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CLIP CONSTRUCTION FOR MEANS FOR
ASSEMBLING CONSTRUCTIONAL UNITS
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2,540,603

Fig. 1.

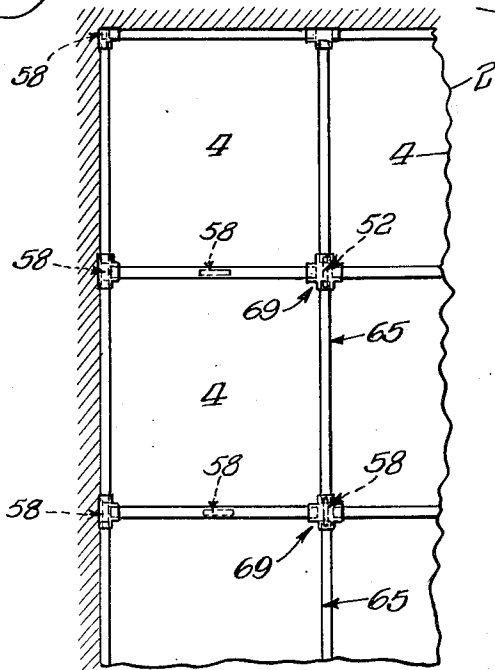


Fig. 2.

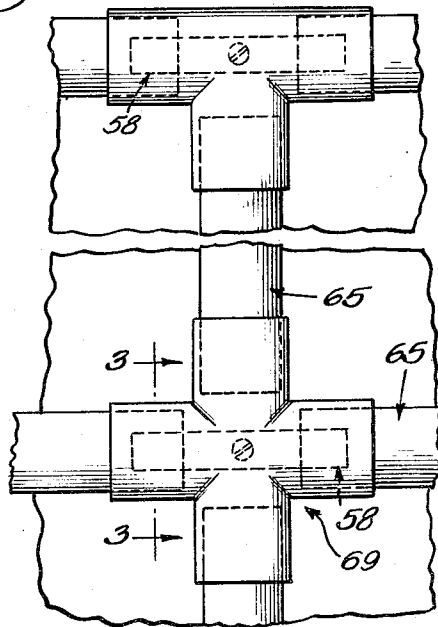


Fig. 4.

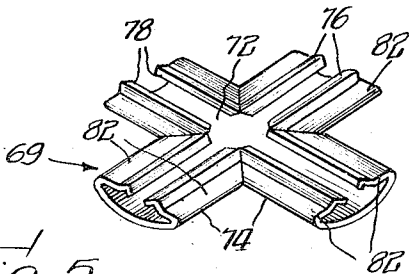


Fig. 3.

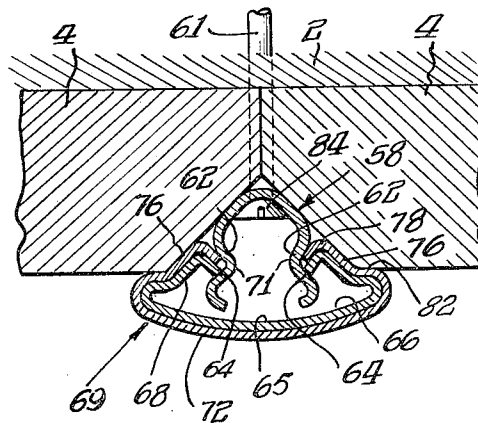
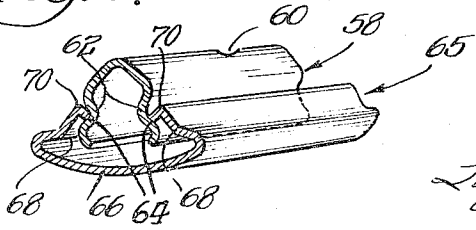


Fig. 5.



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CLIP CONSTRUCTION FOR MEANS FOR ASSEMBLING CONSTRUCTIONAL UNITS

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Original application January 25, 1943, Serial No. 473,432, which is a division of application Serial No. 323,358, March 11, 1940. Divided and this application August 30, 1944, Serial No. 551,814

5 Claims. (Cl. 189—88)

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The present invention relates to the assembly of walls and surfaces on construction units such as tiles whereby a new covering composed of units or tiles may be installed for existing walls or ceilings or whereby a defective wall or ceiling unit covering may be repaired and firmly held in place.

The present invention relates to the installation of wall or ceiling constructions formed of individual units or tiles of geometrical shape adapted to be assembled to cover a wall or ceiling structure, and particularly does the invention relate to the installation of such units formed of acoustical tiles which, as is known in the art, are formed in various designs, shapes and sizes, composed of bagasse or other fibrous material, wherein the tiles have marginal bevels on their front faces which, when the tiles are juxtaposed in assembled relation, provide intervening junctional channels or grooves.

In certain instances it has been proposed to assemble and install these tiles as a ceiling or wall structure by nailing the separate tiles into the subjacent supporting wall or ceiling, or into the plaster or into the furring thereon. In other instances installations have been made by gluing the tiles in assembled position on the subjacent surfaces. In those installations where nails have been used for holding the bagasse tiles in position, the tiles have pulled downwardly with reference to the nails into a sagging position or the tiles have fallen completely from the ceiling or wall structure. In other types of installations the glue or adhesive has, in a number of instances, been ineffective to hold the tiles in position and they have sagged or dropped down and it has been necessary to re-tile the entire surfaces, or to re-nail the entire surfaces in order to repair or restore the wall or ceiling to uniformity of appearance and secure assembly.

In the present invention I provide means for assembling a ceiling or wall construction formed of individual units of acoustical tile or of units having other construction, which will securely and ornamentally hold the units or tiles in assembled position either as a repair job or as an original installation and I have provided this way to secure a firmly supported unit construction as well as an ornamental one. In addition, the means I have provided also acts to prevent projection or breathing at the juncture between the individual tiles making up the installation and, therefore, the objects of the present invention are to provide means for accomplishing the foregoing advantages and results as well as to

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provide a simple type of supporting means formed of a plurality of standardized shapes adapted to be used in conjunction with standard acoustical tiles or other construction units for permanently installing various combinations and arrangements of the tiles to fit and cover various sizes and shapes of walls or ceilings; another object of the present invention is to provide a series of clips for holding acoustical tiles and the like firmly in assembled position with respect to a subjacent wall or ceiling structure in a manner such that a defective installation can be remedied without removing any of the tiles from position on the wall structure; to provide central clips and end clips and corner clips permitting of various lengths of strip members to be used therewith for holding the tiles in position and for covering the juncture portions of the tile, and particularly in a manner to make a sealing contact with the front facial portions of the tiles at the gaps between the ends of the elongated strips whereby to prevent breathing between the spaces lying between adjacent tiles and between their junctions; to provide junction clips and longitudinal strip members having interfitted parts, the facing members of which junction clips and strips are devoid of nails, screws, toggle bolts or other unsightly fastening means; to provide strips and junction clip members which engage and overlie the junction of the various strips whereby to prevent breathing between such gaps; to provide clip members which engage strips with a resilient gripping engagement in lieu of screws, bolts and other interconnections; to provide a series of clips adapted to be fastened in place between the meeting edges of tiles, in combination with clips having resilient edges or portions whereby frictionally to grip corresponding engaging walls of the clips to hold the strip members in position; to provide these and other objects of invention, as will be apparent from a perusal of the following specification when taken in connection with the accompanying drawing, wherein:

Figure 1 is an assembly view showing the snap-on type of junction clips used for covering up nail or bolt holes used in the fastening clips;

Figure 2 is an enlarged plan view of a portion of Figure 1;

Figure 3 is a section taken on the line 3—3 of Figure 2;

Figure 4 is a perspective view of one of the center snap-on junction clips; and

Figure 5 is a view showing the manner in which one of the elongated strips engages the clip.

This application is a division of my pending

application Serial No. 473,432, filed January 25, 1943, now abandoned, which in turn is a division of my application Serial No. 323,358, filed March 11, 1940, now Patent No. 2,382,456, issued August 14, 1945.

By reference to Figure 1 it is understood that the present invention relates to the installation of standard or non-standard types of geometrical constructional shapes herein specifically illustrated as an acoustical tile which in general is formed of bagasse, and which is utilized as a covering for wall or ceiling structures for buildings and the like. The acoustical tiles are generally formed at their margins with beveled surfaces so that when the tiles are juxtaposed in assembled relation a system of V-shaped channels is provided, which may be symmetrically arranged as shown in Figure 1, or asymmetrically arranged, if desired, as shown in my prior pending application of which this application is a division. It is to be understood that any type of shape or any type of constructional unit may be used if the same is characterized by certain constructional features which are inherently suitable or adaptable for use in connection with the fastening devices forming the subject matter of the present invention.

In general, where I refer herein to acoustical tile, it is to be understood that I am not specifically limited to acoustical tile, but that any type of constructional units may be utilized provided they are adaptable to use in connection with the present invention. In general the acoustical tile is adapted to be assembled to cover a wall or ceiling, adapted to be held firmly in assembled position on the wall or ceiling by means of a series of strips and fastening clips. Modifications of these clips may be utilized for forming further arrangements or assemblies of the acoustical tile.

Because of the nature of the present invention, it is peculiarly adaptable to installations which have been put on with adhesive or have been nailed on and wherein in the first instance the adhesive has crystallized and the tile has become loose, has sagged or fallen down. Since practically all of these acoustical materials are soft and porous, in those installations where they have been held in place by nails, the nails have gone clearly through the acoustical tile so that the latter has come down over the heads of the nails and the tiles have fallen down and sagged.

It is to such installations, as well as to new installations, that the present invention is peculiarly adapted. Heretofore there had been no way known of patching up or refastening the tiles in position without removing all of the tiles and starting afresh. However, in the present instance, inasmuch as the fastening means herein disclosed takes advantage of the V-groove formed at the marginal juncture of the variously assembled tiles, and wherein fastening means is utilized in connection with such V-groove which lies at the outer face of the tile when in a central position, whereby through the agency of the fastening means to hold the tile firmly in assembled position, it must be at once apparent that such defective installations can be immediately reestablished and firmly reassembled without removing any of the sagged or loose tiles from the installation, but that, on the contrary, all of the tiles can be immediately and very quickly firmly reunited in assembled position in an economical, simple and expeditious manner.

Referring now to Figures 1 and 3 of the draw-

ings, I have shown at 2 any type of subjacent supporting means which may comprise rock lath, old plaster or furring strips and upon which the acoustical tile is adapted to be assembled for ornately covering the ceiling or wall support. The acoustical tile or construction units are indicated at 4 as being disposed in square formation with their marginal edges in juxtaposition and held firmly in such position by various types of fastening means, particularly the short clips 58 of the cross sections shown in the drawings. These clips are provided with wood screw holes 60 and are adapted to receive wood screws or other fastening means 61 which take into the subjacent supporting means 2 whereby to hold the tiles in desired position. It is to be noted that the clips lie in the beveled junction between the meeting edges of two or more tiles 4. These clips 58 are provided at each of the corner intersections, running in a single direction only as to any particular intersection and also at the end sections and corner of the room sections. In some instances, where the tile is of a larger proportion than ordinary construction, intermediate clips may be used, as shown in the dotted lines at the bottom of the upper square 4, see Figure 1. These clips 58 are essentially trough-like in construction. The edges of the trough-like portion converge towards an apex which is rounded. The free ends of the trough-like body are substantially S-shaped in cross section as shown at 62, whereby to form shoulders 64, which shoulders are formed when the two flanges resulting from forming the trough-like section are bent laterally inwardly in curvilinear fashion at 71 to provide outwardly facing, spaced apart, opposed shoulders, the ends of said shoulders 64 being bent reversely inward with the free edges facing each other. These clips 58 with the fastening means 61 attached thereto are inserted through the junction of two tile pieces into the subjacent supporting means 2 and are thus held permanently in position, after which an intermediate elongated strip 65, see Figure 5, of the cross section shown in Figure 3 is installed in association with the clip 58. Each of these elongated strips 65 comprises an imperforate central web 66, the bottom wall of which is formed slightly convex and the opposite free ends or free resilient tongues of which are provided with flanges 68 having free ends 70 adapted to clip upon and in the shoulder 64 of the clip 58, the imperforate part 66 closing the space between the free ends 62 of the clips 58. In addition, corner clips 69 are provided, of the construction shown in Figure 4, the same comprising a central web portion 72 and two or more arms radially projecting therefrom. In Figure 4, four such arms are shown for the central clips, likewise as shown in Figure 4. Each arm comprises imperforate wall portions 74 having opposed in-turned flanges 76, each formed with a bent-in toe portion 78. The cross sectional dimensions of these leg or arm portions of the junction clip are of larger dimensions than the corresponding cross section of the strips 65 so that the arms can overlie and snap into the shoulder portion 64 of the clip 58, as shown in Figure 3. Thus each one of these junction clips will overlie the space between the elongated strips 65. The outer upper surfaces 82 of these junction clips make sealing contact with the front face of the tile to prevent breathing at these points.

It will be apparent that by means of this construction various lengths of the strips 65 may

be used, depending upon the arrangement of the clips 58. By reference to Figure 3 it will be noted that the curved surface 72 of the junction clip is adapted to hide a head 84 of the bolt 61, and that in all of these tiles the clip members are provided with the overlying edge portions 76 and 82 which are adapted to make sealing contact with the front face of the tile at the gap between the ends of the elongated strips 65, whereby to prevent breathing between the spaces of the adjacent tiles. In other words, the edges of the strips 65 and the edges of the overlying corner, center and junction clips engage the tile and form the sealed breathing stop.

It is to be understood that the type of clip shown in Figure 4 may be made with a number of legs or arms to conform to the type of shape shown in Figures 4 to 8 inclusive of may prior pending application Serial No. 473,432, filed January 25, 1943.

It is thought that the invention and numerous of its attendant advantages will be understood from the foregoing illustrative description and it is obvious that numerous changes may be made in the form, construction and arrangement of the several parts without departing from the spirit or scope of the invention or sacrificing any of its attendant advantages, the form herein described being a preferred embodiment for the purpose of illustrating the invention.

The invention is hereby claimed as follows:

1. A clip comprising a trough-like body of cross-like shape of sheet metal comprising a central, substantially imperforate hub having four radially extending branches, each branch having a curvilinear bottom lying in the plane of the hub portion, each branch having reentrantly bent inwardly extending flanges the ends of which lie in spaced apart opposition with their edges parallel, the marginal portions of said flanges having substantially V-shaped bends therein extending in parallelism and lying adjacent the free edges of said flanges.

2. A fastening member comprising an elongated trough-like body having a bottom wall formed slightly convex with the opposite ends thereof bent reentrantly and terminating in free resilient tongues, the longitudinal free edges of which are parallel and are in spaced apart opposition, said tongues including a substantially 90° bend therein in the direction of said convex portion to cause the edge portions thereof to form a resilient gripping engagement with a member insertable between said edge portions.

3. A clip strip comprising an elongated trough-like body having a bottom wall formed slightly convex with the opposite ends thereof bent reentrantly forming shoulders, and then outwardly and terminating in free resilient tongues, the longitudinal free edges of which are parallel and are in spaced apart opposition, said tongues including a substantially 90° bend therein in the direction of said convex portion to cause the edge portions thereof to form a resilient gripping engagement with a member insertable between said edge portions.

4. A clip comprising a trough-like body having a central substantially imperforate hub and at least two radially extending branches at an angle with one another, each branch having a curvilinear bottom lying in the plane of the hub portion, each branch having reentrantly bent inwardly extending flanges, the ends of which lie in spaced apart opposition with their edges parallel, the marginal portions of said flanges having substantially V-shaped bends therein extending in parallelism and lying adjacent the free edges of said flanges.

5. A strip comprising a trough-like body having a central imperforate curved linear bottom, said bottom having reentrantly bent and inwardly extending flanges attached to the edges thereof, the ends of said flanges lying in spaced apart opposition with their edges parallel, the marginal portions of said flanges having substantially V-shaped bends therein extending in parallelism and lying adjacent the free edges of said flanges.

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