Feb. 14, 1967 E. SWAIN 3,303,624

REMOVABLE TILE AND FASTENER ASSEMBLY

Filed April 23, 1964

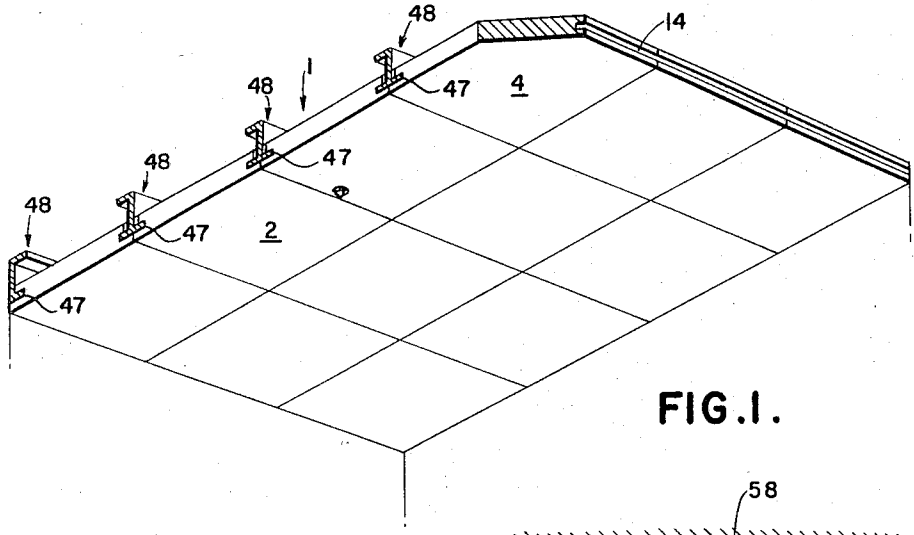


FIG. 1.

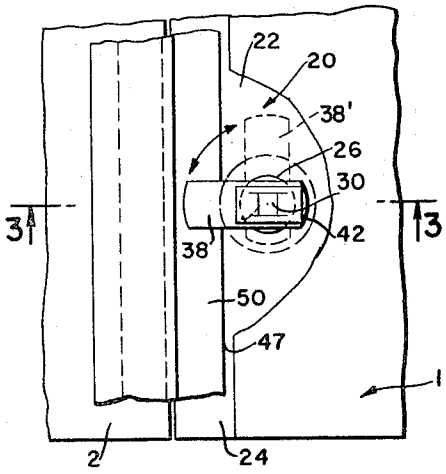


FIG. 2.

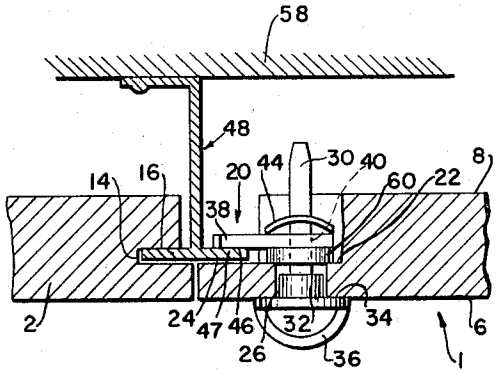


FIG. 3.

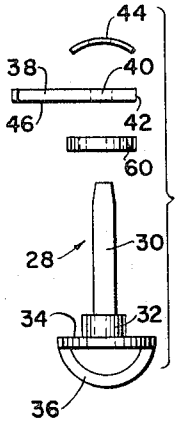


FIG. 5.

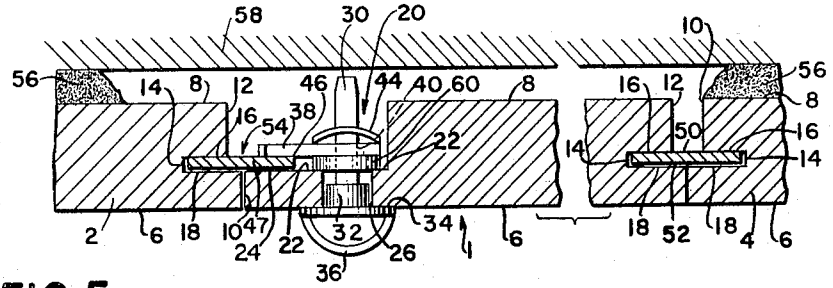


FIG. 4.

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REMOVABLE TILE AND FASTENER ASSEMBLY

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This invention relates generally to tile matrix installations and more particularly to a tile removably associated with a stationary tile assembly, the function of said removable tile being to permit access to valves, dampers, wiring and the like positioned rearwardly of the tile matrix superposed with respect to a ceiling, floor or wall surface.

The instant invention is essentially directed to the provision of fastening means employed in combined relation with a removable tile whereby coaction therewith of any spline utilized between abutting tiles may be accomplished notwithstanding variation of configuration or of the dimensional character of the spline involved.

An object of the present invention is to provide a removable tile having a rotatable button partially extending outwardly of the exposed surface thereof, whereby manual rotation of said button will effectuate release or securement of said tile with respect to stationary tiles disposed adjacently thereto.

Another object of this invention resides in the provision of a button fastener which may be readily applied to a conventional tile thus rendering said tile removable with respect to a plurality of stationary tiles.

A further object of the present invention is to provide fastening means rotatably mounted upon a movable tile, said means being engageable with the spline of an adjacently disposed coplanar abutting tile, said engagement being effectuated inwardly of the reverse surface of said removable tile.

Other objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice of the invention, the same being realized and attained by means of the structure defined and pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described. The accompanying drawings referred to herein and constituting a part hereof, illustrate one embodiment of the invention, and together with the description, serve to explain the principles of the invention.

FIGURE 1 is a perspective view of a coplanar tile matrix installed as a covering for a ceiling surface, one tile thereof being removable and being identifiable by dint of the button projecting therefrom;

FIGURE 2 is a fragmentary top plan view of the removale tile and fastener assembly secured with respect to a stationary tile;

FIGURE 3 is a side elevational cross-sectional view of the invention taken along line 3—3 of FIGURE 2 and illustrating the novel fastening means pressingly engaging the base portion of the spline member interposed therebetween;

FIGURE 4 is a fragmentary side elevational cross-sectional view of the removable tile and fastener assembly secured between adjacent coplanar stationary tiles, the spline members shown therein being modifications of the spline member shown in FIGURES 2 and 3; and

FIGURE 5 is an exploded view of the button type fastener means preferably utilized in the fulfillment of this invention.

It will be understood that the foregoing general objectives and the following detailed description as well

are exemplary and explanatory but are not restrictive of the invention.

Referring now in detail to the present preferred embodiment of the invention illustrated in the accompanying drawings, FIGURE 1 shows the removable tile and fastener assembly designated generally by numeral **1**, said assembly being secured to and coplanar with stationary tiles **2** and **4**, other stationary tiles being included to complete a section of a tile matrix covering a ceiling surface.

As seen in FIGURE 4 of the drawings, the removable tile **1** is disposed between a pair of coplanar, spaced, stationary tiles **2** and **4**, said tiles having obverse and reverse surfaces **6** and **8**, respectively, and end walls **10** and **12** disposed at opposite ends thereof, said end walls of said stationary tiles having channels or grooves **14** similarly provided lengthwise thereof, each said channel having upper and lower walls **16** and **18**, respectively, disposed in spaced, parallel relation. It will also be observed that end wall **12** of said removable tile is similarly provided with a groove **14**. As shown, the reverse surface **8** of said removable tile **1** is provided with a cut-away portion **20**, adjacent the end wall **10** thereof, said cut-away portion having a base **22** parallel with respect to reverse surface **8** and coplanar with respect to the lower wall **18** of said channels, a portion **24** of said base **22** extending the length of the end wall **10** of said removable tile to thereby provide a flange defined by the portion **24** and the end wall **10** (see FIGURES 2 and 4).

With further reference to FIGURE 4 and to FIGURES 2 and 3, it will be observed that passage **26** disposed through said removable tile **1**, provides communication between said base **22** and said obverse surface **6**, fastening means or button **28** specifically, being rotatably mounted therewithin.

Button **28** as shown in exploded form in FIGURE 5 of the drawings, is preferably comprised of coaxially disposed stud portion **30**, neck portion **32**, shoulder portion **34** and head portion **36**, said stud portion being rectangular of cross-section as illustrated in FIGURE 2. As disclosed in FIGURES 3 and 4, said head portion **36** is adapted to extend outwardly of said obverse surface **6** of said removable tile, said shoulder portion **34** being contiguous and slidable with respect to said obverse surface.

Flat straight arm member **38** having a rectangular opening **40** disposed therethrough inwardly of end **42** thereof, is removably secured to said stud portion **30** by speed nut **44** or other suitable means and is, accordingly, adapted to rotate therewith when head portion **36** of button **28** is manually rotated. As seen in FIGURE 3, the lower surface **46** of arm member **38** is coplanar with respect to upper wall **16** of channel **14** and parallel with respect to said base **2** of said cut-away portion **20**. Accordingly, arm member **38** is adapted to rotate in a plane disposed intermediate said obverse and reverse surfaces **6** and **8**, and by dint of such rotation is pressingly engageable with tongue portion **47** of spline member **48**, said tongue portion being removably receivable within channel **14** of stationary tile **2**, a portion thereof being adapted for superposition with respect to portion **24** of said base **22**.

It will be appreciated that tongue portion **47** of spline member **48** is receivable within abutting channels of respective tiles as shown in FIGURE 1, to thereby retain said tiles in the form of a coplanar matrix, said tongue portion of said spline member having upper and lower surfaces **50** and **52**, respectively, adapted for seating engagement with said upper and lower walls **16** and **18**, respectively, of said channels **14**.

It will be further appreciated that the spline member

may assume alternate forms, as shown, e.g., in FIGURE 4 wherein a modified spline member **54** is seen comprised entirely of tongue portion **47**, cement **56** being utilized to fasten the stationary tiles to wall or ceiling surface **58**, this construction and fastening means being in lieu of the Z-bar arrangement according to FIGURE 3.

Thus, as aforestated and as specifically shown in FIGURE 2 of the drawings, arm member **38** shown in solid line illustration is pressingly engaging a portion of the upper surface **50** of the tongue portion **47** of the spline member, the disengaged position of said arm member being shown in broken line illustration and designated by numeral **38'**.

Washer **60**, interposed between said straight arm member **38** and base **22** of said cut-away portion serves as a bearing surface facilitating the rotational movement of said button and arm member.

Hence, it will be apparent that rotation of said arm member into pressing engagement with said spline member will secure the removable tile within the tile matrix, while rotation of said arm member out of such engagement will permit the withdrawal of said removable tile therefrom thus permitting access to the area therebehind.

Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the forms, details, proportion and arrangement of parts, the combination thereof and mode of operation, which as generally stated consists in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims:

What is claimed is:

1. In a tile assembly for covering a surface, the combination comprising a pair of coplanar, spaced, stationary tiles and a removable tile disposed therebetween and in coplanar relation therewith, said tiles having obverse and reverse surfaces and end walls disposed at opposite ends thereof, said end walls of said stationary tiles having channels similarly provided lengthwise thereof, each said channel having upper and lower walls disposed in spaced, parallel relation, the reverse surface of said removable tile having a cut-away portion adjacent one of the end walls thereof, the other end wall thereof having a channel provided lengthwise thereof, said cut-away portion having a base parallel with respect to said reverse surface and coplanar with respect to the lower wall of said channels, a portion of said base extending the length of said one of said end walls, a passage through said removable tile providing communication between said base and said obverse surface, a button rotatably mounted within said passage, said button having coaxially disposed stud, neck, shoulder and head portions, said stud being rectangular of cross-section, said head portion being adapted to extend outwardly of said obverse surface of said removable tile, said shoulder portion being contiguous with said obverse surface thereof, a flat arm member having a rectangular opening disposed therethrough inwardly of one end thereof, said arm member being removably secured to said stud and adapted to rotate therewith, said arm member extending laterally of said stud, the lower surface of said arm member being coplanar with respect to the upper wall of said channels and parallel with the base of said cut-away portion, spline members removably receivable lengthwise of said channels, a portion of a respective spline member being receivable within abutting channels of respective tiles, said spline members having upper and lower surfaces adapted for seating engagement with said upper and lower walls, respectively, of said channels, said rotatable arm member being adapted to pressingly engage a portion of the upper surface of the spline member extending without the channel of a stationary tile to thus retain said spline member against the portion of said base extending the length of said one of said end walls of said removable tile to thereby removably retain said removable tile in end wall abutting relation with said stationary tile.

2. In a tile assembly for covering a surface, the combination comprising a pair of coplanar, spaced, stationary tiles and a removable tile disposed therebetween and in coplanar relation therewith, said tiles having obverse and reverse surfaces and end walls disposed at opposite ends thereof, said end walls of said stationary tiles having channels similarly provided lengthwise thereof, each said channel having upper and lower walls disposed in spaced, parallel relation, the reverse surface of said removable tile having a cut-away portion adjacent one of the end walls thereof, the other end wall thereof having a channel provided lengthwise thereof, said cut-away portion having a base parallel with respect to said reverse surface and coplanar with respect to the lower wall of said channels, a portion of said base extending the length of said one of said end walls, a passage through said removable tile providing communication between said base and said obverse surface, a button rotatably mounted within said passage, a first portion of said button extending outwardly of said obverse surface of said removable tile and a second portion of said button extending outwardly of said base portion thereof, a flat arm member removably secured to said second portion and adapted to rotate therewith, said arm member extending laterally of said second portion, the lower surface of said arm member being coplanar with respect to the upper wall of said channels and parallel with the base of said cut-away portion, spline members removably receivable lengthwise of said channels, a portion of a respective spline member being receivable within abutting channels of respective tiles, said spline members having upper and lower surfaces adapted for seating engagement with said upper and lower walls, respectively, of said channels, said rotatable arm member being adapted to pressingly engage a portion of the upper surface of the spline member extending without the channel of a stationary tile to thus retain said spline member against the portion of said base extending the length of said one of said end walls of said removable tile to thereby removably retain said removable tile in end wall abutting relation with said stationary tile.

3. In a tile assembly for covering a surface, a removable tile having obverse and reverse surfaces and end walls disposed at opposite ends thereof, one said end wall having a channel provided lengthwise thereof, said channel having upper and lower walls disposed in spaced parallel relation, the reverse surface of said removable tile having a cut-away portion adjacent the other end wall thereof, said cut-away portion having a base parallel with respect to said reverse surface and coplanar with respect to the lower wall of said channel, a portion of said base extending the length of said other end wall, a passage through said removable tile providing communication between said base and said obverse surface, a button rotatably mounted within said passage, a first portion of said button extending outwardly of said obverse surface and a second portion of said button extending outwardly of said base portion, a straight arm member removably secured to said second portion and adapted to rotate therewith, said arm member extending laterally of said second portion, the lower surface of said arm member being coplanar with respect to the upper wall of said channel and parallel with the base of said cut-away portion.

4. In a tile assembly for covering a surface, a removable tile having obverse and reverse surfaces and end walls disposed at opposite ends thereof, one said end wall having a channel provided lengthwise thereof, said channel having upper and lower walls, disposed in spaced parallel relation, the reverse surface of said removable tile having a cut-away portion adjacent the other end wall thereof, said cut-away portion having a base parallel with respect to said reverse surface and coplanar with respect to the lower wall of said channel, a portion of said base extending the length of said other end wall, a passage through said removable tile providing communication between said base and said obverse surface,

fastening means rotatably mounted within said passage, a straight arm member secured to said fastening means, said arm member extending laterally of said fastening means, the lower surface of said arm member being coplanar with respect to the upper wall of said channel and parallel with the base of said cut-away portion, rotation of said fastening means causing rotation of said arm member.

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