Aug. 30, 1960 A. HELLWIG 2,950,575

RACEWAY NETWORK

Filed Jan. 13, 1958

Fig. 1

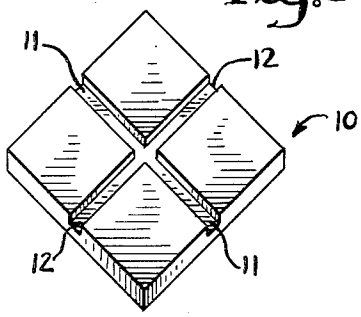


Fig. 2

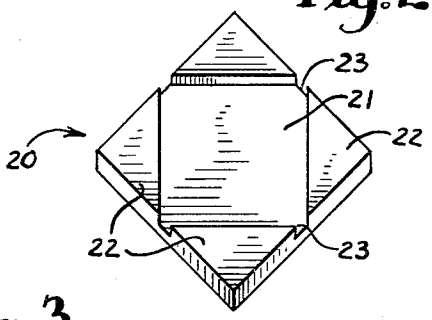
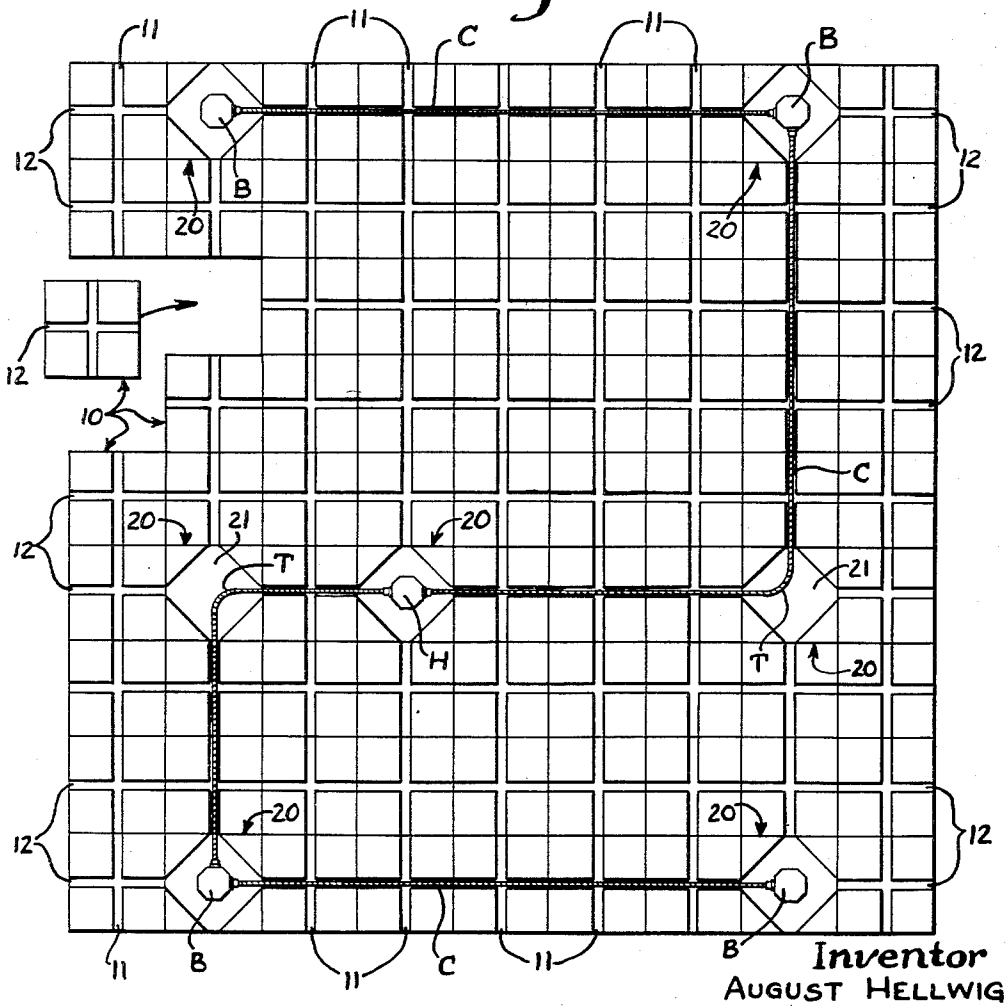


Fig. 3



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RACEWAY NETWORK

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3 Claims. (Cl. 50—127)

The present invention relates to improvements in raceways for electrical conductors. More specifically, the invention finds particularly useful application as a grid or network of raceways formed in acoustical tiles, such as are commonly cemented to the ceilings of office buildings.

In such buildings, the originally-installed electrical outlet boxes and connecting conduits are imbedded in masonry or concrete, and cannot be moved. When lighting outlets are required in changed or additional locations, it is customary to connect them by means of armored cable. To accommodate the cable, it has heretofore been necessary to cut long chases in the plaster. Where the plaster is shallow, the underlying masonry must be chased.

This process is expensive, tedious, and extremely productive of dust and dirt. Furthermore, it necessitates the patching or re-plastering of damaged portions of the ceiling. This adds substantially to the cost. Also, the total time during which the premises are rendered untenable, is considerably increased by the setting up of plasterers' scaffolds and similar work, all of which results from the practice of cutting chases.

It is therefore an objective of this invention, to provide a network of raceways to accommodate electrical conductors, formed in the acoustical tiles used to cover ceilings, and thereby obviate the cutting of chases, with all the associated cost, dirt and delay.

A further objective is to provide a network of raceways such that armored cable or other conductors may readily be fished through grooves or channels extending across the entire ceiling, so that any two points may be connected by a cable, which may as readily be withdrawn whenever desired.

Further objectives and advantages of the invention are explained with reference to the drawings, of which:

Figure 1 is a perspective view of a tile provided with intersecting channels.

Figure 2 is a perspective view of a tile provided with a central recess.

Figure 3 is a plan view of a network of raceways, comprising a multiplicity of tiles of Figure 1 and Figure 2.

Figure 1 shows a tile embodying a preferred form of the invention, and generally designated by the numeral **10**. A groove **11** extends completely across the tile, being formed in that face which is applied to the ceiling. A second groove **12** also extends across the tile, but lateral to the first groove **11**. While the grooves are shown as rectangular, they may be made any convenient shape, as for example semi-circular. The only requirement is, that they be ample to accommodate the armored cable commonly used in electrical wiring. In order to facilitate the fishing in of the cable, the grooves may be coated or lined with any suitable material affording a smooth, hard surface.

Other conductors, such as are used for signal systems, telephone lines, public address systems and the like, may

also be accommodated, as well as small diameter tubing as used for pneumatic control systems.

Figure 2 shows another tile of the present invention, generally designated by the numeral **20**. The corner portions **22** define a central recessed portion **21**, extending to the sides to define openings **23**. These align themselves with the grooves **11** and **12** whenever tiles **10** and **20** abut.

Figure 3 shows an assembly of tiles **10** and **20**, as they are customarily aligned, so it may be understood that no additional labor or unusual precaution is required to insure the continuous alignment of grooves **11** and **12**.

An originally-installed outlet, from which conductors run directly to a fuse-cabinet, is commonly called a home-run outlet. Such an outlet is indicated at H. From it, armored cables C extend to additional outlets B. When electrical outlets are added or re-located simultaneously with the application of acoustical tile to the ceiling, the preferred method is as follows:

The proposed location of the outlets is marked on the ceiling. The points where cables will make lateral turns, as indicated at T, may easily be predetermined and also marked. The tile is then attached to the ceiling in the usual manner, but leaving out such tiles as fall in the locations H, B and T.

After the tile is in place, the outlet boxes are attached to the ceiling in the usual manner. If the marked location does not coincide with the center of a tile, a more pleasing appearance results if the outlet is moved over the small distance necessary to center it. Of course, if desired, the outlet box may be attached exactly at the mark.

After the outlet boxes are installed, the cables may be fished through appropriate grooves **11** and **12**, as required, and connected to the outlet boxes. The omitted tiles may then be installed.

It should be noted that tiles **20** are used only at the location of outlet boxes, or where the cables turn. The recess formed in these tiles as indicated at **21**, readily accommodates the curved portion of the cable, and when installed over an outlet box the recess is ample to accommodate the box and the cable. The customary practice of cutting an opening through the tile, in register with the outline of the box, must of course be followed in order to leave the box accessible.

Thus far the explanation has dealt only with the installation of outlet boxes and the connecting cables. However, it is of equal importance that they may be easily removed, since the moving of lighting outlets is a recurring process. Otherwise an increasing number of unsightly capped outlets results.

By reversing the process explained, all obsolete and unnecessary boxes may be removed, and the cables withdrawn. To this end, tiles **20** are removed. After the unwanted boxes and cables are removed, tiles **10** are attached wherever a tile is missing. This restores the continuity of all grooves **11** and **12**, and leaves the ceiling clear and unmarred.

The removal of tiles at other locations as required, again affords access to the network of grooves, and the process of installing and subsequently withdrawing cables may be repeated indefinitely.

Once a ceiling is provided with the novel network of raceways, outlets may be re-located or added in tenanted areas, without the dirt and excessive duration which make older methods objectionable and costly.

While an illustrative embodiment of the invention has been shown and described, there is no intention to limit the invention thereto. On the contrary, the intention is to cover all modifications, alternative embodiments, usages and equivalents of the wireway network as fall with-

in the spirit and scope of the invention, specification and appended claims.

I claim as my invention:

1. A ceiling comprising a set of tiles in combination, said tiles including a first rectangular tile, said first rectangular tile having cruciform grooves formed in a face thereof, said cruciform grooves extending to and bisecting the terminal edges of said first rectangular tile thereby forming central openings in said edges, a second rectangular tile having walls defining a depression therein, said walls forming openings at the mid-points in the edges of said second rectangular tile, said first tiles being arranged to surround said second tiles with the adjacent edges of the tiles abutting to position the side openings in each of said tiles in communicating relationship with the other.

2. A ceiling having integral raceways and open areas for accommodating a complete wiring system, including armored cable and electrical boxes, said ceiling comprising a plurality of raceway tiles and outlet tiles, each raceway tile being characterized by a rectangular face, a rectangular back, a pair of mutually perpendicular channels in the back of said tile, said channels being of a width and depth to accommodate the armored cable, each outlet tile having a rectangular face and back and perpendicular side walls, said outlet tiles having the same external size as the raceway tiles, a diamond shaped four cornered recess in the back of the outlet tile, each such recess corner intersecting at a mid-point in each side wall thereby defining an opening corresponding to the openings at the end of the channels in the raceway tiles, said tiles being affixed to their associated ceiling with the backs against the ceiling, the raceway tile channels thereby defining armor cable channels, and the outlet tile recesses defining turning areas for the armored cable and locations for outlet boxes and junction boxes, the raceway channels communicating with the adjacent recess openings.

3. A ceiling having integral raceways and open areas for accommodating a complete wiring system, including armored cable, outlet boxes, and junction boxes, said ceiling comprising a plurality of raceway tiles and outlet tiles, each raceway tile being characterized by a rectangular face, a rectangular back, a pair of mutually perpendicular channels in the back of said tile, said channels being of a width and depth to accommodate the armored cable, each outlet tile having a rectangular face and back and perpendicular side walls, said outlet tiles having the same external size as the raceway tiles, a four cornered recess in the back of the outlet tile, each such recess corner intersecting at a mid-point in each side wall thereby defining an opening corresponding to the openings at the end of the channels in the raceway tiles, said tiles being affixed to their associated ceiling with the backs against the ceiling, the raceway tile channels thereby defining armor cable channels, and the outlet tile openings communicating with the raceway tile channels and leading to turning areas for the armored cable and locations for outlet boxes and junction boxes.

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