

June 12, 1934.

E. H. LUNKEN

1,962,201

BUILDING CONSTRUCTION

Filed Aug. 25, 1932

6 Sheets-Sheet 1

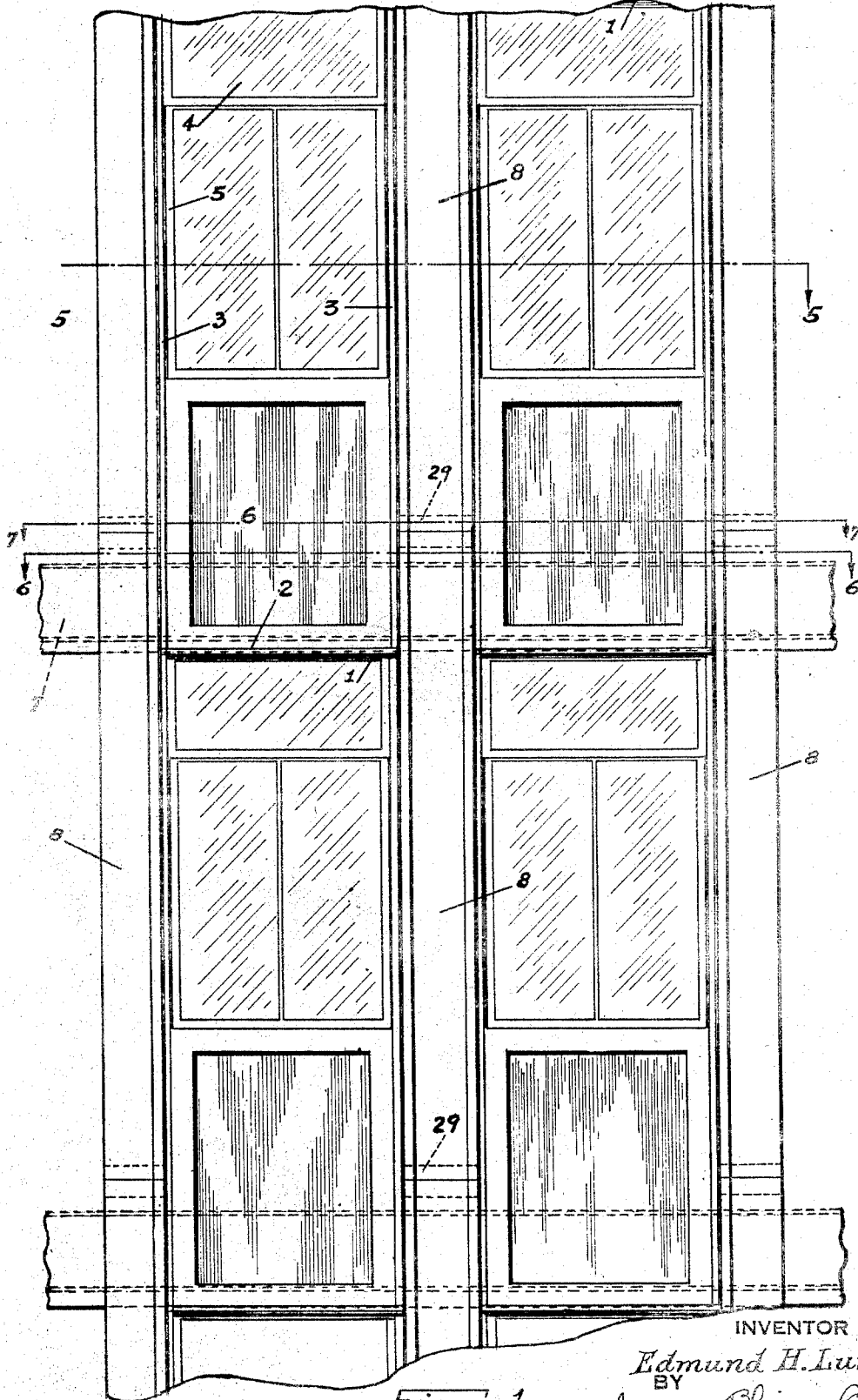


Fig 1.

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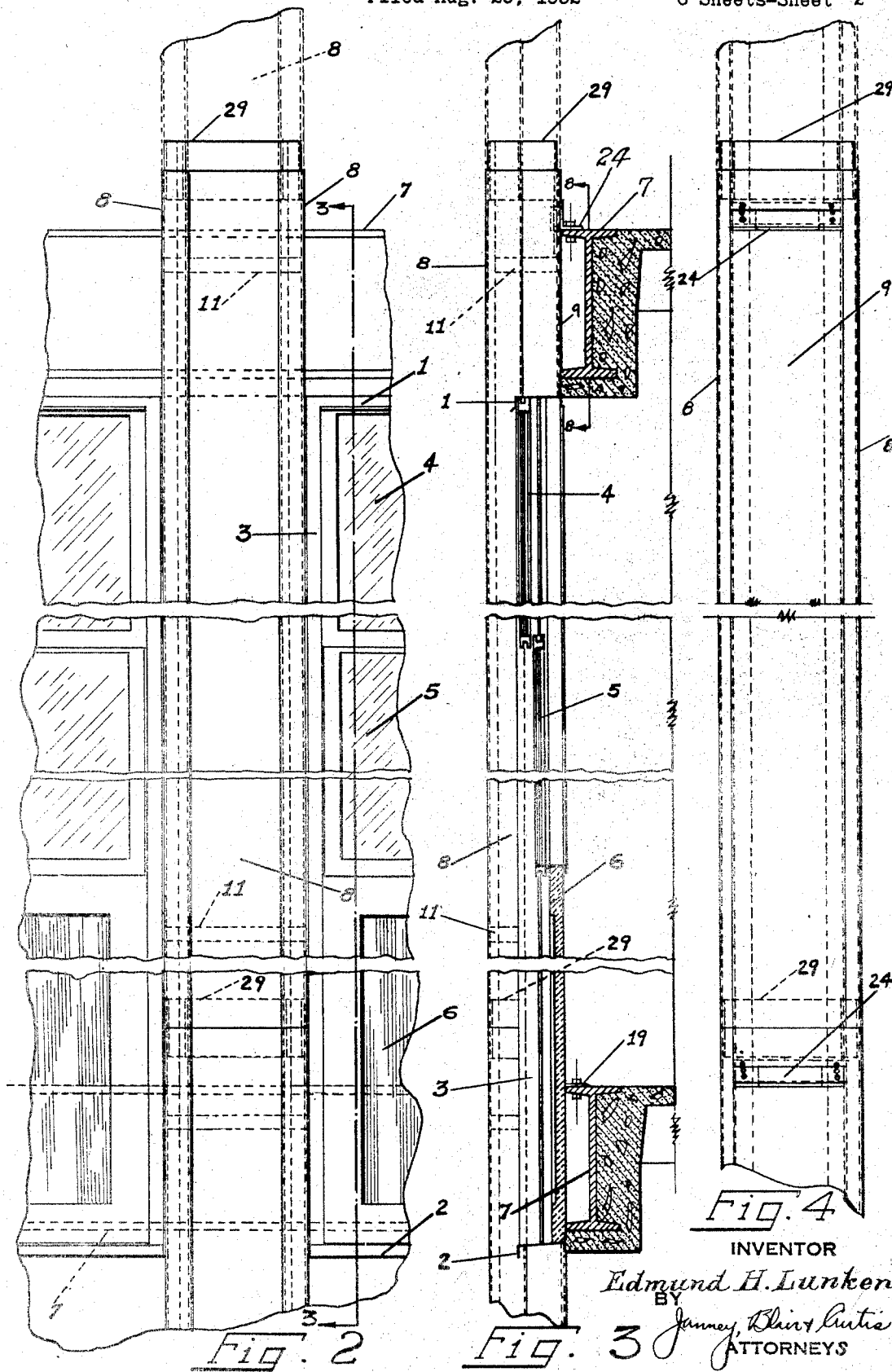
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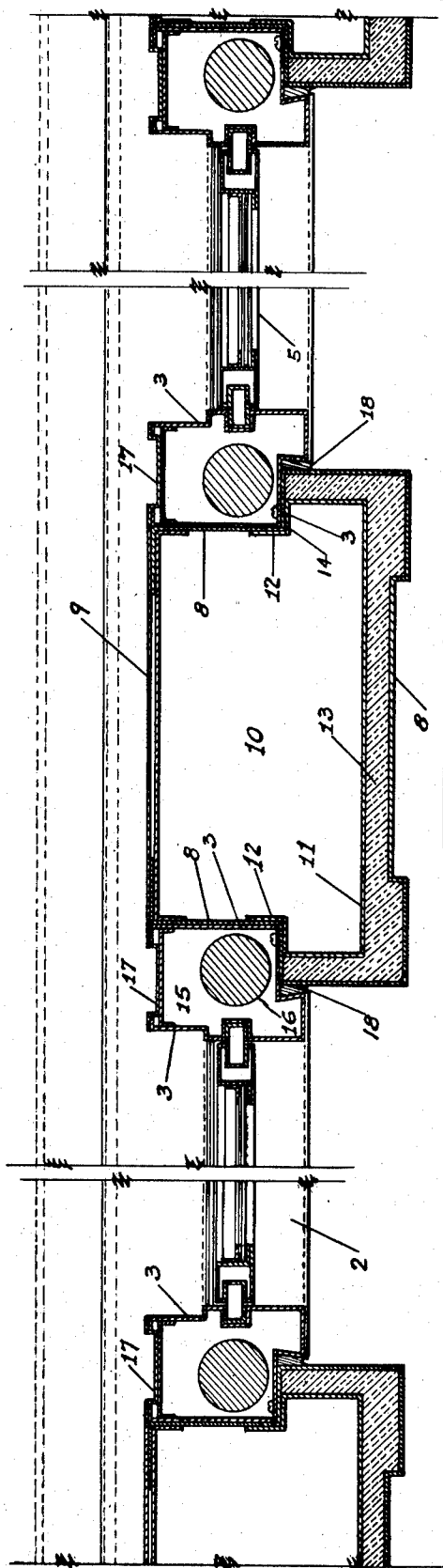


Fig. 5.

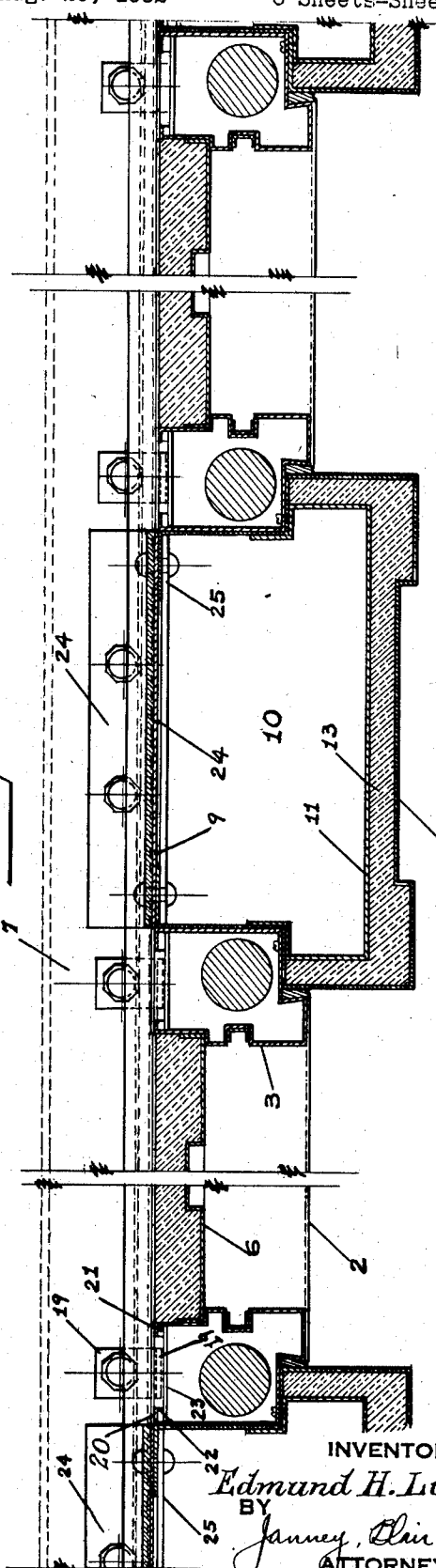


Fig. 6.

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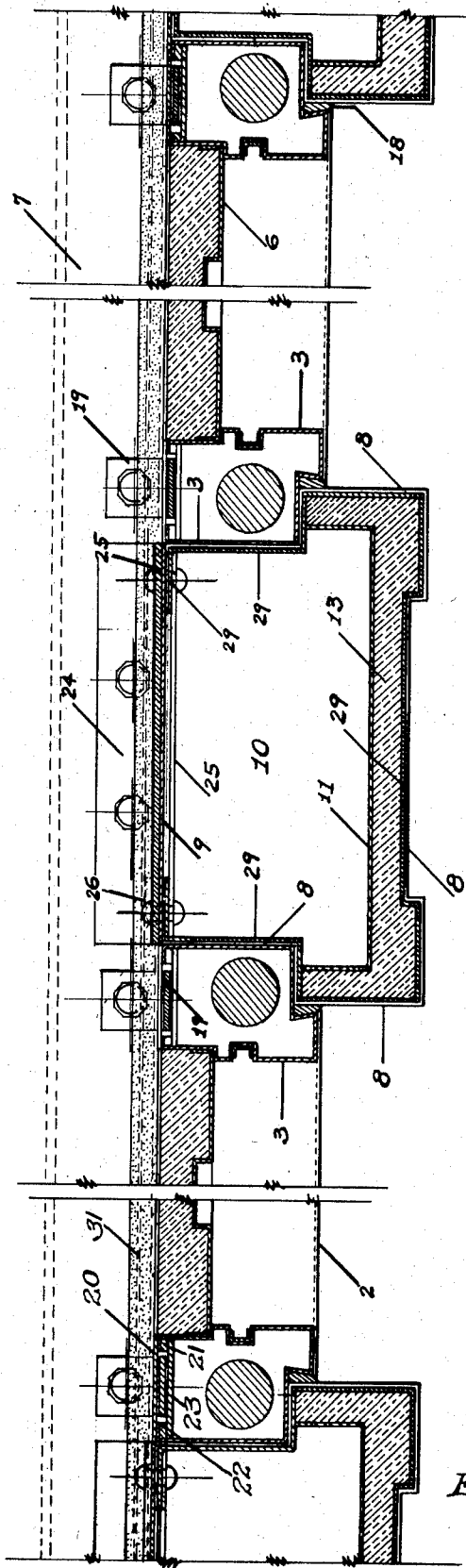


Fig 7

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6 Sheets-Sheet 5

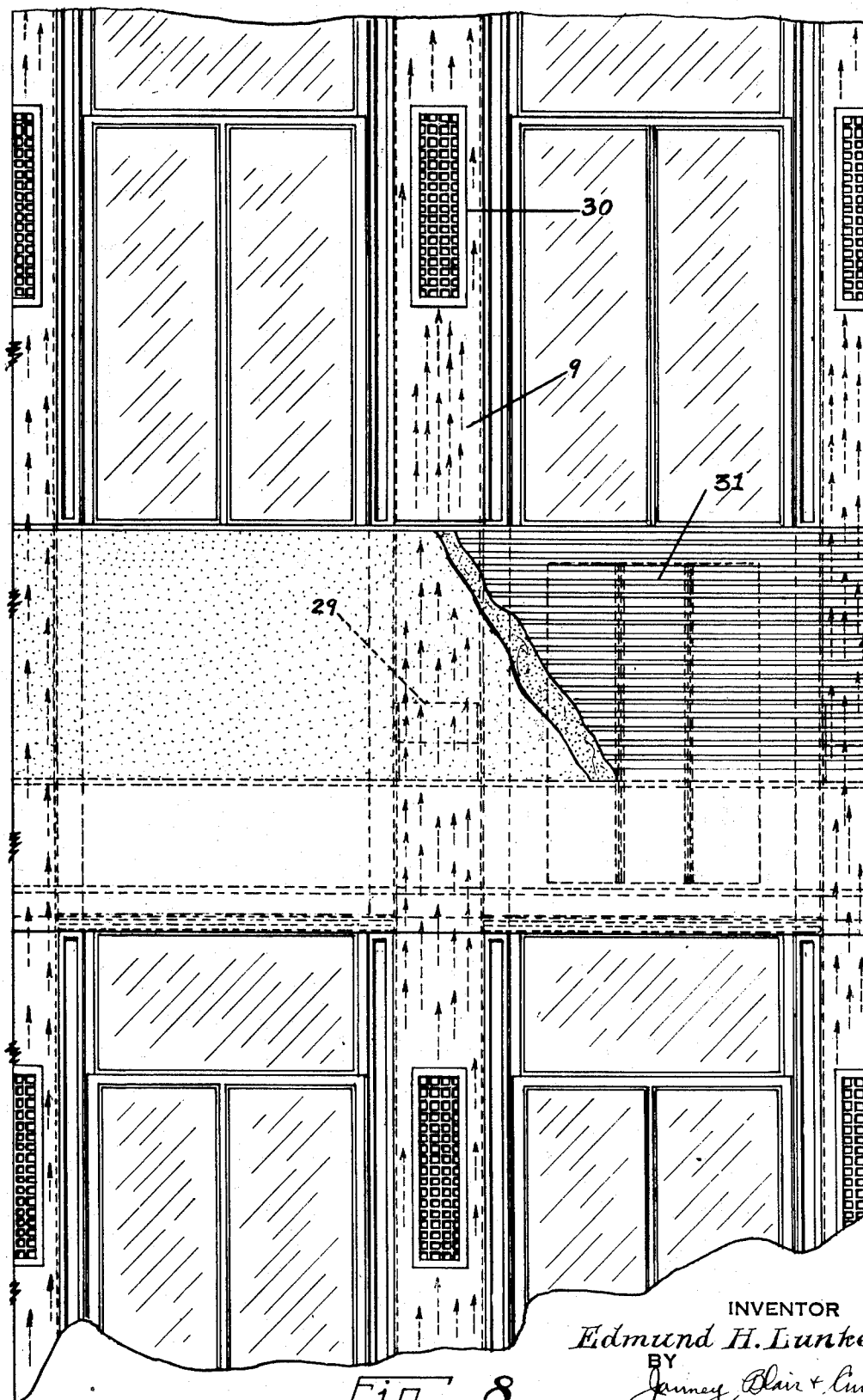


Fig. 8

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BUILDING CONSTRUCTION

Filed Aug. 25, 1932

6 Sheets-Sheet 6

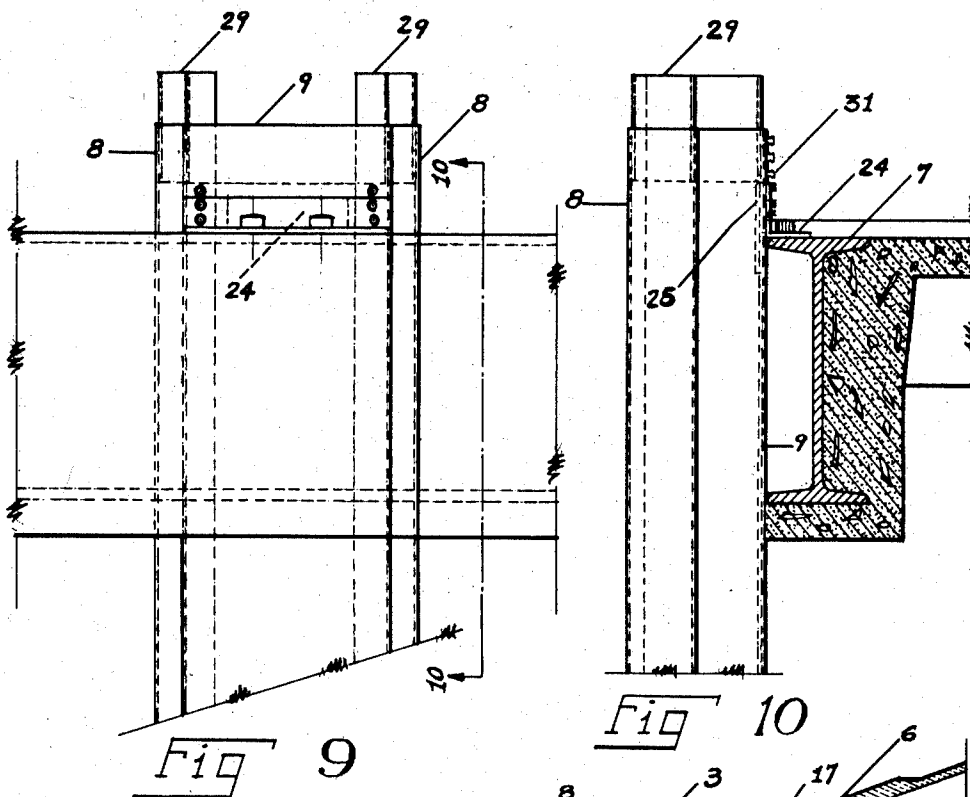


Fig 9

Fig 10

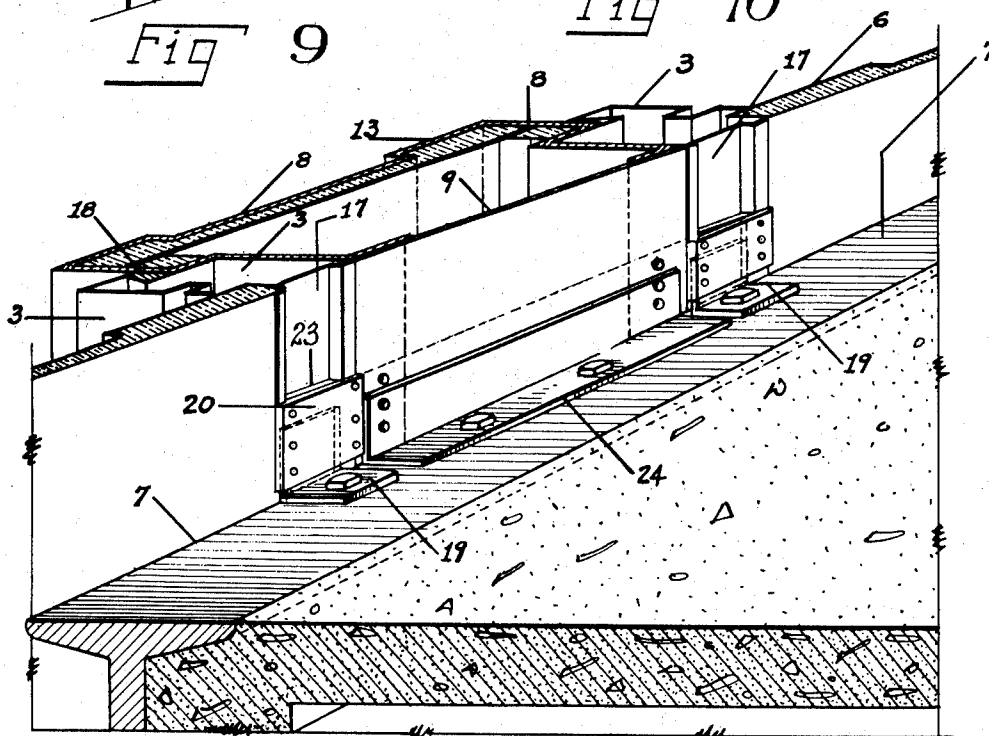


Fig 11

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## UNITED STATES PATENT OFFICE

1,962,201

## BUILDING CONSTRUCTION

Edmund H. Lunken, Hartsdale, N. Y.

Application August 25, 1932, Serial No. 630,437

11 Claims. (Cl. 98—31)

This invention relates to building construction and particularly to the exterior walls of a building including the windows, window frames and intervening walls.

5 It is an object of the invention to provide window frames and wall coverings which may be readily applied to the exterior of the framework of a building.

10 It is a further object to provide means for readily connecting a series of such frames and wall coverings in vertical alignment.

It is a further object to provide metal wall coverings for closing spaces between window frames and between groups of window frames.

15 It is a further object to so construct and arrange such wall coverings as to provide conduits for air, pipes, wires or the like.

20 It is a further object to utilize the exterior walls of a building as a conduit for air, pipes, wires and the like, thus saving valuable space within the building.

One illustrative embodiment of the invention is shown in the accompanying drawings, in which:—

25 Figure 1 is a front elevation of a portion of the exterior of a building and showing two series of window frames in vertical alignment and intervening wall plates which close the space between the series of frames and provide a conduit.

30 Fig. 2 is an enlarged front elevation of a portion of the intervening wall plates and showing a portion of the adjoining window frames.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2.

35 Fig. 4 is a front elevation of the intervening wall plates viewed from the interior of the building.

Fig. 5 is an enlarged sectional view taken on the line 5—5 of Fig. 1.

40 Fig. 6 is an enlarged sectional view taken on the line 6—6 of Fig. 1.

Fig. 7 is an enlarged sectional view taken on the line 7—7 of Fig. 1.

45 Fig. 8 is a front elevation of adjacent window frames and intervening wall plates as viewed from the interior of the building and showing register openings in the inner conduit wall.

50 Fig. 9 is an enlarged front elevation of a portion of the intervening wall plates viewed from the interior of the building and illustrating the manner of attaching said plates to the floor beam of the building.

Fig. 10 is a sectional view taken on the line 10—10 of Fig. 9.

55 Fig. 11 is an enlarged perspective view of the intervening wall plates and conduit provided thereby with certain parts omitted for clearness of illustration and showing the manner of the attachment of the intervening wall plates and window frames to the floor beams of the building.

60 As conducive to a better understanding of this

invention it may be noted at this point that modern buildings are usually supported by steel framework, which in turn supports exterior wall coverings and window frames. In my prior Patent No. 1,845,304, dated February 16, 1932, 65 I have disclosed window frames secured in vertical alignment exteriorly of the floor beams of the building with each frame extending from the lower margin of one floor beam to the lower margin of the floor beam below. In said prior 70 patent the spaces between vertical rows of window frames are closed in the usual way by masonry, stone or brick supported by the top surfaces of the horizontal floor beams of the building and extending into the building a considerable 75 distance from the outer edge of the floor beams. Also, heretofore conduits for air conditioning and for pipe and wire housings have been located within the framework of the building. Applicant now proposes to secure both the window 80 frames of the building and the wall coverings of the building to the outer side of the steel framework of the building whereby a series of window frames may be contacted in vertical alignment from the top to the bottom of the building and the intervening spaces between vertical rows of 85 window frames may be closed by sectional metal plates formed to provide conduits and superimposed one upon another to provide a continuing wall covering and conduit extending exteriorly of the framework from the top to the bottom of the 90 building. Such an arrangement provides an economical covering for a building and also provides an efficient and economical conduit for air conditioning or other purposes by saving valuable space within the building which would otherwise be used for such purposes. 95

Referring to Fig. 1 of the drawings, each window frame consists of a top frame member 1, a bottom frame member 2, and side frame members 3, all of which are preferably constructed of suitable metal. Within each frame is located a stationary upper transom 4, a slidable window sash 5, and a stationary lower panel 6. Each window frame preferably extends from the lower margin of the floor beam of one floor to the lower margin of the floor beam of the floor below and is 105 secured exteriorly of the floor beams in the manner hereinafter described. The floor beams are designated 7 in the drawings.

As best shown in Fig. 3, the slidable window sash 5 is arranged to slide upward inside of the stationary transom 4 and to slide downwardly outside of the stationary panel 6. Because the window frame extends to the bottom of the floor beam to which it is secured, the sliding sash 5 110 may be lowered within the frame to the bottom of said floor beam.

Referring again to Fig. 1, the space between two vertical rows of window frames is closed by in- 115 120

tervening wall plates 8 which are connected and secured exteriorly of the floor beams 7 in the manner hereinafter described.

As best shown in Fig. 5 the plate 8 may be formed to provide a front and two side walls, and the side walls may be connected by an interior plate 9 welded or otherwise secured to side walls of the plate 8 to provide a conduit 10. Intermediate braces 11 spaced from the inner side of the plate 8 may be secured to the side walls of the plate 8 at 12, 12 for the purpose of holding insulating material 13. It will be understood that the cross-sectional dimensions of the conduit 10 may be varied to provide a large or small conduit 10 as desired. The side walls of plate 8 are preferably formed with shoulders 14 to engage with the side frames 3 of the window frames, as shown in Fig. 5.

As shown in Fig. 5, the side frames 3 of the window frames are formed to provide a weight box 15 for the window weights 16 and have an inner wall member 17 to close the box. The frames 3 are also formed as shown in Fig. 5 to provide a recess between frames 3 and plates 8 to receive a packing 18 to tightly close the joint between the frame 3 and plate 8.

As best shown in Figs. 6 and 11, the window frames are secured to the floor beams 7 by angle irons 19, the bases of which are bolted or pinned to the floor beams 7. The upright portion of each angle iron 19 extends into and is pocketed by a recess formed by plates 20, 21, 22 and 23 bolted to the window frame member 3. The plates 20 and 23 contact the front and rear faces of the angle iron 19, while the plates 20 and 21 contact the lateral edges thereof. If desired, the upright portion of the angle iron 19 may be bolted or welded directly to the inner wall member 17 of the window frame 3.

The plates 8 and 9 forming the conduit 10 are secured to the floor beams 7 by angle irons 24, the upright portions of which are bolted to the plate 9 and to an inner reinforcing plate 25 and the bases of which are bolted or pinned to the floor beam 7.

As shown in Figs. 9 and 10, the plate 8 may be provided at its upper extremity with an extension 29 which is secured to the inner side of the plate 8 so as to fit within and form a telescopic connection with the lower extremity of the section above. Such an arrangement facilitates the superimposing of one section of the combination wall covering and conduit on another, holds the several sections in vertical alignment and seals the connection between adjacent sections.

As shown in Fig. 8, interior plates 9 forming the interior wall of the conduits 10 may be provided with register openings 30 when the conduits are used for air conditioning purposes, i. e., for the passage of hot or cold air into the interior of the building.

The interior surface of the inner plate 9 may be finished to match the finish of the room or the plate 9 may be covered with a corrugated steel lath in sheet form as shown at 31 in Fig. 8, and a plaster finish may be applied to the sheet 31 if desired.

When the conduit 10 provided by the plates 8 and 9 is used to house pipes or electrical wires, doors should be substituted for the registers 30 to permit access to the conduit for purposes of repairing the pipes or wires.

The window and wall conduit constructions hereinbefore described may be readily applied to the steel framework of a building. As shown in

Figs. 9, 10 and 11, the lowermost window frame of the series may be secured to the lowermost floor beam of the building by bolting the angle irons 19 to the floor beams 7. The next window frame in the vertical alignment may then be superimposed upon the first frame and similarly secured to the floor beam above. The next adjoining series of window frames may then be similarly attached, after which the intervening wall plates 8 and 9 forming the conduit 10 may be inserted between the window frames previously applied and bolted to the floor beams in the manner already described. When the lowermost section of wall conduit has been secured to the lowermost floor beam 7, packing 18 is inserted to seal the connection between the plate 8 and the side frames 3 of the adjoining window frames. The next section of wall conduit may then be superimposed upon the first section, the extension 29 of the first section extending within the plate 8 of the superimposed section to form a telescopic connection. In this manner the application of the window frames and wall conduit sections progresses upwardly from the bottom to the top of the building, each section being quickly placed in position and bolted to a floor beam of the building.

It will be understood that the invention is not to be limited to the particular embodiment shown for purposes of illustration, as the features of the invention may be variously embodied without departing from the invention.

I claim:

1. In a multiple story building supported by steel framework and floor beams, the combination of a plurality of spaced vertical rows of window frames, each window frame being of a height substantially equal to the height of one floor of the building and the several frames of each row being secured to the exterior of the floor beams of the building and in vertical contacting alignment, and a wall covering also secured to the exterior of the floor beams of the building and closing the space between rows of window frames; said wall covering comprising a plurality of sections of metal plates formed to provide a conduit, each section being substantially equal to the height of one floor of the building and having an opening formed in its inner wall to permit hot or cold air to be ejected from the conduit into the interior of the building and being provided with insulating material on the inner face of its outer wall, the several sections being telescopically connected in vertical alignment, whereby the connected sections provide a wall covering and air conditioning conduit extending vertically past a plurality of floors of the building.

2. In a multiple story building supported by steel framework and floor beams, the combination of a plurality of spaced vertical rows of window frames, each window frame being of a height substantially equal to the height of one floor of the building and the several frames of each row being secured to the exterior of the floor beams of the building and in vertical contacting alignment, and a wall covering also secured to the exterior of the floor beams of the building and closing the space between rows of window frames; said wall covering comprising a plurality of sections of metal plates formed to provide a conduit, each section being substantially equal to the height of one floor of the building and having an opening formed in its inner wall to permit hot or cold air to be ejected from the conduit into the interior of the building and being

provided with insulating material on the inner face of its outer wall, the several sections being connected in vertical alignment, whereby the connected sections provide a wall covering and air conditioning conduit extending vertically past a plurality of floors of the building.

3. In a multiple story building supported by steel framework and floor beams, the combination of a plurality of spaced vertical rows of window frames, each window frame being of a height substantially equal to the height of one floor of the building and the several frames of each row being secured to the exterior of the floor beams of the building and in vertical contacting alignment, and a wall covering also secured to the exterior of the floor beams of the building and closing the space between rows of window frames; said wall covering comprising a plurality of sections of metal plates formed to provide a conduit, each section being substantially equal to the height of one floor of the building and having an opening formed in its inner wall to permit hot or cold air to be ejected from the conduit into the interior of the building, the several sections being connected in vertical alignment, whereby the connected sections provide a wall covering and air conditioning conduit extending vertically past a plurality of floors of the building.

4. In a multiple story building supported by steel framework and floor beams, the combination of a plurality of spaced vertical rows of window frames, each window frame being of a height substantially equal to the height of one floor of the building and the several frames of each row being secured to the exterior of the floor beams of the building and in vertical contacting alignment, and a wall covering also secured to the exterior of the floor beams of the building and closing the space between rows of window frames; said wall covering comprising a plurality of sections of metal plates formed to provide a conduit, each section having an opening formed in its inner wall to permit hot or cold air to be ejected from the conduit into the interior of the building, the several sections being connected in vertical alignment, whereby the connected sections provide a wall covering and air conditioning conduit extending vertically past a plurality of floors of the building.

5. In a multiple story building supported by steel framework and floor beams, the combination of a plurality of spaced vertical rows of window frames, each window frame being of a height substantially equal to the height of one floor of the building and the several frames of each row being secured to the exterior of the floor beams of the building and in vertical contacting alignment, and a wall covering also secured to the exterior of the floor beams of the building and closing the space between rows of window frames; said wall covering comprising a plurality of sections of metal plates formed to provide a conduit, the several sections being connected in vertical alignment, whereby the connected sections provide a wall covering and conduit extending vertically past a plurality of floors of the building.

6. In a multiple story building supported by steel framework and floor beams, a wall covering comprising a plurality of sections of metal plates formed to provide a conduit, each section being substantially equal to the height of one floor and having an opening formed in its inner

wall to permit hot or cold air to be ejected there-through into the interior of the building and being provided with insulating material on the inner face of its outer wall, the several sections being telescopically connected in vertical alignment and secured to the exterior of the floor beams of the building, whereby the connected sections may provide a wall covering and conduit extending from the top to the bottom of the building.

7. In a multiple story building supported by steel framework and floor beams, a wall covering comprising a plurality of sections of metal plates formed to provide a conduit, each section being substantially equal to the height of one floor and having an opening formed in its inner wall to permit hot or cold air to be ejected therethrough into the interior of the building and being provided with insulating material on the inner face of its outer wall, the several sections being connected in vertical alignment and secured to the exterior of the floor beams of the building, whereby the connected sections may provide a wall covering and conduit extending from the top to the bottom of the building.

8. In a multiple story building supported by steel framework and floor beams, a wall covering comprising a plurality of sections of metal plates formed to provide a conduit, each section being substantially equal to the height of one floor and having an opening formed in its inner wall to permit hot or cold air to be ejected therethrough into the interior of the building, the several sections being connected in vertical alignment and secured to the exterior of the floor beams of the building, whereby the connected sections may provide a wall covering and conduit extending from the top to the bottom of the building.

9. In a multiple story building supported by steel framework and floor beams, a wall covering comprising a plurality of sections of metal plates formed to provide a conduit, each section having an opening formed in its inner wall to permit hot or cold air to be ejected therethrough into the interior of the building, the several sections being connected in vertical alignment and secured to the exterior of the floor beams of the building, whereby the connected sections may provide a wall covering and conduit extending from the top to the bottom of the building.

10. In a multiple story building supported by steel framework and floor beams, the combination of a plurality of vertical rows of window frames secured to the exterior of the floor beams in contact with each other and metal plates also secured to the exterior of the floor beams and closing the space between the vertical rows of window frames; each window frame extending from the lower edge of one floor beam of the building to the lower edge of the floor beam below and the plates being formed and connected to provide a conduit for air, pipes, wires or the like.

11. In a multiple story building supported by steel framework and floor beams, a wall covering comprising a plurality of sections of metal plates formed and united to provide a conduit, the several sections having end connections and being secured to and exteriorly of the floor beam of the building and having outlets to the interior of the building, whereby a plurality of said sections connected in vertical alignment provide an exterior wall for the building having a conduit therein for air conditioning.

EDMUND H. LUNKEN.