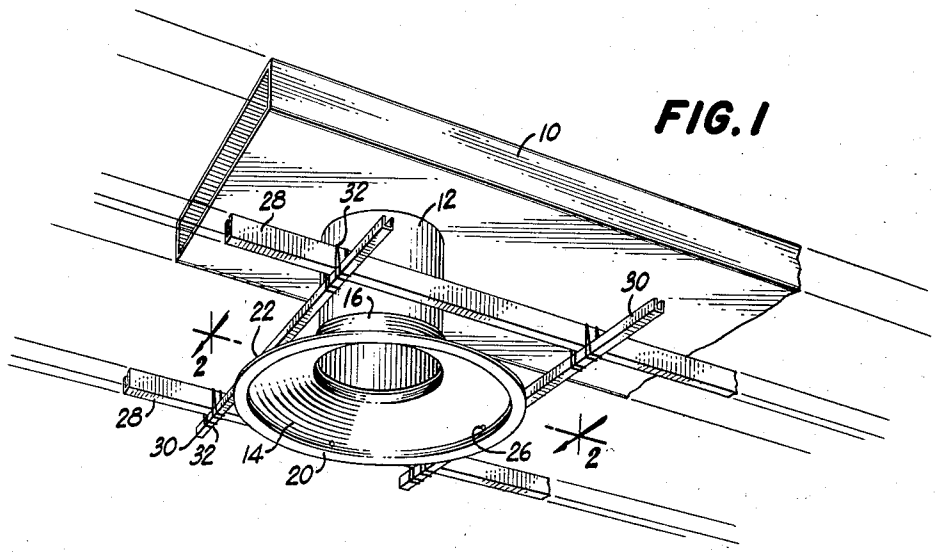
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CEILING DIFFUSER MOUNTING

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FIG. 1



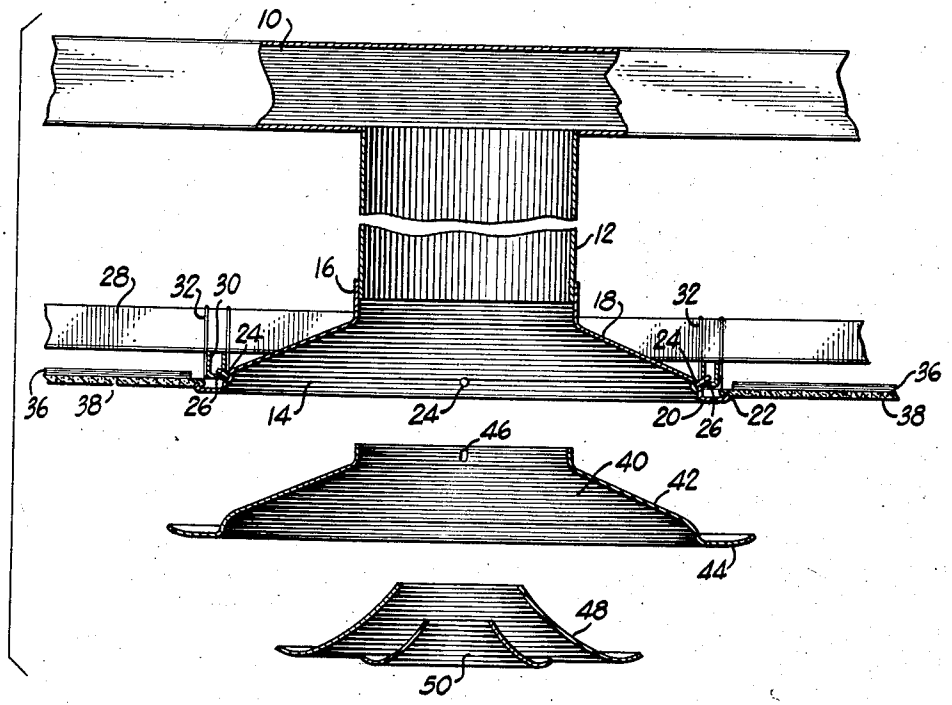


FIG. 2

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FIG. 3

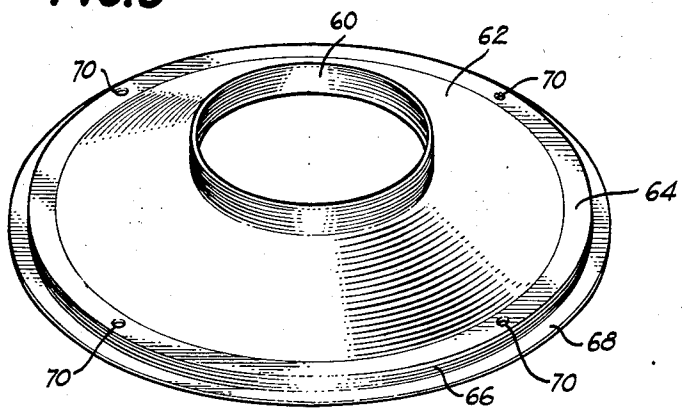
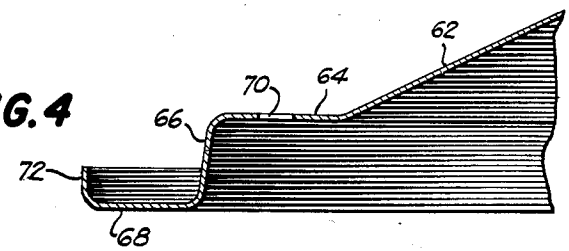


FIG. 4



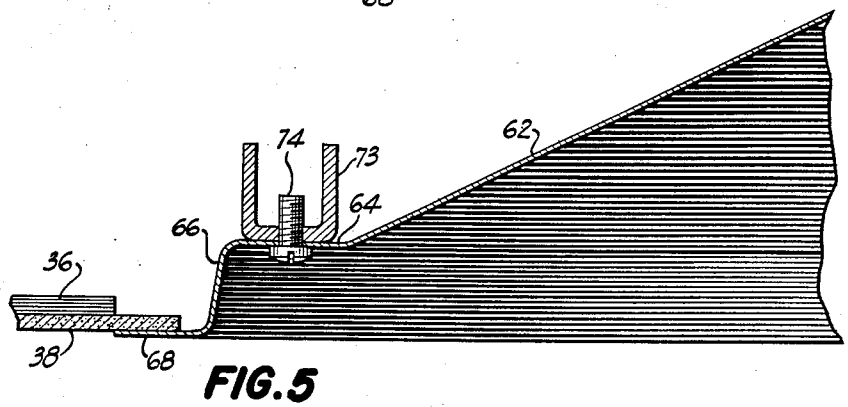


FIG. 5

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2,928,331

CEILING DIFFUSER MOUNTING

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Application October 30, 1956, Serial No. 619,306

3 Claims. (Cl. 98—40)

This invention, in general, relates to diffuser mounting members for air distribution systems and to ceiling construction embodying the diffusers.

The mounting of diffusers of air distribution systems substantially flush with the ceiling has, in general, been a time-consuming, laborious project. This invention is concerned with devices and methods to facilitate the mounting of ceiling diffusers for air distribution systems. The ceiling diffusers are mounted without cutting, trimming or patching of plaster. The old problem of centering the ceiling hole in alignment with the takeoff duct of the air distribution unit is eliminated. Further, the possibility of sagging of the diffuser away from the ceiling is eliminated.

It is, accordingly, an object of this invention to provide devices for mounting air diffusers in ceilings whereby the foregoing disadvantages are obviated.

It is a further object of this invention to provide means whereby the construction of ceilings having diffusers for air distribution systems is simplified.

A still further object is to provide improvements in methods for constructing ceilings having diffusers for air distribution systems.

In accordance with the invention, the diffusers are secured on the ceiling by means of a diffuser mounting member which is secured to the rigid ceiling construction members such as lathing channels, wooden ceiling beams, etc. The diffuser mounting member is connected at its rear portion with the air duct collar, or air takeoff member. The diffuser mounting member comprises, in addition to a rear neck portion for connection with the duct collar, a forwardly flaring portion preferably of a configuration and size similar to the rearmost air channeling member of the diffuser to be secured thereto. After the diffuser mounting member has been connected to the duct collar and secured to the rigid ceiling construction members, the lathing is mounted on the ceiling after which the plaster is applied to the ceiling substantially flush with the outer rim of the diffuser mounting member. The rim of the diffuser mounting member may have a lip extending rearwardly around the circumference. This lip is provided for lapping the plaster to provide secure grounding for the plaster and prevent chipping or cracking of the plaster around the diffuser assembly. After the plaster is applied the outer member of the diffuser assembly is nested inside the diffuser mounting member and is secured to the member by screws or the like.

The invention will be further understood in the light of the following description in conjunction with the drawings, wherein:

Fig. 1 is a perspective view of an embodiment of the ceiling construction of this invention;

Fig. 2 is a cross-sectional view of the ceiling construction taken along the plane 2—2 of Fig. 1, plus, in exploded relationship, a diametric cross-section of an air diffusing device;

Fig. 3 is a perspective view of another embodiment of a diffuser mounting member;

Fig. 4 is a partial, cross-sectional view taken along a diametric plane of a third embodiment of a diffuser mounting member; and

Fig. 5 is a partial, cross-sectional view taken along a diametric plane of the diffuser mounting member of Fig. 3—illustrating the attachment of said member to the rigid ceiling construction and the plastering adjacent said member.

In the drawing, the numeral 10 designates an air duct having a vertically disposed duct collar or conduit 12. An open-ended hollow, flaring diffuser mounting member 14, mounted in telescopic relationship with the duct collar 12, comprises a neck portion 16 at the rearward end thereof, a forwardly flaring portion 18 and a peripheral portion 20 at the forward end thereof. The peripheral portion 20 terminates in a lip 22 extending rearwardly around the periphery of the forward portion of the flaring walls. Diametrically opposed apertures 24 are located in the flaring portion 18 of the mounting member.

The mounting member is rigidly secured to the ceiling construction members by metal screws 26 extending through the apertures 24. The ceiling construction illustrated comprises structural members 28 having cross members 30 mounted thereon by wires 32 or the like. The screws 26 extend into the cross members 30 to secure in rigid fashion the diffuser mounting member 14 to the rigid ceiling structural members 28 and 30. Lathing 36 is mounted by suitable means along the ceiling surface. Plaster 38 is applied to the lathing members up to the lip 22 and laps the lip 22 to securely ground the plaster around the mounting member.

The configuration of the flaring walls 18 of the mounting member 14 preferably is similar to the flaring walls 42 of the outermost hollow member 40 of a diffuser to be mounted therein. By this construction the outermost member 40 can be nested in contact with the mounting member 14 whereby it is axially aligned with the duct collar 12. If the diffuser member comprises an outer member detachable from the inner deflection members as illustrated in the drawings, the outer member 40 may be secured in the mounting member 14 by means of metal screws extending through slotted aperture 46 into the mounting member. The slotted aperture 46 is provided to facilitate a snug fit. The terminal end of the finishing marginal portion 44 preferably is at least laterally coextensive with the peripheral portion of the mounting member. After the outer member 40 has been mounted in the mounting member 14 with the outer edge thereof in contact with the plaster 38, the inner series of deflection members 48, 50, which are rigidly or adjustably secured together by any suitable means, are connected to the outer mounting member 40 to provide the final assembled diffuser, a series of progressively smaller, hollow, flaring air deflection members spaced apart to define air channels therebetween. The means for mounting inner deflection members 48, 50 in the outer member 40 does not comprise a part of the instant invention and hence is not illustrated in the drawings. This means may be any construction enabling the mounting of the inner deflection members on the outermost member after the latter is assembled on the ceiling, such as the construction illustrated in U.S. Patent No. 2,229,747, issued January 28, 1941 or U.S. Patent No. 2,603,141, issued July 15, 1952.

In the event the inner deflection members are not attachable and detachable from the outer member so that the entire diffuser assembly must be mounted as a unit, the entire diffuser assembly is mounted in the mounting member 14 by means of screws in accessible portions of the outer member 40, as, for example, near the outer

portion of the flaring portion 42 or in the finishing marginal portion 44. Any or all of the inner deflection members may be adjustable to provide various air patterns.

In constructing the ceiling structure of the present invention the air duct 10 with duct collar or conduit 12 is mounted above the lowermost portion of the rigid ceiling structural members. In the embodiment illustrated the rigid ceiling lathing channels 28 are mounted below the duct 10. Cross bars 30 are secured by wires 32 to the lathing channels and the ceiling mounting member 14 with the neck portion 16 in telescopic relationship to the duct collar 12 is attached to the cross members by screws 26. This structure provides a rigid mounting of the mounting member 14 on the rigid structural members of the ceiling construction. Lathing 36 is assembled along the surface of the ceiling, and the plaster is applied thereto up to and lapping over the lip 22 of the mounting member 14. The diffuser member is then mounted in the mounting member by the procedure heretofore described.

In the embodiment of Fig. 3, the diffuser mounting member has a neck portion 60 and a forwardly flaring portion 62. Near the periphery of the diffuser mounting member the forwardly flaring portion 62 is shaped to provide a flat peripheral surface 64 lying in a plane substantially perpendicular to the axis of the diffuser mounting member. The walls of the diffuser mounting member extend forwardly at 66 and terminate in a flat marginal portion 68. The flat portion 64 is provided with diametrically opposed apertures 70 for a purpose later described. In the embodiment shown in Fig. 4 the structure is essentially the same as that in Fig. 3 and like numerals have been used to designate like parts. The embodiment of Fig. 4 differs from that of Fig. 3 in that it has a peripheral lip 72 similar to and for the same purpose as the lip 22 of the embodiment shown in Figs. 1 and 2.

Fig. 5 illustrates the means by which the diffuser mounting members of Figs. 3 and 4 are attached to the rigid ceiling construction like that illustrated in Fig. 1. The diffuser mounting member is fastened to a rigid ceiling construction member 73 by metal screws 74 passing through aperture 70 in the ceiling diffuser mounting member and into the rigid ceiling construction member 73. By this arrangement, the screw hole in the member 73 is perpendicular to the lower section thereof. Thereafter the ceiling is finished with the conventional lathing 36 and plaster 38. The plaster 38 extends over the edge of the flat marginal portion 68 as shown in Fig. 5. In the embodiment of Fig. 4 the plaster would be securely grounded over lip 72 in a manner similar to that shown in Fig. 2. The diffuser then is mounted in the diffuser mounting member in the manner previously described.

The invention has been illustrated using a round-type ceiling diffuser having members which are substantially frusto-conical in shape, but it is equally applicable to shapes of the flaring members such as frusto-pyramidal and others by using a mounting member of similar configuration and size.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

The invention is hereby claimed as follows:

1. Ceiling construction including an air distribution system comprising: an air duct; a vertically disposed conduit extending downwardly from said air duct; rigid ceiling construction below said air duct; and a diffuser mounting member having a neck portion in telescopic engagement with said conduit; said mounting member having a flaring portion flaring outwardly and forwardly from said neck portion and a peripheral portion extending outwardly and then rearwardly from said flaring portion and terminating to define a short, peripheral, rearwardly-extending lip; securing means positioned rearwardly of the edge of the peripheral lip and extending through said flaring portion into a rigid ceiling construction member whereby the mounting member is attached to said rigid ceiling construction; and plaster applied on said ceiling and overlapping said lip around the periphery of said mounting member whereby the plaster is securely grounded around said mounting member.

2. An air diffuser member and a mounting member for mounting said air diffuser member on ceiling construction including an air distribution system which comprises: an open-ended, hollow member having a neck portion; said hollow member having a portion flaring outwardly and forwardly from said neck portion, said flaring portion having opposed apertures therein through which screws are adapted to extend for mounting said mounting member on rigid ceiling construction; said hollow member further having a peripheral portion extending outwardly and then rearwardly from said flaring portion and terminating to define a lip with the terminal edge of said lip extending substantially rearwardly, the peripheral edge of said lip being located forwardly of said apertures; said hollow member having nested therein an air diffuser member having a series of progressively smaller, hollow, flaring members spaced apart to define air channels therebetween; the largest one of said last-mentioned members being of similar size and configuration to said first-mentioned, hollow member; the marginal portion of said largest one of said members being at least laterally coextensive with the peripheral portion of said first-mentioned, hollow member and terminating forwardly of the rearmost edge of said lip; and means securing said largest one of said members in nesting, contacting relationship in said first-mentioned, hollow member.

3. An air diffuser member and a mounting member for mounting said air diffuser member on ceiling construction including an air distribution system which comprises: an open-ended, unitary, hollow member having a neck portion; said hollow member having a substantially frusto-conical portion flaring forwardly and outwardly from said neck portion; a part of said flaring portion being disposed in a plane substantially perpendicular to the axis of said hollow member, said part having apertures therein through which are adapted to extend screws for fastening said mounting member to rigid ceiling construction; said hollow member including a flat, peripheral marginal portion lying in a plane substantially perpendicular to said axis and forward of the first-mentioned plane; said hollow member having nested therein an air diffuser member having a series of progressively smaller hollow, substantially frusto-conical flaring members spaced apart to define air channels therebetween; the largest one of said last-mentioned members being of similar size and configuration to said first-mentioned, hollow member; the marginal portion of said largest one of said members being at least laterally coextensive with the peripheral edge of said first-mentioned hollow member; and means for securing said largest one of said members in nesting, contacting relationship in said first-mentioned, hollow member.

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