July 7, 1936. J. M. KLEIN 2,047,145

WALL CONSTRUCTION

Filed Aug. 17, 1935 4 Sheets-Sheet 1

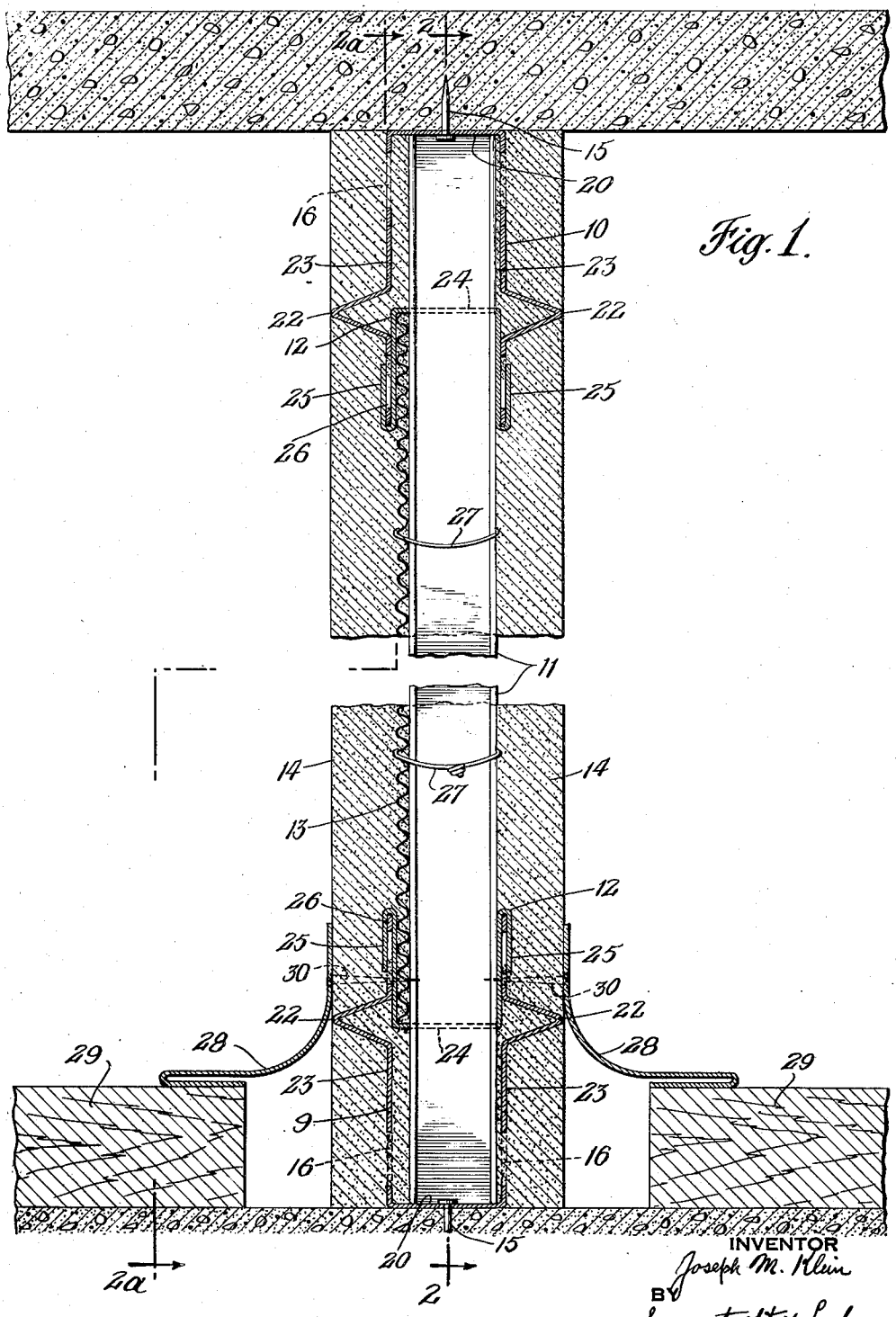


Fig. 1.

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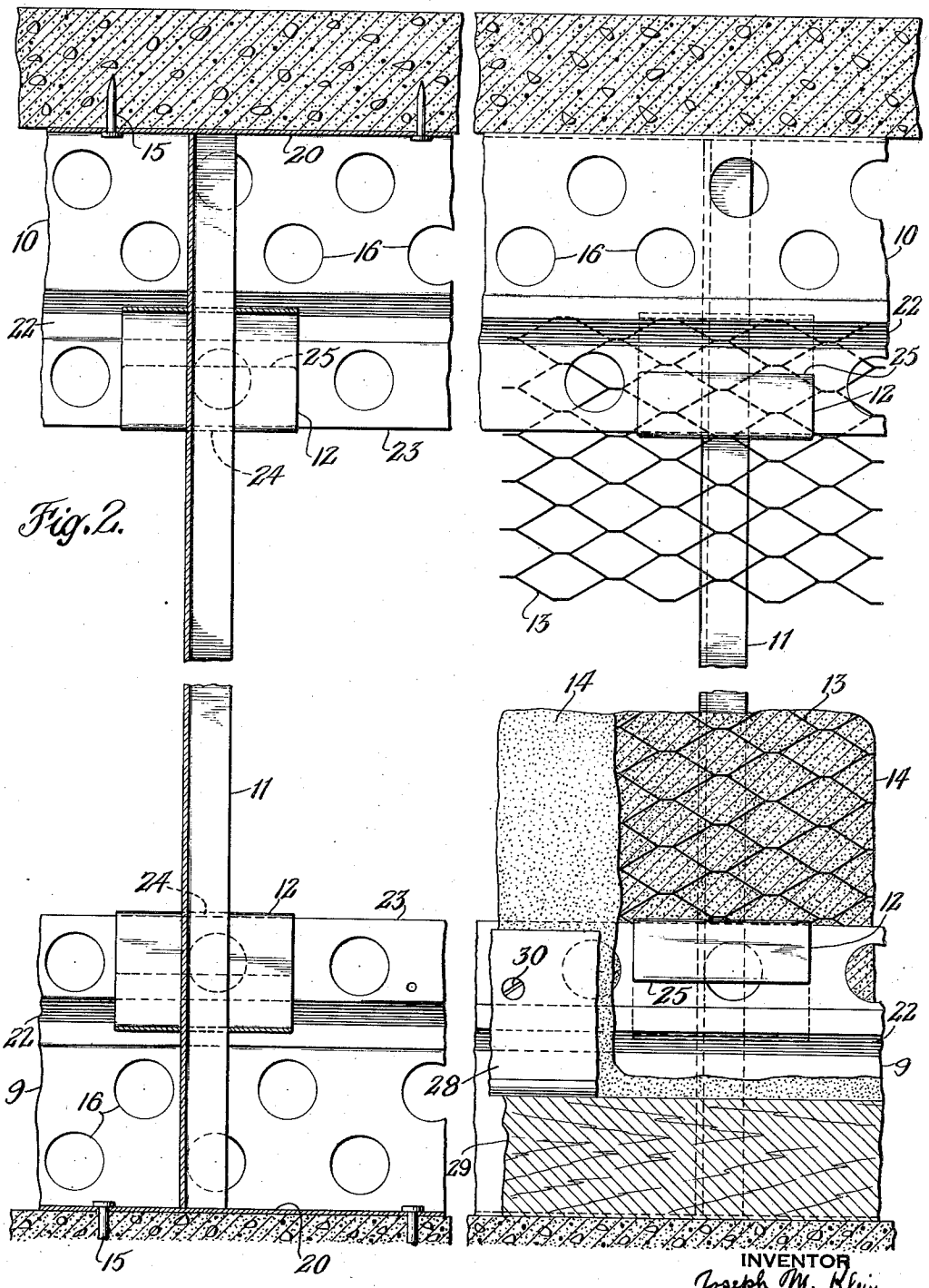


Fig. 2.

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WALL CONSTRUCTION

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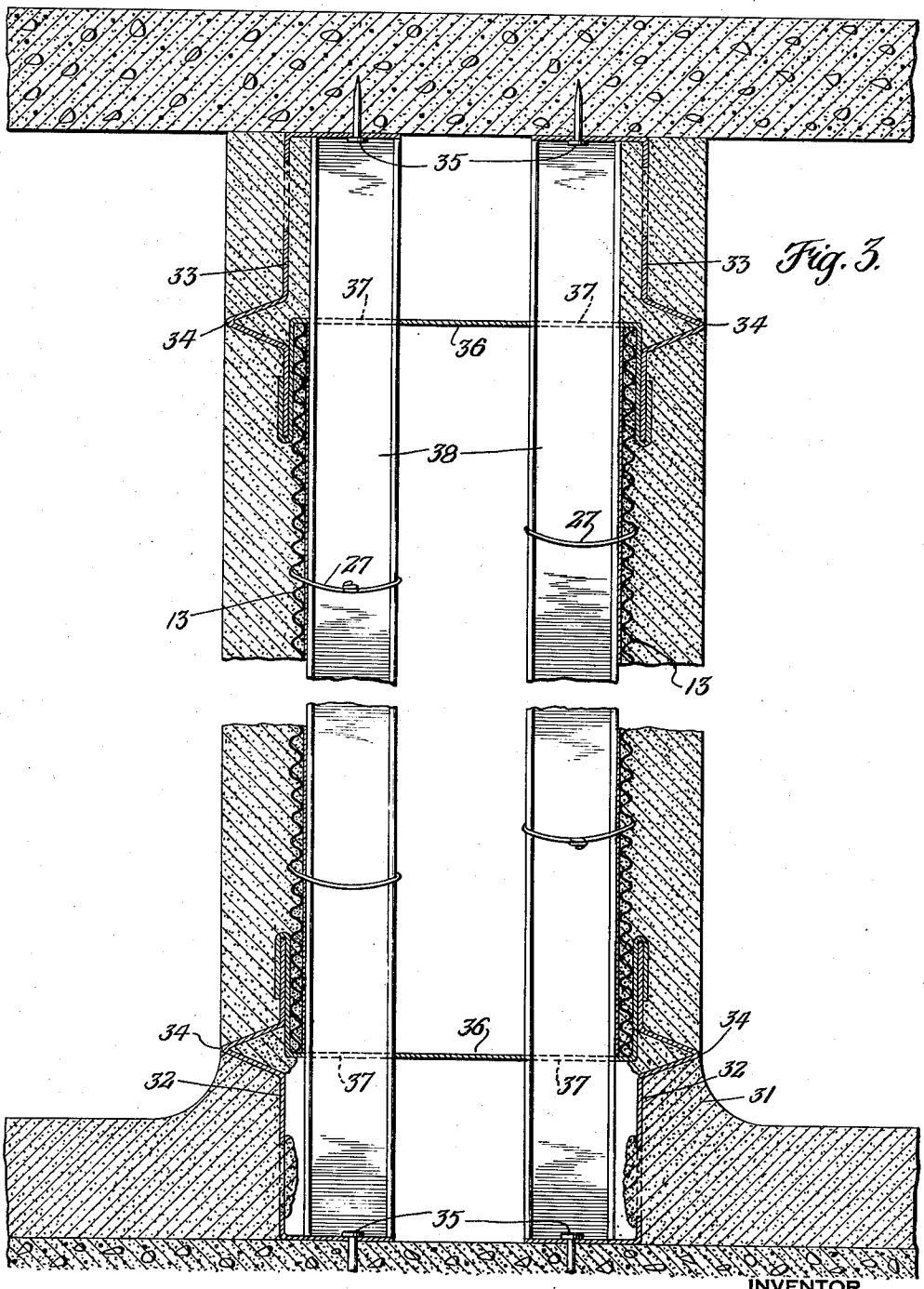


Fig. 3.

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July 7, 1936. J. M. KLEIN 2,047,145

WALL CONSTRUCTION

Filed Aug. 17, 1935 4 Sheets-Sheet 4

Fig. 4.

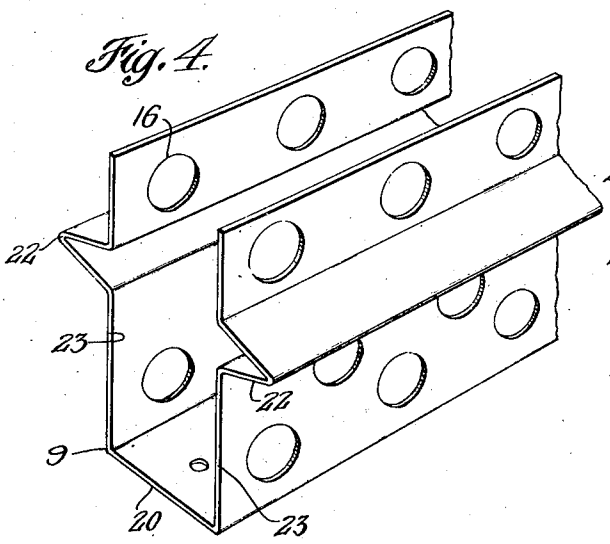


Fig. 5.

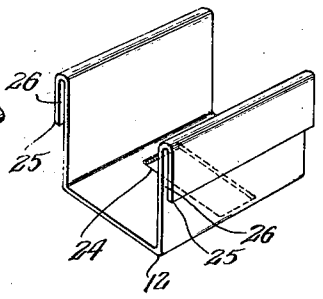


Fig. 6.

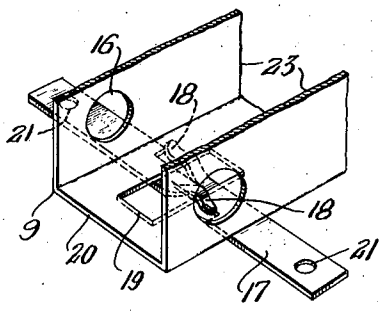


Fig. 8.

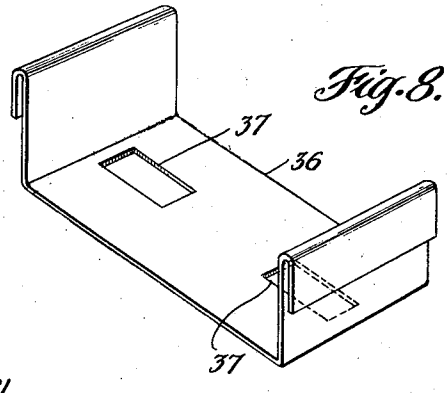
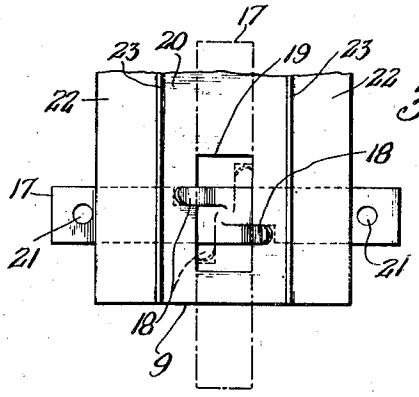


Fig. 7.



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UNITED STATES PATENT OFFICE

2,047,145

WALL CONSTRUCTION

Joseph M. Klein, Belle Harbor, N. Y.

Application August 17, 1935, Serial No. 36,615

21 Claims. (Cl. 72—46)

This invention relates to a wall or partition construction and in particular to improvements in plaster walls having metallic framing.

The primary object of my invention is the provision of a plaster wall having metallic framing in which the various parts may be easily assembled, readily adjusted to suit varying conditions, accurately aligned, and secured together in a simple manner to provide a rugged construction with greatly minimized labor and time requirements.

Another object of my invention resides in the provision of grounds so embodied in the framing as to dispense with the several grounds heretofore ordinarily found necessary.

A further object of my invention is the provision of a simple and effective arrangement for securing, positioning and aligning parts of the framing.

How the foregoing, together with such other objects and advantages as may hereinafter appear, or are incident to my invention are realized is illustrated in preferred form in the accompanying drawings, wherein—

Figure 1 is a vertical section through a wall or partition constructed in accordance with my invention;

Figure 2 is a fragmentary combined elevational and sectional view with the left-hand half of the view taken substantially on the line 2—2 of Figure 1 and the right-hand half taken substantially on the line 2*a*—2*a* of Figure 1;

Figure 3 is a vertical section through a double wall or partition constructed in accordance with my invention;

Figure 4 is a fragmentary perspective of a channel member which I employ;

Figure 5 is a perspective view of a clip employed in the construction illustrated in Figure 1;

Figure 6 is a fragmentary perspective view illustrating a fastening means for the channel members;

Figure 7 is a plan view of Figure 6; and

Figure 8 is a perspective view of a clip employed in the construction illustrated in Figure 3.

My improved wall or partition has metallic framing to which the plaster is applied to provide the wall surfaces, and the metallic framing comprises in general a bottom horizontal member or runner 9 which, as illustrated in Figures 1, 2 and 4, is of channel form, a similar top horizontal member or runner 10, a plurality of spaced studs or uprights 11, in this instance of channel form, clips 12 associated with the studs 11 and channel members 9 and 10, and metallic lath 13 secured against the studs 11. The plaster which is applied to this metallic framing is indicated by the numeral 14.

The lower and upper horizontal channel members or runners 9 and 10 are secured to the floor and ceiling respectively in vertical alignment by suitable fastening means indicated at 15, and are provided with a plurality of holes 16 through which the plaster passes. In instances where proper fastening cannot be made at the point shown in Figure 1, I employ strap-like members 17 illustrated in Figures 6 and 7 having tabs 18 engageable in apertures 19 provided in the web of the channel members 9 and 10. The straps and the apertures 19 are of a width such that the straps may be applied by first positioning them as indicated in dot-and-dash lines in Figure 7 and then turning them at right angles as shown in full lines to have the tabs 18 clamp the strap to the web 20 of the channel members. These straps overlap the channel members and are provided with apertures 21 at their overlapping portions for receiving the fastening means.

The bottom and top channel members or runners 9 and 10 are provided with integral grounds 22 for plastering which are illustrated as being in the form of a V and located in the flanges 23 of the members.

The studs or uprights 11 extend approximately from floor to ceiling and fit into the bottom and top channel members 9 and 10. These studs are positioned by means of the channel shaped clips 12 which are provided with apertures 24 in their webs to receive the studs, it being noted that the apertures are preferably located off center in the webs in order to accommodate the metallic lath 13 and allow it to extend from the webs of the bottom clips to the webs of the top clips. Thus the metal lath enters well into the top and bottom runners and prevents cracking of the plaster.

The clips 12 have the free edges of their flanges turned back or rebent as illustrated at 25 with a space at 26 to accommodate the flanges 23 of the horizontal channel members 9 and 10, so that they will fit and seat in the channel members. I have thus provided clips which fit over the flanges of the channel members and may be slid longitudinally thereof to give any desired spacing of the studs 11 and which serve to accurately space and align the flanges of the channel members and also the integral grounds 22. After the clips are located at their proper positions they may be held against shifting by pinching the rebent portions 25 tightly to the flanges.

The metallic lath may be secured in place as by means of wires 27 lacing it to the studs.

As illustrated in Figure 1, toe molding 28 may be employed at the flooring 29 and this may be fastened to the wall by means of self tapping screws 30. In instances where a plastic floor is employed, the joint construction illustrated at 31 in Figure 3 may be employed as an alternative, in which case the bottom ground may be used as the ground for the plastic floor.

The double wall construction illustrated in Figure 3 is generally the same as that of Figure 1, but in this instance I have shown the bottom and top horizontal members 32 and 33 of angle form. As above, these members are provided with integral grounds 34 and are secured to the floor and ceiling as by means of suitable nails 35.

The clips 36 are illustrated in detail in Figure 8 and, as above, are of channel form. The webs of the clips are provided with two apertures 37 for the reception of the studs 38 which are arranged in two rows spaced laterally of the wall. The webs of the clips constitute spreader portions which determine the thickness of the wall. The apertures 37 are spaced from the flanges of the clips a sufficient amount to accommodate the lath 13 which is applied to both rows of studs. I prefer in this instance to employ paper backed lath which may be laced to the studs by wires 27.

It will be seen that the clips 36 serve to align the webs and integral grounds of the bottom and top channel members, space the studs both longitudinally and laterally, and fix the width of the wall. This double wall construction provides a hollow partition having an uninterrupted air space between the two rows of studs and which has great sound deadening qualities since there are practically no connections between the rows of studs to communicate the sound. The connections made by the clips 36 do not communicate sound or vibration of any consequence so that the space is dead air space. If desired, insulation may be placed between the clips and runners.

In erecting a wall or partition the runners 9 and 10 are secured in place in vertical alignment with their webs against the floor and ceiling and with their flanges facing each other. The lower clips 12 are then seated or partially seated in the lower channel members 9 and the studs are inserted through the apertures in the clips. Then the upper clips, if not already assembled on the studs, may be slipped onto the studs and the studs placed in vertical position after which the upper clips may be seated in the upper channel members 10. Then the studs may be accurately positioned in their proper spacing and the clips pinched to the flanges of the channel members to hold them against displacement. The lath may then be laced to the studs and the plaster applied.

While the combined runners and grounds and the clips may be stamped from light gauge sheet metal, it will be seen that the construction, particularly when assembled, is very rigid and unyielding, so that the plasterers by the use of the usual screed rod placed against the integral grounds as a guide can secure a truly plane surface. In the constructions heretofore ordinarily resorted to, the plurality of wooden grounds employed on each face of the wall or partition yield, particularly in thin walls such as the two inch wall shown in Figure 1, when applying the plaster so that a more or less wavy instead of a plane surface results. Incidentally, in this connection the studs fits snugly in the clips and the clips brace the side walls of the runners. Also the studs cannot shift transversely of the wall. This all cooperates towards securing a wall of uniform dimensions with perfect surfaces without the need of the exercise of extreme caution on the part of the workmen.

The uprights or studs do not have to be cut to an exact dimension because the clips which bridgingly connect the walls of the runners permit of variation in length. This is of importance since the height of a ceiling may vary as much as one inch.

The extent of the area of the wall occupied by the metal lathing can be altered by employing clips of greater or less depth.

If desired, picture supports such as mouldings or the like may be secured to the upper grounds by self tapping screws.

It is also to be observed that through the practice of my invention a metallically framed wall is provided in which the plaster surfaces extend entirely from floor to ceiling without exposure of the runners, thus securing superior sound and heat insulation.

A flush floor of any desired character may be laid after the above erection has been completed, for example, a wood floor with metallic toe moulding as illustrated in Figure 1 or a plastic floor as illustrated in Figure 3.

The procedure in erecting the double wall illustrated in Figure 3 is generally the same as just described, it being pointed out that it is only necessary to provide clips of appropriate width to secure any desired thickness of wall.

It will be seen from the foregoing that the framing can be quickly assembled with a minimum of labor and that the plasterers can proceed with expedition. By having exact top and bottom grounds the amount of plaster used is reduced to a minimum because there are no inaccuracies such as are present in wood grounds due to careless nailing, swelling, or shrinking which cause the plaster to vary in thickness over a wall.

I claim:—

1. Partition construction comprising a plurality of spaced upright members, top and bottom horizontal members of channel form positioned with their flanges facing toward each other to receive the upright members, clip members engaging the upright members to position them and in bridging engagement with the flanges of the horizontal members, metallic lath secured against said upright members, and plaster applied to said structure to provide plastered wall surfaces for the partition.

2. Partition construction comprising a plurality of spaced upright members, top and bottom horizontal members receiving the upright members, clip members in engagement with the upright and horizontal members for positioning the upright members, metallic lath secured against said upright members, and plaster applied to said structure to provide plastered wall surfaces for the partition, said horizontal members carrying grounds for plastering.

3. Partition construction comprising a plurality of spaced upright members, top and bottom horizontal members of channel form positioned with their flanges facing toward each other to receive the upright members, clip members fitting the upright members and in bridging engagement with the flanges of the horizontal members for positioning the upright members, metallic lath secured against said upright members, and plaster applied to said structure to provide plastered wall surfaces for the partition, said horizontal channel

members having integral grounds extending longitudinally thereof.

4. A wall construction comprising bottom and top metallic channel members secured in place with their web portions against the floor and ceiling respectively, metallic studding received in said channel members, metallic clips bridged between the flanges of said channel members and in engagement with the studding to position the studs, metallic lath secured against the studding, and plaster providing the wall surfaces.

5. A wall construction comprising bottom and top metallic runners, of channel form in cross-section, secured in place with their web portions against the floor and ceiling respectively, metallic studding received in said runners, metallic clips in bridging engagement with said runners and in engagement with the studding to position the studs, metallic lath secured against the studding, and plaster providing the wall surfaces, said runners having longitudinally extending grounds formed integrally therewith.

6. In metallic framing for plaster walls, the combination of a bottom runner having upstanding flanges, a top runner having downwardly extending flanges, studding engageable therebetween, clips in bridging engagement with the flanges of said runners for stiffening the runner and for positioning said studding, and metallic lath secured to the studding.

7. In metallic framing for plaster walls, the combination of a bottom runner having upstanding flanges, a top runner having downwardly extending flanges, studding engageable therebetween, channel shaped clips seating in said runner and bridged between the flanges of the runners, and apertures in said clips for receiving the studding.

8. In metallic framing for plaster walls, the combination of a bottom horizontal channel member having upstanding flanges, a top horizontal channel member having downwardly extending flanges, studding engageable therebetween, channel shaped clips seating in said horizontal channel members and bridged between the flanges thereof, and apertures in said clips for receiving the studding, said clips being movable along the flanges of the horizontal channel members to erect the studding in any selected spacing.

9. In metallic framing for plaster walls, the combination of a bottom horizontal channel member having upstanding flanges, a top horizontal channel member having downwardly extending flanges, studding engageable therebetween, channel shaped clips seating in said horizontal channel members, and apertures in said clips for receiving the studding, said clips being movable along the horizontal channel members to erect the studding in any selected spacing, and said clips being adapted to be secured in selected position.

10. In metallic framing for plaster walls, the combination of bottom and top runners secured to floor and ceiling respectively, said runners when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, clips spaced longitudinally of said runners and engaging said flanges and bridged therebetween, stud receiving apertures in said clips and studs fitting said apertures and extending substantially from bottom to top runner.

11. In metallic framing for plaster walls, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, clips spaced longitudinally of said members and engaging said flanges and bridged therebetween, stud receiving apertures in said clips and studs fitting said apertures and extending substantially from bottom to top member, said bottom and top members having longitudinally extending ribs in their flange portions serving as grounds for plastering.

12. In metallic framing for plaster walls, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, clips spaced longitudinally of said members and engaging said flanges and bridged therebetween, stud receiving apertures in said clips, and studs fitting said apertures and extending substantially from bottom to top member, said bottom and top members having longitudinally extending V-shaped ribs in their flange portions serving as grounds for plastering.

13. In metallic framing for plaster walls, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, channel shaped clips bridged between said spaced flanges, said clips having their flanges rebent to fit the flanges of the bottom and top members, studs extending substantially from floor to ceiling and positioned between the flanges of the bottom and top members, and apertures in the webs of said clips for receiving said studs.

14. In metallic framing for plaster walls, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, channel shaped clips bridged between said spaced flanges, said clips having their flanges rebent to fit the flanges of the bottom and top members, studs extending substantially from floor to ceiling and positioned between the flanges of the bottom and top members, and apertures in the webs of said clips for receiving said studs, said clips being movable lengthwise of the bottom and top members to position the studs in selected spacing.

15. In metallic framing for plaster walls, the combination of bottom and top runners secured to the floor and ceiling respectively, said runners when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, channel shaped clips bridged between said spaced flanges, said clips having their flanges rebent to fit the flanges of the bottom and top runners, studs extending substantially from floor to ceiling and positioned between the flanges of the bottom and top runners, and apertures in the webs of said clips for receiving said studs, said clips being movable lengthwise of the bottom and top runners to position the studs in selected spacing, and being adapted to be pinched to the flanges of the runners for securing them in selected position.

16. In metallic framing for plaster walls, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, channel shaped clips spaced longitudinally of said members and engaging said flanges and bridged therebetween to maintain the spacing of the flanges, stud receiving apertures

in said clips, and studs fitting said apertures and extending substantially from bottom to top member and positioned between said flanges.

17. In metallic framing for plaster walls, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, clips spaced longitudinally of said members and engaging said flanges and bridged therebetween to maintain the spacing of the flanges, stud receiving apertures in said clips, and studs fitting said apertures and extending substantially from bottom to top member, and metal lath secured between the studs and said clips.

18. In a plaster wall having metallic framing, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, longitudinal grounds integral with said flanges, clips bridged between said flanges to maintain the flanges and grounds in alignment, studs received by the bottom and top members, and apertures in said clips for receiving the studs.

19. In a double plaster wall having metallic framing, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, a plurality of clips bridged between the flanges of said members to maintain the flanges in alignment, said clips being spaced apart longitudinally of said members, studs extending substantially from floor to ceiling and located between said bottom and top members, said clips having laterally spaced stud receiving apertures therein whereby the studs are spaced by the clips laterally of the wall to provide a double row of studs, metal lath secured to each row of studs, and plaster applied to said framing.

20. In a double plaster wall having metallic framing, the combination of bottom and top horizontal members secured to floor and ceiling respectively, said members when secured in place presenting spaced longitudinal flanges extending normal to the floor and ceiling, a plurality of clips bridged between the flanges of said members to maintain the flanges in alignment, said clips being spaced apart longitudinally of said members, studs extending substantially from floor to ceiling and located between the flanges of said bottom and top members, said clips having laterally spaced stud receiving apertures therein whereby the studs are spaced by the clips laterally of the wall to provide a double row of studs, metal lath secured to each row of studs, and plaster applied to said framing, said top and bottom members having integral grounds extending longitudinally thereof.

21. In a double plaster wall having metallic framing, the combination of bottom and top horizontal angle members, means for securing said members to floor and ceiling respectively in laterally spaced relation, a plurality of spaced channel shaped clips bridged between and engaging the flanges of said angle members which are normal to the floor and ceiling, said clips being adapted to maintain said flanges in accurate spaced relation, longitudinally extending grounds formed integral with said flanges, studs extending substantially from floor to ceiling and received in the space between said normal flanges, laterally spaced apertures in the webs of said clips for receiving said studs whereby a double row of studs is provided, metal lath secured to each row of studs, and plaster applied to said framing.

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