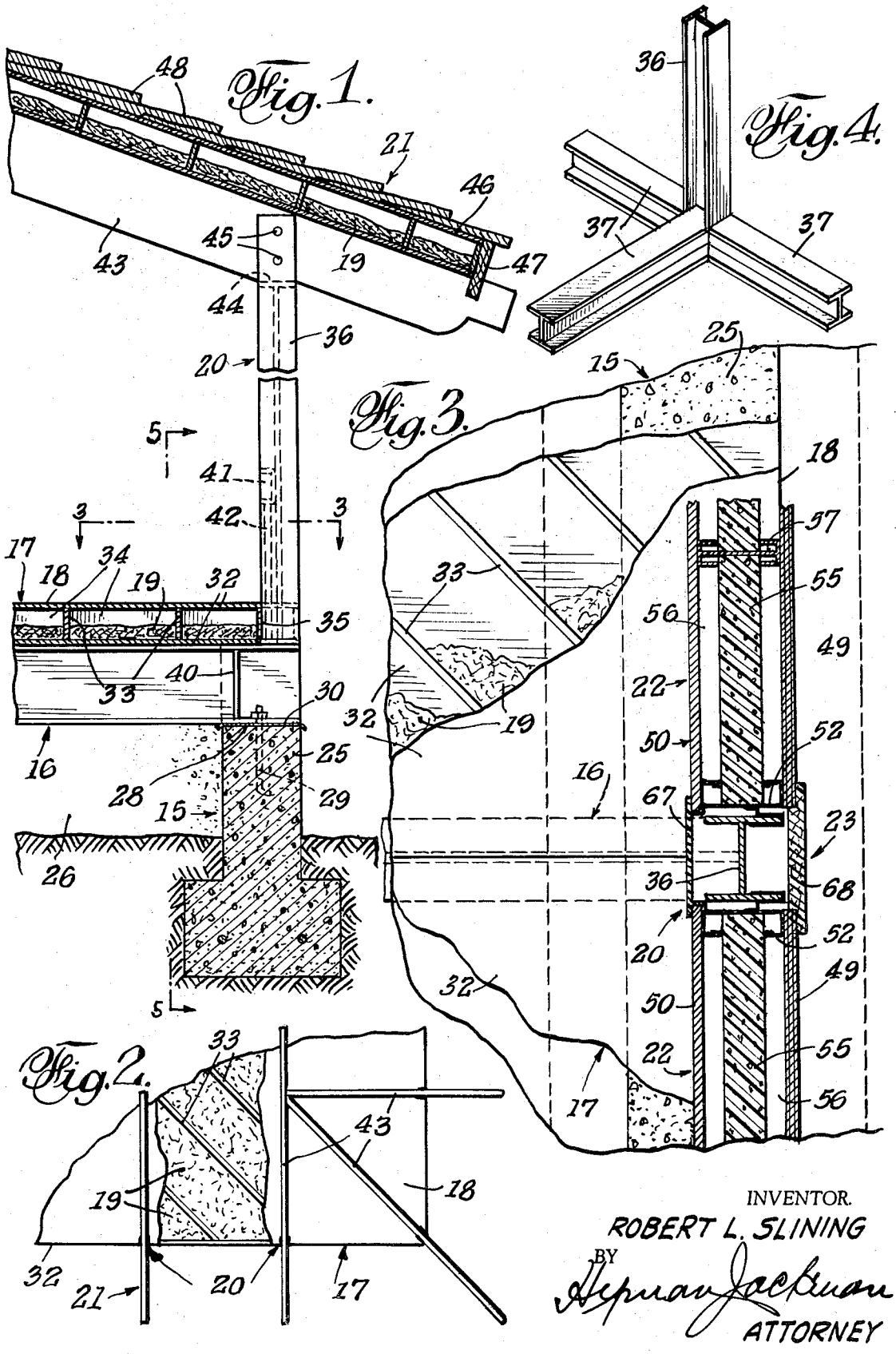
Nov. 17, 1970 R. L. SLINING 3,540,177

HOUSE CONSTRUCTION

Filed Nov. 20, 1967 2 Sheets-Sheet 1



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Fig. 5.

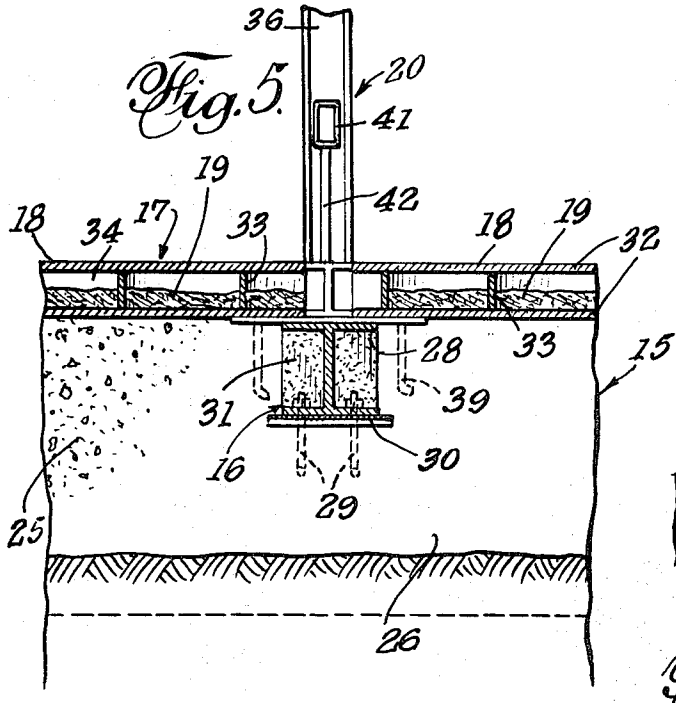


Fig. 9.

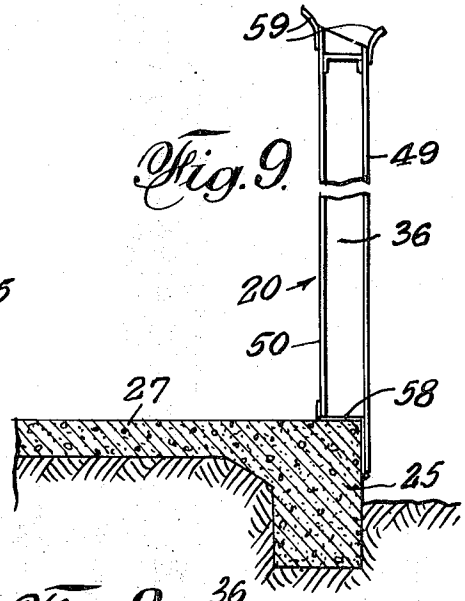


Fig. 8.

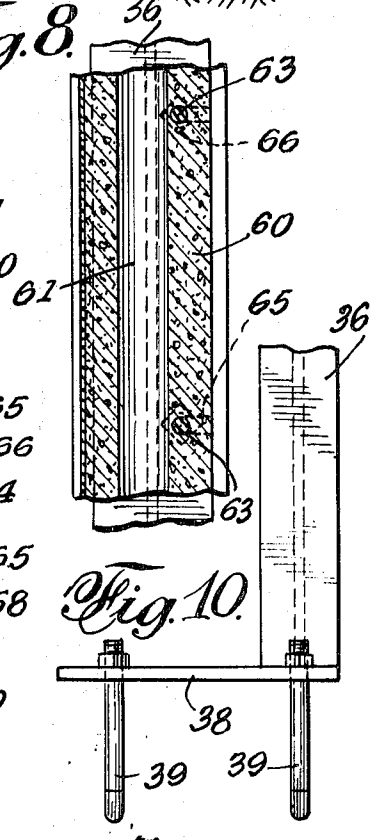


Fig. 6.

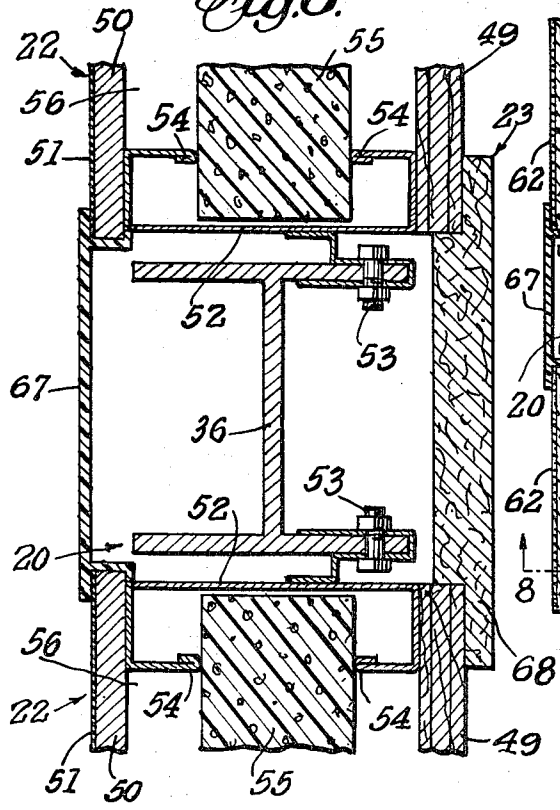


Fig. 7.

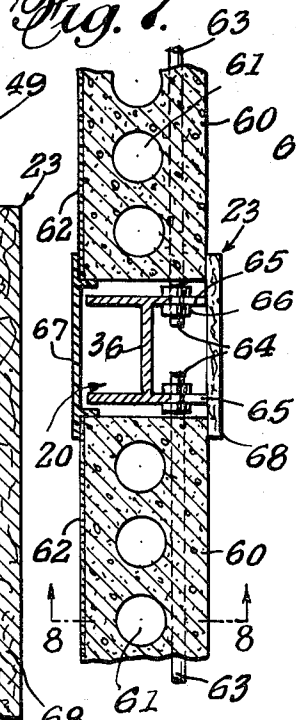


Fig. 10.

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HOUSE CONSTRUCTION

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Int. Cl. E04b 1/18, 2/88

U.S. Cl. 52—261 1 Claim

ABSTRACT OF THE DISCLOSURE

A house construction having a structural skeletal form comprised of foundation-mounted floor beams and roof-supporting columns rigidly affixed to said beams, the floor beams supporting a hollow insulation-filled floor panel, and curtain walls spanning between the columns.

BACKGROUND OF THE INVENTION

Areas having mild climates, and more especially not subject to snowfall and like extremes of weather, may be adequately served by houses and other or similar structures that have strong rigid skeleton frames, but in which the outer walls are curtain walls that serve only to enclose such frame, but do not require the strength ordinarily provided by conventional outer walls. The invention, therefore, provides for adequate, comfortable and inexpensive enclosure of the skeleton frame of houses in mild weather environments.

This invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description and which is based on the accompanying drawings. However, said drawings merely show, and the following description merely describes, preferred embodiments of the present invention, which are given by way of illustration or example only.

SUMMARY OF THE INVENTION

The house structure of this invention comprises a foundation **15**, beams or girders **16** supported by their ends to said foundation and anchored thereto, a floor **17** formed of stress skin plywood panels **18** supported on said beams **16** and filled or partly filled with heat insulation **19**, a plurality of columns or studs **20** mounted on the ends of the beams **16** and anchored to the foundation **15**, a roof **21** connected to the upper end of said columns **20**, curtain walls **22** extending between the foundation **15** and beams **16**, and means **23** to enclose the columns and extending between adjacent ends of said walls.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, like reference characters designate similar parts in the several views.

FIG. 1 is a typical vertical sectional view of the house construction at the face of one of the columns thereof.

FIG. 2 is a broken plan view showing the arrangement of the roof beams.

FIG. 3 is an enlarged and broken cross-sectional view as taken on the line 3—3 of FIG. 1.

FIG. 4 is a perspective view of the lower end of one of the columns.

FIG. 5 is a vertical sectional view as taken on the line 5—5 of FIG. 1.

FIG. 6 as a horizontal sectional view of the column and adjacent wall construction, the same being an enlargement of the column shown in FIG. 3.

FIG. 7 is a cross-sectional view of another form of the column and wall construction.

FIG. 8 is a vertical sectional view as taken in the line 8—8 of FIG. 7.

FIG. 9 is a vertical sectional view through another form of foundation.

FIG. 10 is a broken side view of a modified form of column.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The foundation **15** may comprise a continuous concrete perimeter wall **25** outlining the house structure to enclose an interior area **26**, as in FIG. 1, or the wall **25** may comprise the perimeter wall around a concrete slab **27** substantially level with the wall **25**. In the latter case, as is usual, the slab **27** rests upon the ground, the area **26** being eliminated.

At each place where the end of a beam **16** is supported by the foundation wall **25**, the latter is formed with a notch **28**, as best seen in FIG. 5, to receive such beam end.

The beams **16** may have any suitable cross-section, the same being shown as H-beams which, by means of anchor bolts **29**, are firmly connected to said foundation wall **25** at the time the latter is being poured. Where the beams rest up said walls termite shields **30** may be provided. Also, after the beams are in place, the notches **28** may be filled in with cement or concrete **31**, as shown in FIG. 5.

The stress skin plywood panels **18** that form the floor **17** comprise upper and lower plywood sheets **32** that are spaced apart by angularly disposed partitions **33**, thereby forming chambers **34** in which heat insulation **19**, such as foam styrene, spun glass and other such light fibrous or woolly materials may be placed. The same may, at least, partly fill the chambers **34**. The panels **18** rest upon the beams **16** and are provided with notches **35** to accommodate the columns but more particularly the H-beams **36** forming the same.

Each column, as shown in FIG. 4, may have a foot comprising I-beams **37** that extend horizontally above and aligned with the beams **16** and along the top of each end of beam **16** and adjacent portions of the concrete walls **15**. Said extensions **37** form a T-shaped support foot for each column. Instead of such a foot made of beams, a steel or similar plate **38** may be used, the same being welded, as are the beams **37**, to the lower ends of the H-beams **36**. In addition, anchor bolts **39**, similar to the bolts **29**, may be provided on the plate **38** and extend downwardly to be anchored in the walls **25** of the foundation.

As shown in FIG. 1, webs **40** may be provided to reinforce the ends of beams **16** and also serve to close off the notches **28** as do the cement fillers **31**. Also the H-beam studs are so oriented that one hollow side thereof faces inwardly, providing a space to house certain items such as the outlet box **41** and the electric conduit **42** extending downwardly therefrom.

The roof **21** is shown as comprising rafters of laminated wood beams **43** resting in end notches **44** in the studs **20** and fastened in place by bolts **45** or the like. The upper edges of the rafter beams **43** support stress skin roof panels **46** similar to the floor panels **17**, insulated in the same manner and held against the pitch of the rafters by end boards **47**. Shake shingles **48** may be used to cover the roof panels **46**.

The curtain walls **22** preferably comprise exterior skins **49** which may be made of suitable light material, as ply-

wood, wood composition or the like, and interior skins **50** preferably comprising similar lightweight panels having vinyl coating **51**, or the like, on the exposed faces thereof. Sheet steel studs **52**, affixed as by bolts **53**, are so formed as to space the skins **49** and **50** a distance greater than that of the transverse dimension of the H-beams **36**. Said studs **52** are provided with inwardly and oppositely directed legs **54** which engage the opposite sides of insulation panels **55** which, thereby, are located between the wall skins **49** and **50** and are spaced therefrom.

It will be seen that the walls **22** not only are lightweight elements, but are formed to have good heat insulating properties due not only to the panles **55**, which may be comprised of styrofoam or like foraminous material, but also to the air spaces **56** between the panels **55** and the wall skins **49** and **50**.

In practice the columns **20** may be disposed on eight foot centers. In order to suitably reinforce the walls **22** across such widths, sheet steel studs **57** may be provided on sixteen inch centers, the same enabling use of sixteen inch insulation panels **55** that, therefore, have minimum tendency to flex from their normal aligned positions. It will be understood that the outer skins **49** may be extended into overlapping relation to the foundation walls **25**, as indicated in FIG. 9, that the interior skin **50** may terminate at the floor **17**, and that a metal weather seal **58** may be interposed between the top of the foundation and the bottom of each column **20** and the skins spanning therebetween. At the upper end, suitable strips **59** of fiber glass or like material may be carried by the colums and walls and have sealing engagement with the roof beams **43** and the panels **46**. Said strips may be metallic for weather sealing.

The alternative wall form shown in FIGS. 7 and 8 substitutes a precast and lightweight concrete slab **60** for the skins **49** and **50** and insulation panels **55**. Said slab may be lightened by vertical holes **61** and, at least on the interior face, be provided with a coating **62** of vinyl or the like. The studs **54** may be omitted and instead, the concreate slab **60** may have bars **63** cast therein, the same having threaded ends **64** that extend into laterally open notches **65** in the column beams **36**. Nuts **66** are used to secure said bar ends to said beams.

The means **23** may be used on both described forms of curtain walls. The same is shown as comprising vinyl extrusion strips **67** that have snap-on engagement with the side edges of said walls and span across the column beams **36** to enclose them on the interior side, and external cap or strip **68** which, depending on conditions and, as desired, may be made of wood, fiber glass, and the like. Said caps **68** may be secured from the inside.

While the foregoing has illustrated and described what is now contemplated to be the best mode of carrying out the invention, the constructions are, of course, subject to modification without departing from the spirit and scope of the invention. Therefore, it is not desired to restrict the invention to the particular forms of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claim.

Having thus described this invention, what is claimed and desired to be secured by Letters Patent is:

1. In house construction:

(a) a foundation having a perimeter wall and horizontal support portions extending across the space surrounded by said foundation wall,

(b) spaced columns affixed to and extending upwardly from the outer portions of said perimeter walls,

(c) the upper ends of said columns provided with roof supporting portions,

(d) lightweight curtain walls spanning between said columns and spaced at their ends from the column,

(e) inner and outer strip members extending across the respective inner and outer faces of said columns and in overlapped engagement with the portions of said walls adjacent to the column,

(f) the inner strip member being spaced rearwardly and the outer strip member being spaced forwardly of the colums, and

(g) each said column being provided with a foot portion comprising I-beam members extending both inwardly and laterally in the form of a T, said column portion being provided with anchor bolts which, when embedded in the perimeter wall of the foundation, fasten said columns to said foundation,

(h) each said curtain wall comprising:

(1) a precast panel of lightweight concrete provided on its interior face with a vinyl coating,

(2) transverse bars embedded in said panel and having threaded ends that extend from the lateral edges of the panels and into extended engagement with the column located between said panel edges, and

(3) nuts engaged with said ends of the bars to secure the same to said column.

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