July 17, 1923.

1,462,208

E. A. MAYO

BUILDING CONSTRUCTION

Filed March 25, 1921

2 Sheets-Sheet 1

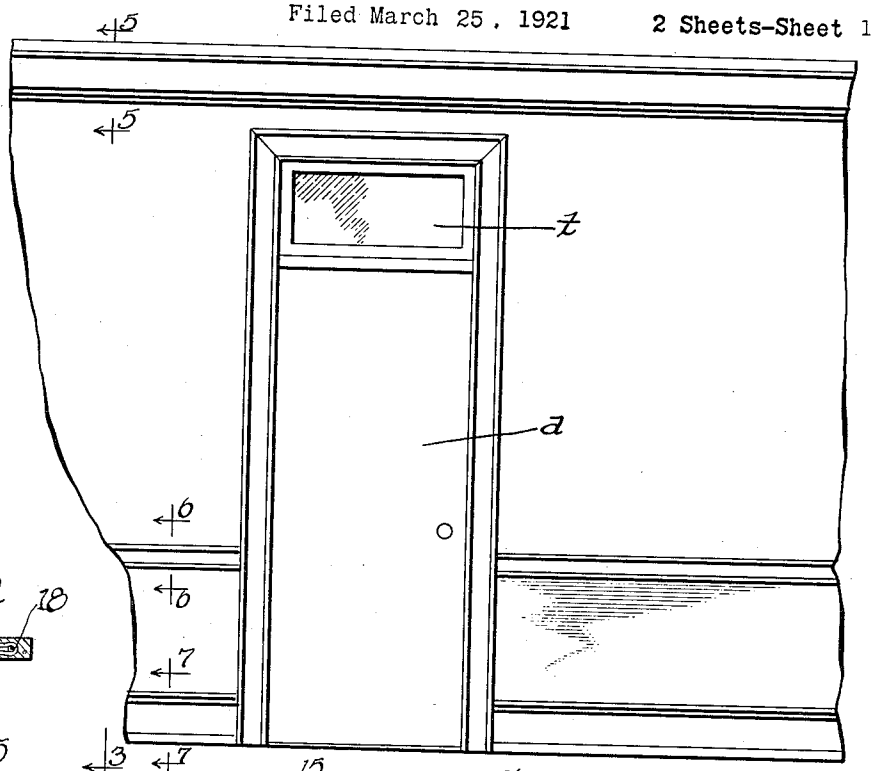


Fig. 1

Fig. 4



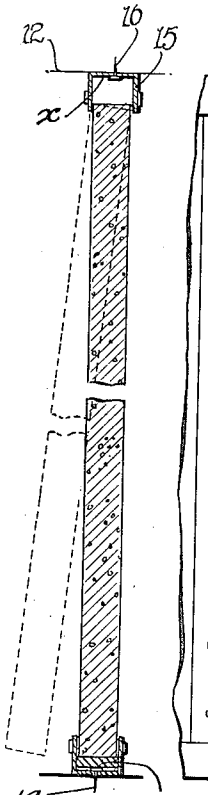


Fig. 3

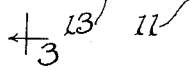


Fig. 2

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2 Sheets-Sheet 2

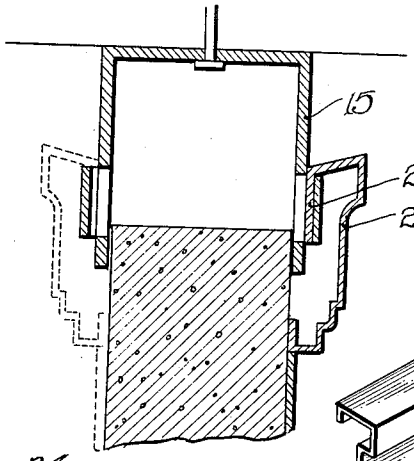


Fig. 5

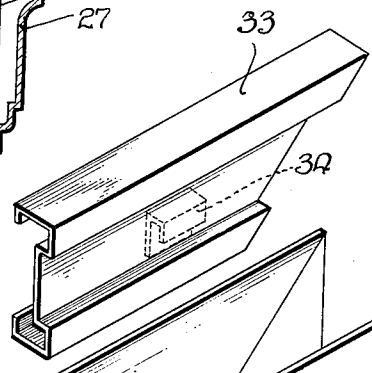


Fig. 8

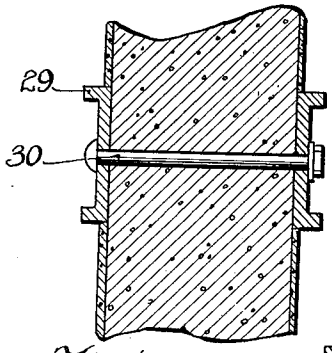
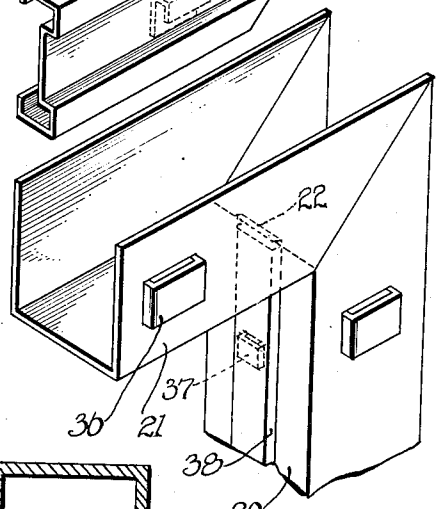


Fig. 6



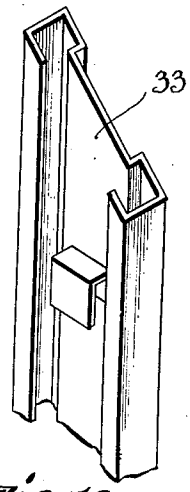


Fig. 10.

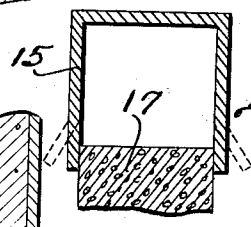


Fig. 11.

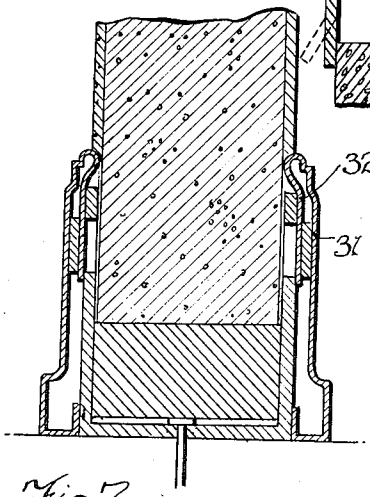


Fig. 7

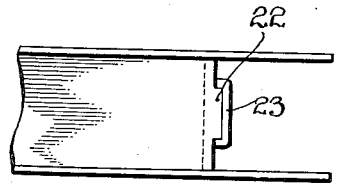
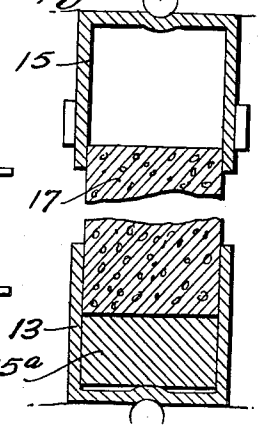


Fig. 9.



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Patented July 17, 1923. 1,462,208

UNITED STATES PATENT OFFICE.

ERNEST A. MAYO, OF EVANSTON, ILLINOIS.

BUILDING CONSTRUCTION.

Application filed March 25, 1921. Serial No. 455,387.

To all whom it may concern:

Be it known that I, ERNEST A. MAYO, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Building Constructions, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to building construction and is concerned particularly with the erection of inside walls.

The object of my invention is to erect such walls with greater economy than has heretofore been possible and I accomplish this object not only by the use of less costly materials, but also by reducing the amount of labor necessary. In addition to these advantages, my invention reduces the amount of time required for erection and does away with the difficulties attending the employment of a number of different "trades," the masons, carpenters, etc., as in the case of ordinary wall erection, where each "trade" must be employed for its particular work and must wait its turn and must return to the work after interruption in order that the order of procedure may be properly carried out.

My invention is concerned primarily with the idea of making up a wall, in which a door may or may not be included, from comparatively long narrow panels set side by side, extending from floor to ceiling, and held in place by the cooperation of engaging means on the floor and ceiling. Secondarily, my invention is concerned with means whereby trim, preferably of metal, may be of standard construction ready to be applied and may be applied to the wall without the use of nails.

The entire structure is preferably of fire proof construction.

My invention is particularly adaptable to buildings to which the interior walls, themselves, do not support the floor above, as is the case in most modern office buildings and factory buildings where the floors are originally open and the interior walls are erected to meet the requirements of the particular tenants. The advantages above outlined are obtained not only in the orginal erection, but also in changing the walls as the needs of tenants require and as tenants change.

My invention is illustrated in the accompanying drawing, in which:

Figure 1 is an elevational view of the wall of my invention in completed condition, showing a door therein;

Figure 2 is a similar view in partially completed condition;

Figure 3 is a cross sectional view on a larger scale, taken on the plane of the line 3—3 of Figure 2 and looking in the direction indicated by the arrows;

Figure 4 is a cross sectional view taken on the plane of the line 4—4 of Figure 2 and looking in the direction indicated by the arrows;

Figure 5 is a cross sectional view taken on the plane of the line 5—5 of Figure 1 and looking in the direction indicated by the arrows;

Figure 6 is a sectional view taken on the plane of the line 6—6 of Figure 1 and looking in the direction indicated by the arrows;

Figure 7 is a sectional view taken on the plane of the line 7—7 of Figure 1 and looking in the direction indicated by the arrows;

Figure 8 is a perspective view of a portion of the door frame and portions of the trim to be applied thereto;

Figure 9 is a plan view of a portion of the door frame, showing how the horizontal and vertical members thereof are joined together;

Fig. 10 illustrates an alternative method of securing the socket members to the floor and ceiling; and

Fig. 11 is a detail illustrating an alternative form of inserting the panels.

Referring first to Figures 2 and 3, 11 indicates the floor line and 12 indicates the ceiling line. Along the floor where the wall is to be a channel, preferably of sheet metal, is disposed, being held in proper position by means of suitable nails 14.

In exact vertical alignment with the trough 13, a similar channel 15, inverted, is nailed to the ceiling 12 by means of nails 16. A spacing bar 15ª may be disposed in channel 13 and the top of this bar is, of course, the effective bottom of the channel.

Between the channels 13 and 15 a number of panels, rectangular in elevation, and extending from top to bottom, are disposed. These panels are shown at 17, 17, and sufficient of these panels are put into place, as will be described, to make up the entire wall,

all of these panels being of standard width except possibly one, indicated at 17^a which is of special width in order to meet the required over-all dimension of the wall. It is, of course, obvious that those panels which are above or adjacent the door must be cut accordingly.

These panels are held in place by their cooperation with the channels 13 and 15. The manner of installing each of the panels is illustrated in Figure 3 where, in dotted lines, the first position in the introduction of the panel is shown. The panel is made slightly less in thickness than the inside width of the channels and in length it is made slightly longer than the distance from the bottom (effective) of the inside of the lower channel to the bottom edges of the sides of the upper channel and slightly shorter than the distance from the "bottom" x of the upper channel to the top edges of the lower channel. In introducing the panel it is held in the position shown in dotted lines in Figure 3 and then moved upwardly sufficiently so that the bottom of the panel will clear the top of the sides of the lower channel. It is then swung over into exact vertical position which, of course, brings it into exact vertical alignment with the upper channel into which its upper end already extends and with the lower channel into which its lower end is about to be inserted. Once in that position, the panel is lowered until its bottom rests upon the effective bottom of the inside of the channel 13. In view of its length, as has already been pointed out, the upper end of the panel will still be engaged within the upper channel 15. The panel may then be readily moved to one side or the other in order to join up closely with the wall into which it abuts or with an adjacent panel already in place, the idea, of course, being to make a complete wall with as close a joint as possible. All the full length panels are readily inserted as has been described, some of them, as shown in Figure 2, having to be cut out in order to provide for the door which will be described more fully presently. A short panel such as 17^b is, of course, readily slipped into place from one side or the other.

Obviously, the panels themselves may be of any adaptable construction. As a preferred embodiment of my invention, I employ a fire-proof composition, preferably reinforced by vertical members 18, 18 and cross members 19, 19, as illustrated in dotted lines in Figure 2 and in section in Figures 3 and 4. As a further preferment I employ bamboo as the vertical members 18, 18 of this reinforcement, the cross members 19, 19 being of suitable metallic rod or wire.

The door frame comprises the vertical channel members 20, 20, and the horizontal top channel member 21 (all preferably of sheet metal) which are mitered and joined together by means of downwardly extending lips 22, 22, on the top member 21, which extend into sockets 23, 23 on the vertical members. It will be obvious that it is immaterial which part carries the lip and which the socket. The door frame may be provided with the transom bar 24, preferably of metal, which is held in place upon the vertical members 20, 20, by means of lips 25, 25.

It will be seen that the channel members 13, 15, 20 and 21, are all provided with sockets 26 pressed therefrom and being adapted for the downward insertion of a tongue which will be referred to presently. When these parts are all of metal, as they preferably are, these sockets are readily pressed integrally therefrom and no appreciable expense is encountered in order to make these primary parts adaptable for the reception of the trim.

In Figure 5, I have illustrated the upper portion of the wall, in cross section, showing how the channel 15 receives the moulding 27. This moulding 27 is preferably stamped from sheet metal, in which process a number of tongues 28 are provided at the back, these tongues being uniformly spaced to correspond with uniform spacing of the sockets 26, 26 on the channel 15. The moulding is sawed off to the proper length and is then readily hung by means of these tongues upon the channel 15.

In Figure 6, I have illustrated in cross section the application of the chair rails 29, 29 to the opposite sides of the wall, these parts of the trim being held in place by means of a suitable bolt 30.

In Figure 7, I have illustrated the application of stamped sheet metal baseboards to the lower channel 13. Here again, as in the case of the moulding, the baseboard 31 is provided at the back with tongues 32, 32 which are spaced to correspond with the uniform spacing of the sockets 26, 26 on the lower channel 13.

In Figure 8, I have illustrated the application of the stamped sheet metal door trim to the door frame. The trim has a suitable cross section of pleasing appearance, and its corners mitered as the primary frames 21 and 20 are mitered. The door trim is indicated at 33, 33, each piece having downwardly extending hooks 34, 34 secured to the back thereof, preferably by spot welding. These hooks 34, 34 take into the sockets 26, 26, uniformly spaced on the primary members 20 and 21. The vertical member 20 is also provided with sockets 37 to receive a door stop 38.

It is obvious that the trim could, if desired, be of wood and be provided with suitable engaging devices on the back to cooperate with the receiving devices of the primary members.

Figure 1 shows the completed wall with the trim all in place and with the inclusion of the transom *t* and door *d*. It is clear that when the panels are all in place the usual plaster coating shown in Fig. 1 may be applied after the trim is in place if so desired.

It is obvious that the only nails which need be employed are those holding the upper and lower channels in place, the other parts being held in position by their interrelation.

The erection of such a wall, given the standard material described, would fall within the domain of an average artisan requiring no more than the cutting to proper length and the assembly. The assembly is obviously very rapid and there is no necessity for various trades to come to the work in succession to do their particular portions of it.

While I have shown channels as the upper and lower supporting members for the panels, it is clear that other forms of engaging members may be provided. For instance, as shown in Fig. 10, the ceiling could be provided with a downwardly extending spear which would take into a socket in the channel, or vice versa, and the same could be true also of the floor construction. I am speaking now of the broader aspects of my invention and have drawn some of the appended claims accordingly. What I have in mind is engaging devices on the ceiling and on the floor which so cooperate with the panel itself that the mode of installation described with reference to Figure 2 can be carried out. It is also clear that the channel 15 instead of having its sides exactly vertical, could have them flare slightly upwardly, as shown in Fig. 11, so that the panel could be inserted as in Figure 3 and still be closely engaged by the lower edges of the channel when finally in place.

I claim:

1. In a building, a downwardly extending engaging device on the ceiling thereof, an upwardly extending engaging device on the floor thereof, and integral wall panels longer than the distance between the effective bottom of the floor device and the lower end of the ceiling device and shorter than the distance between the ceiling and the upper end of the floor engaging device, said panels being held in place by said engaging devices, said engaging devices permitting said wall panels to be set up by an end to end insertion.

2. In a building, an inverted channel on the ceiling thereof, a channel on the floor thereof parallel to said first named channel, and integral wall panels longer than the distance between the effective bottom of the floor channel and the lower end of the ceiling channel and shorter than the distance between the ceiling and the upper end of the floor channel, said panels being held in place by their lower ends resting in said lower channel and their upper ends extending into said upper channel, said channels permitting said wall panels to be set up by an end to end insertion.

3. In a building, an interior wall comprising a ceiling engaging device, a floor engaging device, and a plurality of vertical panels disposed side by side and extending between said engaging devices, said panels being held in position for engagement by both engaging devices by their own weight only after they have been set up by an end to end insertion.

4. In a building, a downwardly extending engaging device on the ceiling thereof, an upwardly extending engaging device on the floor thereof, integral wall panels longer than the distance between the effective bottom of the floor device and the lower end of the ceiling device and shorter than the distance between the ceiling and the upper end of the floor engaging device, said panels being held in place by said engaging devices, and trim mounted to conceal said engaging devices.

5. In a building, an inverted channel on the ceiling thereof, a channel on the floor thereof parallel to said first named channel, integral wall panels longer than the distance between the effective bottom of the floor channel and the lower end of the ceiling channel and shorter than the distance between the ceiling and the upper end of the floor channel, said panels being held in place by their lower ends resting in said lower channel and their upper ends extending into said upper channel, and trim mounted upon said channels, after said panels are inserted in said channels.

6. In a building, an inverted channel on the ceiling thereof, a channel on the floor thereof parallel to said first named channel, integral wall panels longer than the distance between the effective bottom of the floor channel and the lower end of the ceiling channel and shorter than the distance between the ceiling and the upper end of the floor channel, said panels being held in place by their lower ends resting in said lower channel and their upper ends extending into said upper channel, said channels having hook receiving means, and trim with hooks thereon mounted upon said channels by said hooks engaging in said receiving means, said trim extending beyond the inner ends of said channels for forming an extended engaging surface for said panels after insertion in said channels.

7. In a building, a downwardly extending engaging device on the ceiling thereof, an upwardly extending engaging device on the floor thereof, integral wall panels longer than the distance between the effective bottom of the floor device and the lower end of the ceiling device and shorter than the dis-

tance between the ceiling and the upper end of the floor engaging device, said panels being held in place by said engaging devices, the wall thus produced having a door opening therein, a channel frame rimming said opening, and trim for concealing said channel frame and overlapping the edges of the latter in order to abut said panels.

8. In a building, a downwardly extending engaging device on the ceiling thereof, an upwardly extending engaging device on the floor thereof, integral wall panels longer than the distance between the effective bottom of the floor device and the lower end of the ceiling device and shorter than the distance between the ceiling and the upper end of the floor engaging device, said panels being held in place by said engaging devices, the wall thus produced having a door opening therein a channel frame rimming said opening, said engaging devices and channel frames having hook receiving means, and trim with hooks thereon mounted upon said engaging devices and said channels by said hooks engaging in said receiving means, said trim overlapping the inner or wall engaging end of said floor and ceiling engaging devices and said door frame channel.

9. In a building, a downwardly extending engaging device on the ceiling thereof, an upwardly extending engaging device on the floor thereof, integral wall panels longer than the distance between the effective bottom of the floor device and the lower end of the ceiling device and shorter than the distance between the ceiling and the upper end of the floor engaging device, said panels being held in place by said engaging devices, the wall thus produced having a door opening therein, a channel frame rimming said opening, a transom bar across said frame, a transom above said bar, and a door below said bar, said trim surrounding said channel frame to conceal the same.

10. In a building, an inverted sheet metal channel on the ceiling thereof, a sheet metal channel on the floor thereof parallel to said first named channel, and integral wall panels longer than the distance between the effective bottom of the floor channel and the lower end of the ceiling channel and shorter than the distance between the upper inner surface of the ceiling channel and the upper end of the floor channel, said panels being held in place by their lower ends resting in said lower channel and their upper ends extending into said upper channel, said panels being set up in said sheet metal channels by an end to end insertion therein.

11. In a building, an inverted sheet metal channel on the ceiling thereof, a sheet metal channel on the floor thereof parallel to said first named channel, and integral wall panels longer than the distance between the effective bottom of the floor channel and the lower end of the ceiling channel and shorter than the distance between the upper inner surface of the ceiling channel and the upper end of the floor channel, said panels being held in place by their lower ends resting in said lower channel and their upper ends extending into said upper channel, said channels having sockets stamped therefrom, and sheet metal trim with downwardly extending tongues thereon mounted on said channels by said tongues engaging in said sockets, said trim abuting against said panels by extending beyond the inner end of said channels.

12. In a building, an inverted channel on the ceiling thereof, a channel on the floor thereof parallel to said first named channel, a spacer in the lower channel, integral wall panels longer than the distance between the effective bottom of the floor channel and the lower end of the ceiling channel and shorter than the distance between the upper inner surface of the ceiling channel and the upper end of the floor channel, said panels being held in place by their lower ends resting in said lower channel and their upper ends extending into said upper channel, said channels permitting said panels to be set up by an end to end insertion.

13. In a wall construction, in combination, opposed aligned holders fixed on the ceiling and floor respectively, and removable vertical wall panels having free telescopic engagement with said holders.

14. In a wall construction, in combination, opposed aligned holders fixed on the ceiling and floor respectively, and removable vertical wall panels having free telescopic engagement with said holders, the telescopic engagement with the ceiling holder being long enough to let the bottom of the panel clear the floor holder, and the telescopic engagement with the floor holder being short enough to prevent disengagement at the ceiling.

15. In a wall construction, in combination, opposed aligned holders fixed on the ceiling and floor respectively, removable vertical wall panels having free telescopic engagement with said holders, and stock trim for said holders, said holders and trim having interlocking lip and socket means for fastening the trim in place.

In witness whereof, I hereunto subscribe my name this 22nd day of March, 1921.

ERNEST A. MAYO.