **20**, which sill constitutes a steel channel having its inside flange terminating flush with the plaster **30**. Figure 1*a* illustrates a window head **82** also comprising a steel channel having its inside flange terminating flush with the plaster. Vertical channel jambs are welded to the respective sills and heads, such as the jamb **84** of Figure 3.

To remove heat caused by the sun shining on the windows, the window heads **82** are provided with vertical tubes **86** which communicate with the attic space **66** and remove air from inside the building adjacent the window pane. Figures 1 and 1*a* illustrate the manner in which a steel window sash **88** may be associated with the channel window frame structure.

In Figures 2, 2*a* and 4, door jambs **90** are connected with a door header **92**, both the jambs and header comprising steel channels welded into a unitary structure and fixedly secured to their respective panels **20** in the same manner as the window frame structure. A door stop **94** is secured inside the channels **90** and **92**, and the door **96** is hingedly connected at **98** with one of the channels **90**. The screen door **100** has a spring hinge connection **102** with the same channel **90**.

For summer use, the damper **74** may be fully opened for the inlet of a maximum amount of cold air. This air is effectively circulated underneath the floor structure **22** and through the walls of the building and passed to the atmosphere through the medium of ventilators located in the roof structure of the building. For winter use, the damper may be closed and warm air from the basement will then circulate through the wall and attic. Because of this fact, water pipes and the like are protected from freezing when installed in the wall structure of the building.

The panels **20** are easily and quickly erected. All the door and window frames are secured in place in their respective panels **20** before the panels are delivered on the job. Thus the panels may be quickly erected on the job. The circulation of cold air through the wall structure and through the attic of the building aids in maintaining the building at a comfortable temperature in warm weather.

Angle lintels **104** are provided in the brick or veneer **16** at the respective door and window openings therein.

Without further elaboration, the foregoing will so fully illustrate my invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

In a hollow building wall construction having an inner wall section and an outer wall section, comprising substantially rectangular shaped supporting frames, said frames positioned edge to edge to form the inner wall section, a layer of wire lath covering each of said frames, clip angles with one of the legs thereof interposed between the vertically disposed adjacent edges of said frames, common securing means connecting said edges and the leg therebetween, the other legs of said clip angles spaced outwardly from the frames and in a plane parallel thereto, and slotted tie plates anchored in the inner face of the outer wall section, the slot being located in an edge of the exposed portion of the tie plate and in engagement with the said other leg of the clip angles whereby the outer wall section is spaced from and tied to the frames.

CLYDE TEMPLE.

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