Feb. 16, 1932. F. M. VENZIE 1,845,772

BUILDING STRUCTURE

Filed Sept. 5, 1929 2 Sheets-Sheet 1

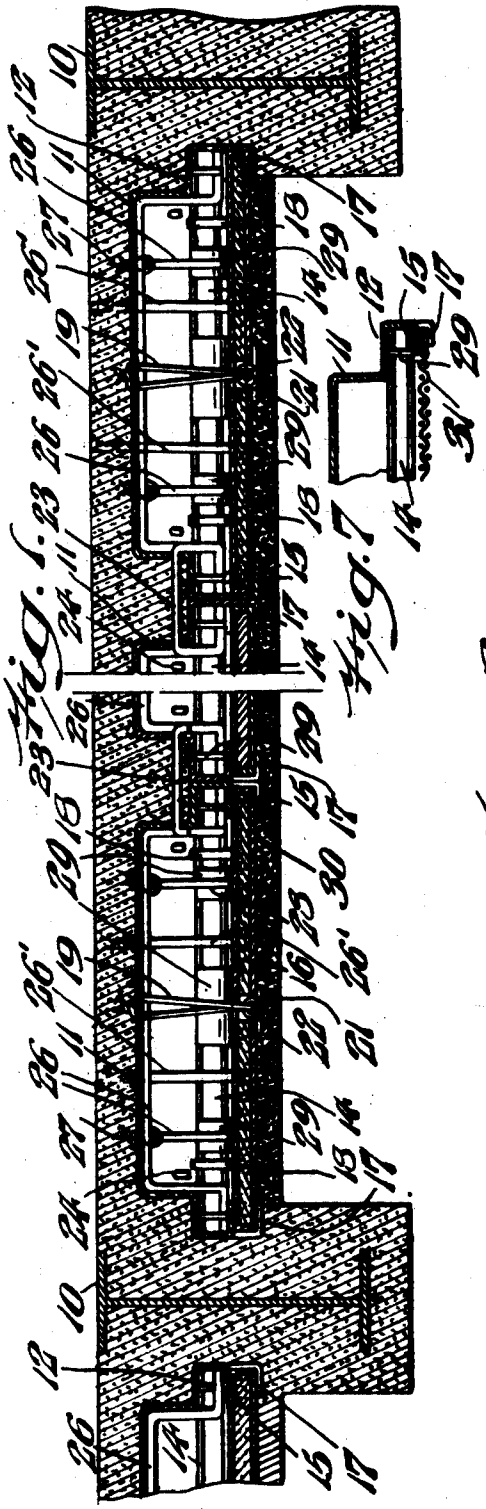


Fig. 1.

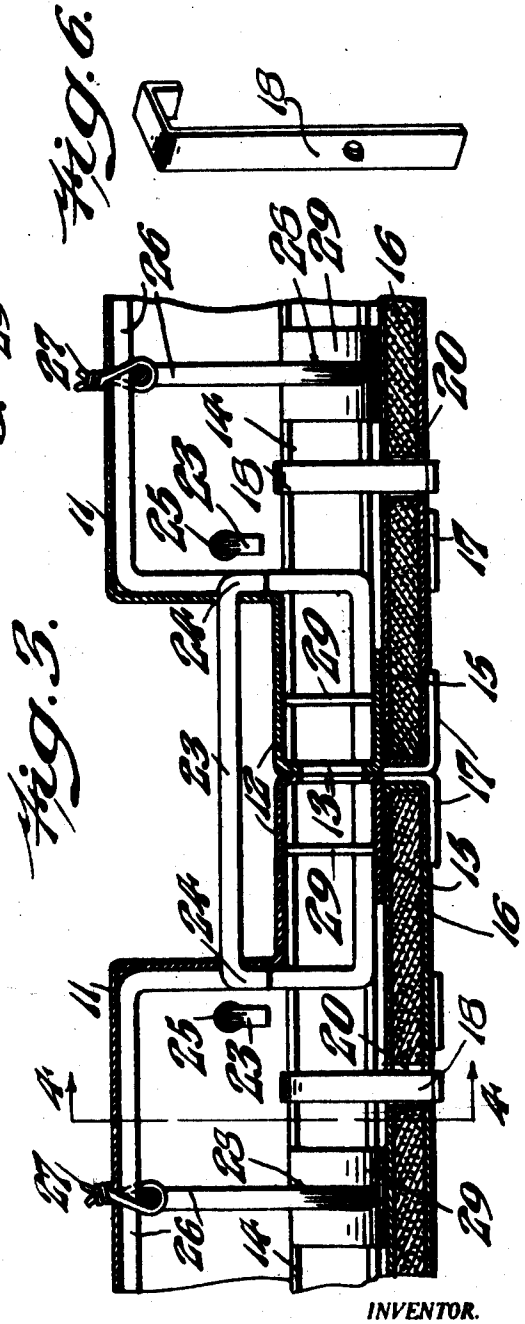


Fig. 2.

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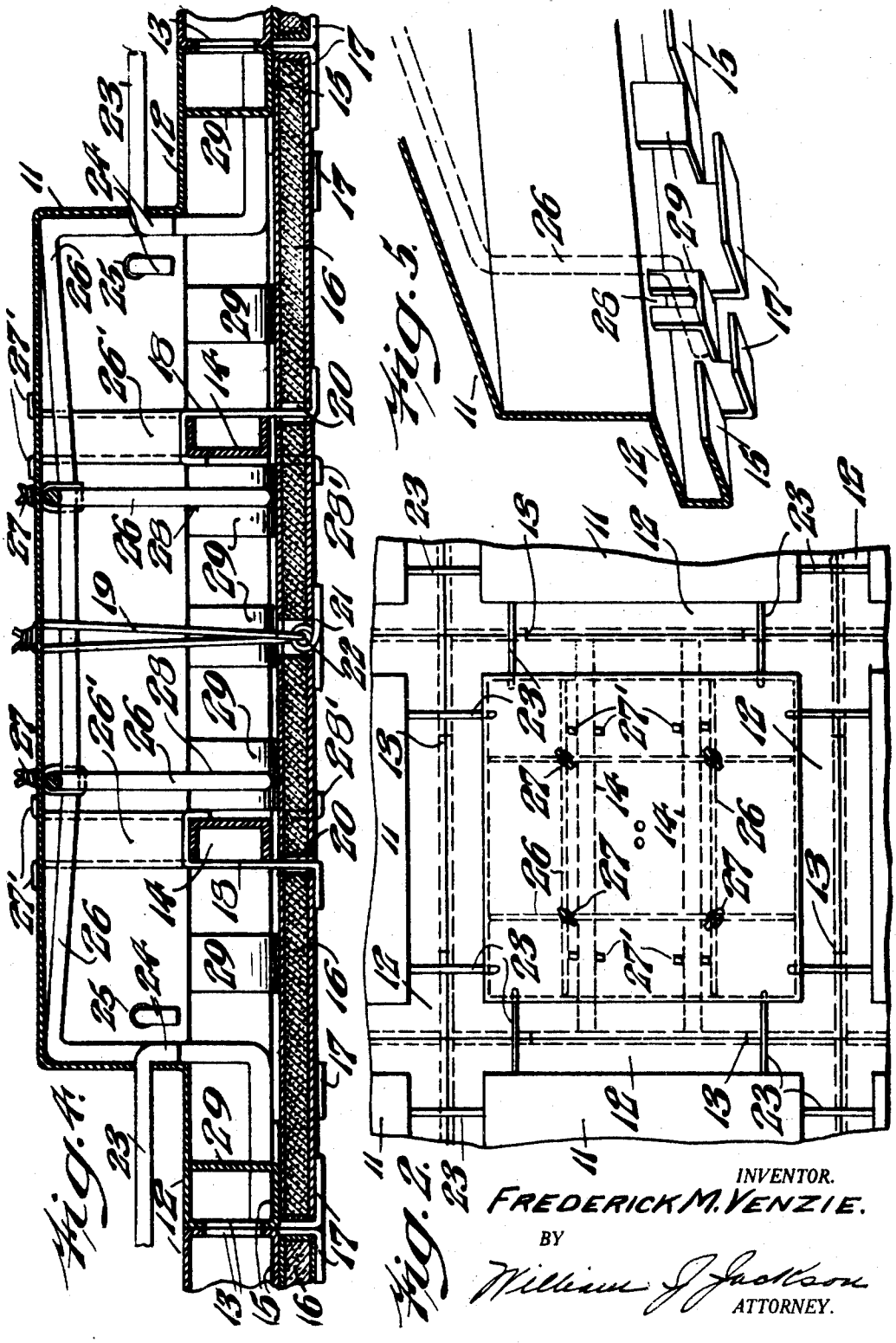


Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE

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BUILDING STRUCTURE

Application filed September 5, 1929. Serial No. 390,464.

This invention, generally stated, relates to a building structure and has more especial relation to a floor and ceiling construction.

One object of the present invention is to provide a floor and ceiling construction in which is combined simplicity, cheapness, efficiency, strength, and durability.

A further object is to provide a construction of the character stated in which the floor portion is so built up that while of very light material is exceedingly strong.

A still further object of the present invention is to provide a ceiling construction in which an arrangement of air compartments is so arranged that a circulation of air is maintained at all times between the ceiling and the flooring.

A still further object is to provide a ceiling unit of plaster and plaster board and a floor unit of concrete so arranged with respect to one another that a circulating air system exists between the two units to prevent moisture, which produces stains, reaching the plaster ceiling.

A still further object is to provide a novel arrangement of air conduit and integral clips for supporting a plaster board.

Other and further objects reside in the provision of general details of construction and in the arrangement, construction, connection, and combination of parts for attaining the results sought by the foregoing objects.

The invention consists of the novel construction hereinafter described and finally claimed.

The nature, characteristic features and scope of the invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, and in which:

Fig. 1 is a view in longitudinal section illustrating a floor and ceiling structure embodying the invention.

Fig. 2 is a fragmentary view in plan illustrating one of the air compartments shown in Fig. 1.

Fig. 3 is a fragmentary view, drawn to an enlarged scale, illustrating certain of the parts shown in Fig. 1.

Fig. 4 is a view in section taken upon the line 4—4 of Fig. 3.

Fig. 5 is a view in perspective of a detail of construction hereinafter referred to.

Fig. 6 is a view in perspective of a clip herinafter more fully referred to.

Fig. 7 is a fragmentary view in section illustrating a modified form of structure hereinafter referred to.

For the purpose of illustrating my invention I have shown in the accompanying drawings two forms thereof which are at present preferred by me, since the same have been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Referring to the drawings, the reference numeral 10 designates a pair of I-beams between which are arranged a plurality of air compartments embodying the invention. As each compartment is a duplicate of another, a description of one will suffice. The reference numeral 11 designates a rectangular housing of metal having flanged parts 12 which abut, as shown in Fig. 3, and abutting portions are apertured at 13, the purpose being to permit a free circulation of air between adjacent compartments. These compartments are reinforced by means of channel irons 14 arranged at right angles with respect to the I-beams 10. The ends of certain of the air compartments are provided with flanged parts 15, see Fig. 5, for engaging with a channel iron 14. Beneath the air compartments are arranged what is commercially known as plaster boards and the same are designated 16. The plaster boards 16 are held with respect to the air compartments at their ends by means of the flanged portions 17 of said compartments as best seen in Fig. 5. In addition the plaster boards 16 are held in place by means of clips 18, see Fig. 6, which are so shaped as to fit over the tops of the channel irons 14 and beneath the plaster boards 16, said clips passing through

apertures 20 in the plaster boards. The plaster boards 16 are also held in place by means of clips 19, the pivotal ends 21 of which are first passed through the apertures 22 and thereafter turned substantially at right angles with respect to the upright portions 19. Adjacent casings 11 are secured together by means of bars 23, best seen in Fig. 3, which bars 23 are provided with angular portions 24 for passing through the apertures 25 of the casings 11. Thus, the casings 11 are relatively secured with respect to the plaster boards 16 and the plaster boards with respect to the casings 11. However, in order to add stability to the structure and to thwart downward pressure upon the tops of the casings 11, I provide supports 26 which penetrate the tops of the casings 11 and are clamped thereover as at 27 and are cut away to rest upon the tops of the channel irons 14 and penetrate the plaster boards 16 and are clamped thereover as at 28. Each of the air compartments is internally provided with reinforcing rods 26′ arranged at an angle with respect to one another and secured to a compartment top by means of wire 27′. The lower ends of these rods 26′ are supported in the slotted portions 28′ of the lugs 29 as formed integral with a compartment. 30 designates plaster as secured beneath the plaster blocks 16.

In Fig. 7, in lieu of the plaster boards 16 I provide wire mesh 31 or the like, otherwise the construction is the same as that above described.

By the above described construction and combination of parts the following advantages are obtained: a floor and ceiling construction in which is combined simplicity, cheapness, efficiency, strength, and durability; a construction in which the floor portion is so built up that while of very light material is exceedingly strong; a ceiling construction in which an arrangement of air compartments is so arranged that a circulation of air is maintained at all times between the ceiling and the flooring; a ceiling unit of plaster and plaster board and a floor unit of concrete so arranged with respect to one another that a circulating air system exists between the two units to prevent moisture, which produces stains, reaching the plaster ceiling: and a novel arrangement of air conduit and integral clips for supporting a plaster board.

I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

What I claim is:

1. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit therebeneath, and a plurality of rectangular box-like casings having broad flat unapertured tops, said casings constituting air compartments disposed in abutting inter-communicating relation between said units for the free circulation of air therebetween and between said units to prevent stains occurring upon the plaster unit.

2. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit therebeneath, and an air compartment including a plurality of abutting, rectangular, box-like, inter-communicating, metallic casings having broad flat tops disposed between said units for the free circulation of air therebetween and between said units to prevent stains occurring upon the plaster unit.

3. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit therebeneath, a plurality of rectangular, abutting, box-like, metallic casings having broad flat tops forming air compartments disposed between said units for the circulation of air therebetween and between said units to prevent stains occurring upon the plaster unit, and means for coupling together the inter-communicating ends of said compartments.

4. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit therebeneath, a plurality of rectangular, abutting, box-like, metallic casings having broad flat tops forming an air compartment disposed between said units and arranged for the circulation of air between said units to prevent stains occurring upon the plaster unit, and means including a flanged portion formed integral with said air compartment for supporting said plaster units.

5. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit therebeneath, an air compartment comprising a rectangular, box-like, metallic casing having a broad, flat, unapertured top disposed between said units and arranged for the circulation of air between said units to prevent stains occurring upon the plaster unit, and vertically disposed means including clips for coupling together said air compartment and plaster unit.

6. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit therebeneath, an air compartment including a series of rectangular shaped, metallic, hollow, abutting casings having broad, flat, unapertured tops and having communication one with another disposed between said units for the circulation of air between said units

to prevent stains occurring upon the plaster unit.

7. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit therebeneath, a plurality of air compartments each comprising a rectangular shaped casing disposed in abutting intercommunicating relation between said units for the free circulation of air therebetween, each casing being flanged at its lower edges to receive a channel iron, and a channel iron co-operatively fitted to the lower edges of said casings to reinforce the same.

8. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit therebeneath, a plurality of air compartments each comprising a rectangular shaped casing disposed in abutting intercommunicating relation between said units for the free circulation of air therebetween, each casing being flanged at its lower edges to receive a channel iron, a channel iron co-operatively fitted to the lower edges of said casings to reinforce the same, and means including a clip for supporting said plaster unit from said channel iron.

9. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit comprising a plaster board arranged therebeneath, a plurality of air compartments each comprising a rectangular shaped casing disposed in abutting intercommunicating relation between said units for the free circulation of air therebetween, each casing being flanged at its lower edges to receive a channel iron, and a channel iron co-operatively fitted to the lower edges of said casings to reinforce the same.

10. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit comprising a plaster board arranged therebeneath, a plurality of air compartments each comprising a rectangular shaped casing disposed in abutting intercommunicating relation between said units for the free circulation of air therebetween, each casing being flanged at its lower edges to receive a channel iron, a channel iron co-operatively fitted to the lower edges of said casings to reinforce the same, said plaster board and casing being apertured in vertical alignment, and means including a clip passing through said plaster board and casing apertures for coupling said plaster board and casing together.

11. A building structure of the character stated comprising an upper unit of cementitious material and a plaster unit comprising a plaster board arranged therebeneath, a plurality of air compartments each comprising a rectangular shaped casing disposed in abutting intercommunicating relation between said units for the free circulation of air therebetween, each casing being flanged at its lower edges to receive a channel iron, a channel iron co-operatively fitted to the lower edges of said casings to reinforce the same, said plaster board and casing being apertured in vertical alignment, means including a clip passing through said plaster board and casing apertures for coupling said plaster board and casing together, and horizontally arranged means for coupling together adjacent ends of said casings.

12. A structure of the character stated comprising a hollow substantially box-like metal casing the lower edges of which are flanged and shaped to receive a channel iron, said flanged portion having struck out therefrom inwardly extended fingers to receive a palster board.

13. A structure of the character stated comprising a hollow substantially box-like metal casing the lower edges of which are flanged and shaped to receive a channel iron, said flanged portion having struck out therefrom inwardly extended fingers to receive a plaster board, said flanged portion also having struck out therefrom slotted lugs.

14. A structure of the character stated comprising a hollow substantially box-like metal casing the lower edges of which are flanged and shaped to receive a channel iron, the said flanged portion having struck out therefrom inwardly extended fingers to receive a plaster board, the flanged portion of said casing being horizontally apertured for the admission of air to the casing interior.

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