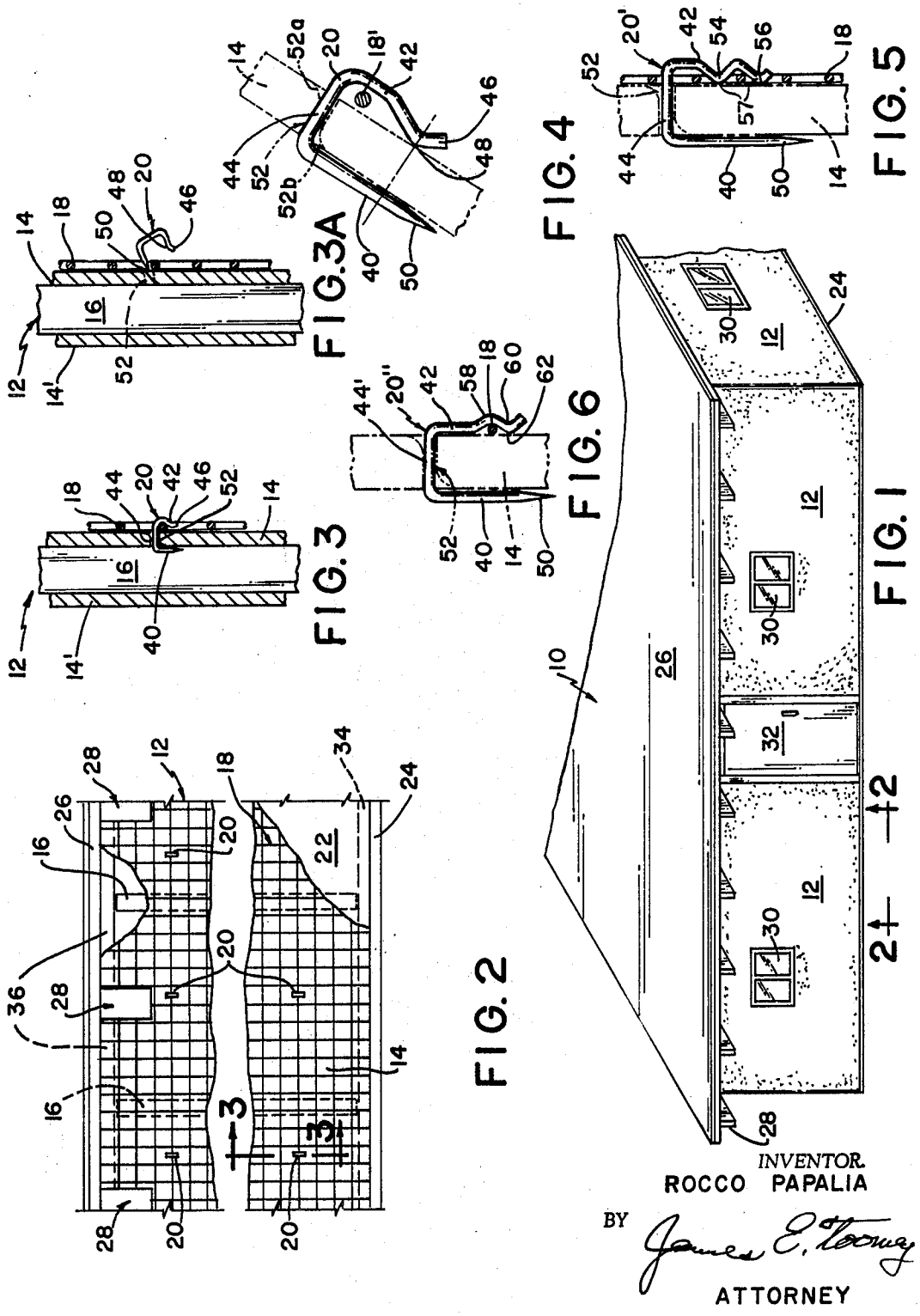
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COMPOSITE WALL CONSTRUCTION

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COMPOSITE WALL CONSTRUCTION

Rocco Papalia, Antioch, Calif., assignor to Kaiser Gypsum Company, Inc., Oakland, Calif., a corporation of Washington

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ABSTRACT OF THE DISCLOSURE

A composite wall construction, generally comprised of a puncturable wallboard, a length of perforated lath and a one-piece generally U-shaped clip of resilient material fastenable to the wallboard in order to hold the lath adjacent to at least one side of the wallboard. One spaced leg of the clip is indented with one or more indents at its outer end while the second spaced leg thereof is adapted to be forcefully driven through the wallboard at a preselected location to form a punctured opening. The aforesaid clip, upon formation of the opening, is inserted therein in such a fashion that the second leg is disposed in abutment with the other side of the wallboard while the one leg is disposed in abutment at least at its indented outer end thereof with the one side of the wallboard whereby the clip is in resilient contact with opposed sides of the wallboard and whereby a part of the lath is hookingly engaged by the one leg of the clip inwardly of the indented end thereof during insertion of the other leg into and through the opening for effectively holding the lath adjacent one side of the wallboard prior to placement of a later applied coating of a cementitious material to the lath and the associated side of the wallboard.

BACKGROUND OF THE INVENTION

This invention relates to a composite wall construction for a building structure or the like. More particularly, it is concerned with an improved composite wall construction having a puncturable wallboard and a perforated lath held adjacent to at least one side of the wallboard wherein a novel one-piece U-shaped clip of resilient material is provided for not only effectively puncturing the wallboard at a preselected location, but for resilient engagement with the opposite sides of the wallboard in a unique manner adjacent the puncture thereof so as to engage a part of the lath for effectively holding same adjacent said one side of the wallboard for a later applied coating of cementitious material to the lath and the associated side of the wallboard.

Although a composite wall construction analogous to that under consideration is disclosed and described in U.S. patent to Venzie 1,801,400 and a furring construction in U.S. patent to Menninger 1,816,387, none of the composite constructions in the aforesaid patents contemplated a novel one-piece, generally U-shaped clip of resilient material in the unique manner suggested by the instant application. Even though in prior construction clips punctured or penetrated an underlying support so as to engage a part of a lath or the like in order to hold same to one side of the support, there was no suggestion for the clip to resiliently engage opposed sides of a puncturable support such as a wallboard for the advantageous purpose of not only positively fastening the clip to the support but at the same time for engaging a part of the lath to hold same adjacent one side of the support. The clip, as taught by applicant, can be resiliently fastened in any number to the puncturable wallboard at preselected separate locations thereof in order to effectively hold the lath adjacent the one side of the support and further will

not interfere with the subsequent application of a coating of cementitious material to the lath and the associated side of the support.

SUMMARY OF THE INVENTION

Accordingly, it is the primary purpose of the instant invention to provide an improved composite wall construction wherein a novel one-piece, generally U-shaped clip of resilient material includes means for effecting not only puncture of a puncturable wallboard from one side thereof at a preselected location but also adapted to extend through such puncture in order to resiliently engage opposite sides of the wallboard adjacent the puncture while at the same time hookingly engaging a part of the lath so as to hold same adjacent at least one side of the wallboard prior to the application of a coating of cementitious material to the lath and the associated side thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmented perspective view on a reduced scale of a suitable building construction embodying the details of the instant invention;

FIG. 2 is an enlarged view generally taken along line 2—2 of FIG. 1 with parts removed and other parts broken away and illustrates details of the composite wall construction of the instant invention;

FIG. 3 is an enlarged sectional view taken along line 3—3 of FIG. 2 and illustrates details of one embodiment of the novel one-piece clip of the composite wall construction;

FIG. 3A is an enlarged sectional view similar to FIG. 3 but with the outer end of one leg of the clip illustrated in a position in contact with one side of the wall construction prior to effecting puncture of the wallboard thereof;

FIG. 4 is a further enlarged view of FIG. 3 with parts removed and other parts shown in dotted and solid lines;

FIG. 5 is a view similar to FIG. 3 with parts removed and illustrates details of a modified form of the clip of the instant invention; and

FIG. 6 is a view of another modified form of the clip.

With further reference to the drawings, a suitable embodiment of the building structure or the like **10** advantageously incorporates the composite wall construction **12** of the instant invention wherein the composite wall construction generally comprises a puncturable wallboard **14**, a perforated lath **18** disposed adjacent at least one side of the wallboard **14** and at least one novel one-piece, generally U-shaped clip **20** of resilient material that can be fastened in a unique manner to the wallboard **14** so as to hookingly engage a part of the lath **18** for the purpose of holding same adjacent at least one side of the wallboard **16**. After holding the lath in position adjacent the associated side, as will be further described, a coating **22** of cementitious material can be applied to the associated side of the wallboard **14** whereby the lath **18** and part of the clip **20** are embedded in the cementitious material upon the setting and adherence thereof against the one side of the wallboard **18**. It is to be understood that the building structure **10** can be of any suitable construction, for instance such as disclosed in our prior copending application entitled, "Structure" to Paul W. Tillisch et al. having Ser. No. 503,057 and filed on Oct. 23, 1965, Although the building structure **10** is only partially shown, the exterior intersecting walls **12** thereof are comprised of the composite wall construction of the instant invention. The lower edges of the walls **12** are disposed against the base **24** while the upper edges thereof are covered by the roof assembly made up of a roof **26** carried by support beams generally indicated at **28** in which the ends thereof

are only illustrated. Furthermore, the walls **12** include provisions for the customary window openings **30** and a door **32** disposed in one of the walls **12** for access to the interior of the structure **10**. As will become more apparent hereinafter, the composite wall construction **12** of the instant invention can be used for exterior walls as illustrated in FIG. 1 as well as for interior walls.

The puncturable wallboard **14** can be erected in any suitable manner to the building structure **10**. As indicated in FIG. 2, the lower edge of the wallboard **14** is in nesting engagement with the outer edge portion of the base **24** while its upper and lower edges are also nested against the outer flanges of channel-shaped elements **34** and **36** shown in dotted and solid lines. The channel-shaped elements **34** and **36** are appropriately anchored to the base **24** and the underside of the roof **26** between the ceiling beams **28** thereof whereby inwardly facing surface portions of the wallboard **14** can be fastened such as by adhesive to the underlying vertically spaced studs **16**. Although not heretofore mentioned, the wallboard **14** for any length of wall **12** are usually made up of a series of panels wherein the adjoining side edges of adjacent panels are spliced together in a suitable manner so that any given length of wall such as **12** in FIG. 1 has the appearance of one continuous length of wallboard **14**. Inasmuch as the splicing together of wallboard panels does not constitute an important part of the instant invention, the splicing of such panels to form the length of the wallboard **14** for the walls **12** in FIG. 1 has been omitted for the sake of brevity. The puncturable wallboard **14** can be comprised of a series of spliced together panels of any suitable material capable of being readily punctured by the forceably driven clip **20** of the instant invention. The wallboard **14** is preferably of laminated construction comprising a gypsum core and a pair of paper liners or layers bonded to opposed sides thereof. Alternatively, the wallboard **14** can be comprised of paper, wood, Masonite, wood fibers, glass or mineral fibers.

The novel one-piece, generally U-shaped clip **20** of the instant invention generally comprises spaced leg sections **40** and **42** having inner and outer ends and an intermediate section **44** joining together the inner ends thereof. As best shown in FIG. 4, one spaced leg section **42** is relatively shorter than the other leg section **40** and at the outer end thereof is bent inwardly and then outwardly so as to form an indent **46**. The distance between the spaced leg sections **40** and **42** at the inwardmost point of the indent indicated at **48** in FIG. 4 is somewhat less than the thickness of the puncturable wallboard in order to enable resilient engagement of the clip **20** to the wallboard **14** as will be subsequently described. On the other hand, the outer end of the other leg section **40** is formed to a point **50** as best shown in FIG. 4 so as to facilitate puncture of the wallboard **14** at a preselected location thereof upon the clip **20** being forceably driven by an appropriate tool not shown as further set forth hereinafter.

With particular reference to FIGS. 3A–4 and in order to effect puncture of the wallboard **14** at any preselected location thereof, the clip **20** can be positioned with its pointed end **50** against the outer or one side of the wallboard **14**. After the operator has forcefully driven the pointed end **50** of the other leg section **40** through the wallboard **14** to form the punctured opening **52** by forceably striking the intermediate portion **44** of the clip **20** in a known manner with a hammer or the like, the clip **20** is fastened to the wallboard **14** by inserting the clip in the opening **52** in such a fashion that the intermediate portion **44** is seated and substantially disposed within the opening **52** while the other leg section projects laterally from the inner end of the opening **52** for abutment with the other side of the wallboard **14** and at the same time, the one leg section **42** projects laterally from the outer end of the opening for abutment at its indented point **48** with the one side of the wallboard **14**, whereby the clip is in resilient engagement with opposed sides of the wallboard **14**. By virtue of the clip being initially disposed obliquely to the one side of the wallboard **14** in FIG. 3A and upon driving the clip **20** with a hammer, the punctured opening **52** on the upper part of the one side thereof is usually flared upwardly and outwardly as indicated at **52***a* in FIG. 4 while the opening **52** at the lower part of the inner end thereof is flared downwardly and outwardly as indicated at **52***b* in FIG. 4. Furthermore, to facilitate driving the clip **20** through the wallboard **14**, the intermediate portion **44** of the clip **20** can be partially flattened, not shown.

Although not heretofore mentioned, the clip **20** can be formed from a length of a suitable size of wire-like material normally composed of a metal, for instance, ferrous metal or aluminum, capable of being formed in an appropriate manner into the configuration of the U-shaped clip in accordance with the teachings of the instant invention. Furthermore, the clip **20** has a characteristic of sufficient resilient strength for not only resisting deformation during forceable driving of the clip **20** to effect puncture of the wallboard **14** at a preselected location but also for resiliently engaging with the spaced legs **40** and **42** thereof, opposed sides of the wallboard adjacent the puncture **52** in order to effect fastening of the clip **20** inserted through the opening **52** in the manner aforedescribed.

The perforated lath **18** is made up of a series of spaced strands of a given length wherein the strands are arranged in an crisscross pattern and interconnected together in a known manner at the points of intersection of the crisscrossed strands so as to form a screen of desired mesh size. The perforated lath **18** is preferably composed of a suitable grade of metal or an alloy thereof exhibiting a characteristic of sufficient strength in conjunction with the preselected mesh size of the lath **18** to adequately support an applied coating of cementitious material **22** to the one side of the wallboard **14**. The clip **20** during the insertion through the opening **52** of the wallboard **14** preferably hookingly engages inwardly of the indent **46** of the one leg **42**, a part of a strand of the perforated lath **18** between adjacent cross strands thereof as best illustrated in FIG. 4 so as to effectively hold the perforated lath **18** adjacent the one side of the wallboard **14**. It is further noted here, if the user of the clip **20** neglects to hookingly engage a part of the lath **18** during fastening of the clip **20** to the wallboard the indented end **46** of the clip **20** can be manipulated by the user to hookingly engage a part of the lath **18** without adversely affecting the resilient engagement of the clip **20** to the opposed sides of the wallboard **14**. Even though the strands of the lath **18** are illustrated in FIG. 2 as extending lengthwise and crosswise of the wallboard **14**, it is to be understood that the clips **20** are still effective for holding the lath **18** adjacent to the wallboard **14** even if the strands of the lath **18** extend obliquely relative to the length and width thereof.

The cross sectional size of the strand hookingly engaged by the one leg **42** of the clip **20** is relatively less than the inward extent of the indented outer end **46** of the clip **20**. Such cross sectional size of the strand of the lath **18** assures limited freedom of movement of the hookingly engaged part of the strand of the lath **18** between the one side of the wallboard **14** and the inner end of the one leg **42** of the fastenend clip. This freedom of movement of the hookingly engaged part of the lath **18** relative to the associated clip **20** is important to assure embedment of the lath **18** within the coating of cementitious material during the application and setting thereof to the one side of the wallboard **14**. In view of the foregoing, the intermediate or web portion **44** of the clip **20** is of a length somewhat greater than the summation of the thickness of the wall board **14** and the cross sectional size of the lath **18** hookingly engaged by the clip **20** as aforedescribed.

As is evident in FIG. 2, any number of clips **20** can be driven through the wallboard **14** in any desired pattern for the purpose of being fastened thereto and at the same time to hookingly engage their associated parts of the lath **18** so as to effectively hold some in position for the subsequent applied coating of cementitious material. In the event the operator drives a clip **20** into the wallboard **14** at a location in alignment with the underlying stud **16**, the clip **20** can be readily removed and driven into the wallboard **18** at another location between the studs **16**. Furthermore, it is to be understood that one or more clips **20** can be first fastened to the wallboard **14** followed by hookingly engaging one or more parts of the lath **18** to the fastened clips **20**, rather than hookingly engaging a part of the lath **18** during the course of puncturing the wallboard **14** with the clip **20**.

A modified form of the clip **20'**, as illustrated in FIG. 5, corresponds to the configuration of the aforedescribed clip **20** except that the shorter leg section **42** at the outer end thereof is bent inwardly and then outwardly more than once so as to form at least two successive indents **54** and **56** whereby the innermost portion **57** of at least one of the indents **54** and **56** is spaced at a distance relative to the other leg section **40** that is somewhat less than the thickness of the wallboard **14**. In providing more than one indent for the clip **20'**, it not only increases the resilient engagement thereof with the wallboard **14** but enables the operator, if desired, to hookingly engage more than one strand of the perforated lath **18**. If, during the fastening of the clip **20'** to the wallboard **14** upon insertion through the opening **52**, the operator neglects to hookingly engage a strand of the lath **18**, a portion of a strand of the lath can readily be hookingly engaged between the indents **54** and **56** of the clip **20'** by the operator merely manipulating the outermost indent **56** from abutting engagement with the one side of the wallboard **14** without deleteriously affecting the resilient engagement of the clip **20'** with opposed sides of the wallboard **14**. In addition, if the clip **20'** hookingly engages adjacent strand portions of the lath **18**, as depicted in FIG. 5, it more effectively holds the lath **18** in position adjacent the one side of the wallboard **14** without interfering with the subsequent application of a coating of cementitious material to the lath and the associated side of the wallboard **14**.

Another modified form of the clip **20''** is illustrated in FIG. 6 where in the clip **20''** is provided with a web portion **44'** substantially corresponding to the thickness of the wall board **14**. Further, the shorter leg **42** of the clip **20''** is formed with successive indents **58** and **60** reversely disposed relative to each other wherein the outer indent **60** is indented in a direction toward the longer leg **40**. The distance between the spaced legs **40** and **42** is somewhat less than the thickness of the wallboard **14** at the inner end of the leg **42** above the inner indent **58** and also at the innermost point **62** of the outer indent **60**. Thus, during insertion of the clip **20''** through the punctured opening **52** of the wallboard **18**, a part of the lath **18** can be hookingly engaged underneath the inner indent **58**. If, for some reason, a part of the lath **18** is not hookingly engaged, during fastening of the clip **20''** to the wallboard **14**, the outer indent **60** can be manipulated by the user for hookingly engaging a part of the lath **18** between the inner indent **58** and the associated side of the wallboard **14**. It is further noted that because the outermost end of a clip, as described herein, is spaced away from or is bent outwardly from the board surface, it can be easily grasped by the operator during installation or use of the clip.

Irrespective of which clip **20** or **20'** or **20''** of the instant invention is used to hookingly engage a preselected part of the perforated lath **18** for the beneficial purpose of holding the lath **18** adjacent the one side of wallboard **14**, a coating of cementitious material can be applied to the lath **18** and the associated side of the wallboard **14** in a suitable manner. The cementitious material can be a stucco usually comprised of a mixture of preselected amounts of lime, Portland cement and a suitable grade of a filler aggregate such as sand to which is added a preselected amount of water for effecting hydration of the mixture into a solidified mass upon evaporation of the excess water. Other suitable coatings can be plaster, cement or even plastic such as an ABS resin. Depending upon the chemical elements and compounds making up the wallboard **14** and the coating, an impermeable barrier may have to be interposed between the wallboard **14** and the coating **22** to prevent adverse chemical reaction therebetween such as during the setting of the applied coating **22**. One suitable barrier is a length of asphaltic paper not shown attached in any desired fashion to the one side of the wallboard **14** prior to holding the lath **18** adjacent the one side thereof in the manner aforedescribed.

Depending upon the requirements of the wall construction **12**, it can be generally comprised of only the stud **16** and wallboard **14** anchored thereto. If a hollow wall construction is desired, then another wallboard **14'** as illustrated in FIGS. 3 and 3A can be attached to the exposed side of the stud **16**. Inasmuch as both lath **18** and a given clip **20**, **20'** and **20''** can be embedded within an applied coating of cementitious material on the one side of the wallboard **14**, coatings of cementitious material can also be applied to opposed sides of the wallboard **14**, if desired. If a hollow wall construction is intended, then a coating of cementitious material can be applied to the interior or exposed side of wallboard **14'** in accordance with the teachings of the instant invention.

Advantageous embodiments of the invention have been disclosed and described. It is obvious that various changes and modifications may be made therein without departing from the spirit and scope thereof as defined in the appended claims, wherein:

What is claimed is:

1. In a wall construction for a building or the like comprising the combination of a puncturable wallboard, a length of perforated lath and a one-piece generally U-shaped clip of resilient material for holding said perforated lath to at least one side of said puncturable wallboard so as to enable adherence of a later applied coating of cementitious material to said one side of said wallboard, said clip including spaced leg sections having inner and outer ends and an intermediate section joining the inner ends thereof, one of the leg sections adjacent the outer end thereof being bent in such a manner so as to form at least one indent, the other leg section at the outer end thereof being adapted to be forceably driven through said wallboard from the one side thereof at a preselected location so as to form a punctured opening in order to effectuate fastening of said clip to said wallboard; the distance between the leg sections of said clip at the indent of the one leg section being somewhat less than the thickness of the puncturable wallboard for effecting resilient engagement of the leg sections to opposed sides thereof, said clip after forming of the punctured opening being fastened to said wallboard upon insertion of said clip in the punctured opening in such a fashion that the intermediate leg section is seated and substantially disposed within the punctured opening while the other leg section projects laterally from the inner end of the opening for abutment with the other side of said wallboard at the same time the one leg section projects laterally from the outer end of the punctured opening for abutment at the indent with the one side of said wallboard whereby said clip resiliently engages the wallboard, the one leg section being adapted to hookingly engage a part of said lath inwardly of the indent during insertion of the other leg section through the punctured opening so as to effectively hold the lath adjacent the one side of said wallboard.

2. In a wall construction for a building or the like comprising the combination of a puncturable wallboard, a length of perforated lath and a one-piece generally U-shaped clip of resilient material for holding said perforated lath to at least one side of said puncturable wallboard so as to enable adherence of a later applied coating of cementitious material to said one side of said wallboard, said clip including spaced leg sections having inner and outer ends and an intermediate section joining the inner ends thereof, one of the leg sections adjacent the outer end thereof being bent in such a manner as to form a plurality of indents, the other leg section at the outer end thereof being adapted to be forceably driven through said wallboard from the one side thereof at a preselected location so as to form a punctured opening in order to effectuate fastening of said clip to said wallboard; the distance between the leg sections of said clip at least at one of the indents of the one leg section being somewhat less than the thickness of the puncturable wallboard for effecting resilient engagement of the leg sections to opposed sides thereof, said clip after forming of the punctured opening being fastened to said wallboard upon insertion of said clip in the punctured opening in such a fashion that the intermediate leg section is seated and substantially disposed within the punctured opening while the other leg section projects laterally from the other end of the opening for abutment with the other side of said wallboard at the same time the one leg section projects laterally from the outer end of the punctured opening for abutment at least at one of the indents with the one side of said wallboard whereby said clip resiliently engages the wallboard, the one leg section being adapted to hookingly engage a part of said lath inwardly of one of the indents during insertion of the other leg section through the punctured opening so as to effectively hold the lath adjacent the one side of said wallboard.

3. In a wall construction including a puncturable wallboard a one-piece generally U-shaped clip of resilient material for holding a length of perforated lath to one side of the puncturable wallboard, said clip comprising spaced leg sections in axial alignment and an intermediate section joining the inner ends thereof, one of the leg sections at the outer end thereof being bent in such a manner so as to form a plurality of indents, the other leg section being relatively unbent so that it can be easily and forceably driven through said wallboard from the one side thereof so as to form a punctured opening in order to effectuate fastening of said clip to said wallboard; the distance between the leg sections of said clip at least at one of the indents of the one indented leg section being slightly

less than the thickness of the puncturable wall board for effecting resilient engagement of the leg sections to opposed sides of said wallboard upon insertion of said clip in a punctured opening in such fashion that the intermediate leg section is seated within the punctured opening while the unbent leg section projects laterally from an end of the punctured opening for abutment with the one side of said wallboard while at the same time the bent leg section projects laterally from the other end of the punctured opening for abutment at least at one of the indents thereof with the other side of said wallboard whereby said clip resiliently engages the wallboard, the bent leg section being adapted to hookingly engage a part of said lath inwardly of one of the indents thereof during insertion of the unbent leg section through the punctured opening.

4. In a wall construction as set forth in claim 3 wherein a part of said perforated lath is engaged by a portion of said indented leg located intermediate the indents thereof.

5. In a wall construction as set forth in claim 3 wherein a part of said perforated lath is engaged by a portion of said one indented leg in the area of the juncture of said one indented leg section and the intermediate section of the clip.

6. In a wall construction as set forth in claim 3 wherein the intermediate section of the clip has an overall length which is at least greater than the thickness of the wallboard.

7. In a wall construction as set forth in claim 3 wherein the indents of the bent leg section of said clip have a relatively sinuous-shaped configuration.

8. In a wall construction as set forth in claim 3 wherein the indents of the bent leg section of said clip normally project in a direction toward said other leg section.

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JOHN E. MURTAGH, Primary Examiner

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