Sept. 13, 1938. L. F. URBAIN 2,129,975

ACOUSTICAL TILE CLIP

Filed May 11, 1935 2 Sheets-Sheet 1

Fig. 1

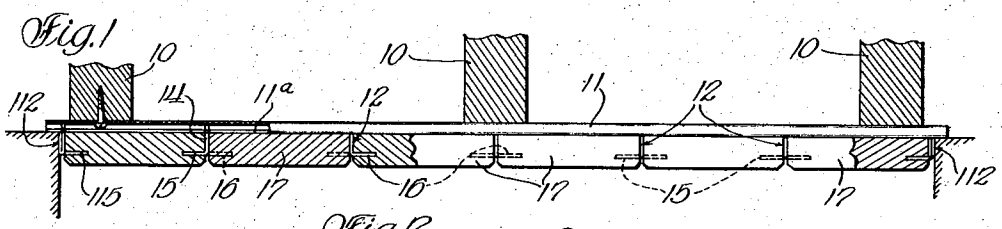


Fig. 2

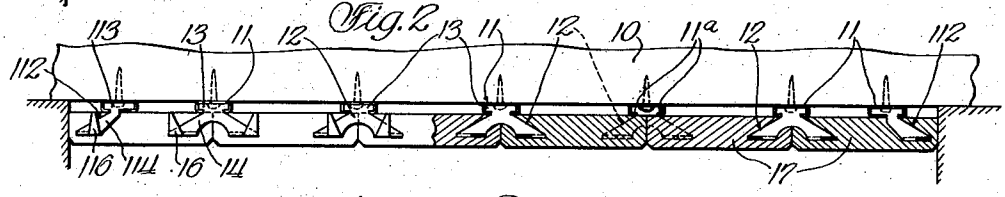


Fig. 3

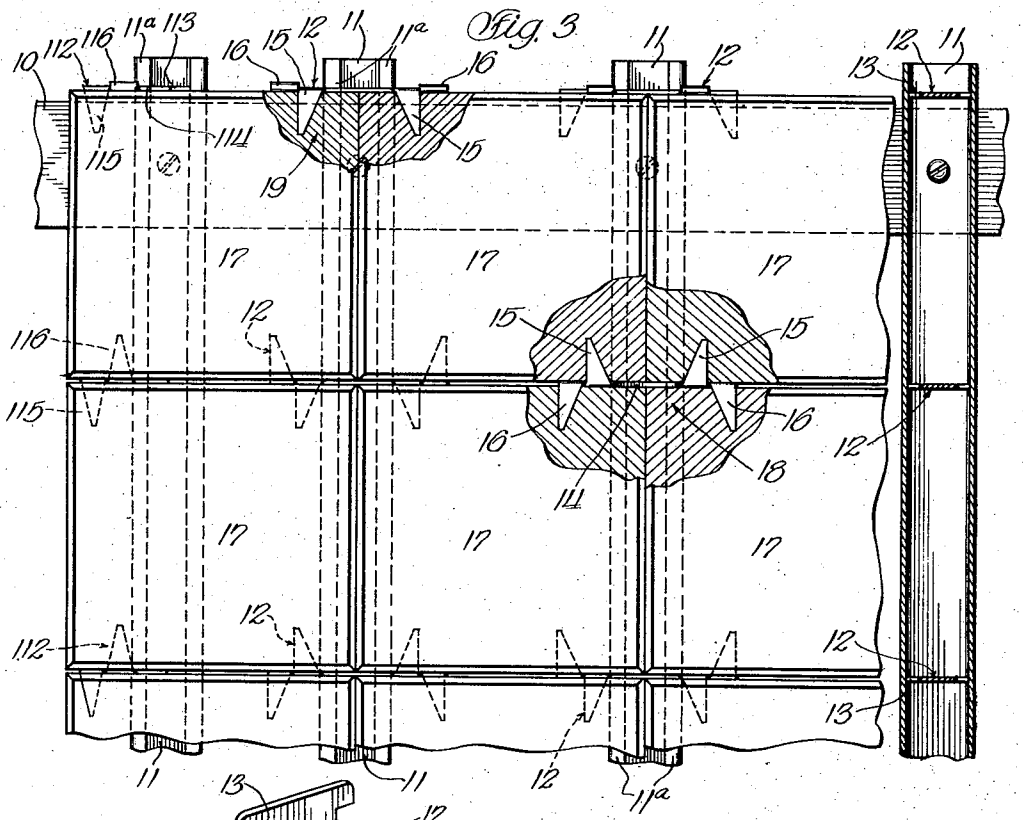
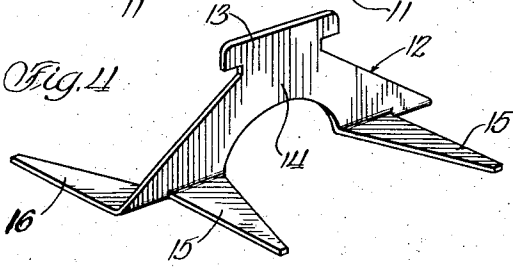


Fig. 4



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Fig. 6

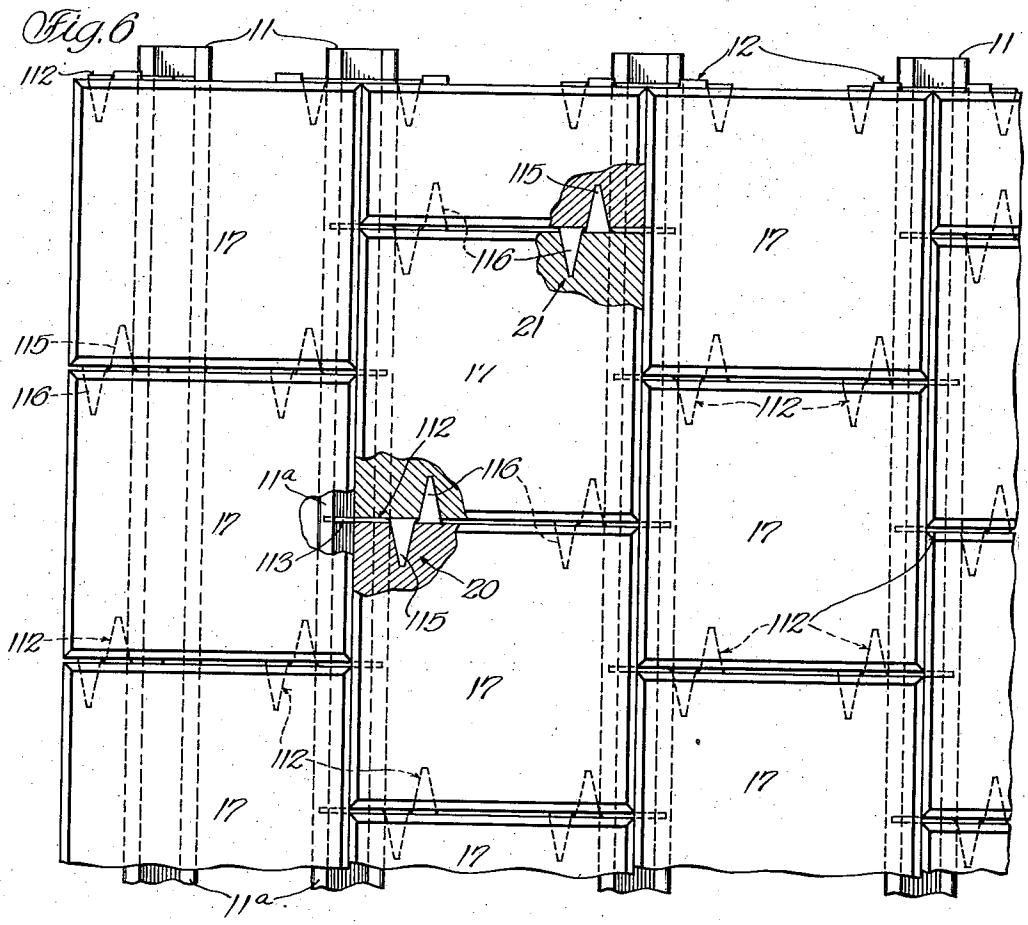


Fig. 7

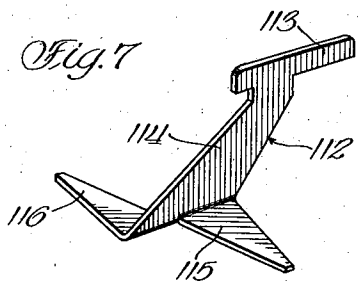


Fig. 5

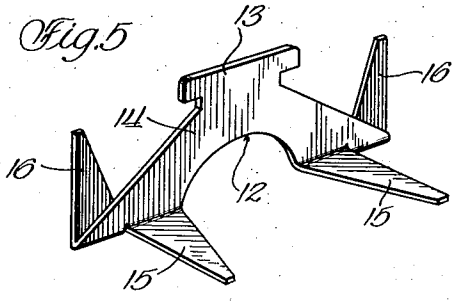
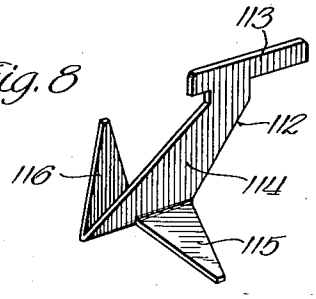


Fig. 8



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ACOUSTICAL TILE CLIP

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Application May 11, 1935, Serial No. 20,924

13 Claims. (Cl. 72—118)

This invention relates to an improved method and means for applying acoustical tiles or the like to the ceiling of a room. It may also be used for attaching such tiles to the walls of a room.

The objects of the invention include, among others, the provision of the following:

An improved means for attaching acoustical tile to a wall or ceiling;

An improved fastening clip for acoustical tile and the like;

An improved means and method for holding acoustical tile and the like in proximity to or upon a wall or ceiling; and

An improved process of securing acoutical tile to a ceiling or wall.

These objects and other objects which hereinafter appear are obtained by the novel and improved elements, arrangements, constructions and methods hereinafter described. Embodiments of the invention are illustrated in the accompanying two sheets of drawings, hereby made a part of this application, and in which:

Figure 1 is a fragmentary transverse section of an acoustical wall covering employing the present invention upon a ceiling;

Figure 2 is a similar view at ninety degrees from that illustrated in Figure 1;

Figure 3 is a fragmentary and enlarged plan view, partly in section, of a matched tile construction such as is illustrated in Figures 1 and 2;

Figure 4 is an enlarged perspective view of one form of attaching clip for matched tiles;

Figure 5 is an enlarged perspective view of the clip shown in Figure 4 with two wings made ineffective;

Figure 6 is a fragmentary enlarged plan view, partly in section, of staggeredly arranged tiles in which the present invention is employed;

Figure 7 is an enlarged perspective view of a clip for staggeredly arranged tiles; and

Figure 8 is an enlarged perspective view of the clip of Figure 6 with one prong rendered ineffective.

Like reference characters are used to designate similar parts in the drawings and in the following description.

Acoustical tile and the like are applied to a surface, following the herein described means and method, by attaching parallel channel members to a surface to be covered or to the studding or other base construction members which lie under the tile, applying to such channels acoutical tiles which span the spaces between parallel channels, and fastening the tile in place by means of clips, which on the one hand, have points that are forced into the bodies of the tile at the vertical edges thereof and on the other hand have bases which slide in and are supported by the channels.

In the embodiment of the invention chosen for illustration, and for illustration only, the base supporting members for the channels are wooden members 10 which may be joists or other parts of the permanent structure of a building. Channels 11 are fastened across such joists, usually at right angles to them, by any suitable means, such as screws extending through holes in the bottoms of the channels. The channels 11 are parallel and from longitudinal center to longitudinal center are equal to the width of the tile to be suspended. The channels 11 are formed of metal, and have flanges comprising normally disposed and inturned sections, the inturned sections 11*a* defining a space between them less wide than the space between the normally disposed sections.

Clips 12 are of sheet metal. Each has a T shaped base 13. The width and height of the cross bar of the T is approximately the size and shape of the open cross section between the bottom, normally disposed sections and inturned sections 11*a* of the channels 11. The bases 13 fit closely in the channels without binding.

From the base 13 in the four prong clip 12, as shown in Figures 4 and 8, there extends a Y or V shaped web 14 which, in the finished ceiling, lies between the vertical edges of contiguous tiles. From each of the two arms of the Y or V shaped web 14, extend two prongs 15 and 16. Each clip 12, therefore, comprises two pairs of prongs, two prongs being one hundred and eighty degrees from the other two, one pair being an inside pair, and the other pair being an outside pair.

Acoustical tile material usually consists of comparatively soft and yielding material, generally fibrous. Such material is pressed into the form of tiles 17 or the like, of suitable thickness, and of predetermined length and breadth, with a binder holding the material together and preventing the ready breakage of the tile. The tiles are square or of some other shape such that they may be laid edge to edge to form a continuous flat surface. The tiles 17 are placed over the channels 11, which are fastened to the members 10. It has been found suitable, as previously stated, to space the channels 11 apart, center to center, the width of the tile that is used therewith. The tiles 17 are placed on the channels 11 with the edges of adjacent rows of tiles

17 meeting over the centers of the channels 11.

The bases 13 of the clips 12 are positioned within the channels 11, either from the ends of the channels or by inserting the base 13 into the channel lengthwise and then turning the clip until the base is across the channel with its ends locking under the inturned flanges 11a of the channels 11. A channel 11 with flanges 11a removed and with the clips 12 transversely thereof is shown at the right of Figure 3.

The general procedure is to move the clip 12 along the channel 11 until the prongs, either 16 or 15, contact the tile. The prongs are then driven into the edge of the tile by a hammer or axe or by a block of wood and mallet. Generally but little force will be needed as the prongs are sharp and the tile is soft.

The first row of tiles 17 is generally laid against an abutment, blocks or a vertical wall. The channels 11 run to proximity or into contact with such wall. Clips 12 are seated at the ends of the channels. These clips 12 have one pair of wings (15 or 16) turned up by the tile setter as in Figure 5. Such bending may be done with a hammer or pliers. The other pair of wings project away from the wall and a tile 17 is secured thereon by having the tile driven onto the prongs by tapping the tile with hammer or mallet. This secures one edge of tile. The opposite edge is secured by driving home clips 12 in the manner described.

The second row of tiles is then secured in suspension on the channels by laying the tile against the second series of clips 12. The edge of each tile in such second row is forced against the outstanding prongs of the second laid series of clips. The tiles are forced home on to the second series of prongs by placing a board on the opposed edge of the tile and tapping the board with a hammer. The outer edge of the second row of tiles is secured by driving into it a clip in the manner already described. These several steps are repeated until the surface is covered.

In some operations, the tile may be driven against one series of clips while the next succeeding series of clips is being driven into it.

If the tiles are placed to meet at the centers of the channels 11, it is clear that each clip will be at the juncture of four tiles, as indicated at 18 in Figure 3, and will have one prong in each tile. The four tiles will thus be fastened firmly together more or less as a unit. As the fastening is repeated on each corner of each tile, the entire wall covering is in effect a single unit firmly bound to the subjacent supporting structure through the medium of the clip bases in channels attached to the structure.

The channels 11 at the edge of the ceiling will rest against the side walls or be spaced therefrom and will not have centers coincident with the edge of the tile. If set in sufficiently, clips 12 may be used with such channels or if close to the wall, clips like those shown in Figure 7 may be employed.

Where as in the first case above, the tiles abut against another surface parallel to the long axes of the channels, or the tile covering is to end on a line parallel with the axes of the channels, or an approximation thereof, the side wall channel 11b, must be spaced away from the ending line of the tile as shown in Figure 2, if clip 112 is employed. The modified clip 112 of Figure 7 may be used with the channel against the wall if employed with its web pointed inwardly but requires an inset channel if used with its web pointing outwardly. Clip 112 is applied in the same way as the clip 12 with the prongs penetrating the tile adjacent the edge engaging the side wall.

The clip illustrated in Figure 7 has a base 113 identical with base 13 of the clip shown in Figure 4. It comprises a web 114 which resembles one-half of the Y or V shaped web of clip 12. The web 114 extends to one side of a channel and does not bridge such channel as does the web 14 of clip 12. Clip 112 has two prongs 115 and 116, one pointing forwardly and the other rearwardly.

The laying of tile at one side wall has already been described. The tile laid at the other side wall may be laid in a similar manner, i. e., with the channel wholly under the tile and not half under it. The clip 12 shown in Figure 4 may be used in the final channel or preferably the clip 112 in Figure 7 may be used.

When the terminal row of tiles 17 is at right angles to the axes of the channels 11, clips 12 and 112 may be used as elsewhere if there is room for their insertion, only one of the prongs 15 or 115 on one side of each clip being used. The other prong 116 or prongs 16 may be bent out of the way to provide more room. When clips 12 or 112 are used, the edges of the tiles are blocked up or secured against movement along the channels 11.

When the prongs 15 or 16 and 115 or 116 on either side of clips are folded over against the V shaped web 14, or the half V shaped web 114, they will not protrude appreciably from the surface of the web and the clip may be placed close to another wall, holding only one side of a tile, as indicated at 19 in Figure 3.

The clip 112, shown in Figure 7, is used when it is desired to lay the tile staggeredly rather than have them in alignment at all edges. Staggeredly arranged tiles are shown in Figure 6. When the clips 112 are positioned, the web 114 extends wholly to one side of the center of the channel as shown at 20. This is true when the clip is reversed as shown at 21. Each tile is thus supported by four clips 112, two at one side and reversed, and two others at the opposite side and in reversed position. The first and last rows of clips may be laid with clips 112 with one wing folded against the web as shown in Figure 8. The channels at the side walls need not be inset from the wall but may rest against the side walls. If extreme corner support is desired for the tile at the side wall, the channel is inset as shown at the left of Figures 2 and 3 and clips 112 with webs 114 pointing outwardly are employed.

It is sometimes necessary and at other times desirable to nail the wall abutting edge of the last row of tiles laid transversely of the channels. The tile, if it fits snugly against the wall at its edge, does not lend itself readily to support by either form of clip. It is difficult to get the clips into position. The usual procedure is to nail such last row of tile at its outer edge. The nails provide a stop to prevent movement of the tile longitudinally of the channels. If clips 12 or 112 are used, it is necessary to block the tile against such movement by nails or wooden plugs or otherwise.

Numerous modifications of the clips may readily be made without departing in any way from the spirit of the invention.

What is claimed as new and is desired to be secured by Letters Patent of the United States is:

1. For attaching acoustical tile to a subjacent structure, a channel member attached to such

structure and having inturned flanges defining a restricted opening away from such structure, and a clip having a base fitting within said opening and secured therein against movement away from said channel member, a Y-shaped extension from said base and transversely to the axis of said channel member, and prongs on each arm of the Y-shaped extension and on each side of the plane of said extension for insertion into such tile to hold the tile upon said channel.

2. An acoustical tile clip of sheet metal for cooperation with a channel member and comprising a base shaped to fit within such channel member, a Y-shaped extension from said base and protruding from such channel member, and a pointed prong on each arm of the Y-shaped extension and at an angle to the plane of said extension.

3. An acoustical tile clip of sheet metal for cooperation with a channel member and comprising a base fitting within such channel member, a one-half Y-shaped extension from said base and protruding from such channel member, and a pointed prong on the arm of the one half Y-shaped extension and at an angle to the plane of said extension.

4. An acoustical structure comprising subjacent support members, channel members across said support members, acoustical tiles on said channels and having at least one edge situated over the longitudinal axis of said channels, and clips having bases fitting within said channel members, and prongs inserted into the material of said tiles away from the corners thereof to hold said tiles upon said channel members.

5. A clip for use in securing acoustical tile to a supporting member comprising a supporting member engaging portion, an extension on said portion, and a plurality of substantially parallel tile engaging prongs extending from the side of said extension at an angle to the plane thereof, said prongs being spaced laterally apart and having their center lines spaced from the center line of said extension.

6. A fastening element comprising a clip of sheet metal having a longitudinally extending body portion having means thereon to engage a channel member transversely thereof, spaced portions on either side of the center line of the bottom of said body portion being bent laterally thereof to approximately ninety degrees to form transversely extending longitudinally spaced-apart prongs on the body portion.

7. A fastening element comprising a clip of sheet metal having a longitudinally extending body portion, means at the top thereof to engage a channel member transversely thereof, and bent-over portions at the bottom of said body portion, said portions being bent angularly on opposite sides of said body portion to form non-opposed prongs, both of said prongs being transversely removed from the center line of the channel.

8. An acoustical tile clip for cooperation with a channel member and comprising a base shaped to fit within such channel member, an extension from said base and protruding from the channel member, and a prong projecting laterally from said extension, said prong being offset a substantial distance from the center line of said extension whereby to engage the edge of an acoustical tile at a point removed a substantial distance from said center line.

9. An acoustical tile clip of sheet metal for cooperation with a channel member and comprising a base shaped to fit within such channel member, a sheet metal extension protruding transversely from said channel member, and a plurality of spaced prongs projecting laterally from said extension and generally parallel to the channel, the axis of said prongs being offset a substantial distance from the center line of said extension whereby to engage the edge of an acoustical tile at a point removed a substantial distance from said center line.

10. An acoustical tile clip of sheet metal for cooperation with a channel member and comprising a base adapted to engage a channel member, a flat sheet extension on said base protruding from the channel member, and a prong projecting laterally from said sheet extension, the axis of said prong being offset a substantial distance from the center line of the base whereby to engage the edge of an acoustical tile at a point removed a substantial distance from said center line.

11. A fastening element comprising a clip of sheet metal having a generally planar, longitudinally extending body portion, means at the top thereof to engage a channel member transversely thereof, and bent-over integral tongues at the bottom of said body portion, said tongues being bent angularly on opposite sides of said body portion to form prongs, both of said prongs being offset a substantial distance on one side of the channel member whereby to engage the edge of acoustical tiles at a point removed from the center line of the channel member.

12. An acoustical tile clip for cooperation with a subjacent structure comprising means for attachment to said subjacent structure, a portion extending outwardly from the plane of said subjacent structure, generally parallel spaced prongs extending laterally and in substantially the same direction from said outwardly extending portion, and means on said prongs to produce a transverse drawing action when said prongs are driven into said acoustical tiles.

13. A wall comprising a plurality of rectangular wall elements arranged in continuous coplanar order, a subjacent structure comprising a channel member, adjacent, parallel side edges of said rectangular wall elements being arranged in juxtaposition along said channel member, and substantially parallel thereto, transverse adjacent edges of said rectangular wall elements being arranged in a direction transversely to the channel, clips secured to said channel and having a portion extending outwardly from and transversely of said channel to a point between adjacent transverse edges of the said rectangular elements, and prongs on said outward extending portions and engaging in transverse edges of the rectangular wall elements at a point removed a substantial distance from the respective side edge whereby to resist splitting.

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