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CEILING CONSTRUCTION

Filed June 13, 1957

Fig. 1.

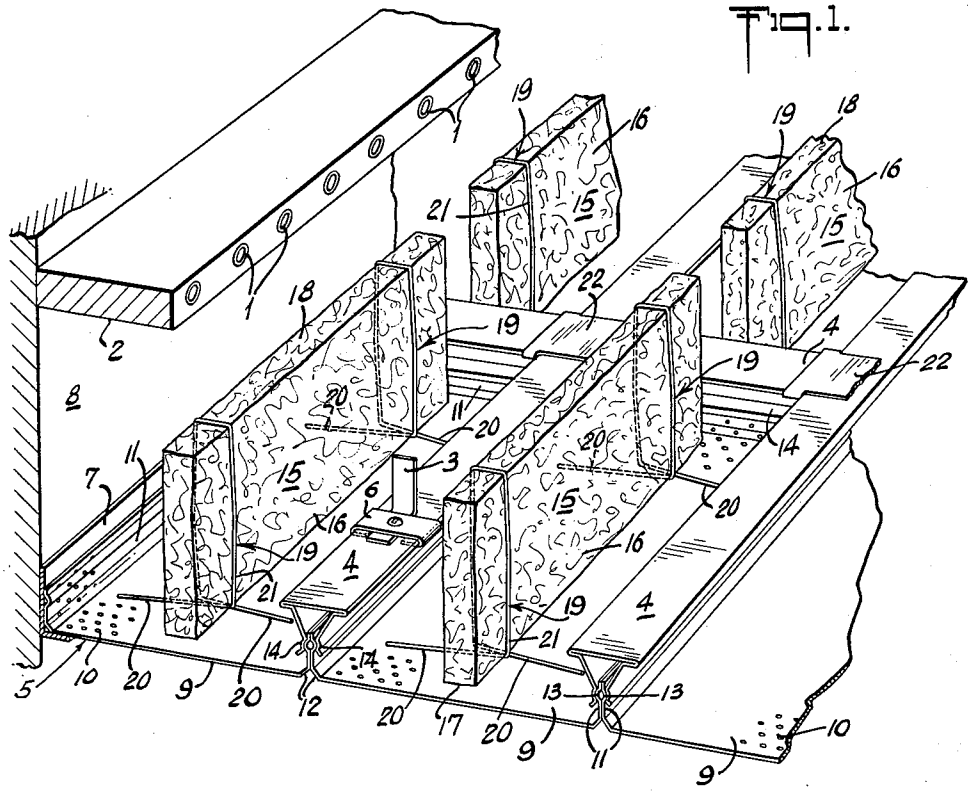


Fig. 2.

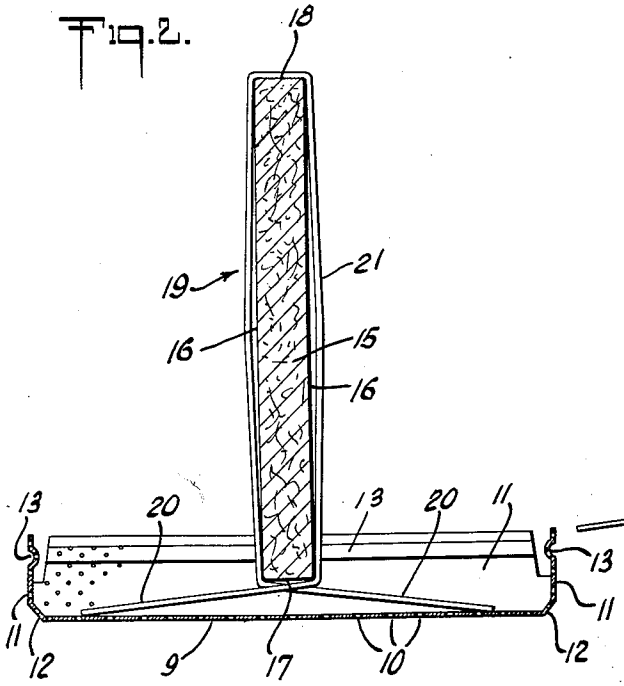
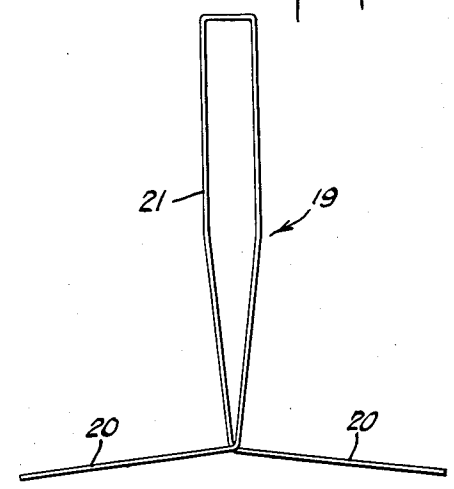


Fig. 3.



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CEILING CONSTRUCTION

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This invention relates to a method and apparatus for the placement of acoustical units in a ceiling construction while allowing for radiant heating or cooling. In this system, acoustical units are placed in perforated ceiling tiles so that a relatively narrow edge of the acoustical unit is adjacent to but spaced from the ceiling tile.

The primary object of the present invention is to present a system for ceiling construction allowing for the acoustical treatment of a radiant heating or cooling surface.

A further object of the present invention is to provide structure for a ceiling construction that effectively supports an acoustical unit without obstructing the radiant heating or cooling currents.

The invention will be more fully understood and further objects and advantages thereof will become apparent when reference is made to the following detailed description of a preferred embodiment of the invention and the accompanying drawings in which:

FIG. 1 is a pictorial view of a part of the ceiling construction of the instant invention;

FIG. 2 is a transverse sectional view of one of the tiles and units of FIG. 1; and

FIG. 3 is a side elevation, on a reduced scale, of one of the wire supports.

Referring to the drawing there is disclosed in FIG. 1 a ceiling structure having pipes **1** imbedded therein for producing a radiant heating or cooling surface **2**. Suspended from the ceiling by the hangers **3** are a plurality of T-runners **4** arranged to form a reticulated pattern for the reception of perforated ceiling tiles **5**. A clip **6** bolted to the hangers **3** supports the runners **4**. An L-runner **7** secured to the side wall **8** completes the reticulated pattern.

Each ceiling tile **5** is stamped from sheet metal in a pan-like formation having a rigid base **9** with perforations **10** and resilient perforated side flanges **11** perpendicular to the base **9**. The flanges **11** are integrally joined to the base **9** by flat portions **12** which have an obtuse angular relationship to the flanges **11** and the base **9**. Each flange **11** is provided with a longitudinally extending bead **13** that is adapted to be received in the recesses **14** of the T-runners **4**. The ceiling tiles **5** are assembled by pushing them up between the runners **4** until the beads **13** snap into the recesses **14**. In this manner, all of the bases **9** lie in the same plane to present a uniformly smooth visible surface.

To provide for sound absorption, a plurality of acoustical units **15** having wide faces **16** and relatively narrow edges **17** and **18** are placed between the radiant heating or cooling surface **2** and the ceiling tiles **5**. These acoustical units are received in wire supports **19** that rest on the upper surface of the base **9** of each ceiling tile **5**. To allow for the radiant heating or cooling effect, the acoustical units **15** are mounted so that the faces **16** are perpendicular to the base **9**, and the relatively narrow edge **17** is adjacent to but spaced from the base **9**. The other edge **18** is adjacent to but spaced from the radiant heating or cooling surface **2**.

The wire support **19** consists of a continuous wire having legs **20** and an integral resilient body **21** formed as a loop of the wire between the legs **20**. In assembly, the legs **20** are pushed toward each other and the body **21** eased over the acoustical unit **15**. The legs **20** are then released so that the body **21** resiliently clamps on to the acoustical unit **15**. The body **21** is shaped similar to the acoustical unit **15** to assure a good fit. As illustrated in FIG. 1, two wire supports **19** hold the acoustical unit **15** in a ceiling tile **5** so that the edge **17** is spaced from the base **9** to obstruct only a minimum of the perforations **10**.

Whenever it is desired to acoustically treat an interior that is provided with a radiant heating or cooling surface, the ceiling construction of the present invention is most efficient. The T-runners **4** are suspended from the surface **2** to form a reticulated pattern with the intersecting T-runners joined by a clip **22**. An acoustical unit **15** is provided with a wire support **19** at each end and then placed in a ceiling tile **5** on the base **9**. The tile is then pushed up between the runners **4** until the beads **13** snap into the recesses **14**. It is not necessary to place an acoustical unit **15** in each tile **5**. To attain a desired sound absorbing coefficient, it may only be necessary to place an acoustical unit **15** in every second or third tile. It is to be especially noted that, in the present ceiling construction, both wide faces **16** of the acoustical unit are presented for sound absorption, thereby, increasing the efficiency of the acoustical unit **15**. Thus, the radiant heating or cooling currents are allowed to circulate from the surface **2** through the perforations **10** without being obstructed by the acoustical units **15**. This invention, therefore, presents a ceiling construction that allows for sound absorption in a radiant heating or cooling system.

Having thus described the invention in rather full detail, it will be understood that these details need not be strictly adhered to and that various changes and modifications may suggest themselves to one skilled in the art, all falling within the scope of the invention as defined by the subjoined claims.

What we claim is:

1. A ceiling construction comprising a ceiling, a plurality of perforated tiles suspended from said ceiling, said tiles being juxtapositioned each other to comprise an approximately continuous planar surface comprising a second ceiling, radiant heating or cooling means located adjacent said first ceiling, acoustical units having wide sound absorbing faces and relatively narrow edges supported in said ceiling tiles, and means supporting the acoustical units so that the wide sound absorbing faces are approximately perpendicular to said planar surface.

2. A ceiling construction as recited in claim 1, wherein the tiles are pan-like.

3. A ceiling construction as recited in claim 1, wherein said supporting means are resilient.

4. A ceiling construction comprising a plurality of perforated tiles juxtapositioned each other to form an approximately planar ceiling, radiant heating or cooling means situated above said ceiling, acoustical units having wide sound absorbing faces and relatively narrow edges supported in said tiles, and wire clip means attached to the acoustical units for supporting the units on edge on said tiles so that the wide sound absorbing faces are approximately perpendicular to the approximately planar ceiling.

5. A ceiling construction allowing for sound absorption in a radiant heating or cooling system which comprises a plurality of ceiling tiles, each of said tiles having an extended planar face, means to suspend the tiles so that the planar faces are horizontally disposed, acoustical units having wide sound absorbing faces and relatively narrow edges supported in said ceiling tiles, resilient supports for holding an acoustical unit in each tile so that one of said narrow edges is adjacent to but spaced from said tile and the wide sound absorbing faces are approximately perpendicular to the planar faces of the tile, each of the supports comprising a continuous wire having a resilient body and dependent integral legs, and said body resiliently

holding said acoustical unit and said legs resting on said ceiling tile.

6. A ceiling construction as recited in claim 5, wherein said body is formed as a loop of the wire between said legs.

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