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TILE ATTACHING CLIP

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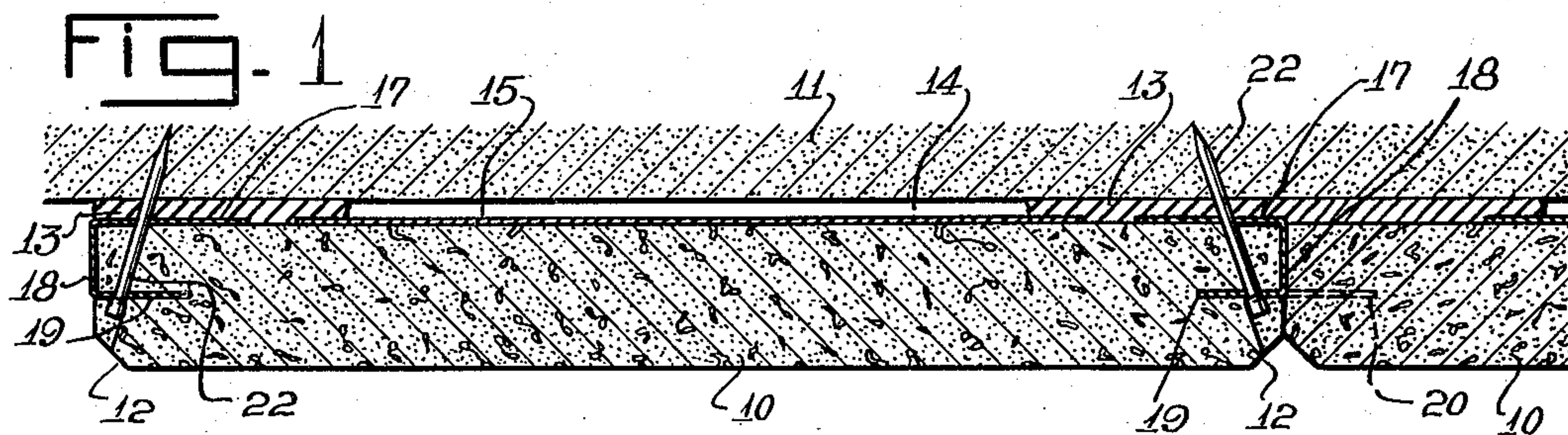


FIG. 4

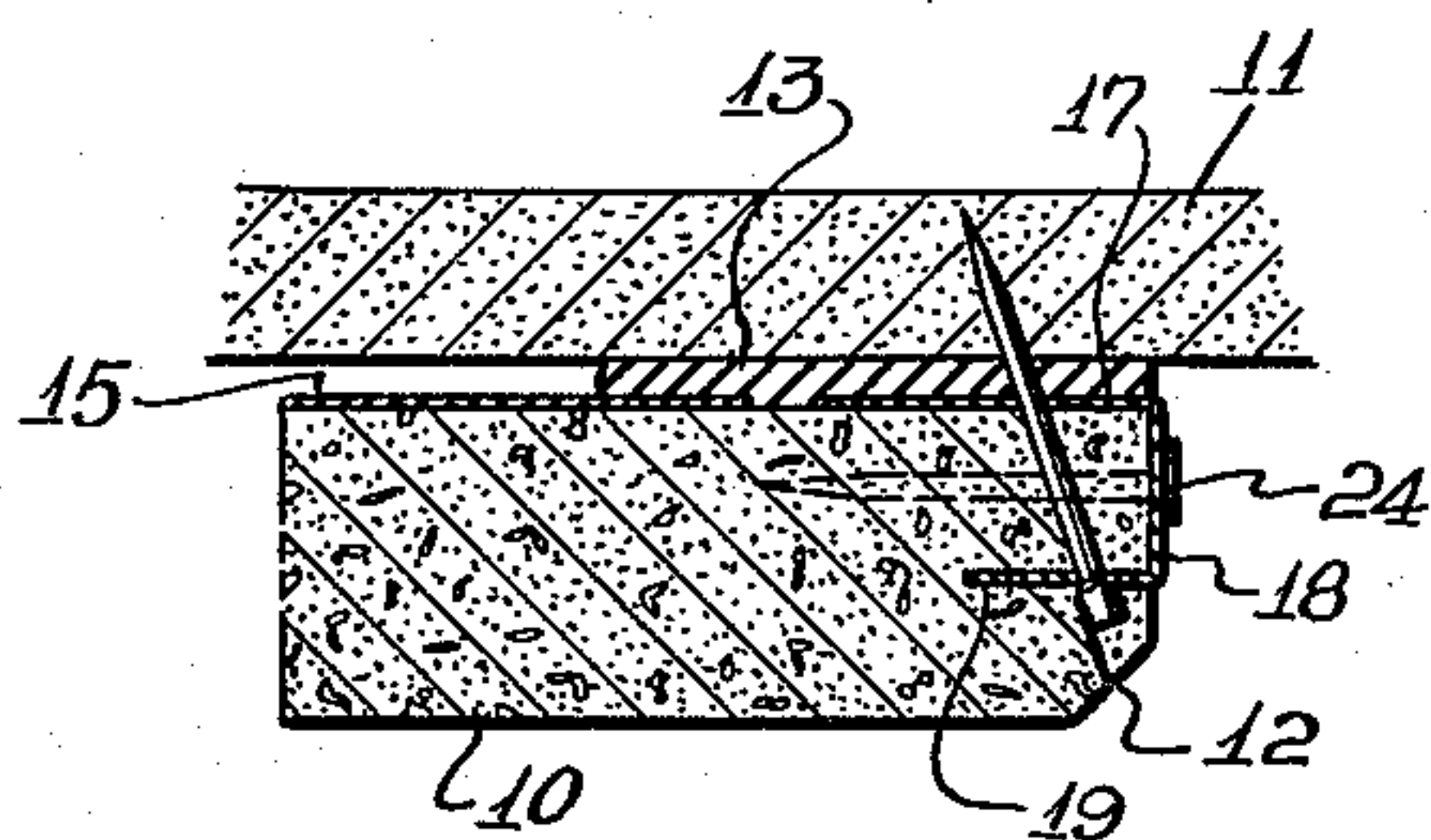


FIG. 2

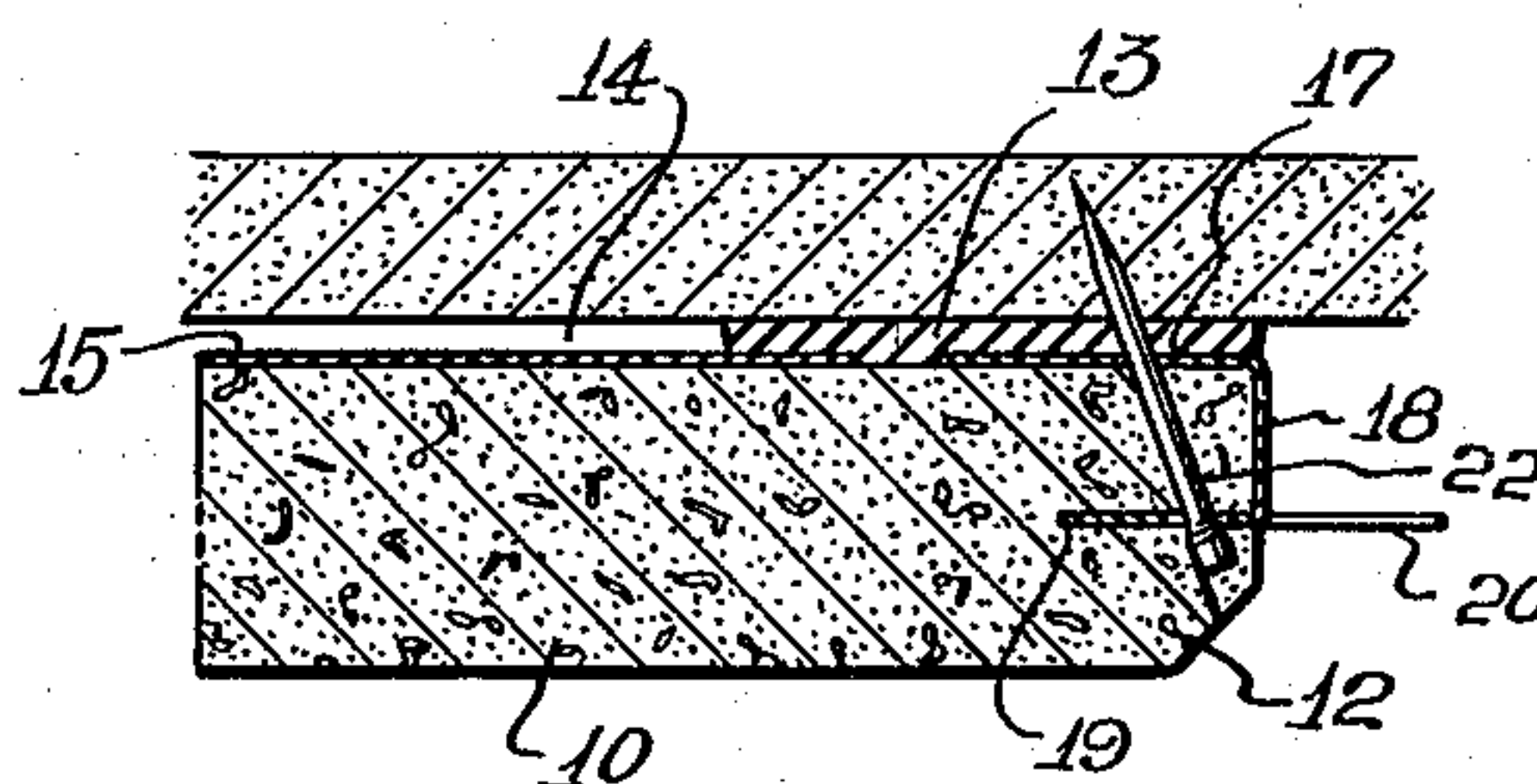


FIG. 5

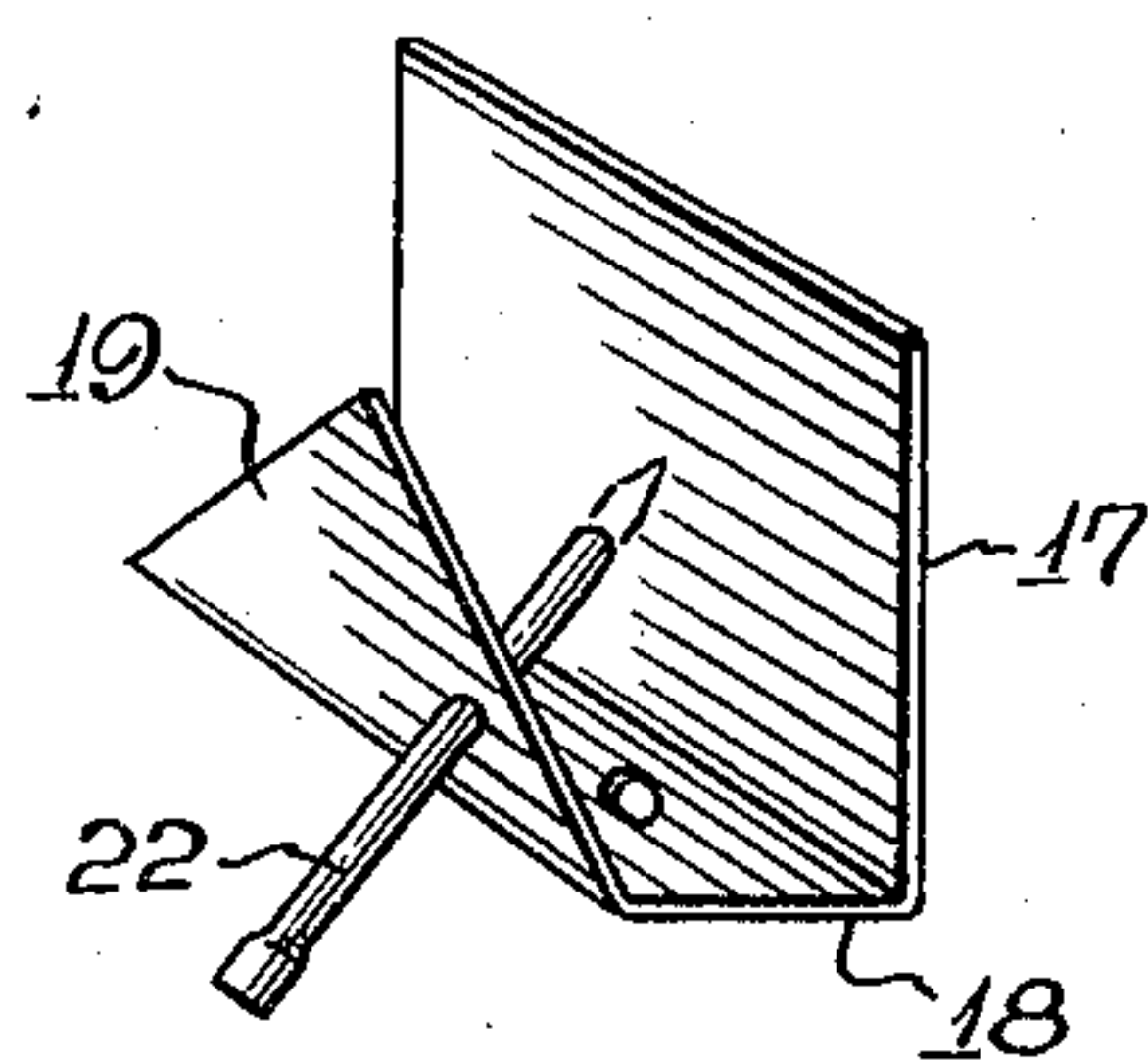
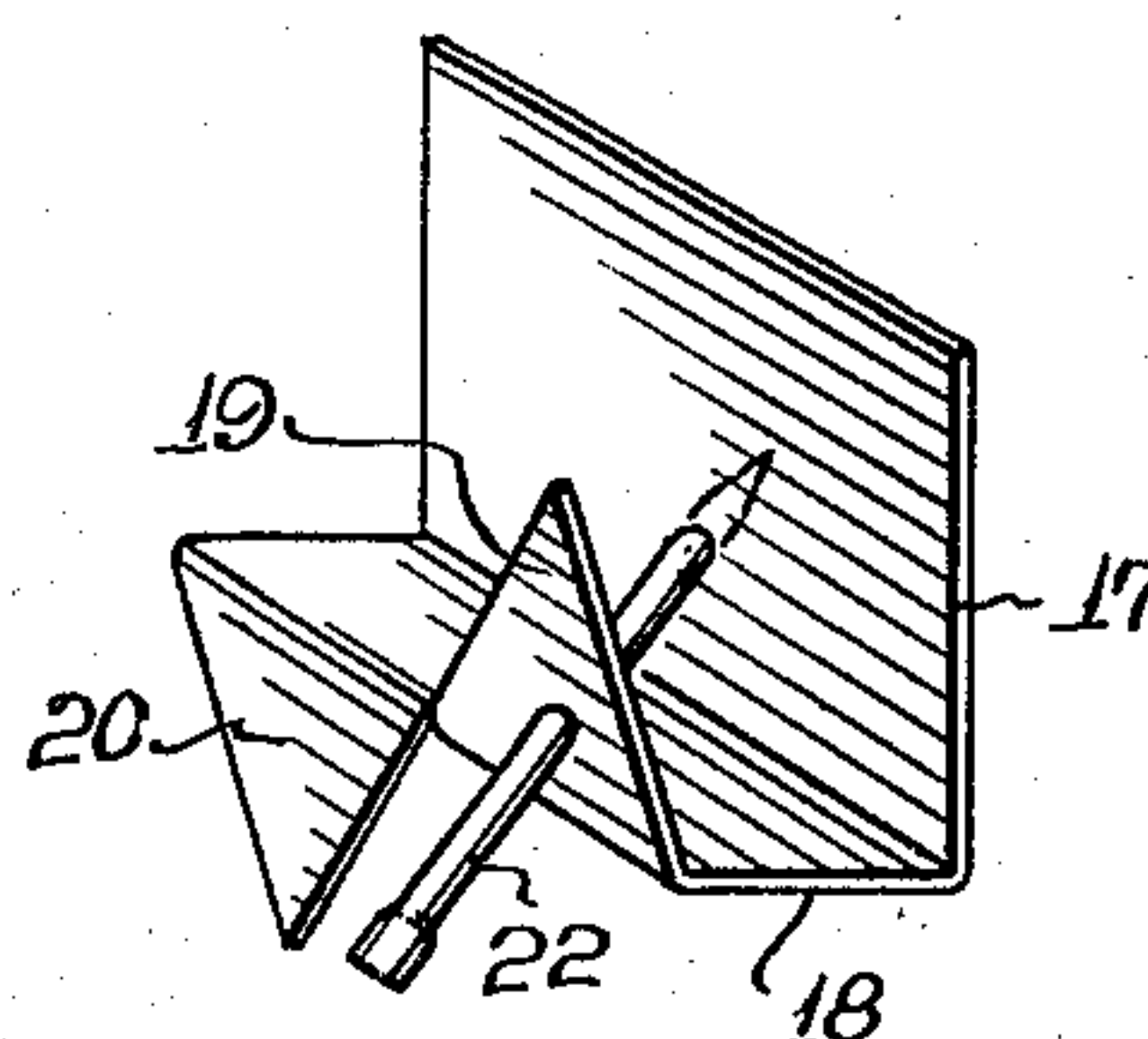


FIG. 3



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TILE ATTACHING CLIP

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9 Claims. (Cl. 72—20)

This invention relates to a building construction, and has reference more particularly to clips suitable for attaching acoustical or other tiles to ceilings, walls and the like.

Acoustical tiles are commonly made of a mineral wool base, held together by binding agents, or from other fibrous material such as excelsior, wood fiber, bagasse, etc. These tiles are usually attached to building surfaces such as walls and ceilings by means of adhesive materials, among which might be mentioned asphalt emulsion, glue, silicates, dextrines, etc. Owing to the expansion and contraction of the acoustical tiles under varying conditions of temperature and humidity, it sometimes happens that tiles break loose from a building surface either due to failure of the adhesive material used or due to the poor quality of the surface itself, such, for example, as where the surface has been painted and the paint underlying the adhesive becomes loose, or the surface becomes warped due to settling of the building. It is, therefore, desirable to provide a mechanical attaching means in addition to the adhesive material so as to insure that the tiles are firmly held in position over a long period of time.

An object of this invention, therefore, is to provide a clip suitable for attaching acoustical tiles to the walls and ceilings of buildings; also to improve building construction in other respects, hereinafter specified and claimed.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which

Fig. 1 is a sectional elevation of a ceiling or wall construction showing my improved clip for attaching the tiles to the building surface,

Fig. 2 is another view similar to Fig. 1, but showing only one tile in position,

Fig. 3 is perspective view of the clip shown in Figures 1 and 2,

Fig. 4 is a sectional elevation through a ceiling or wall construction, showing a modified form of attaching clip; and

Fig. 5 is a perspective view of the clip shown in Fig. 4.

The acoustical tiles 10 to be attached to a building surface 11, such as a plastered ceiling or wall, are frangible and preferably composed of a base of mineral wool, porous ceramic material, porous gypsum products, or various fibrous materials as heretofore mentioned. The tiles are usually rectangular in shape, but may be any other shape or design suitable for carrying out a particular architectural effect. The exposed edges of the tiles are preferably provided with bevels 12 to add

to the pleasing appearance of the building surface. The exposed surface of the tiles 10 is porous in character and the pores throughout the tile are inter-communicating so as to absorb sound waves and prevent echoes in a room.

The tiles are preferably attached to the building surface 11 by means of an adhesive material 13, such as asphalt emulsion, which is applied around the exterior back surface of the tile, and joins the tiles to the surface 11. In order to prevent breathing of air through the tile into and out of the space 14 between the center of the tile and the building surface, it is customary to provide a backing material 15 for the tile, which is preferably of paper or other material impervious to the passage of air. The adhesive material 13 preferably overlaps the sheet of paper 15, so as also to aid in preventing breathing of air through the tile with consequent soiling of the surface of the tiles, due to dirt and dust carried by the air.

My improved clip is preferably in the form of an L-shaped piece of metal, having a leg 17 extending substantially parallel to the back of the tile and a leg 18 extending parallel and in contact with the edge of the tile, so as to lie between the adjoining edges of adjacent tiles. One or more prongs or tongues 19 and 20 may be formed along the edge of the leg 18 and disposed substantially at right angles thereto, so as to lie parallel with leg 17. The distance between the tongues 19 and 20 and the leg 17 is somewhat less than the thickness of tile 10. A finishing nail 22 extends at an angle through the prong 19 and the leg 17. This nail 22 is preferably put in position in the clip before the clip is applied to the back edge of the tile, with the prong 19 extending inwardly into the tile, and because of the soft character of the tile 10, nail 22 can be forced laterally into the tile as the prong 19 enters the latter. In this way the clips may be attached to the tiles at the factory so as to give the least possible trouble in erection, but they may also be applied by the workmen on the job if desired. In practice as many clips are used with a tile as are found to be desirable under the particular circumstances, taking into consideration the strength of the tile material, the size of the tile and the conditions to which the tiled surface will be subjected. Ordinarily, only one clip may be necessary to each tile edge, and sometimes more or less, depending substantially on the circumstances outlined. The clips may be placed anywhere along the tile edge intermediate the corners, because the pene-

trable nature of the tile material permits a clip to be forced into place arbitrarily as desired.

The nail 22 extends inwardly at an angle as shown in Fig. 4, and may also extend laterally at an angle as shown in Figs. 3 and 5, suitable apertures being preferably provided in base 17 and tongue 19 for guiding the placement of nail 22. Therefore, after the application of the tile to the wall by means of the adhesive 13, the nails 22 are driven into place into the building surface 11 by means of a nail set, and are firmly held in said surface, aided substantially by the angular relation of the nails relative to the building surface. This angular relation of the nails to the building surface is particularly desirable where said building surface comprises a plastered wall or ceiling, since a plastered surface which has set will not securely retain a nail driven therein as will wood, for instance, because the plaster is frangible and crumbles under impact, so that little, if any, compression is afforded around the nail for gripping the same. However, where the nails 22 are driven into the plaster at an angle as described, a good, substantially hook-like connection is provided between the tile 10, clip 17 and surface 11, for after the tile are all erected, one abutting the other, the only possible direction in which a tile 10 can be moved relative to surface 11 is perpendicularly away from said surface 11. Obviously, since nails 22 are maintained in angular position by the clips through which they pass, and tiles 10 are securely held by the clips, said tile will in effect be suspended from surface 11 and thoroughly secured against displacement; whereas, if nails 22 are driven perpendicularly into surface 11, said nails will be ineffective for the desired purpose as they will, for the most part, readily pull out of the plaster. The final driving of the nail may be accomplished with an ordinary nail set, so that the head of the nail is substantially concealed by the body of the tile when viewed from below at a little distance.

If desired, the clip may be provided with the additional outstanding tongue 20 as seen in Figs. 1, 2, and 3, so that when one tile is in position, the next tile is pushed into place with the prong 20 extending into the edge of the tile, thus necessitating the use of about half as many clips as is necessary if only the single prong 19 is employed.

Where the clips are attached to the tile edges at the factory or the tile will be subject to considerable handling before erection, so that the clips might become displaced, it is desirable to insert a headed nail 24 through leg 18 of the clip into the body of tile 10. For this purpose a suitable perforation may be formed in leg 18. Not only do nails 24 serve to prevent displacement of the clips from the tiles prior to erection, but said nails also serve to some extent to supplement prongs 19 as gripping means to support said tile after erection.

The construction described has been found to be very efficient in firmly attaching the tiles to a plastered building surface, and has also been found to be very easy to erect, requiring much less labor cost than other systems heretofore proposed.

I would state in conclusion, while the illustrated examples constitute a practical embodiment of my invention, I do not wish to limit myself precisely to these details, since manifestly the same may be considerably varied without departing from the spirit of the invention as defined in the appended claims.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The method of attaching acoustical tiles of a soft, fibrous nature to a building surface, which comprises positioning a clip adjacent to the edge of a tile, said clip having an outstanding prong and a leg in substantially parallel relation, a nail passing through said prong and leg and being held in angular relation thereby, forcing said prong into the edge of said tile so that said nail is forced into the material of said tile transversely of the axis of said nail, said nail being assembled on said clip prior to said forcing operation, applying said tile and clips to said building surface, and driving said nail into said building surface so that the head of said nail is countersunk below the surface of said tile to a point adjacent said prong.

2. A metallic clip suitable for attaching acoustical tiles to a building surface, having a leg to be placed in substantially parallel relation with the back of a tile, a tongue adapted to extend into the body of said tile, said tongue and leg having apertures formed therein, and a nail extending through and frictionally held in said apertures, said apertures accurately defining the position of said nail.

3. A clip of the class described, comprising a pair of angular legs, a tongue in angular relationship with one of said legs and extending substantially parallel with the other leg, said tongue and parallel leg being provided with a perforation for guiding a nail, and said one leg being provided with a perforation for receiving a nail in angular relationship to said first mentioned nail.

4. A clip of the class described, comprising a pair of angular legs, a tongue in angular relationship with one of said legs and extending substantially parallel with the other leg, said tongue and said parallel leg being provided with off-set perforations, a nail passing through said perforations and being accurately guided by said perforations in slanting relationship relative to said parallel leg, and said one leg being provided with a perforation for receiving a nail in angular relationship to said first mentioned nail.

5. The combination with a frangible acoustical tile adapted for covering a building surface, a clip having a prong forced into and embedded in the edge of said tile, a leg of said clip lying against said tile edge and another leg of said clip lying against the back face of said tile, and a finishing nail extending through said prong and said last mentioned clip leg and adapted to be driven into a building surface for attaching said tile to said surface, said nail being forced laterally into said tile together with said prong.

6. In an acoustical building construction, a building surface, an acoustical tile extending parallel to and somewhat spaced from said surface, adhesive means around the rear face perimeter of said tile for attaching said tile to said surface, a backing on said rear face of said tile to prevent breathing through said tile, a clip adjacent a rear edge of said tile, and a nail extending through a portion of said tile and said clip and into said building surface for supplementing said adhesive in attaching said tile to said building surface.

7. In an acoustical building construction, a plastered building surface, an acoustical tile extending parallel to said building surface, a clip of thin sheet metal engaging a rear edge of said tile and having a prong pressed into the edge of said tile, a part of said clip in engagement with

the back of said tile, said clip part and prong having offset perforations formed therein, and a thin finishing nail extending at an angle through the perforations in said clip part and prong and a portion of said tile and into said building surface, said clip and nail providing substantially hook-like connection between said tile and plastered surface.

8. In a construction of the class described, a plastered surface, a pair of tiles in edge-abutting relation adjacent said surface, the outer corners of the abutting edges being beveled, an attachment element embedded in said tile edges, and a nail driven through said attachment element in one of the tiles and into said surface, said nail entering said tile at a slanting angle inwardly through the bevelled corner at the tile edge, said angle being such as not to interfere with the adjoining tile when said nail is countersunk but

sufficient so that the nail head is hidden by an over-hanging portion of the tile face, the nail also being at an angle longitudinally of said tile edge somewhat greater than the inward inclination so as to provide a hook-like connection for the tile in said plastered surface.

9. In a building construction, a plastered surface, a tile in engagement with said surface, a metallic clip having a portion embedded in the edge of said tile, a nail extending through said tile and clip portion and into said plastered surface, said nail being at an inclination relative to said surface so as to provide a substantially hook-like attachment of said tile to said plastered surface, and the head of said nail lying within the body of said tile inwardly from said edge so as to be substantially hidden from view.

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