Oct. 23, 1945. A. C. OLSEN 2,387,342

PLASTER PARTITION CONSTRUCTION

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Fig. 2.

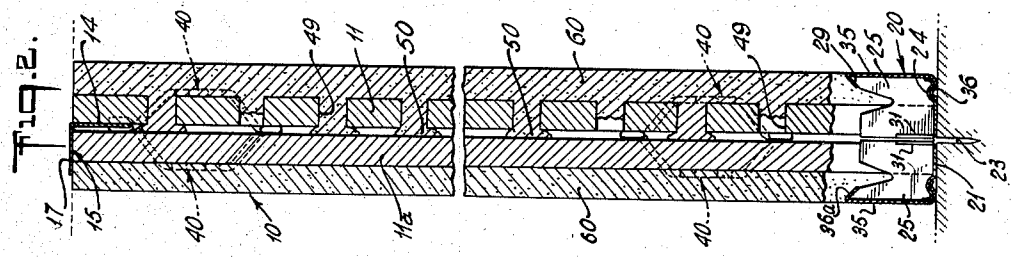
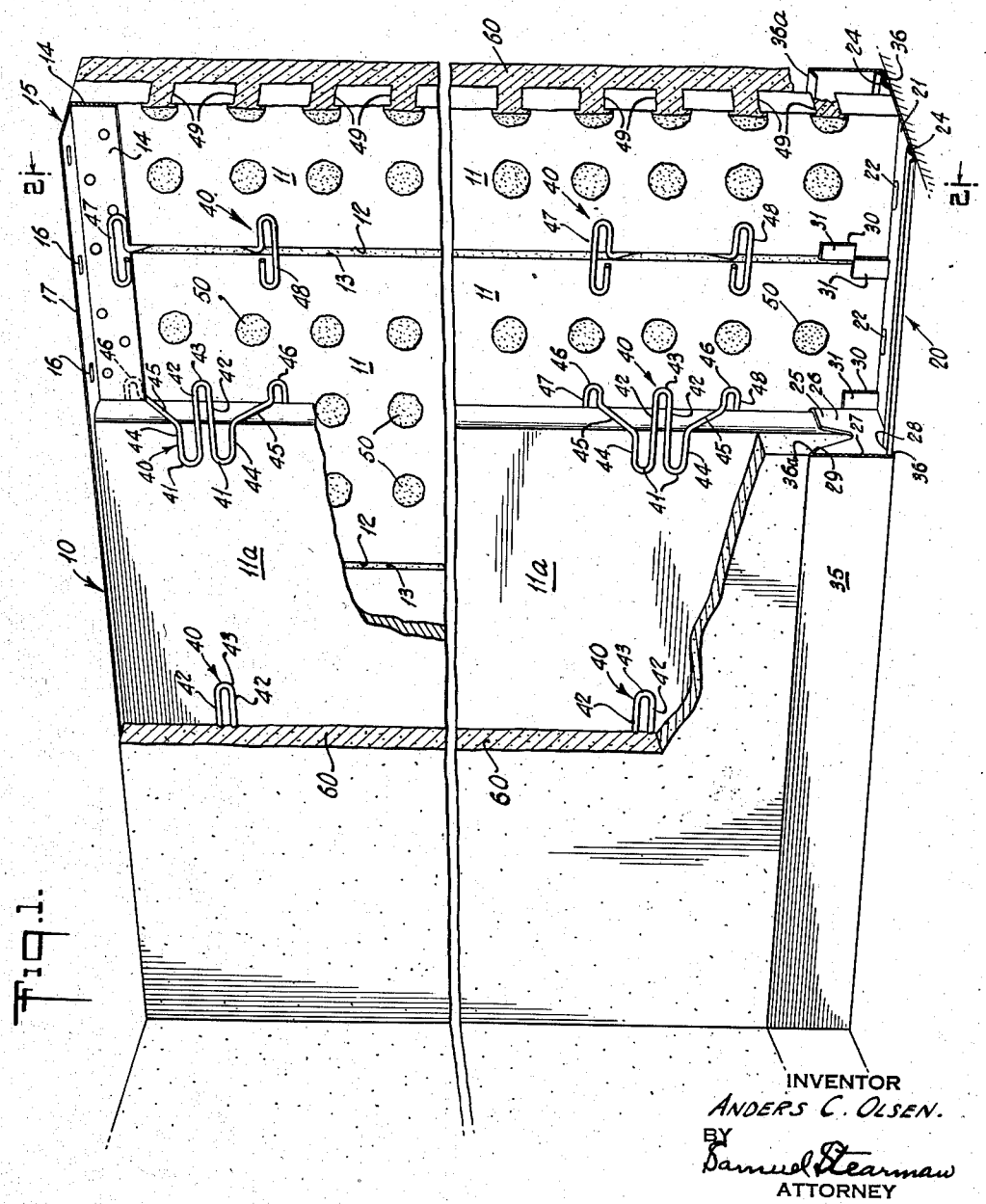


Fig. 1.



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PLASTER PARTITION CONSTRUCTION

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2 Claims. (Cl. 72—46)

This invention relates to building construction and is more particularly concerned with improvements in the construction of an interior plastered partition of the type that dispenses with the need of vertical studs or channels as supports for the partition.

More specifically, the present invention is directed to a type of partition structure comprising a plastering base formed with a plurality of relatively rigid sheets or panels, each considerably longer than its width and of a length approximately equal to the height of the wall or partition to be constructed, the panels being arranged adjacent one another and interconnected, at the joints between adjacent vertical edges thereof, by fasteners serving to hold them in proper position to serve as a base for plaster, without requiring studs or channel supports.

The principal object of the present invention is to provide a simple, efficient and fire-proof partition construction for the interior of buildings, which possesses sufficient rigidity to withstand impact shock or other stresses to which such constructions are ordinarily subjected.

Another object of the invention is to provide an improved plastered partition structure for the interior of buildings where fire-proofness, minimum weight and a maximum amount of flooring space are essential factors, said structure being capable of transmitting less sound therethrough and thereby possessing a greater degree of sound insulation than heretofore obtained in plastered partitions of similar character.

A more specific object of the invention is to provide a novel and improved plastering base for a partition, which may be easily and speedily erected and which is sufficiently rigid, without requiring auxiliary supports or bracing, to permit the application of plaster either simultaneously on both sides thereof or in rapid succession, first on one side and then on the other side.

Briefly stated, the invention in its broader aspects comprises a plastered partition structure formed on a plastering base comprising panels of the aforementioned character which are disposed in two juxtaposed layers or plies spaced slightly from one another, the joints between the panels of one layer or ply being offset with respect to the joints between the panels of the other layer or ply, the adjacent panels of each layer or ply being interconnected at the joints therebetween by wire clips which are applied at spaced intervals along the joints and which have portions thereof disposed between the opposite faces of the two layers or plies to space these layers or plies from one another. Upon completion of the plastering base, as above indicated, plaster coatings may be applied to both sides thereof.

Various other features and advantages of the invention will be more clearly apparent from the detailed description which is to follow and from the accompanying drawing, in which

Fig. 1 is a perspective view of a portion of a partition embodying the present invention, parts being shown in broken section; and

Fig. 2 is a sectional view taken along line 2—2 of Fig. 1.

In the drawing, the numeral 10 indicates, generally, an assemblage of two juxtaposed layers or plies of panels spaced from one another, comprising the plastering base embodying the invention. These panels may comprise gypsum plasterboard or any other material suitable for use as plastering lath. The panels 11 and 11a are of a length corresponding substantially to the height of the room whose walls are to be formed by the partition, and of a width convenient for handling, say 16" to 32". The panels are placed so that the vertical edges 12 and 13 of adjacent panels in each of the two layers or plies are in close proximity to each other. The adjacent panels in each layer or ply are interconnected along the joints between their vertical edges by means of spaced clips or fastening devices which also serve to space the juxtaposed layers or plies from one another, as will be more fully hereinafter set forth.

One type of fastening means suitable for interconnecting the adjacent panels 11 in one layer or ply and the adjacent panels 11a in the other layer or ply comprises a resilient fastener or clip designated generally by the numeral 40. This fastener or clip is formed of 11 to 14 gauge hard drawn wire bent to provide open loops or bights 41 along the central portion connected by legs 42, substantially parallel to each other, to a narrow return bend portion 43 somewhat narrower than the bights 41. The opposite legs 44 are bent at a point approximately midway of the length of the legs 42 to form arms 45 which are deflected from the plane of the bights 41 and the central return bend portion 43 and terminate in flat closed loops 46. These loop portions 46 are of a length approximating the distance between the bights 41 and the return bend portion 43, and comprise oppositely disposed wings indicated at 47 and 48. The loop portions 46 thus lie in a plane parallel to the plane of the bights 41 and the central return bend portion 43.

In order to interconnect the adjacent panels in each layer by means of the fastening clips **40**, several clips are applied at spaced intervals along the vertical margins of one of the panels, and the adjacent panel is then forced into engagement with the clips so that the clips straddle the joint between the panels and interconnect them along the joint as the sole vertical support for the panels therealong. The distortion of the arms **45** from their normal substantially unflexed position to the position where the loops **46** bear upon the face of the panels opposite to that against which the bights **41** and return bend **43** bear, serves firmly to grasp the adjacent panels.

The upper marginal edges of the panels in each of the two layers or plies are held in engagement with the leg **14** of runner **15**, of conventional form, anchored in the usual manner to the ceiling.

The means for holding the upper edges of the panels **11** in engagement with the ceiling runner **15** preferably comprises fastening devices or clips like those employed for interconnecting the panels along the joints between vertical edges thereof. To this end, the clip nearest the upper end of the panels along each of the joints is positioned as best indicated in Fig. 1 so as to serve not only for grasping and interconnecting the panels at these points, but also to hold the panels along their upper horizontal margins in engagement with the leg **14** of the ceiling runner **15**. The resiliency of the clips, particularly in the region of the inner ends of the arms **45**, permits a considerable range of distortion adequate to grip and interlock panels ranging from, say, ⅜" to ½" in thickness.

The lower marginal edges of the panels in each of the two layers or plies are supported by and held in engagement with any suitably designed metal base system. One such system, indicated generally in the drawing by the reference numeral **20**, comprises a substantially flat runner **21** of indeterminate length, a plurality of alternately positioned spacer plates **25** and a pair of base rails **35**, also of indeterminate length.

As shown in the drawing, the floor runner is bent or otherwise formed along each longitudinal edge with a bead or corrugation **24** for engagement with a complementary-formed lower edge of the spacer plates **25** and with the lower lip or flange **36** on the base rails **35**.

The spacer plates **25** may be formed of sheet metal and each consists essentially of a flat upstanding web or body portion **26**, the vertical edge **27** thereof connecting the concavely recessed lower edge **28** with the inwardly and downwardly bevelled upper edge **29**. The opposite side **30** of each spacer plate is slit horizontally for a slight distance inwardly approximately half way between the upper and lower edges thereof to form a pair of ears **31**, which may be bent in opposite directions at right angles to the web or body portion of the spacer plate. The spacer plates **25** are disposed in upright position at spaced intervals along the floor runner, the concavely formed recesses **28** in the lower edge of each plate being engaged in mating relationship with the complementary-formed bead or corrugation **24** in the floor runner.

In erecting the plastering base **10**, the ceiling runner **15** and the floor runner **21** are positioned substantially in vertical alignment, and then are secured respectively to the ceiling and floor. When thus aligned, the depending leg **14** of the ceiling runner will lie in a vertical plane which will be located intermediate the corrugated sides of the longitudinally extending floor runner **21**. The runner **15** is anchored to the ceiling by nails or spikes (not shown), driven through suitably spaced perforations **16** in the flange **17** of the runner. Similar perforations **22** are provided at spaced intervals along the center of the floor runner **21**, through which nails or spikes **23** are driven, thereby anchoring the runner to the floor or foundation.

The first of the panels **11** having the clips **40** applied along one vertical margin **12** or **13** and spaced therealong at regular intervals, of say 16" on center, is positioned between the ceiling and floor runners so that the upper marginal edge on one face of the panel rests or abuts against one side of the depending leg **14** of the ceiling runner. Another panel **11** is positioned alongside the first in forming one layer or ply of the plastering base and the adjacent panels are then interconnected by the clips **40** and also secured to the ceiling runner, as previously described. A spacer plate **25** is then inserted through the joint between the adjacent, interconnected panels and engaged with the floor runner **21**, the laterally extending ears or flanges **31** of the spacer plate abutting against the lower margins on the inner faces of the adjacent panels, as shown in the drawing.

Another spacer plate **25** may then be engaged in upright position with the bead or corrugation **24** on the opposite side of the floor runner **21** and offset with respect to the previously erected spacer plate a distance which, for purposes of illustration, may be equal to one-half or one-third the width of one of the panels. A pair of panels **11*a*** forming part of the other of the two juxtaposed layers of panels is placed between the ceiling and floor runners, adjacent the opposite faces of the second spacer plate, and interconnected along their adjacent vertical margins by the spaced clips **40** first applied along the margin of one of the panels. The upper margins of these panels are secured to the depending runner leg **14**, extending between the two layers, by first sliding the uppermost clip toward the leg, then deflecting the upper loop of the clip and inserting it between the leg and the upper margins of the opposite layer of panels **11**. The resiliency of the wire clip will cause the loop to bear against the side of the runner leg with which the loop is in contact.

Clips are affixed to the outer vertical margins of the previously erected and interconnected panels in each of the layers, spacer plates are each positioned alongside one of those margins and engaged with the floor runner, and, alternately, additional panels are added to each layer, whereupon the panels are each interconnected with the adjacent panel of that layer and secured to the ceiling runner. The lowermost clip on each pair of adjacent panels is preferably located above the bottom edges of the panels a distance at least equal to the height of the spacer plates, so as to avoid interference therewith. The spacer plates located on one side of the runner will face toward the plates on the opposite side of the runner and will be horizontally offset therefrom. Likewise, the joints between adjacent panels **11**, in one layer, will be staggered or offset with respect to the joints between adjacent panels **11*a*** in the other layer.

The two juxtaposed layers will be spaced from one another a distance equal to the thickness of the material from which the clips are made.

However, by suitable modification of the clip, such as by forming the ends of the loops with extensions lying outwardly of the planes of the loops, the spaces between the two layers of panels may be made greater than the thickness of the wire. In either event, there is thus provided an enclosed air space between the two layers of panels. I have found this feature of my novel partition construction to be effective to a marked degree in reducing the transmission of sound therethrough, as compared to the intensity of sound transmission that usually is obtained through a solid type of plaster partition construction. The aforementioned spacing between the juxtaposed layers need not be limited to that afforded by the thickness or gauge of the wire clips, but may be further increased, as desired, by bending or deflecting the free ends of the loops **46** out of the plane of the loops.

While it is desirable to provide a minimum of contact between the two spaced layers of panels for enhanced sound insulation, it is also desirable, nevertheless, to provide a positive connection between the layers in order to rigidify the structure and minimize vibration or movement of one layer relative to the other when the structure is subjected to impact or other shock. To this end, the panels **11** of one of the layers may be perforated, as at **49**, so that, when plaster is applied to the thus perforated panels, the plaster will key through the perforations and bond with the inner faces of the opposite layer of panels. The keyed plaster, upon contacting the inner faces of the opposite layer of panels will tend to spread laterally, as indicated at **50**, in the open space between the layers, before becoming hardened and set.

The erection of the plastering base is completed by engaging the base rails **35** with the floor runner and the spacer plates at each side of the floor runner. The base rails have their opposite longitudinal edges bent inwardly to form the lips or flanges **36** and **36***a*, the upper flange **36***a* being engaged in position over the complementary-formed bevels **29** on the upper and outer edge of the spacer plates. The lower flange of the base rail is inserted under the bead or corrugation **24** in the floor runner and snapped into locking engagement therewith.

As the final step in the construction, of the present partition structure, layers of plaster **60** are applied to both sides of the plastering base. Because of the added rigidity afforded by the provision of a two layer plastering base having the joints between adjacent panels in each layer interconnected and reinforced by clips or fasteners, and the joints of one layer staggered or offset with respect to the joints of the other layer, plaster may be applied, as by trowelling, first to one side and then to the other, in rapid succession, or to both sides simultaneously, without requiring even temporary bracing of the plastering base, and without waiting for the first applied coating of plaster to set and harden before applying the coating of plaster to the opposite side of the base.

The sound insulation characteristic afforded by the enclosed air space in partitions erected in accordance with the present invention may be further enhanced by providing one layer of panels and plaster coating of somewhat greater thickness than the other layer of panels and plaster coating. This may be accomplished either by providing panels, comprising one of the layers, of a different thickness than the panels of the opposite layer and applying a plaster coating of the same or different thickness to both layers, or by employing panels of equal thickness in both layers and applying to one layer a plaster coating of different thickness than the plaster coating applied to the opposite layer.

The clips rigidify the partition structure both vertically and horizontally by reason of the gripping action along the margin of the panels in interconnecting them at the joints to one another and to the ceiling runner; at the same time, the clips serve automatically to space the two juxtaposed layers of panels from one another.

Moreover, since portions of the clips employed in accordance with the invention project beyond the outer panel surfaces, they thereby provide an enhanced key effect for the plaster coatings.

By my invention there is attained a plastered partition structure, which is simple to erect, possesses greater strength and rigidity than heretofore possible in structures of approximately equal thickness to say 2–2½" and, furthermore, there is provided a structure possessing an enhanced sound insulation characteristic.

While I have herein shown and described a form of clip for interconnecting the plastering base panels at the joints therebetween, and for spacing the two juxtaposed layers of panels from one another, it will be understood that other forms of clips capable of serving the functions served by the clip herein shown and described, may be employed in practicing the invention. The form of clip herein shown and described is not per se claimed herein but constitutes subject matter claimed in my Patent No. 2,307,899, issued January 12, 1943.

I claim:

1. A base for a plaster partition construction comprising two juxtaposed layers of panels arranged adjacent one another, each of the panels being of a length corresponding to the height of the partition, the joints between the panels of one layer being offset with respect to the joints between the panels of the other layer, the adjacent panels of each layer being interconnected at the joints therebetween by wire clips applied at spaced intervals along said joints, said clips having portions lying between the opposed faces of the two layers to space the said layers from one another.

2. A base for a plaster partition construction comprising two juxtaposed layers of panels arranged adjacent one another, each of the panels being of a length corresponding to the height of the partition, the joints between the panels of one layer being offset with respect to the joints between the panels of the other layer, the adjacent panels of each layer being interconnected at the joints therebetween by wire clips applied at spaced intervals along said joints, said clips having portions lying between the opposed faces of the two layers to space the said layers from one another, the panels of one of said layers being imperforate and the panels of the other of said layers being perforated at spaced intervals, whereby plaster applied to the outer surface of the last named panels will bond through said perforations to the inner surfaces of the imperforate panels.

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