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[11] **3,765,138**

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[54] **CORNER CONTROL SYSTEM FOR PLASTER WALLS**

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[52] **U.S. Cl.** **52/255,** 52/288, 52/573

[51] **Int. Cl.** **E04b 1/56,** E04b 1/68

[58] **Field of Search** ..... 52/254–257, 250, 281, 371, 573, 580, 287, 288, 588; 287/65, 20.92 W

[56] **References Cited**

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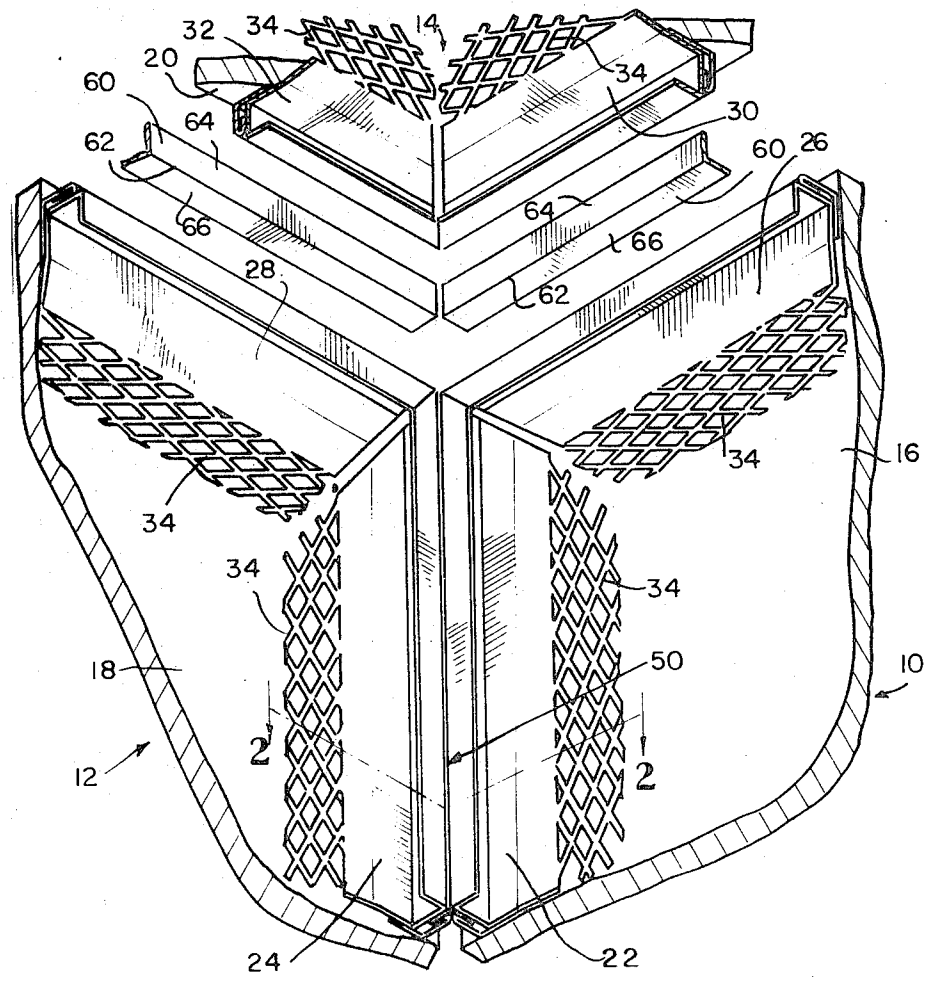
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[57] **ABSTRACT**

An expansion joint system for corners of plastered walls comprising a pair of angularly related and allochirally arranged casing beads extending longitudinally along and defining such a corner, the casing beads providing outwardly extending first flange portions terminating in close adjacency to define a corner seam and a corner space. A longitudinally extending connector member having an L-shaped cross section is disposed within the corner space defined by the first flange portions, this member having a longitudinally extending apex and inwardly and longitudinally extending leg sections, one of the leg sections abutting each first flange portion and the apex being disposed in close adjacency to the seam. Each casing bead also provides a clip portion positioned and arranged to engage and hold the adjacent leg section against its said first flange portion.

12 Claims, 7 Drawing Figures



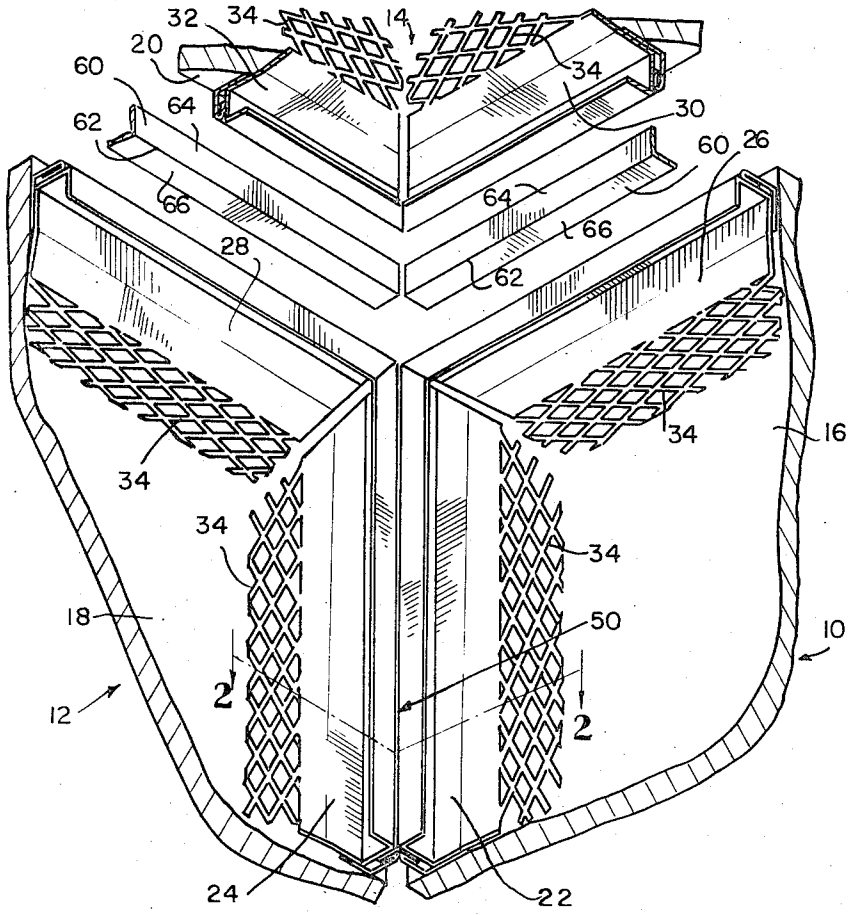


Fig. 1

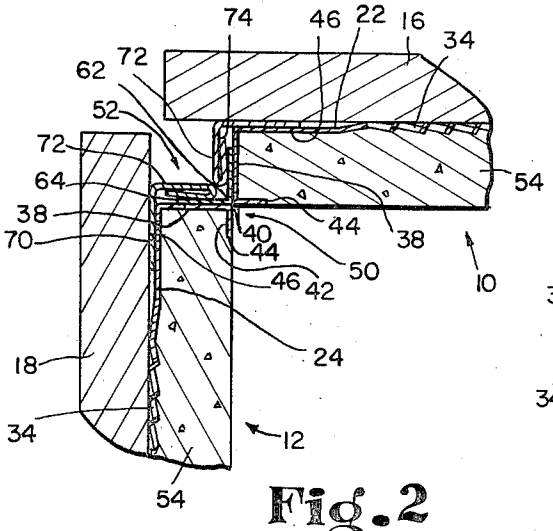


Fig. 2

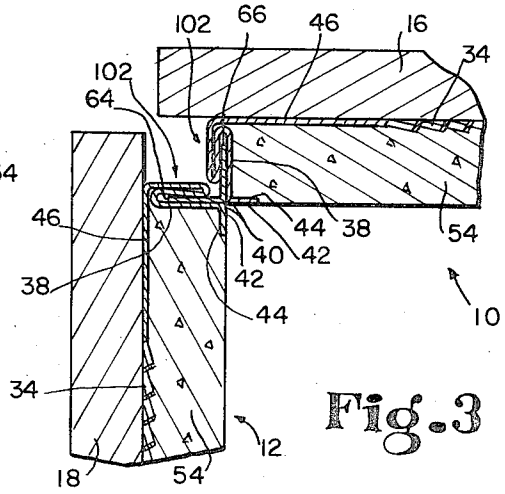


Fig. 3

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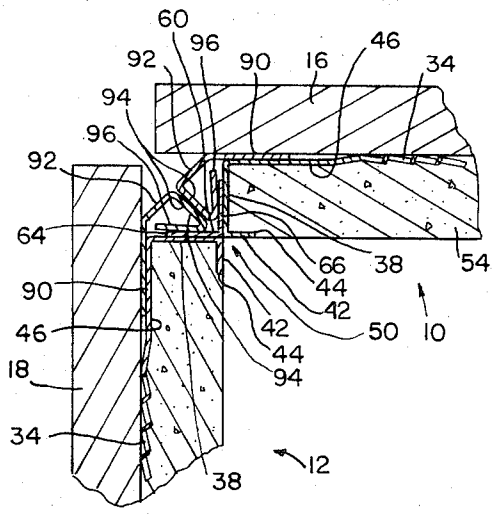


Fig. 4

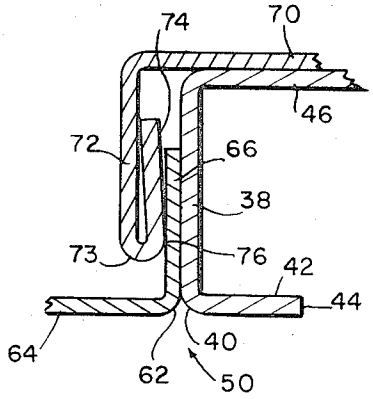


Fig. 2a

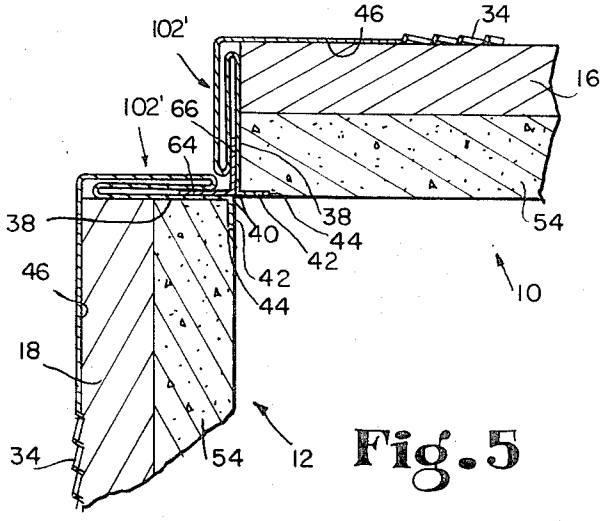


Fig. 5

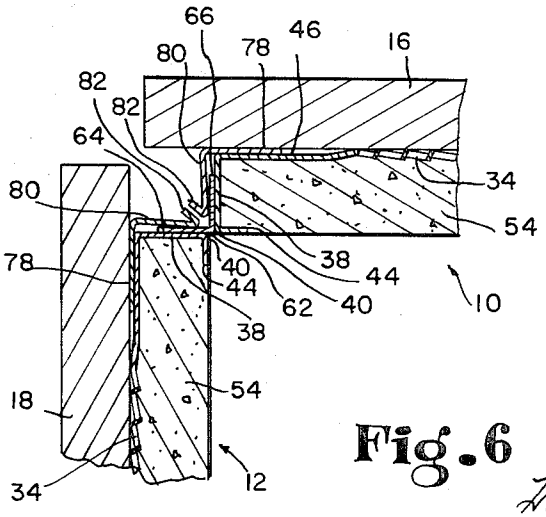


Fig. 6

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CORNER CONTROL SYSTEM FOR PLASTER WALLS

The present invention is in the field of plastered walls and more particularly relates to providing expansion joints or corner control systems for intersecting plastered walls and ceilings. It is well known that plastered walls and ceilings develop cracks which start at the intersections of side walls and/or at the intersections of ceilings and side walls. These cracks or separations are usually caused by expansion and contraction or settling of the building.

Several types of casing beads and expansion joint systems for plastered walls have heretofore been suggested. Representative systems are disclosed in U.S. Pat. Nos. 2,234,701; 2,904,922; and 3,398,494. My present invention provides an improvement over the prior art systems as will be discussed hereinafter.

Conventionally, casing beads have been used to define corners. Casing beads are elongated, strip-like sheet metal devices which may be fastened to plaster bases such as metal lath, styrofoam, masonry, gypsum lath, and the like. Generally, a corner is defined by a pair of angularly related, allochirally arranged casing beads, outwardly extending flange portions of which meet to define a corner seam. As will be discussed hereinafter, I provide a connector member having an L-shaped cross section including a longitudinally extending apex and inwardly and longitudinally extending leg sections. This connector member, with its inwardly extending leg sections, fits in the corner space bounded by the seam defining flange portions of the casing beads and the intersecting plaster bases. Each casing bead provides a clip portion which engages the adjacent leg section of a connector member and resiliently urges it against the flange portion of the casing bead. It will be appreciated that each leg section extends inwardly and perpendicularly to the wall on which its associated casing bead is mounted. Thus, since the leg sections are resiliently held for slippage, the walls can move without developing an unsightly crack or open joint.

Other objects and features of my present invention will become apparent as this description progresses.

To the accomplishment of the above and related objects, my invention may be embodied in the forms illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that change may be made in the specific constructions illustrated and described, so long as the scope of the appended claims is not violated.

IN THE DRAWINGS

FIG. 1 is a fragmentary, exploded perspective view of a corner control system constructed in accordance with my present invention;

FIG. 2 is a fragmentary sectional view of a corner taken along line 2—2 in FIG. 1 and FIG. 2*a* is an enlargement of a portion of FIG. 2;

FIG. 3 is a fragmentary sectional view showing a similar corner control system with the casing beads integrally formed to provide the clip portions as well as the flange portions which define the corner;

FIG. 4 is a fragmentary sectional view showing a corner control system similar to the system of FIG. 1 except that a modified form of clip is used;

FIG. 5 is a corner control system similar to that of FIG. 3 except that the casing beads are attached to the back surfaces or inner surfaces of the intersecting plaster bases; and

FIG. 6 is a fragmentary sectional view of a corner control system similar to the system of FIG. 1 except that another modified form of spring clip is used.

In this description, and in the claims appended hereto, the terms "corner" or "corners" are intended to mean the intersections of side walls as well as the intersections of ceilings and side walls. Further, the term "longitudinally" is intended to mean the direction of the line defined by the intersecting side walls or ceilings and side walls.

Referring now to the drawings, and particularly to FIGS. 1, 2 and 2*a*, it will be seen that I have shown intersecting side walls **10**, **12** and ceiling **14**, the side walls **10** and **12** being defined by plaster bases **16**, **18** and the ceiling being defined by plaster base **20**. In FIG. 1, I show casing beads **22**, **24**, **26**, **28**, **30** and **32**, the casing beads **22** and **24** defining the corner between the walls **10** and **12** with the casing beads **26**, **28** and **30**, **32** defining the corners between the ceiling **14** and the walls **10** and **12**.

As illustrated, each casing bead **22–32** may include an expanded metal portion **34** which lies against the associated plaster base **16**, **18**, **20**. Casing beads are conventionally provided with such expanded metal portions.

The casing beads **22–32** are identical and a description of one such casing bead herein will suffice. Further, as clearly shown in FIG. 2, the casing beads **22**, **24**, are angularly related, i.e., at right angles, and allochirally arranged to define the interior corner of the plastered walls. Referring particularly to FIGS. 2 and 2*a*, it will be seen that each casing bead **22**, **24** includes an outwardly and longitudinally extending first flange portion **38** terminating with a longitudinally extending first edge **40** and a second longitudinal flange portion **42** extending away from the first edge **40** and such a corner. Each second flange **42** terminates with a longitudinally extending second edge **44**. Each casing bead **22**, **24** also includes a third longitudinal flange portion **46** extending away from the inner edge of the first flange portion **38** and the corner and parallel to the said second flange portion **42**. The expanded metal portion **34** may be attached to this third flange portion **46** or the distal edge portion of the third flange portion may be expanded by conventional processes to provide the portion **34**. It is this third flange portion **46** which is usually nailed, bradded, or otherwise securely fastened to the plaster base **16**, **18**.

The casing beads **22**, **24** described thus far are conventional and are presently used to define corners of plastered walls. The flange portions **42** serve as reference flanges to determine the depth of the plaster as applied to the plaster bases **16**, **18**. In the trade, the flange portions **42** are said to provide a ground to control the thickness of the plaster.

The first flange portions **38** (FIG. 2) are at right angles to each other with their first edges **40** disposed in close adjacency or contacting to define a corner seam or joint as indicated at **50** and an interior corner space **52** bounded by the flange portions **38** and the plaster bases **16**, **18**. The plaster **54** of course may be applied in any conventional manner to the plaster bases **16**, **18**.

If the plaster bases **16**, **18** separate, for instance, because of contraction or expansion or settling, the two edges **40** of the first flange portions **38** will separate to

leave an unsightly crack or opening extending longitudinally along the corner. In order to remedy this situation, I provide an elongated connector member **60** having an L-shaped cross section providing a longitudinally extending apex **62** and longitudinally and inwardly extending leg sections **64, 66.** This connector member is disposed in the corner space defined by the first flange portions **38** with the inwardly extending leg sections **64, 66** abutting the outwardly extending first flange portions and the apex **62** being disposed in close adjacency to the adjacent first edges **40,** i.e., to the seam **50.** Then, as will be more clearly described hereinafter, each casing bead includes a clip portion positioned and arranged to engage and hold the adjacent leg section **62, 64** against the first flange portion **38** of the casing bead. As clearly seen in FIG. **2,** if either wall **10, 12** moves away from the other wall, the apex portion of the connector member will fill the space between the edges **40** to prevent an unsightly crack or opening from appearing.

In the embodiment of FIGS. **1, 2** and **2***a*, the leg sections **64, 66** of the connector member **60** are held against the first flange portions **38** by a longitudinally extending clip member including an outwardly extending resilient spring arranged to urge the adjacent leg section against its associated first flange portion **38.** The illustrative clip member includes a flange **70** which may be attached to the third flange portion **46** by spot welding, riveting or other such fastening techniques, and an outwardly extending flange **72** reversely bent as indicated at **73** to provide an inwardly and longitudinally extending tab **74** for engaging the adjacent leg section **66.** The flange **72,** which is the said spring in this embodiment, is bent at a radius **73** such that it provides a longitudinally extending curved surface contacting the adjacent leg section along a contact line indicated at **76** (FIG. **2***a*). This curved surface facilitates the entry of the leg section into the space between the clip member and the first flange portion **38.** As clearly shown in FIG. **2***a*, this line of contact **76** is closer to the outer edge portion of the leg section **66** than it is to the inner edge portion of the leg section.

Referring now to FIG. **6,** it will be seen that the clip member illustrated therein includes a flange portion **78** securely fastened to the third flange portion **46,** an outwardly extending spring portion **80** reversely bent at its distal edge to provide a diagonally inwardly extending tab **82.** The spring portion **80** extends outwardly and slightly toward the adjacent first flange portion **38** to engage and urge the adjacent leg section **64, 66** against that first flange portion. Each such spring portion **80** contacts its associated leg sections **64, 66** in the region adjacent the bend which provides the tab **82.**

Referring to FIG. **4,** it will be seen that each clip member includes flange portions **90, 92, 94, 96** with the flange portion **90** being fastened to the third flange portion **46.** The clip members illustrated in FIG. **4** are formed in the manner illustrated to provide a greater spring force for urging the leg sections **64, 66** against their respective first flange portions **38.** Particularly, the bends between the portions **90, 92** and **92, 94** and the angles between these portions provide greater strength than is provided by a generally flat flange which extends generally outwardly and slightly toward the adjacent first flange portion **38.**

Referring now to FIGS. **3** and **5,** it will be seen that I have illustrated casing beads which are integrally formed from an elongated sheet metal strip such that the clip portion or clip member is an integral part of the rest of the casing bead. Each casing bead is, therefore, an elongated sheet metal strip formed at one edge portion to provide the first flange portion **38,** at its intermediate portion to provide a reversely bent spring portion **102** (FIG. **3**), **102'** (FIG. **5**) extending outwardly and slightly toward the first flange portion **38** to serve as the clip portion, and at its opposite edge portion to provide a mounting flange strip (third flange portion **46**) extending away from the corner and the inner edge of the first flange portion **38.** The distal edge of the said one edge portion is bent at a right angle to extend away from the seam between the edges **40** and parallel to the mounting flange strip **46** to provide the said second flange portion **42.**

It will be appreciated that the difference between the casing beads of FIGS. **3** and **5** involve the depth of the first flange portions **38** and the spring portions **102, 102'.** In the structure of FIG. **3,** the third flange portions **46** are mounted on the outer sides of the plaster bases **16, 18** while in the FIG. **5** structure these flange portions **46** are mounted on the inner surfaces of the plaster bases **16, 18.**

The system shown in FIGS. **1, 2** and **2***a* has been successfully used in a construction project and found to be very advantageous. In that system, standard and commercially available ½ inch casing beads **22, 24** were modified by adding the described clip portions thereto. Particularly, the clip members provided by the flanges **70, 72, 74** were spot welded to the third flange portions **46.** Then, the cooperating casing beads **22, 24** were joined together by use of connector members **60,** each leg section **64, 66** of which had a depth ⅛ inch less than the depth of the casing beads. The flanges **72** were reversely bent such that the clip members extended outwardly approximately ⅛ inch less than the depth of the casing beads.

In the installation, the cooperating casing beads **22, 24** previously joined together by a connector member **60** were mounted as a corner assembly at the intersections of side walls and at the intersections of ceilings with side walls. The assemblies were conventionally fastened to the plaster bases. The assemblies were trimmed as illustrated in FIG. **1** such that three such assemblies could intersect and mate together at the three dimensional corner juncture defined by the intersection of the ceiling and side walls.

Before the jointed cooperating casing beads **22, 24** are attached to intersecting plaster bases, relative longitudinal slippage of the casing beads or lateral separation of the casing beads may be prevented by placing a piece of adhesive tape about the backs of the casing beads. Such tape, which can be left on the installed casing beads, will facilitate holding the beads together during the process of cutting them to length or cutting them to fit in a corner as shown in FIG. **1.**

It has been found that my present corner control system results in great savings in both construction cost as well as in the total amount of construction project time allotted to the plastering effort. The cost saving is achieved because the plastering craftsmen spend significantly less time and the project time saving is achieved because the exterior walls, partition walls and ceilings of a room may be plastered in one operation.

Using conventional and commercially available casing beads which are conventionally set against a previ-

ously plastered and whitecoated wall or ceiling to define a corner, the present industry practice for completing a room is a three-step practice. Step 1 involves preparing a plaster base on the exterior wall of the room and then plastering the exterior wall including applying the white coat. Step 2 involves setting the studs and preparing a plaster base on the partition walls and then plastering the partition walls including applying the white coat. Step 3 then involves hanging ceiling support channel and preparing a ceiling plaster base and then plastering the ceiling including the white coat. Since it is conventional to place a casing bead against a wall which has already been white coated, all of the walls and ceiling of a room are not simultaneously plastered.

My corner control system utilizing the assembled casing beads, i.e., casing beads connected together by L-shaped connector member, permits use of two steps. Step 1 involves preparing the plaster base, i.e., lath or the like, on the exterior walls, ceiling and partition walls and then mounting the assembled casing beads in all the corners. Step 2 then involves plastering the exterior walls, partition walls and ceiling including the white coats. If scaffolding is required, using my system and the described two-step approach, it is necessary only to assemble and disassemble the scaffolding one time.

The said second flanges **42** have a width of approximately ¼ inch conventionally. Thus, each corner is conventionally defined by right angle flanges **42** extending outwardly from the corner approximately ¼ inch. My L-shaped connector member with the leg sections **64, 66** extending perpendicularly inwardly toward the plaster bases **16, 18** and with the connector member disposed in the corner space defined by the first flange portions **38** provides means for closing the crank or opening between the edges **40** without requiring additional flange portion **42** width. With my corner control system, the plaster **54** approaches as close to the corner as it does with conventional casing beads. This is a very significant and important point with respect to fire ratings.

What is claimed is:

1. Expansion joint structure for plastered walls, said structure comprising walls intersecting at right angles to define an interior corner, a pair of elongated cooperating casing beads extending longitudinally along said corner and attached to said walls, one of said casing beads extending away from said corner against each said wall, each of said casing beads providing an outwardly and longitudinally extending first flange portion terminating with a longitudinally extending first edge and a second longitudinal flange portion extending away from said first edge and said corner, each second flange portion terminating with a longitudinally extending second edge, said first edges being disposed in close adjacency to define a corner seam, a longitudinally extending connector member having an L-shaped cross section conformingly disposed in the space defined by said first flange portions, said connector member having a longitudinally extending apex and inwardly and longitudinally extending leg sections, one of said leg sections abutting each said first flange portion and said apex being disposed in close adjacency to said first edges, and each of said casing beads also providing a longitudinally extending spring-like clip portion positioned and arranged to engage and hold the adjacent leg section against its said first flange portion.

2. The structure of claim **1** in which each casing bead is formed to provide a third longitudinal flange portion extending away from the inner edge of said first flange portion and such a corner and parallel to said second flange portion, and in which said clip portion includes a longitudinally extending clip member fastened to the inner surface of said third flange portion, said clip member including an outwardly extending resilient spring arranged to urge the adjacent leg section against its associated first flange portion.

3. The structure of claim **2** in which each outwardly extending resilient spring is reversely bent at its distal edge to provide a longitudinal tab extending diagonally inwardly toward such a corner.

4. The structure of claim **2** in which each said outwardly extending resilient spring is reversely bent to provide an inwardly and longitudinally extending tab for engaging the adjacent leg section.

5. The structure of claim **4** in which said spring is reversely bent at a radius to provide a longitudinally extending curved surface contacting said leg section along a contact line.

6. The structure of claim **5** in which said contact line is closer to the outer edge portion of said leg section than it is to the inner edge portion of said leg section.

7. The structure of claim **1** in which said clip portion includes a longitudinally extending clip member arranged to urge the adjacent leg section against its associated first flange portion, said clip member including a spring extending outwardly and, in its free state, toward said first flange portion to engage said leg section.

8. The structure of claim **7** in which said spring is bent at a radius adjacent its distal edge to provide a longitudinal tab extending diagonally inwardly toward such a corner, said radius providing a longitudinally extending curved surface contacting said leg section along a contact line.

9. An expansion joint structure for plastered walls comprising walls intersecting at right angles to define an interior corner, a pair of angularly related and allochirally arranged casing beads extending longitudinally along and defining a seam for said corner, said casing beads being attached to said walls, said casing beads providing outwardly extending first flange portions terminating in close adjacency to define said corner seam and a corner space between said first flange portions and said intersecting walls, and a longitudinally extending connector member having an L-shaped cross section disposed within the corner space defined by said first flange portions, said member having a longitudinally extending apex and inwardly and longitudinally extending leg sections, one of said leg sections abutting each said first flange portion and said apex being disposed in close adjacency to said seam, and each casing bead also providing a spring-like clip portion positioned and arranged to engage and hold the adjacent leg section against its said first flange portion.

10. The structure of claim **9** in which said clip portion includes a longitudinally and outwardly extending spring clip engaging and urging the adjacent leg section against its associated first flange portion.

11. The structure of claim **9** in which each said casing bead includes an elongated sheet metal strip formed at one edge portion to provide said first flange portion, at its intermediate portion to provide a reversely bent spring portion extending outwardly and toward said first flange portion to serve as said clip portion and at

its opposite edge portion to provide a mounting flange strip extending away from such a corner and the inner edge of said first flange portion.

12. The structure of claim 11 in which the distal edge of said one edge portion is bent at a right angle to extend away from such a seam and parallel to said mounting flange strip.

* * * * *