United States Patent

Brown et al.

[15] **3,665,177**

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[54] SHALLOW PROFILE VAULTED LIGHTING MODULE

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[52] **U.S. Cl.** .....**240/9 R,** 52/28, 52/144, 52/495, 240/51.11

[51] **Int. Cl.** **F21s**

[58] **Field of Search** 240/9, 51.11; 52/28, 144, 495

[56] **References Cited**

UNITED STATES PATENTS

3,150,833	9/1964	Franck et al.	240/9 X
3,397,499	8/1968	Ward	240/9 X
3,509,668	5/1970	Ollinger et al.	240/9 X

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[57] **ABSTRACT**

A shallow profile vaulted lighting module is formed by making a dual module structure in the same space which would normally be occupied by a single module or by using half the area of a normal module to form a small module structure. The small module structures are then provided with lenses so that one or both sides of the vaulted section can function as the luminaire lens for a light.

3 Claims, 2 Drawing Figures

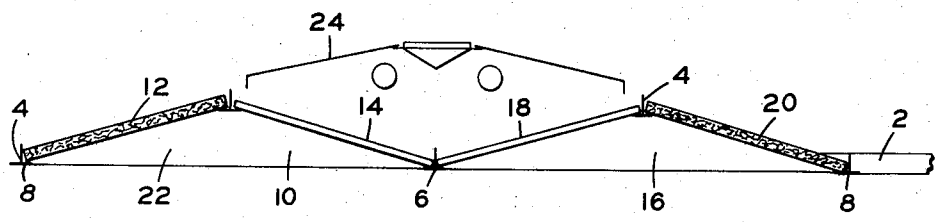


Fig. I

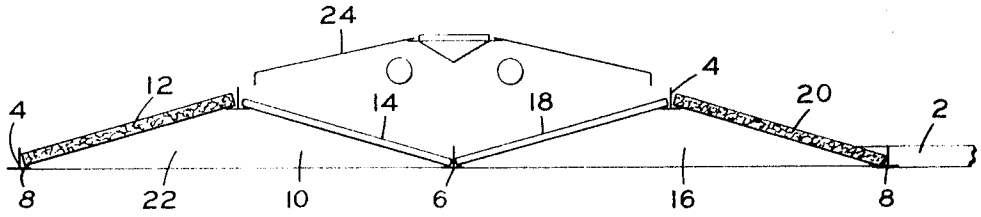
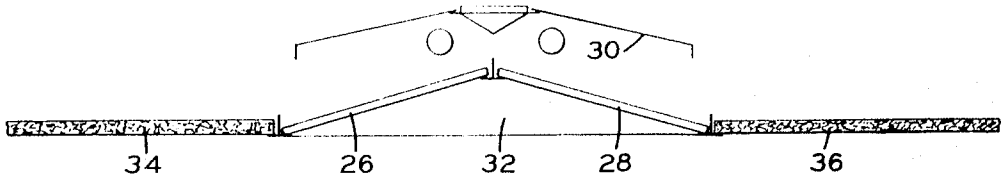


Fig. II



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SHALLOW PROFILE VAULTED LIGHTING MODULE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a suspended ceiling lighting fixture assembly and, more particularly, to a module formed of both ceiling boards and lenses for a light.

2. Description of the Prior Art

U.S. Pat. No. 3,321,877 discloses the conventional vaulted lighting module which is used in the art at the present time. U.S. Pat. No. 3,512,313 discloses a modification of the preceding structure wherein a single module is connected to adjacent modules to form an elongated light assembly. U.S. Pat. No. 3,372,270 discloses a variation of the first-mentioned patent wherein the individual modules are formed with a square configuration. Finally, U.S. Pat. No. 3,397,499 discloses a vaulted ceiling structure made of diffusers or lens structures for lamp assemblies above the ceiling system.

SUMMARY OF THE INVENTION

Conventional ceiling modules are formed by using 4×4-foot openings and placing therein a lighting fixture and ceiling boards. The ceiling boards are usually inclined in some position relative to the lighting fixture which would be mounted centrally and in the upper reaches of the module structure. The conventional module area is utilized to provide a shallow profile vaulted lighting assembly which will have primarily two inclined vaulted structures within the 4×4-foot area. In one embodiment, the two adjacent sides of the vaulted structure are formed by lens elements which will transmit light while the two opposite sides of the adjacent vaulted structures are provided with ceiling boards. A lighting fixture is mounted centrally of the two structures, and light will then pass through the lens elements. A modification involves the use of a single vault centrally with that vault being composed of lenses for the lighting fixture. Adjacent the single vault on either side thereof, there is placed ceiling boards in a horizontal plane. Both the lenses and boards are used in the area of a conventional module.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a cross-sectional view of a lighting module having two vaulted structures; and

FIG. II is a modification of the FIG. I structure wherein there is only a single centrally located vaulted structure, said vaulted structure being formed primarily from diffusers.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A suspended ceiling system is composed of a plurality of main runner members and cross tee members which form a grid-like pattern to support the ceiling components in position. The main runner members and cross tee members are supported from the structural ceiling of a building and are fastened together in their grid-like pattern.

As shown in FIG. I, the main runner structure **2** would run in a direction along with the plane of the sheet drawing while the cross members **4** would be perpendicular thereto and, therefore, would be extending perpendicularly to the sheet of drawing. The distance between two adjacent main runner assemblies is approximately 4 feet, and normally the distance between two cross tee members forming the individual lighting module will be 4 feet. In the embodiment shown in FIG. I, the cross tee member **6** is about midway between the two cross tee members **8** which form the lighting module. That is, cross tee **6** is about 2 feet from each of the cross tees **8**. A vaulted lighting module is formed between each cross tee **8** and cross tee **6**. Module **10** of FIG. I is composed of a conventional ceiling board **12** and a diffuser or light lens **14**. Module

16 is composed of a lens **18** and ceiling board **20**. The ends of the individual modular units **10** and **16** are closed in by end supports **22** to form a structure similar to that of U.S. Pat. No. 3,321,877. However, the end members could be eliminated and a structure similar to that of U.S. Pat. No. 3,512,313 could be formed.

A light fixture is mounted above the diffusers **14** and **18**. The light fixture **24** is positioned above diffusers **14** and **18** so that the diffusers **14** and **18** function as the diffusers or lens for the light fixture, and it is through these diffusers that light is supplied to the room. The ceiling boards **12** and **20** are normally sound absorbing boards and function to provide a sound deadening feature for the room. However, since the diffusers are normally white and the board is white, if the light is not on, one looking up at the ceiling system would tend to see two very similar vault structures. When the light is on, then the center two sections **14** and **18** would tend to be illuminated and provide light into the room.

Referring now to FIG. II, there is shown a modification of the structure of FIG. I. Here two lenses **26** and **28** are formed into a vault structure and have placed thereover a lighting fixture **30**. Adjacent the vault structure **32** formed by the two lenses **26** and **28**, there are placed the ceiling boards **34** and **36**. These ceiling boards are placed in the plane of the ceiling and thus provide a single, very small vault of 2×4 feet with rather wide side structures on either side thereof.

The above structures provide a vaulted lighting module which is of a shallow profile primarily because it is of width approximately one-half that of the conventional lighting modules being used to date. Also the structure is particularly unique in that the members which form a part or all of the vaulted region are diffusers or lens structures which will transmit light.

What is claimed is:

1. An acoustical suspended ceiling system for use with a room having a main ceiling from which said acoustical ceiling is to be suspended, comprising a plurality of acoustical panels, means to individually and removably support each of the acoustical panels, a plurality of diffuser panels, means to individually and removably support said diffuser panels, said means supporting the acoustical panels and the diffuser panels holding the panels at an angle to a plane passing through the lower portions of the removably supported panels and in a spaced relationship to one another with the distance between the lower portion of each of said removably supported panels being greater than the distance between the upper portions of each of said removably supported panels whereby a downwardly opening space of increasing cross-sectional area is defined between said removably supported panels, said supporting means including main runner means extending adjacent said removably supported panels and cross tee members extending between said main runner means and actually supporting said removably supported panels, said removably supported panels defining at least one shallow vaulted structure in which at least one side of each vaulted structure is composed of a diffuser panel, and a light fixture means mounted behind the diffuser panel to provide illumination to the area below the suspended ceiling system.

2. The acoustical ceiling of claim **1** wherein two adjacent vaulted structures are formed, and the side of each vaulted structure of the adjacent vaults being formed from a diffuser panel and the opposite sides of each vaulted structure being formed of an acoustical ceiling panel whereby the two adjacent diffuser panels form a lens for a lighting fixture overlying the diffuser panels.

3. The acoustical ceiling system of claim **1** wherein both panels of the vaulted structure are diffuser panels and adjacent each side of this vault is placed acoustical ceiling panels in the plane of the ceiling system so that the total vaulted assembly acts as the lens for the lighting fixture overlying the diffuser panels.

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