Oct. 21, 1958 O. P. HUNTLEY 2,856,766

WALL CONSTRUCTION AND CONTRACTION JOINT MEMBER THEREFOR

Filed Sept. 8, 1953

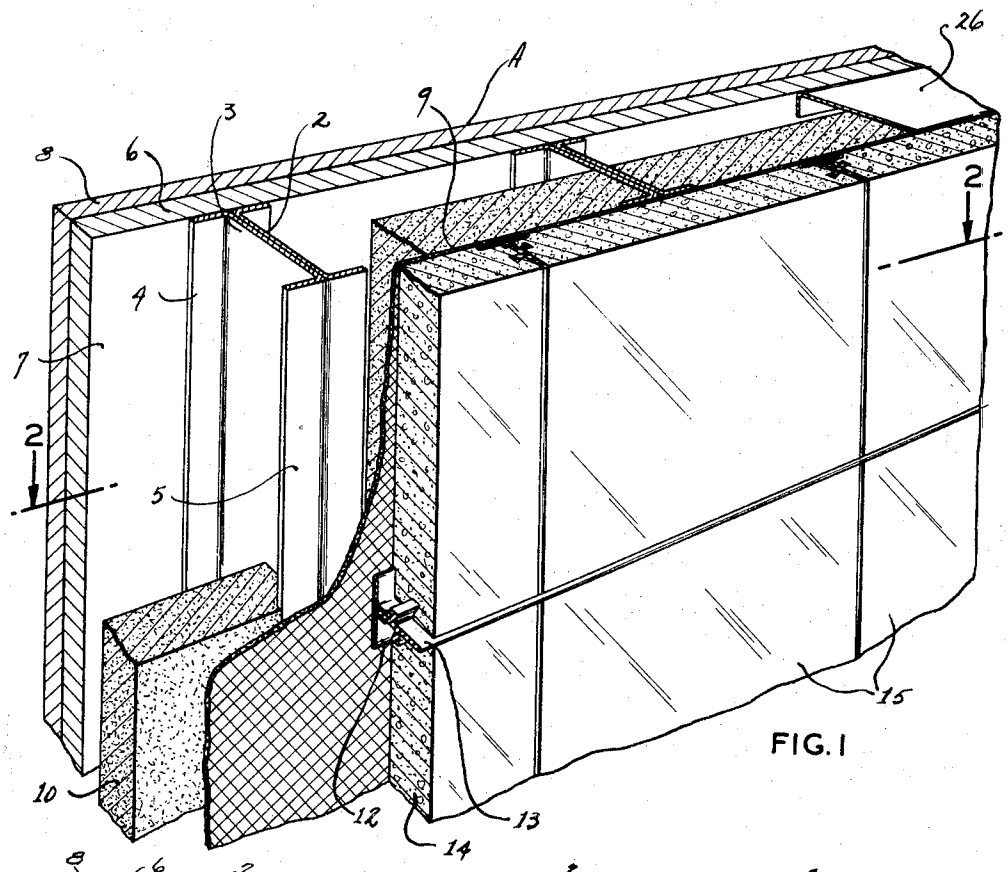

FIG. 1

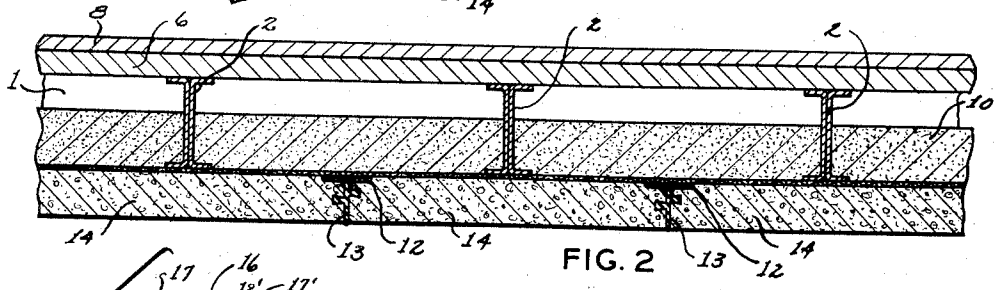

FIG. 2

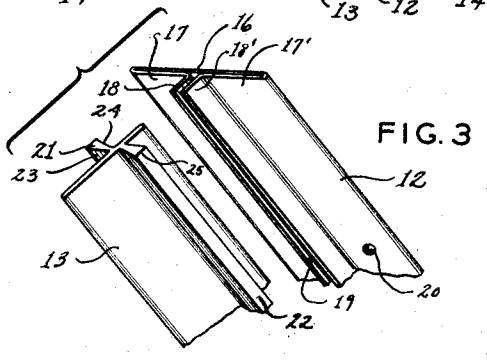

FIG. 3

INVENTOR.
ORVILLE P. HUNTLEY
BY Ralph W. Kalish
ATTORNEY

United States Patent Office 2,856,766
Patented Oct. 21, 1958

2,856,766

WALL CONSTRUCTION AND CONTRACTION JOINT MEMBER THEREFOR

Orville P. Huntley, Belleville, Ill., assignor to Huntley & Blazier Co., East St. Louis, Ill., a corporation of Delaware

Application September 8, 1953, Serial No. 378,985

4 Claims. (Cl. 72—17)

This invention relates in general to building construction and, more particularly, to wall constructions and concrete contraction joints therefor.

An object of the present invention is to provide a contraction joint member for concrete walls which effectively prevents the development of cracks in relatively thin walls, and obviates the necessity of reinforcing the concrete with steel members or providing unsightly spaced openings therein.

Another object is to provide a flexible contraction joint member for concrete walls mounted on a retainer readily securable to a lath, and having integral portions for keying of the concrete adjacent thereto.

A further object is to provide a flexible contraction joint member which is compressible for accommodating expansion of the concrete without the formation of cracks therein and being provided with tapered surface portions for sliding movement thereacross of the concrete during contraction and expansion.

It is an additional object of the present invention to provide a contraction joint member for concrete walls which may be economically manufactured, which is readily installable, and which is durable and reliable in usage.

It is a still further object of this invention to provide a load-bearing wall construction incorporating spaced studs comprised of a pair of joined channels which are partially embedded in concrete whereby a rigid structure is provided.

These and other detailed objects are obtained by the structure illustrated in the accompanying drawing in which:

Figure 1 is a perspective, partially broken-away view of a wall constructed in accordance with and embodying the present invention.

Figure 2 is a horizontal transverse section taken on the line 2—2 of Figure 1.

Figure 3 is an exploded, partial perspective view of the contraction joint member and the retainer therefor.

Referring now to the drawing which illustrates a preferred embodiment of the present invention, A designates a load-bearing wall comprising an elongated base plate (not shown) preferably of channel shape, for receiving therein the lower ends of a plurality of spaced, vertical studs or uprights 2 which may be suitably secured to said plate. Studs 2 are of composite character being comprised of a pair of metallic channel members 3 disposed in web to web relation and weldedly secured together to provide a generally I-shape cross section to studs 2 with the flange portions 4, 5, extending lengthwise of the base plate. Attached, as by conventional clips (not shown), to the flanges 4 on the normally inwardly directed side of studs 2 is a Rocklath 6, the inner surface of which is covered with foil 7 for insulation. Applied to the outer face of Rocklath 6 is a finishing coating of plaster 8.

On the opposite flanges 5 of studs 2 there is secured, in any approved manner, an expanded metal lath 9.

Sprayed or otherwise applied to the inner face of metal lath 9 is a concrete wall 10, such as of perlite and Portland cement, which embraces studs 2 to a point beyond the center line thereof, thereby rigidifying wall A for load bearing. The space between the inner face of Rocklath 6 and concrete wall 10 is left open to provide an air space for insulation purposes.

Engaged, as by nails, wires, or the like, upon the outer face of metal lath 9 are narrow, rigid, strip-forming retainers 12, preferably of metal, for flexible strip members 13. Retainers 12 are presented in vertical and horizontal disposition upon metal lath 9 so as, in conjunction with strip member 13, to define generally square or rectangular sections which may have an area of one hundred square feet (100 sq. ft.). An exterior wall of concrete 14 is applied by hand upon the outer face of metal lath 9, and is thus divided into a plurality of panels 15 by the sections delineated by retainers 12, and strip members 13.

Retainers 12 comprise a base web 16 which, at its opposite edges, is bent upon itself to form sections 17, 17', in flatwise disposition upon web 16; said sections 17, 17', being turned outwardly in their adjacent portions to provide spaced parallel flanges 18, 18', respectively in normal relation to web 16 and defining a narrow slot or groove 19 therebetween. Aligned apertures 20 may be punched in web 16 and sections 17, 17', for extension therethrough of fastening members.

Strip members 13 being fabricated, as by extrusion, of a resilient and compressible material, such as rubber or a suitable plastic, comprises a relatively thin, flat body portion for reception edgewise within slot 19 of retainer 12, the horizontal axis of said strip members 13 being normal to the plane of the lath 9. Integrally formed with, and projecting from the opposite sides of each strip member 13 are keys 21, 22, which extend the length of members 13, and are offset with respect to each other, and are disposed in relative adjacency to the inner or retaining edge of said members 13. Each key 21, 22, is of like cross section being each provided with side faces 23, 24, which flare outwardly from the body of strip 13 and terminate at a relatively wide outer end surface 25, the plane of which is parallel to that of the associated strip member 13.

As may best be seen in Figures 1 and 2, keys 21, 22, will be embedded within the edge portions of the adjacent concrete panels 15, with the same being thus keyed thereto. As the concrete contracts, as upon setting and during low temperature conditions, each panel 15 thereof will tend to pull inwardly away from the strip members 13 bordering same, and slide, as it were, along the inclined side faces 23, 24, of keys 21, 22, toward the outer end surface 25. The relatively enlarged outer end surfaces 25 of keys 21, 22, will be retainingly engaged in the contracting cement. No shrinkage cracks will form within panels 15 since the cracks or openings will be confined at the joints formed by strip members 13, wherefore throughout their life, panels 15 will remain unblemished by unsightly cracks. Under elevated temperatures the cement panels 15 will expand whereby the same will tend to spread outwardly at their margins toward the surrounding strip members 13. The concrete in expanding will slide along tapered side faces 23, 24, of keys 21, 22, and against the body of strip members 13 which will compress to accommodate the force of expansion. The flexibility of strip members 13 will permit same to bend or be distorted out of vertical or horizontal alignment, as the case may be, under the pressure of the expanding concrete, whereby expansion cracks will be prevented from developing.

In completion of wall A, a top plate 26, being preferably of channel form, is suitably mounted upon the upper

ends of studs 2. Thus, in view of the foregoing, it will be seen that strip members 13 are adapted for inexpensive production and may be readily installed for use. It has been found that with concrete panels of one inch (1") thickness, the strip members 13 effectively prevent the formation of cracks within the body of such panels. Before the present invention, no effective means for preventing cracks in thin walls had ever been utilized without the provision of steel reinforcing rods.

The details of construction can be varied without departing from the spirit of the invention and the exclusive use of those modifications coming within the scope of the claims contemplated.

What is claimed is:

1. A wall construction comprising a plurality of spaced apart vertical studs, said studs each comprising a pair of channel members rigidly secured together with flanges presented laterally, a lath mounted on one lateral flange of said studs, a plaster coating applied to the outer face of said lath, a metal lath mounted on the opposite flange of said studs, a wall of concrete applied to the inner surface of said metal lath and embedding the studs to a point beyond the vertical center line thereof, said first named lath and concrete wall being separated to define an air space, contraction joint members provided on the outer face of said metal lath, each joint member comprising an outwardly opening retaining strip secured to the metal lath and a flexible strip maintained by the retaining strip and projecting outwardly therebeyond for delimiting with the other of the joint members a plurality of aligned wall sections, and a relatively thin layer of concrete applied to the outer face of said metal lath and assuming panel form in said sections.

2. A wall construction as described in claim 1 wherein the retaining strips secured to the metal lath are rigid, and the flexible strip members mounted on said retaining strips are resilient and provided with key portions engaging the thin outer layer of concrete.

3. For use with vertical, multi-panel concrete wall constructions, the combination of a lath, and a contraction joint assembly comprising an elongated, rigid retaining strip secured upon the lath and having a narrow, outwardly directed groove, and an elastic, cooperating member having a flat body portion with side faces and end edges, said cooperating member being received edgewise in the retaining strip groove for extension outwardly from the lath, a key projecting from each side face of the body portion of said cooperating member, each key having side walls which flare toward their ends remote from the related side face of the body portion thereby providing an outer end surface in parallel relation planarwise with the adjacent side face of said cooperating member, said key side walls being mutually spaced farther apart at their outer ends than at their inner ends.

4. For use with vertical, multi-panel concrete wall constructions, the combination of a lath, and a contraction joint assembly comprising an elongated, rigid retaining strip secured upon the lath and having a narrow, outwardly directed groove, and an elastic, elongated cooperating member having a flat body portion with side faces and end edges, said cooperating member being grippingly received edgewise in the retaining strip groove for extension outwardly from the lath, a key projecting from each side face of the body portion of said cooperating member, said keys being offset from each other and relatively proximate the retaining strip, each key extending the length of the body portion of the cooperating member and having side walls which flare toward their portions remote from the associated side face of the cooperating member and an outer end surface in parallel relation planarwise to the said associated side face of the cooperating member, said key side walls being farther apart at their outer ends than at their inner ends.

References Cited in the file of this patent

UNITED STATES PATENTS

639,961	De Man	Dec. 26, 1899
1,122,866	Cordes	Dec. 29, 1914
1,768,689	Huntington	July 1, 1930
1,851,452	Sherry	Mar. 29, 1932
1,992,937	Bodenstein	Mar. 5, 1935
2,033,752	Billingham	Mar. 10, 1936
2,045,141	Horton et al.	June 23, 1936
2,073,130	Wallace	Mar. 9, 1937
2,085,168	Payne	June 29, 1937
2,104,874	Levy	Jan. 11, 1938
2,116,270	Le Grand	May 3, 1938
2,228,052	Gardner	Jan. 7, 1941
2,229,064	Finch	Jan. 21, 1941
2,282,335	Methven	May 12, 1942

FOREIGN PATENTS

646,268	Great Britain	of 1950