Feb. 6, 1945. C. S. STROM 2,368,620

WALL CONSTRUCTION

Filed May 25, 1940 3 Sheets-Sheet 1

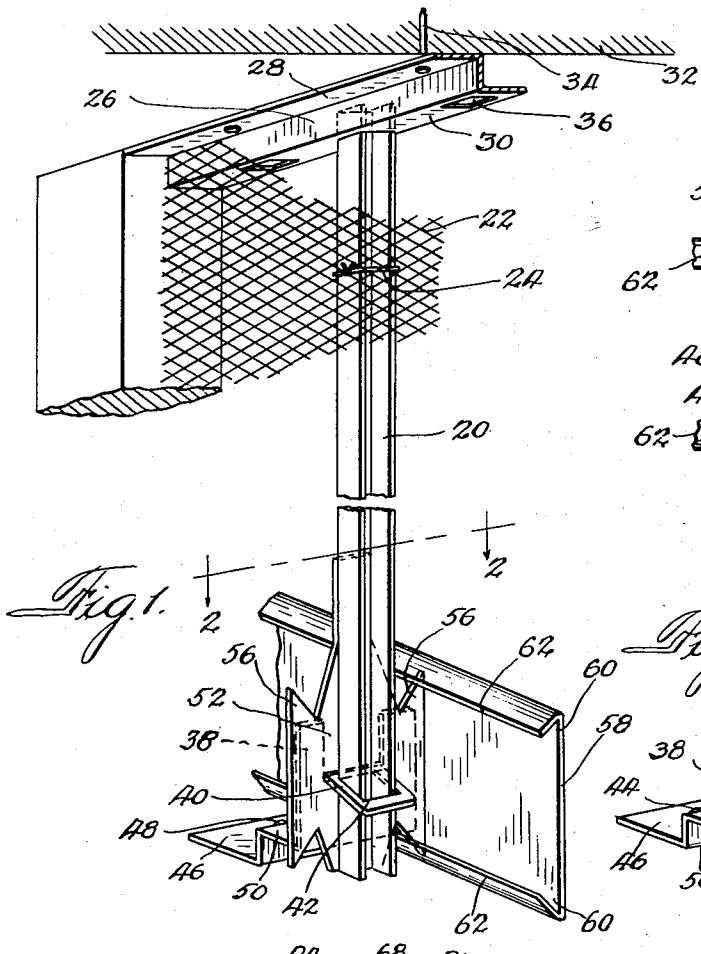


Fig. 1.

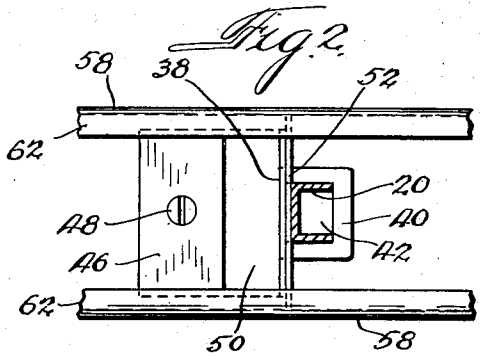


Fig. 2.

Fig. 3.

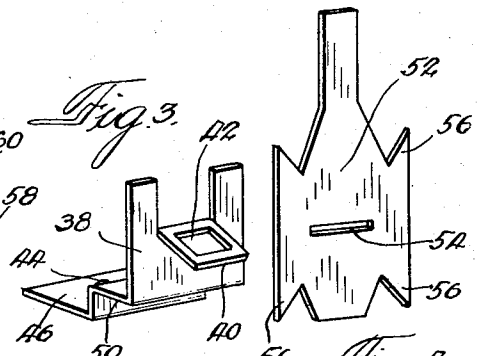


Fig. 4.

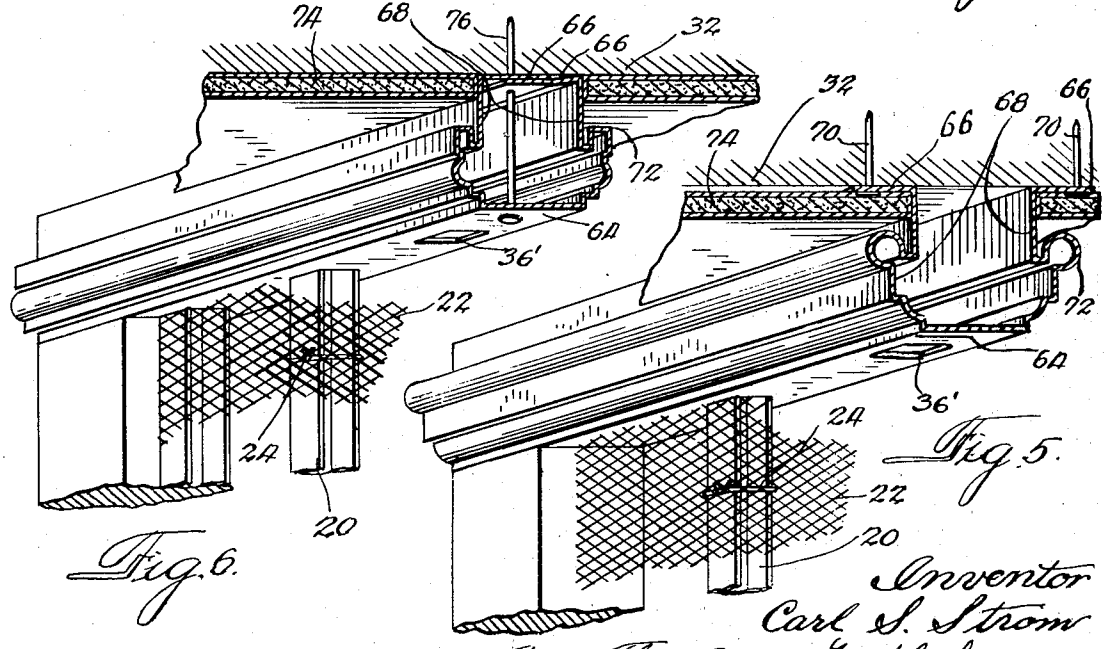


Fig. 6.

Fig. 5.

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Feb. 6, 1945. C. S. STROM 2,368,620

WALL CONSTRUCTION

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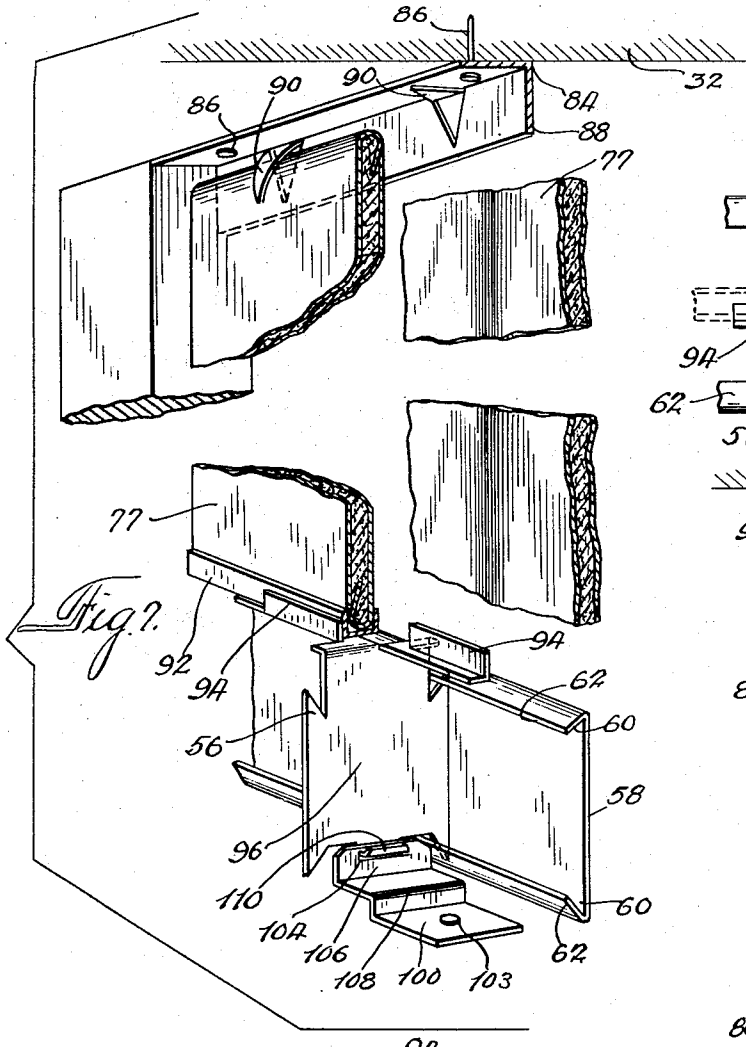


Fig. 7.

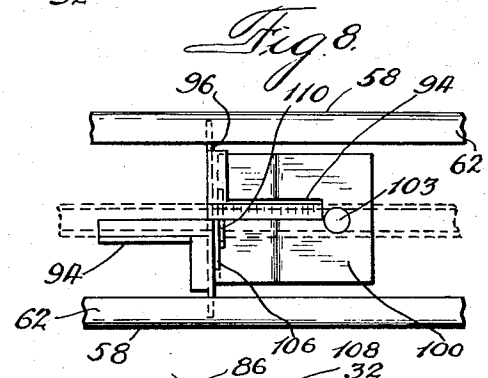


Fig. 8.

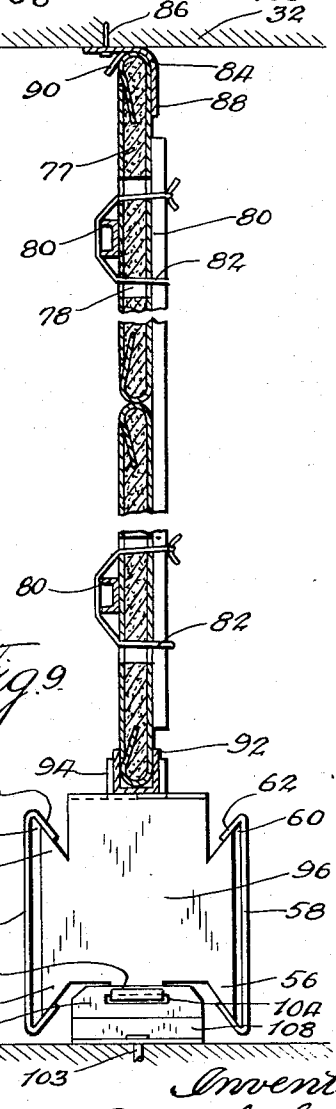


Fig. 9

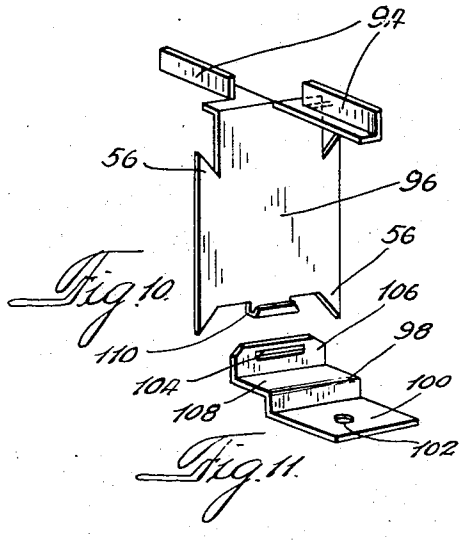


Fig. 10.

Fig. 11.

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WALL CONSTRUCTION

Filed May 25, 1940 3 Sheets-Sheet 3

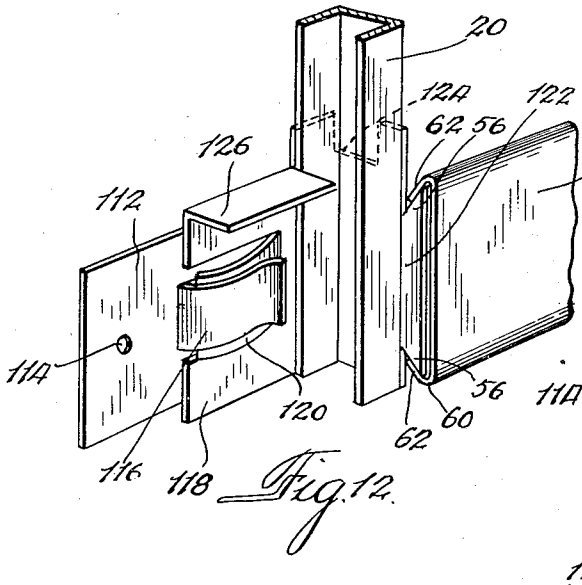


Fig. 12.

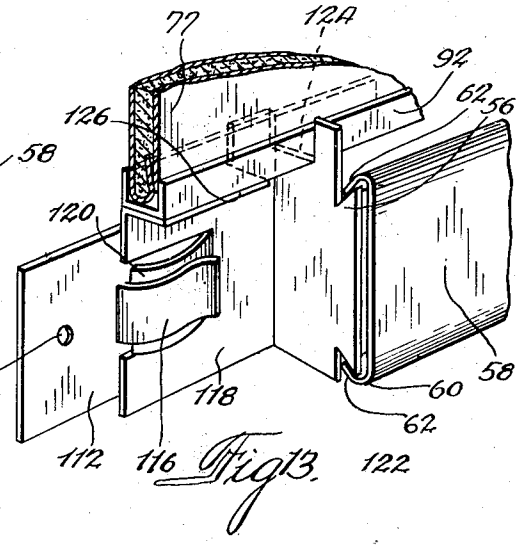


Fig. 13.

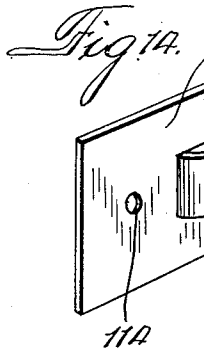


Fig. 14.

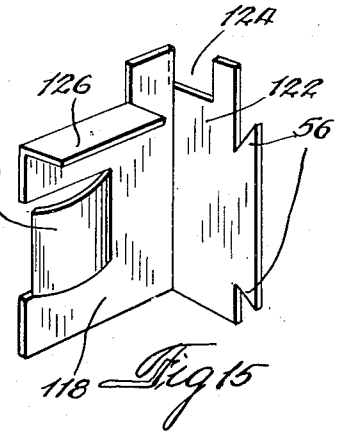


Fig. 15.

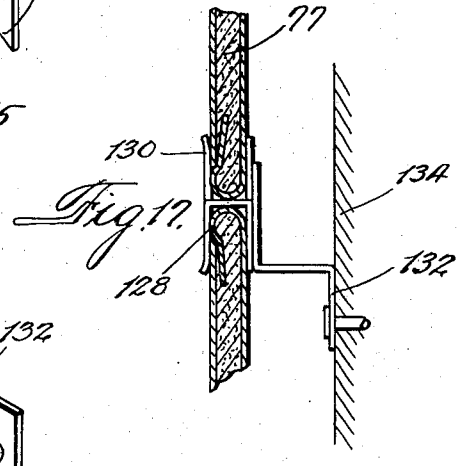


Fig. 17.

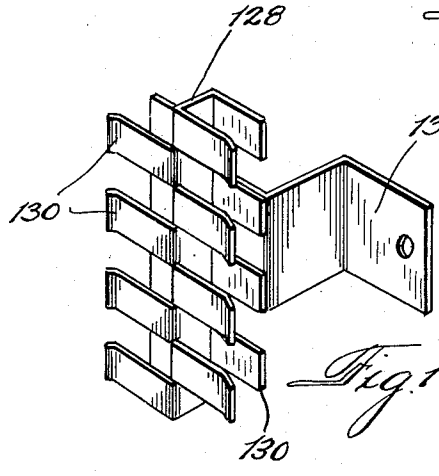


Fig. 16.

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UNITED STATES PATENT OFFICE

2,368,620

WALL CONSTRUCTION

Carl S. Strom, Chicago, Ill., assignor to United States Gypsum Company, Chicago, Ill., a corporation of Illinois

Application May 25, 1940, Serial No. 337,153

16 Claims. (Cl. 72—46)

This invention relates to a wall construction, and more particularly to a steel base construction for plastered walls and partitions.

It is often desirable in building construction to provide walls and partitions which may be readily and economically positioned to subdivide comparatively large floor spaces into smaller rooms. An economical partition construction may comprise a plaster wall partition which may be supported on expanded metal or plaster boards in any desired manner. In such construction it is desirable to provide a simple and economical means for securing the wall elements in order that the partition may be placed in a desired location and to provide a base plate adjacent the lower ends of the wall elements which extends along the floor, whereby protection of the wall surface is afforded along the lower edge of the partition.

It is one object of this invention to provide a means for securing wall elements such as studs or plaster boards to both the floor and the ceiling of a room in such a manner that a firm foundation is provided for plaster and wherein the wall elements may be readily arranged along any desired line.

A further object of this invention is the provision of means for securing the lower ends of metallic stud members or the lower edges of wallboards which are independent of a continuously extending base runner.

An additional object of this invention is the provision of means for adjustably securing the base plates adjacent the lower edge of the partition.

Further and additional objects will appear from the following description, the accompanying drawings, and the appended claims.

In accordance with one embodiment of this invention, a wall or partition construction is provided having wall elements such as metal studs or wallboards engaged at their upper ends by a ceiling strip and engaged at their lower ends by means of a resiliently mounted base plate clip. The base plate clip is mounted on a resilient support means so that the base plates secured thereby may be adjusted to compensate for any unevenness in the floor adjacent which they lie. In partitions in which wallboards are employed as the plaster base, the wallboards are received by the base plate clip. In metal stud construction, however, cooperative means on the base plate clip and the clip support is provided for receiving the lower ends of the wall studs as will be hereinafter more fully described.

In accordance with one embodiment of this invention, a ceiling strip has been provided for receiving the upper ends of metal studs which comprises a channel-shaped member having apertures in the yoke thereof which are adapted to receive the ends of the studs. The channel-shaped members may be secured to a ceiling by means of either inwardly or outwardly extending flanges positioned adjacent the open longitudinal edges of the channel. A ceiling strip for receiving the upper edges of wallboards has also been provided which comprises an elongated member having an L-shaped cross section. A plurality of tongues are struck out from the strip which cooperate with one of the flanges thereof to form a channel for receiving the upper edges of wallboards.

In accordance with another embodiment of this invention, a clip assembly has been provided for positioning base plates and wall studs or wallboards adjacent an outside wall such as a masonry wall or wooden stud construction or the like. In this embodiment also the base plate clips are so constructed that vertical movement of the base plate is permitted in order to compensate for any irregularities or unevenness of the floor.

For a more complete understanding of this invention, reference will now be had to the drawings, in which:

Fig. 1 is a broken perspective view of a metal stud and base plate partition construction in which one base plate has been removed in order to show more clearly the cooperation of the various elements;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1 with the removed base plate in position;

Fig. 3 is a perspective view of the clip support shown in the construction of Fig. 1 having an apertured stud engaging tongue portion;

Fig. 4 is a perspective view of the base plate clip shown in the construction of Fig. 1;

Fig. 5 is a detail view of a ceiling strip embodying this invention positioned on a ceiling indicating the manner in which the upper end of a metal stud may be engaged thereby;

Fig. 6 is similar to Fig. 5 showing a modified form of ceiling strip;

Fig. 7 is a broken perspective view of a wallboard and base plate construction in which one base plate has been removed in order to show more clearly the arrangement of the clips;

Fig. 8 is a plan view of the base plate clip

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assembly indicated in Fig. 7 with the removed base plate in position.

Fig. 9 is a sectional end view of the wallboard and base plate clip assembly showing a modified form of ceiling runner for engaging the upper edges of the wallboard and channel bar means for bracing the wallboards that are positioned in end-to-end relationship.

Fig. 10 is a perspective view of the individual base plate clip shown in the constructions indicated in Figs. 7 to 9;

Fig. 11 is a perspective view of the clip support used with the clip shown in Fig. 10;

Fig. 12 is a perspective view of a clip assembly embodying this invention showing base plates and the lower ends of metal studs positioned thereby adjacent a solid wall or a wooden stud construction;

Fig. 13 is similar to Fig. 12 in which the clip assembly is shown engaging the lower edge of a wallboard;

Fig. 14 is a perspective view of the plate-like support clip used in the construction shown in Figs. 12 and 13;

Fig. 15 is a perspective view of the base plate clip and wall element receiving means used in the construction shown in Figs. 12 and 13;

Fig. 16 is a perspective view of a wall clip adapted to be secured to a solid wall and to engage the abutting edges of wallboards; and

Fig. 17 is a detail sectional view showing the clip of Fig. 16 embracing the abutting edges of a wallboard.

Reference will now be had particularly to Figs. 1 through 4, in which are shown various elements for erecting a partition structure having metal studs **20** to which expanded metal **22** may be secured by means of a tie wire **24**. The upper ends of the studs **20** are held in position by means of an elongated ceiling strip **26** which comprises a main body portion and flanges **28** and **30** extending in opposite directions from the opposite longitudinal edges thereof to form a Z-shaped cross section. Flange **28** is adapted to be positioned adjacent a ceiling **32** and is apertured so as to permit the passage of a suitable nail or screw **34** whereby the ceiling strip **26** is secured to the ceiling. The lower flange **30** extends substantially parallel to the upper flange **28** and has a plurality of apertures **36** which are adapted to receive the upper ends of the metal studs **20**. The apertures **36** preferably conform in size and shape to the cross section of the stud member so that the stud member cannot be twisted when inserted through the aperture.

The lower ends of the stud members **20** are secured in position by means of the clip support member shown in Fig. 3. Each clip support member comprises an upwardly extending main body portion **38** having an apertured tongue member **40** extending at an angle thereto. The aperture **42** in the tongue member **40** is positioned to receive the lower end of the channel bar **20** as shown in Fig. 1, and the main body portion **38** of the clip support member is secured to a floor or base by means of a suitable screw or nail **48** extending through an aperture **44** positioned in a flange portion **46**. The flange portion **46** is connected to the main body portion **38** of the support through a Z-shaped deformation **50** which affords resiliency between the main body portion **38** of the support and the floor or base to which the support is secured.

A base plate clip **52** engages the clip support member through a slot or aperture **54** which receives the tongue member **40** of the clip support as clearly shown in Fig. 1, the lower end of the stud serving to lock said base plate clip in position on said tongue. The base plate clips **52** serve as supports or securing means for base plates **58** arranged at opposite edges of said clips and extending at right angles thereto. Each of said clips **52** has two pairs of oppositely disposed ears **56** which are adapted to engage in oppositely disposed groove-like sockets **60** provided by inwardly bent longitudinally extending flanges **62** positioned at opposite sides of each base plate **58**.

In order to assemble the above-described partition construction, the ceiling runners **26** are first secured to a ceiling and the clip supports are secured to a floor directly thereunder in a desired line. The base plates **58** are then arranged on either side of the clip supports and the ears **56** of the base plate clips **52** are inserted in the groove-like sockets **60** by positioning each base plate clip **52** at an angle to the base and thereafter bringing it to an upright position, thus forcing the oppositely disposed ears tightly into said sockets. At the same time the tongue **40** of the clip support is passed through the aperture **54** of the base plate clip and the base plates **58** are thus positioned in fixed relationship to each other and to the main body portion **38** of each clip support. The wall studs are then inserted into the apertures **42** of the tongue members **40** of the base plate clips and the lower ends of the studs abut the floor. The upper ends of the studs **20** may be inserted into the apertures **36** of the ceiling runner **26** by bowing each stud member **20**, registering the end with the desired aperture and permitting the stud member to spring into position. An entire line of studs may thus be erected and expanded metal **22** may then be tied thereto in any desired manner. Plaster may be then applied to both surfaces of the expanded metal base, whereby a desired solid partition structure is formed.

In accordance with one embodiment of this invention, a ceiling runner may be employed such as indicated in Fig. 5. The ceiling runner comprises an elongated strip having a U-shaped cross section, in the yoke portion **64** of which is positioned a plurality of apertures **36'** for receiving the upper ends of the stud members. Outwardly extending flanges **66** are provided on the longitudinal edges of the upwardly extending portions or sides **68** of the ceiling runner, the flanges **66** being adapted to receive nails or screws **70** for securing the runner to the ceiling **32**. As shown, the upwardly extending portions of the runner may have suitable deformations **72** to provide a desired molding or design effect around the partition adjacent the ceiling. The flanges **66** on the ceiling runner are preferably nailed to the ceiling before the finishing **74** is applied to the ceiling, so that the flanges **66** and the heads of the nails **70** will be completely covered. Thus, a ceiling runner has been provided which is pleasing in appearance, functions to engage the upper ends of the studs for the partition, and provides a molding around the upper edges of the partition.

A modified form of ceiling runner is shown in Fig. 6 and is similar to that shown in Fig. 5 except that the flanges **66** at the upper edges of the sides **68** of the runner are bent inwardly into overlapping relationship. A plurality of apertures are provided in the yoke portion **64** between the stud receiving apertures **36** for receiving nails **76** which are of sufficient length to be driven through the overlapping flanges **66** and into the

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ceiling 32, thus affording support for the ceiling strip.

In accordance with another embodiment of this invention, a wall partition may be constructed having plasterboards as a plaster supporting means and base plates engaged by clips similar to those described above. Particular reference will now be had to Figs. 7 through 11, showing a wall construction and elements therefor in which a plurality of plasterboards 77 are arranged in end-to-end relationship in order to provide a desired partition. As particularly shown in Fig. 9, the abutting plasterboards have a plurality of plaster receiving holes 78 and are braced by a plurality of vertically and horizontally extending channel bars 80 which may be tied to the plasterboards through the holes 78 by means of suitable tie wires 82. These channel bars serve to brace and reinforce the plasterboards prior to and during the time they are plastered over and serve also to strengthen the completed plastered wall. In the completed wall, said reinforcing bars will be covered by and embedded in the plaster coating.

The upper edges of the wallboards 77 are engaged adjacent the ceiling 32 by an L-shaped ceiling runner 84 secured to the ceiling by means of nails or screws 86. The ceiling runner may comprise an angle iron as indicated in Fig. 7 or may have a curved cross section as indicated in Fig. 9. The downwardly extending leg 88 of the ceiling runner 84 serves as a rest for one side of the wallboards 77, a plurality of tongues 90 being struck out from the portion 88 and bent downwardly to engage against the opposite side of the wallboards. A channel is thus provided for receiving the upper edges of the boards 77. The tongue portions 90 may be struck out from the downwardly extending portion 88 or from the portion of the runner lying against the ceiling.

The lower edges of the wallboards 77 are engaged by a channel bar 92 which is received by outwardly and upwardly extending flanges 94 positioned adjacent the upper edges of a base plate clip 96 shown in Fig. 10. This base plate clip has a main body portion and a plurality of oppositely disposed ears 56 for engaging the oppositely disposed groove-like sockets 60 in the base plates 58 in the manner previously indicated. The clip 96, however, is supported by means of a clip support 98 shown particularly in Fig. 11. This clip support comprises a plate-like body portion 100 adapted to be secured to a floor or other suitable base by means of a nail 103, an aperture 102 being provided for this purpose. A slot 104 is provided in a flange 106 separated from the main body portion 100 by means of a Z-shaped deformation 108. The clip 96 may be pivotally engaged with the clip support 98 by means of a suitable hook portion 110 provided at the lower edge of the clip which is adapted to be inserted through the slot 104 in the flange 106. Due to the resiliency imparted to the clip support by the Z-shaped deformation 108, the base plate may be adjusted vertically in respect to the floor, the weight of the wallboard having a tendency to bear down on the base plate clip and the base plates, thus forcing the base plate 58 to fit tightly against the floor.

The partition construction described immediately above may be erected first by positioning the ceiling runners, the clip supports, the base plate clips, and the base plates, and afterwards positioning the wallboards in respect thereto in the manner indicated. A plaster coating may then be applied to the whole on both sides to produce the desired wall partition.

In accordance with another embodiment of this invention, a wall may be provided adjacent a solid masonry wall or adjacent wood stud construction. In such a case, it is desirable to support the base plate clip and wall element supporting means by a support secured directly to the solid wall or wooden studs. Referring now more particularly to Figs. 14 and 15, a plate-like clip 112, having an aperture 114 for a nail and an offset struck out tongue portion 116, is provided which may be secured directly to a wall and engaged with a base plate clip shown in Fig. 15. The base plate clip has a main body portion 118 and an offset resilient tongue 120 which is adapted to fit under and interlock with the tongue 116 of the plate clip 112 as shown more clearly in Figs. 12 and 13. The main body portion 118 of the base plate clip has an outwardly extending flange portion 122 having oppositely disposed ears 56 which are adapted to engage the base plate 58 in the manner previously indicated. The flange portion 122 has a cut-out or slot 124 which is adapted to receive a channel iron 92 which, in turn, receives the lower edges of the wall elements 77 as particularly shown in Fig. 13. As shown, an outwardly extending flange 126 is positioned adjacent the upper edge of the main body portion 118 of the base plate clip to provide a rest for the channel bar 92 as shown in Fig. 13 and also to provide a recess in the clip for receiving the lower end of a stud 20 as shown in Fig. 12. Thus, three sides of the lower end of the stud are held by the clip itself, and the fourth side is held by the base plate, the inner edges of the flanges 62 of said plate extending transversely of and in contact with said fourth side of the channel iron in the completed construction.

The tongue member 120 on the main body portion 118 of the base plate clip is somewhat broader than the tongue member 116 on the plate-like clip 112, thus allowing for vertical positioning of the base plate clip with respect to the plate-like clip 112. This feature makes it unnecessary for the base plate clip 112 to be positioned exactly in reference to the floor, since the vertical adjustment will permit the base plate to be raised or lowered for a limited distance to compensate for any slight misplacement of the plate-like clip 112 or any unevenness in the floor. The vertical adjustment of the two clips in respect to each other may be effected by pounding the flange portion 126 as desired.

In case wallboards are employed adjacent a solid masonry wall or wooden stud construction, as indicated by the clip assembly shown in Fig. 13, it is possible to brace the edges of the wallboards by means of a clip such as shown in Fig. 16. Each clip comprises a main body portion 128 having oppositely disposed fingers 130 which are adapted to receive the abutting edges of plaster boards. An apertured flange 132 is provided for securing the clip to the wall or stud construction 134, as shown in Fig. 17. In this manner, the wallboard bracing irons 80 such as indicated in Fig. 9 are eliminated.

It is clear from the foregoing that a wall construction has been provided which may be readily assembled and is adapted for use in erecting a partition without the necessity of prefabrication and precutting of the elements to exact measurements. The base plates and ceiling runners may be cut and bent at any desired position on the

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job, and the clips for supporting the base plates may be positioned as desired without reference to a base runner.

While several particular embodiments of this invention are shown above, it will be understood, of course, that the invention is not to be limited thereto, since many modifications may be made, and it is contemplated, therefore, by the appended claims, to cover any such modifications as fall within the true spirit and scope of this invention.

I claim:

1. A clip for use in a wall construction which comprises means for engaging a base plate, means for securing said clip to a base, and a resilient means connecting said base plate engaging means and said clip securing means and imparting freedom of vertical movement to the former.

2. A clip for use in a wall construction which comprises means for engaging and retaining a base plate, an apertured member for securing said clip to a base, and a resilient means extending angularly to and connecting said base plate engaging means and said member and imparting freedom of vertical movement to the former.

3. A clip assembly for use in a wall construction which comprises a clip support member adapted to be secured to a floor and including an upwardly extending portion and a resilient portion imparting freedom of vertical movement thereto, and a clip member adapted to engage a base plate and engaged with said upwardly extending portion of said support whereby freedom of vertical movement of said base plate is permitted with respect to said floor.

4. A clip assembly for use in a wall construction having substantially vertically extending wall studs which comprises a first member for securing said assembly to a base and a second member for engaging a base plate, said first member including means for receiving a stud and for engaging said second member and a resiliency imparting means whereby freedom of movement of said base plate in a substantially vertical direction with respect to said base is permitted.

5. A clip assembly for use in a wall construction having wallboards and base plates which comprises a clip having projections adapted to engage a base plate, a support for said clip hingedly engaged therewith, said support including means for resiliently securing the same to a base, and means carried by said clip for supporting the lower edges of said wallboards.

6. A wall construction of the character described comprising substantially vertically extending wall elements, means for receiving the upper edges of said wall elements, a base plate, a plurality of clip assemblies providing support for the lower edges of said wall elements and each comprising a clip for supporting said base plate and a separate clip support, said support having clip engaging means, anchoring means, and resilient means connecting said clip engaging means and said anchoring means whereby said base plate is resiliently mounted with respect to said anchoring means.

7. A wall construction of the character described comprising substantially vertically extending wall elements, means for receiving the upper ends of said elements, base plates, clips for securing said base plates in position, separate resilient clip support means hingedly engaged with said clips, and means carried by said clips and thereby supported from said support means for receiving the lower ends of said elements.

8. A wall construction of the character described comprising a substantially vertically extending wall stud, means for receiving the upper end of said stud, a pair of base plates, a clip having an apertured main body portion for positioning said base plates, support means for said clip, said support means being resiliently mounted on a base, and an apertured tongue portion struck out from said support means extending through said apertured main body portion of said clip, said aperture in said tongue portion receiving the lower end of said stud whereby said clip and said support are locked together.

9. A wall construction of the character described comprising substantially vertically extending wallboards, means for receiving the upper edges of said boards, a pair of base plates, clips for positioning said base plates, support means for each of said clips comprising a portion mounted on a base and a portion resiliently supported by said first-mentioned portion and hingedly engaged with the clip to be supported thereby, and means carried by said clips for receiving the lower edges of said wallboards.

10. In combination with a wall partition, a pair of base plates having inwardly extending flanges along the opposite longitudinal edges thereof providing a pair of groove-like sockets, a clip having a substantially vertically extending main body portion and projections engaging said sockets for positioning said base plates, and support means for said clip including means for engaging said clip, means anchoring said support means, and a resilient portion connecting said two last mentioned means.

11. A wall partition of the character described comprising a plurality of coplanar, spaced, parallel wall studs, an apertured channel strip affixed to a ceiling for receiving the upper ends of said studs in vertically slidable relation, a pair of base plates adjacent the lower ends of said studs, clip means for positioning said base plates, resilient support means for said clip means permitting substantial vertical movement of said base plates, and means supported by said support means for engaging the lower ends of said studs in vertically slidable relation.

12. A wall construction of the character described comprising substantially vertically extending wall elements, means for receiving the upper extremities of said wall elements, a base plate, a plurality of clip assemblies providing support for the lower extremities of said wall elements and each comprising a clip for removably engaging said base plate and a separate clip support means, said support means having a clip engaging means and an anchoring means spaced therefrom and further having a resiliency imparting deformation between said clip engaging means and said anchoring means whereby said base plate is adjustable for a limited vertical distance with respect to said anchoring means.

13. A wall construction of the character described comprising a substantially vertically extending wall stud, an apertured channel strip for receiving the upper end of said stud, a pair of base plates, a clip having an apertured main body portion for positioning said base plates, support means for said clip, said support means being resiliently mounted on a base, and an apertured tongue portion struck out from said support means extending through said apertured main body portion of said clip, said aperture in said tongue portion receiving the lower end of said

stud whereby said clip and said support are locked together.

14. A clip assembly for use in a wall construction having wall studs which comprises a clip and a clip support having main body portions positioned in face-to-face relationship, said clip support comprising means for engaging said clip, means for resiliently supporting said clip-engaging means and means for engaging the lower end of a wall stud, and said clip comprising means for engaging a base plate.

15. A clip assembly for use in a wall construction having wall studs and base plates which comprises a clip having an aperture therein and projections adapted to engage a base plate, and a support for said clip including a portion secured to base, a resilient portion supported by said secured portion, a clip-engaging portion supported by said resilient portion and having said clip positioned in face-to-face relationship thereto, and an apertured tongue portion struck out from said clip-engaging portion and extending through said aperture in said clip and adapted to receive the lower end of one of said studs.

16. A wall partition of the character described comprising a plurality of substantially vertical wallboards arranged in edge-to-edge abutting relationship, a ceiling strip having portions embracing the upper edges of said boards, a pair of base plates adjacent the lower edges of said boards, a clip having projections engaging said base plates, means carried by said clip and embracing the lower edges of said boards to support the same, and a support for said clip having a portion adapted to be secured to a base and a resilient portion carried thereby and furnishing resilient support for said clip and said wallboards and urging the latter upwardly toward said ceiling strip.

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