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(54) **INSTALLATION OF LIGHTING OR OTHER FITTINGS IN CEILINGS**

DECKEN-EINBAU VON BELEUCHTUNGS- ODER ANDEREN GERÄTEN

INSTALLATION DE DISPOSITIFS D'ECLAIRAGE OU AUTRES DANS LES PLAFONDS

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Description

[0001] This invention relates to the installation of lighting or other fittings in ceilings, particularly but not exclusively suspended ceiling structures.

[0002] Suspended ceiling structures, sometimes called "false ceilings", are well known. They comprise a supporting structure which characteristically is suspended from a load bearing ceiling structure of a building (which may also be the floor structure in respect of the next storey of the building above the one in question). The supporting structure carries a number of panels which form the visible ceiling of the storey in question. The space above the suspended ceiling panels may be used for installation of services such as electrical wiring, heating and ventilation ducting, and the like. The ceiling panels commonly are in the form of slabs or sheets of a thermally insulating material, and may be held to their supporting structure by the use of some form of fasteners, e.g. clips.

[0003] A light fitting or a fitting for some other purpose may be installed in such a suspended ceiling by providing an aperture of appropriate size in one of the panels of the ceiling and fixing the fitting in such an aperture. The fitting may be held in place by clips or the like which engage the panel. In such an installation, the weight of the fitting is borne by the panel.

[0004] One requirement for suspended ceilings is that they should prevent penetration of heat, if a fire should start in a room space beneath the ceiling, to the space above the ceiling panels. This is because, although a storey of a building may be divided into individual room spaces by partitioning beneath the suspended ceiling, the space above the suspended ceiling panels is not thus divided and the undivided ceiling space provides a route for rapid spread of fire in a building. If penetration of heat, by radiation or convection, through the suspended ceiling can be minimised, spread of fire can be delayed and accordingly applicable standards for fire resistance of suspended ceilings are expressed in terms of withstanding fire beneath the ceiling and limiting transmission of heat to a certain value for a certain period of time.

[0005] As above referred to, the panels of a suspended ceiling usually are of a material having thermally insulating properties and hence the performance under fire conditions of a ceiling is dependent upon the integrity of the panels being maintained. One possible mode of failure is that of collapse of the panels, and if a fitting such as a light fitting is supported in a panel then the weight of the fitting means that the panel is more likely to collapse. Thus, hitherto, the installation of light fittings in ceiling panels has caused the fire resistance thereof to be adversely affected. A similar problem exists in ceilings, other than suspended ceilings, in which light fittings are installed in panels e.g. of plasterboard: the weight of the fitting renders collapse of the ceiling more likely in the event of fire.

[0006] Accordingly it is an object of the present invention to overcome or reduce this disadvantage of known light fitting installations in ceilings especially suspended ceilings. Other objects and advantages of the invention will become apparent from the following description of the invention in general terms and in specific embodiments thereof.

[0007] According to the invention, there is provided a fitting assembly comprising a fitting and a retaining means, the fitting being adapted to be disposed in an opening in a ceiling panel and to be retained therein by the retaining means, wherein the retaining means is adapted to engage the fitting and extend laterally therefrom and to have supporting engagement with a member at a position spaced from said opening, whereby a part of the panel adjacent said opening does not bear at least part of the weight of the fitting, characterised in that the fitting includes a heat shield member substantially enclosing a portion thereof to provide a barrier to heat transmission upwardly past the fitting.

[0008] In a suspended ceiling installation in accordance with the invention, the weight of the fitting is at least partially, and preferably entirely, borne by the support structure of the suspended ceiling rather than by the panel in which the fitting is installed. Thereby, the above-described disadvantage of carrying the weight of the fitting by the panel, contributing to collapse of the panel in the event of fire, is substantially overcome. Indeed, the fitting can, if its weight is borne by the support structure, assist in supporting the panel and make it even less likely to collapse than if no fitting were present.

[0009] The heat shield member is conveniently of metal, and may be a pressing or pressings of sheet metal, e.g. steel.

[0010] Preferably the heat shield member is provided with a covering of a material which, in the event of a fire, acts as a thermally insulating barrier. Preferably such a covering is an intumescent coating, e.g. a suitable paint. Use of a suitable intumescent paint coating enables heat transmission to be resisted for a long time.

[0011] The fitting preferably has a portion defining a formation generally in the form of an annular groove, the retaining means having a snap engagement with the formation. The retaining means preferably has a part-circular formation and at least one limb extending therefrom, the part-circular formation being adapted to engage said annular groove.

[0012] Preferably, the retaining member is of wire of sufficient rigidity to support the fitting and to have said engagement therewith.

[0013] Other preferred features of the invention are the subject of the dependent claims.

[0014] The invention will now be described by way of example with reference to the accompanying drawings, of which:-

Figures 1 and 2 are respectively a sectional and a plan view of a light fitting installed in a suspended

ceiling, in accordance with the invention;

Figures 3 and 4 are partial sectional views through further embodiments of light fitting and showing the engagement of retaining members therewith;

Figures 5 to 7 are plan views showing light fittings and further possible configurations of retaining member engaging therewith;

Figures 8 and 9 are respectively a sectional elevation and an exploded perspective view of a design of light fitting and retaining member engaging therewith.

[0015] Referring firstly to Figures 1 and 2, these show, respectively in a sectional and a plan view, part of a suspended ceiling which comprises a support structure having members 10, 11, 12, 13 forming part of a grid structure of such members. The members 10, 12 are parallel to and spaced from one another while the members 11, 13 are also parallel to one another and spaced from one another, extending at right angles to the members 10, 12. The members 10 to 13 are of generally T-section metal members, and they are supported in a manner which is conventional and well known for suspended ceilings from a load bearing ceiling/floor structure of a building. A ceiling panel supported by the support structure of members 10 to 13 is indicated at 14 and this is a sheet or slab of suitable material such as a mineral fibre material. The panel 14 rests on the facing lower flanges of the members 10 to 13 so that the panel is supported along its edges, and fastenings such as clips may be provided for fastening the panel in such a position.

[0016] A light fitting indicated generally at 15 is installed in a central aperture in the panel 14. The light fitting comprises a base 16 of annular form, and an annular flange 17 lies beneath the region of the panel 14 immediately surrounding the aperture therein. Upwardly from the base 16 there extends a generally conical reflector 18 which may be of metal, e.g. an aluminium alloy, and which at its upper end carries a lamp holder 19 for a lamp 20 which as illustrated is a low energy consumption lamp of compact fluorescent type.

[0017] Also extending upwardly from the base and externally of the reflector 18 is a heat shield member 21 which from the base 16 is initially cylindrical and then has a frusto-conical portion leading to a dished upper end at which it is closed apart from having an aperture to receive the lamp holder 19. The heat shield member 21 is of metal, e.g. steel, and is formed as a pressing or as a number of pressings secured together, and is covered with an intumescent paint coating which swells when subjected to temperatures above a pre-determined level to form a highly heat-resistant enclosure for the light fitting. Preferably the intumescent coating is on both inner and outer surfaces of the heat shield member.

[0018] Engaging the light fitting just above the panel 14 is a retaining means which in Figures 1 and 2 is a wire retaining member. The retaining member comprises

a part-circular portion 22 which embraces the light fitting and holds the latter by virtue of having snap-engagement with an annular groove formation on the light fitting. From the portion 22, two limb portions 23, 24 extend in opposite directions away from the light fitting and at their free ends the limbs 23, 24 are bent into U-shaped portions 25, 26 respectively. The portions 25, 26 overlie members 11, 13 and, by virtue of inherent resilience in the wire of which the retaining member is formed, bear down on the members 11, 13 so that substantially all the weight of the light fitting 15 is carried by these members. Also shown in the drawings is a choke unit 27 carried by the limb 24 of the retaining member and from which an electrical cable 28 extends to the lamp holder 19.

[0019] Figure 3 of the drawings shows in an enlarged view one possible mode of engagement of the retaining member as described above with the light fitting 15. In this figure, the annular base 16 of the light unit is shown and it will be noted that it has at its upper periphery an overturned lip 29 defining a downwardly facing annular groove receiving the portion 22 of the retaining member. Part of the reflector 18 and heat shield member 21 are shown, these being secured to the annular base 16 by a plurality of rivets 30 spaced circumferentially about the base. The flange 17 is actually provided at the lower edge of the reflector 18.

[0020] Referring now to Figure 4 of the drawings, this shows part of a light fitting which is of different design from that above described. In this embodiment, it comprises a base 40 with a flange 41, a reflector 42, and a heat shield 43 extending from an upper part of the base 40. The base 40 defines an outwardly facing annular groove 44 with which a retaining member 45 of the configuration above described engages.

[0021] Referring now to Figure 5 of the drawings, this shows a light fitting indicated generally at 50 and which may be as described above with reference to Figure 4. A retaining member 51 is provided which is of wire and comprises an elongate U-shaped portion 52 of sufficient length to extend from a light fitting mounted in the centre of a suspended ceiling panel to engage the support structure at an edge of such panel. One limb 53 of the portion 52 is provided with a part circular portion 54 leading into a relatively short straight portion 55 at its free end. The other limb 56 of the portion 52 continues straight and, in its free state, parallel to the limb 53 and portion 55 to a free end portion at 57 which, as for the portion 52, is of sufficient length to engage a support structure of a ceiling panel.

[0022] An annular groove on a light fitting as 50 is engaged by the part-circular portion 54 and the opposed straight portion of the limb 56 of the retaining member. To hold the retaining member in engagement with the lighting fitting, a wire clip 58 is passed over the free end portion 57 and the portion 55 of the retaining member, to hold these portions against movement away from one another and thus against disengagement from the light fitting.

[0023] Figure 6 shows a modification of the embodiment of Figure 5, in which two wire retaining members 60, 61 are utilised, each having straight free end portions and a part-circular centre portion as indicated at 62, 63, respectively. The portions 62, 63 engage opposite sides of an annular groove provided on a light fitting, and the retaining members are held to one another by two clips 64, 65 disposed one to each side of the light fitting.

[0024] Figure 7 shows a light fitting which is provided with two retaining members 70, 71 each having straight free end portions and an intermediate part-circular (slightly more than semi-circular) portion as indicated at 72, 73. The portions 72, 73 are each able to have snap-engagement with an appropriate annular groove or grooves provided on a light fitting. Preferably such retaining members are disposed in such a way as to provide four-point support of the light fitting from the edge-supporting structure of a ceiling panel.

[0025] Referring now to Figures 8 and 9 of the drawings, these show a further embodiment of light fitting which is circular in plan view. It comprises a frontal flange 110 from which a body portion 111 extends rearwardly, the body portion 111 affording an annular recess 112 with a base 113. Behind the portion 112, the body 111 has a portion 109 which extends inwardly followed by an annular rearwardly and outwardly extending portion 108 which defines a radially outwardly facing annular groove 107. The groove 107 provides for mounting of the light fitting in, for example, a panel in a suspended ceiling in the manner described hereafter.

[0026] The light fitting receives a dichroic lamp assembly indicated generally at 115. The lamp assembly 115 is supported in the light fitting by a mounting member 122 which has forwardly and outwardly oppositely extending arms 126 provided at its ends with respective pivot formations 130. The mounting member 122 further holds the lamp assembly 115, and a ceramic connector block 120 by which an electrical connection is established with the lamp assembly 115. Electrical cables 105 extend rearwardly from the connector block 120.

[0027] The assembly further comprises a cup shaped heat shield member 136. The heat shield member has a front rim portion 137 and a rear portion 138 defining an aperture through which the lamp and mounting member assembly extends. The rear portion 138 includes two opposed part-cylindrical formations which partly embrace the ceramic connector block 120 when the light fitting is assembled.

[0028] The heat shield member 136 has two oppositely disposed openings 139 through which the end parts of the arms 126, with the pivot formations 130 thereon, extend. The assembled condition of the light fitting, as shown in Figure 10 is reached by firstly fitting the mounting member and a lamp assembly to a heat shield member, and then fitting such sub-assembly rearwardly into the light fitting, resiliently deforming the arms 126 towards one another until their pivot formations 130 are

able to snap into engagement with the base 113 of the recess 112 of the light fitting. Normally one of the pivot formations 130 would be thus engaged, followed by the other formation. The dimensions of the parts are such that when such assembly has been carried out, the rear surface of the heat shield member 136 has contact with the light fitting in a substantially uninterrupted line in the annular region between the parts 109, 108 of the light fitting. By virtue of this, there is no or virtually no clear passage between the front and rear of the light fitting. The light fitting thus achieves a high fire safety rating for use in suspended ceilings or the like, by resisting heat transfer upwardly through the fitting.

[0029] The assembly of lamp and heat shield is able to tilt and rotate in the light fitting. Rotation through an angle of more than 180° may be prevented by providing pressed indentations 140 in the base 113 of the recess 112 in the light fitting, to be contacted by the formations 130 on arms 126. The front rim portion 137 of the heat shield member may be able to pass just beneath the edge of the flange 110 of the light fitting as shown in Figure 10, to provide a detent so that such a position of maximum tilting can be held in a vibration-resistant manner.

[0030] When the light fitting is to be installed in a suspended ceiling, an insulating washer as shown at 104 would be interposed between the flange 110 and a panel of such ceiling. The light fitting may be retained in such a panel by a retaining member 143 which as shown in Figure 11 may take the form of an elongate length of thick metal wire with a part-circular portion 144 which is able to be snap engaged, by resilient deformation, with the groove 107. The ends of the piece of wire take the form of limbs long enough to extend to rest upon the panel supports of the suspended ceiling, so that the weight of the light fitting is borne by the supports rather than the panel. A transformer or other low voltage electrical power supply for the halogen lamp assembly or an electrical connector block, may be carried by an end of the retaining member 143, as above described.

[0031] Alternatively a spring clip or clips may be used to retain the light fitting in a ceiling panel. One such clip may be used in conjunction with a retaining member having one limb only extending from a part-circular portion engaging the groove 107. Even if not required for retaining the light fitting in a panel, e.g. if two spring clips are used, a retaining member engaging the groove 107 may be used to carry a transformer or a connector block.

[0032] The heat-insulating washer 104 could if desired be shaped to extend from the region of the flange 100 to overlie additionally the portions 111, 108 of the light fitting. If this is done, a further improvement in the fire safety rating of the light fitting is obtained, by preventing high temperatures being reached behind the fitting.

[0033] As illustrated, the light fitting shown in Figures 8 and 9 does not have an external heat shield member such as the heat shield member 21 illustrated in the em-

bodiment of Figures 1 and 2. However, it would be possible, if desired, to provide an external heat shield member analogous to the heat shield member 21 having an intumescent coating, to provide a fitting as part of an assembly according to the invention.

[0034] In the above described embodiments, the fitting installed in the suspended ceiling is a light fitting. However, it will be appreciated that the principle of the retaining means used in the invention could also be applied to the installation of other fittings. By way of example, such other fittings could be loudspeakers, smoke detectors, or heating or ventilation fittings such as thermostats or even inlet/outlet fittings for ducting. In each case, the prevention of heat passage by way of the fitting itself, and the support of the ceiling panel, provides a high fire safety rating.

[0035] In the above described embodiments, the retaining member engages the support structure of a suspended ceiling panel. However, the principle of utilising a retaining member extending laterally from a fitting to engage a member spaced from the fitting can provide for improved safety under fire conditions for other types of ceiling panel, eg a traditional plasterboard ceiling. To engage even the panel itself by a retaining member can provide a load-spreading effect and help to resist collapse of the panel in a fire.

Claims

1. A fitting assembly comprising a fitting (15) and a retaining means (22,23,24), the fitting being adapted to be disposed in an opening in a ceiling panel (14) and to be retained therein by the retaining means, wherein the retaining means is adapted to engage the fitting and extend laterally therefrom and to have supporting engagement with a member (11,13) at a position spaced from said opening, whereby a part of the panel adjacent said opening does not bear at least part of the weight of the fitting, **characterised in that** the fitting includes a heat shield member (21) substantially enclosing a portion thereof to provide a barrier to heat transmission upwardly past the fitting.
2. A fitting assembly according to claim 1, wherein said heat shield member is of metal.
3. A fitting assembly according to claim 2, wherein said heat shield member is at least one pressing of sheet metal.
4. A fitting assembly according to claim 1, wherein the heat shield member has a covering of a material providing a thermally insulating barrier.
5. A fitting assembly according to claim 4, wherein said covering is an intumescent coating.
6. A fitting assembly according to any one of claims 1-5 **characterised in that** the fitting has a portion defining a formation generally in the form of an annular groove (44), the retaining means having a snap engagement with the formation.
7. A fitting assembly according to claim 6, wherein the retaining means has a part-circular formation (54) and at least one limb (53,56,57) extending therefrom, the part-circular formation being adapted to engage said annular groove.
8. A fitting assembly according to any one of the preceding claims, wherein the retaining means is of wire.
9. A fitting assembly according to any one of the preceding claims, wherein the fitting is a light fitting.
10. A fitting assembly according to any preceding claim in which the panel is a suspended ceiling panel supported at at least one edge by a support structure, and in which said member is part of the support structure.
11. A fitting assembly according to claim 10, wherein the retaining means extends laterally from the fitting to engage the support structure at at least two spaced positions adjacent the edges of the panel.
12. A fitting assembly according to claim 11, wherein the retaining means extends from the fitting in two directions generally opposite one another.
13. A fitting assembly according to any preceding claim, wherein the weight of the fitting is adapted to be at least partially borne by the member.
14. A fitting assembly according to any one of the preceding claims, wherein the fitting has a flange (17) which can extend beneath a part of the panel to provide support for the panel adjacent the opening.
15. A method of mounting a fitting assembly according to any preceding claim in an opening in a ceiling panel (14), comprising the steps of {i} providing an opening in the panel, {ii} locating the fitting (15) in the opening, {iii} engaging the fitting by the retaining means (22,23,24) so that the retaining means extends laterally therefrom to engage a member (11,13) at a position spaced from said opening.
16. A ceiling having at least one panel which is supported at an edge by a member, the panel having an opening to receive a fitting, wherein a fitting assembly according to any of the preceding claims is mounted thereto.

17. A ceiling according to claim 16 in which the ceiling is a suspended ceiling and the member is part of a support structure for the panels thereof.

Patentansprüche

1. Armaturenbaugruppe, die eine Armatur (15) und eine Haltevorrichtung (22, 23, 24) umfasst, wobei die Armatur ausgeführt ist, um in einer Öffnung in einer Deckenplatte (14) angeordnet und von der Haltevorrichtung in ihr gehalten zu werden, wobei die Haltevorrichtung ausgeführt ist, um die Armatur in Eingriff zu nehmen und sich seitlich von ihr abzustrecken und um an einer von der genannten Öffnung beabstandeten Position in Trageingriff mit einem Element (11, 13) zu sein, wodurch ein Teil der an diese Öffnung angrenzenden Platte wenigstens einen Teil des Gewichts der Armatur nicht trägt, **dadurch gekennzeichnet, dass** die Armatur ein Hitzeschildelement (21) aufweist, das einen Teil von ihr weitgehend umschließt, um eine Sperre gegen eine Wärmeübertragung nach oben über die Armatur hinaus zu bilden.
2. Armaturenbaugruppe nach Anspruch 1, bei der das genannte Hitzeschildelement aus Metall ist.
3. Armaturenbaugruppe nach Anspruch 2, bei der das genannte Hitzeschildelement wenigstens ein Pressteil aus Blech ist.
4. Armaturenbaugruppe nach Anspruch 1, bei der das Hitzeschildelement einen Überzug aus einem Material hat, das eine wärmeisolierende Sperre bereitstellt.
5. Armaturenbaugruppe nach Anspruch 4, bei der der genannte Überzug eine Intumeszenzbeschichtung ist.
6. Armaturenbaugruppe nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** die Armatur einen Teil hat, der ein Gebilde allgemein in der Form einer Ringnut (44) definiert, wobei die Haltevorrichtung in das Gebilde einrastet.
7. Armaturenbaugruppe nach Anspruch 6, bei der die Haltevorrichtung ein teilkreisförmiges Gebilde (54) und wenigstens ein sich davon abgestreckendes Glied (53, 56, 57) hat, wobei das teilkreisförmige Gebilde zum Eingriff in die genannte Ringnut ausgeführt ist.
8. Armaturenbaugruppe nach einem der vorangehenden Ansprüche, bei der die Haltevorrichtung aus Draht ist.

9. Armaturenbaugruppe nach einem der vorangehenden Ansprüche, bei der die Armatur eine Beleuchtungsarmatur ist

10. Armaturenbaugruppe nach einem der vorangehenden Ansprüche, bei der die Platte eine Hängedekkenplatte ist, die an wenigstens einem Rand von einer Tragstruktur getragen wird, und bei der das genannte Element Teil der Tragstruktur ist.
11. Armaturenbaugruppe nach Anspruch 10, bei der sich die Haltevorrichtung seitlich von der Armatur abgestreckt, um an wenigstens zwei voneinander beabstandeten, an die Ränder der Platte angrenzenden Positionen mit der Tragstruktur in Eingriff zu kommen.
12. Armaturenbaugruppe nach Anspruch 11, bei der sich die Haltevorrichtung von der Armatur aus in zwei einander allgemein entgegengesetzte Richtungen erstreckt.
13. Armaturenbaugruppe nach einem der vorangehenden Ansprüche, bei der das Gewicht der Armatur so gelagert ist, dass es wenigstens teilweise von dem Element getragen wird.
14. Armaturenbaugruppe nach einem der vorangehenden Ansprüche, bei der die Armatur einen Flansch (17) hat, der sich unter einem Teil der Platte erstrecken kann, um die an die Öffnung angrenzende Platte zu stützen.
15. Verfahren zum Montieren einer Armaturenbaugruppe nach einem der vorangehenden Ansprüche in einer Öffnung in einer Deckenplatte (14), das die folgenden Schritte umfasst: {i} Bereitstellen einer Öffnung in der Platte, {ii} Positionieren der Armatur (15) in der Öffnung, {iii} Einrasten der Armatur mit Hilfe der Haltevorrichtung (22, 23, 24), so dass sich die Haltevorrichtung seitlich von ihr abgestreckt, um mit einem Element (11, 13) an einer von der genannten Öffnung beabstandeten Position in Eingriff zu kommen.
16. Decke mit wenigstens einer Platte, die an einem Rand von einem Element getragen wird, wobei die Platte eine Öffnung zur Aufnahme einer Armatur hat, wobei eine Armaturenbaugruppe nach einem der vorangehenden Ansprüche daran montiert wird.
17. Decke nach Anspruch 16, bei der die Decke eine Hängedecke ist und das Element Teil einer Tragstruktur für ihre Platten ist.

Revendications

1. Ensemble appareillage comprenant un appareillage (15) et un moyen de retenue (22, 23, 24), l'appareillage étant adapté de manière à être disposé dans une ouverture pratiquée dans un panneau de plafond (14) et à y être retenu par le moyen de retenue, dans lequel le moyen de retenue est adapté de manière à s'engager avec l'appareillage et de s'étendre dans le plan latéral à partir de celui-ci, et d'avoir un engagement de soutien avec un élément (11, 13) en un emplacement situé à une certaine distance de ladite ouverture, cas dans lequel une partie du panneau adjacent à ladite ouverture ne supporte pas une partie au moins du poids de l'appareillage, **caractérisé en ce que** l'appareillage inclut un élément écran thermique (21) qui entoure essentiellement une partie de celui-ci afin de constituer une barrière contre la transmission de la chaleur vers le haut et d'empêcher celle-ci de passer à côté de l'appareillage. 5
2. Ensemble appareillage, selon la revendication 1, dans lequel l'élément écran thermique est en métal. 10
3. Ensemble appareillage, selon la revendication 2, dans lequel l'élément écran thermique est constitué d'au moins un pressage de feuillard métallique. 15
4. Ensemble appareillage, selon la revendication 1, dans lequel l'élément écran thermique est muni d'un habillage constitué d'un matériau offrant une barrière d'isolation thermique. 20
5. Ensemble appareillage, selon la revendication 4, dans lequel ledit habillage est un revêtement intumescent. 25
6. Ensemble appareillage, selon l'une quelconque des revendications 1-5, **caractérisé en ce que** l'appareillage possède une section définissant une formation qui a généralement la forme d'une rainure annulaire (44), le moyen de retenue ayant un engagement à action rapide avec la formation. 30
7. Ensemble appareillage, selon la revendication 6, dans lequel le moyen de retenue possède une formation partiellement circulaire (54) et au moins un bras (53, 56, 57) s'étendant à partir de celle-ci, la formation partiellement circulaire étant adaptée de manière à s'engager dans ladite rainure annulaire. 35
8. Ensemble appareillage, selon l'une quelconque des revendications précédentes, dans lequel le moyen de retenue est en fil métallique. 40
9. Ensemble appareillage, selon l'une quelconque des revendications précédentes, dans lequel l'appareillage est un appareil d'éclairage. 45

reillage est un appareil d'éclairage.

10. Ensemble appareillage, selon n'importe laquelle des revendications précédentes, dans lequel le panneau est un panneau de faux-plafond soutenu au niveau de l'un des bords au moins par une structure de support, et dans lequel ledit élément fait partie de la structure de support. 5
11. Ensemble appareillage, selon la revendication 10, dans lequel le moyen de retenue s'étend dans le plan latéral à partir de l'appareillage afin de s'engager avec la structure de support au niveau de deux emplacements au moins, espacés l'un de l'autre, qui sont adjacents au bord du panneau. 10
12. Ensemble appareillage, selon la revendication 11, dans lequel le moyen de retenue s'étend à partir de l'appareillage dans deux directions qui sont généralement opposées l'une à l'autre. 15
13. Ensemble appareillage, selon n'importe laquelle des revendications précédentes, dans lequel le poids de l'appareillage est adapté de manière à être au moins partiellement soutenu par l'élément. 20
14. Ensemble appareillage, selon l'une quelconque des revendications précédentes, dans lequel l'appareillage est muni d'une bride (17) qui peut s'étendre sous une partie du panneau, afin d'assurer le soutien du panneau qui est adjacent à l'ouverture. 25
15. Procédé permettant de monter un ensemble appareillage, selon n'importe laquelle des revendications précédentes, dans une ouverture pratiquée dans un panneau de plafond (14), comprenant les étapes consistant à {i} effectuer une ouverture dans le panneau, {ii} positionner l'appareillage (15) dans l'ouverture, {iii} engager l'appareillage grâce au moyen de retenue (22, 23, 24) de manière à ce que le moyen de retenue s'étende dans le plan latéral à partir de celui-ci afin de s'engager avec un élément (11, 13) en un emplacement situé à une certaine distance de ladite ouverture. 30
16. Plafond possédant au moins un panneau qui est soutenu, au niveau de l'un des bords, par un élément, le panneau possédant une ouverture destinée à recevoir un appareillage, cas dans lequel un ensemble appareillage conforme à l'une quelconque des revendications précédentes y est monté. 35
17. Plafond, selon la revendication 16, dans lequel le plafond est un faux-plafond et l'élément fait partie d'une structure de support pour les panneaux de celui-ci. 40

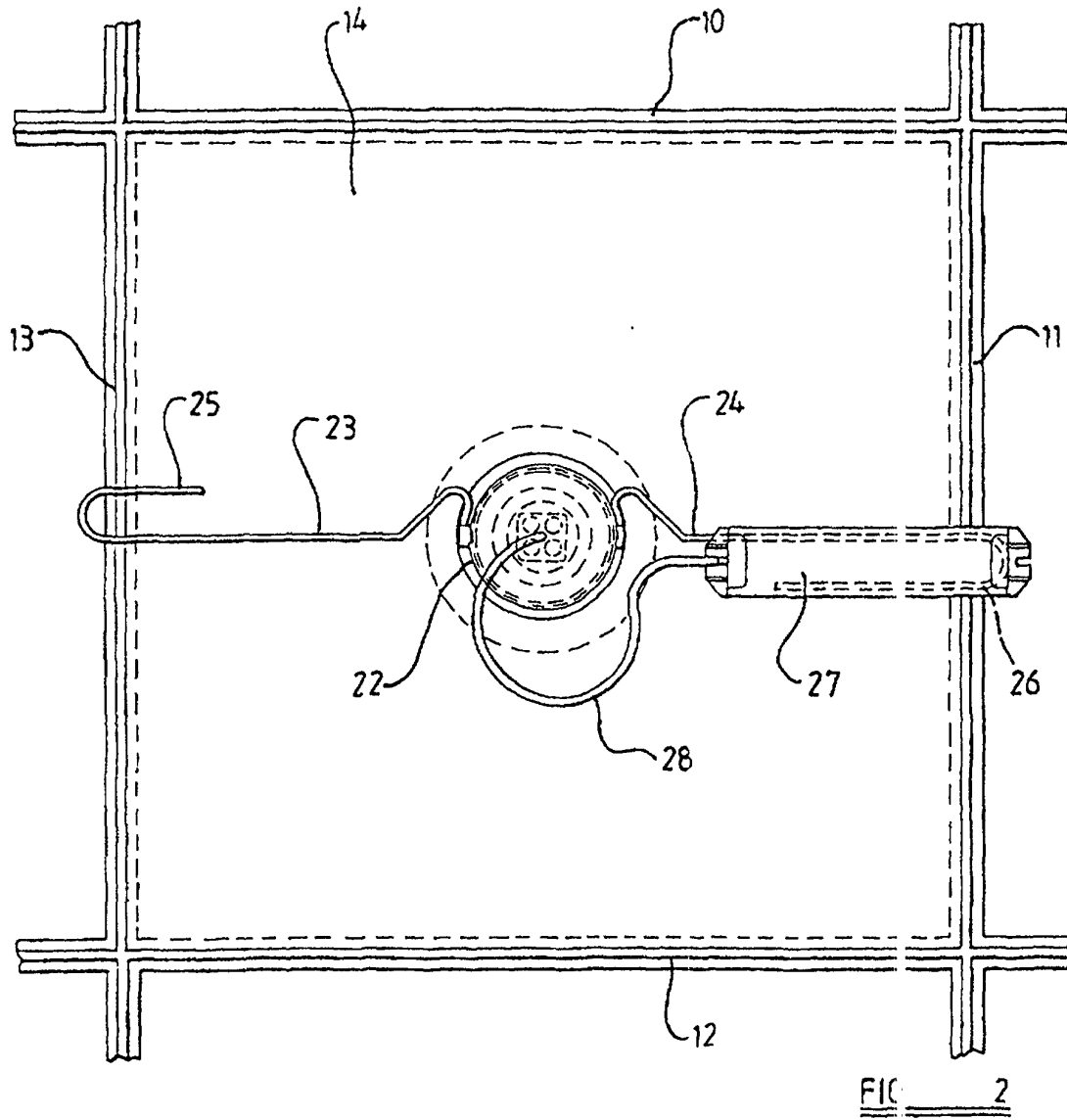
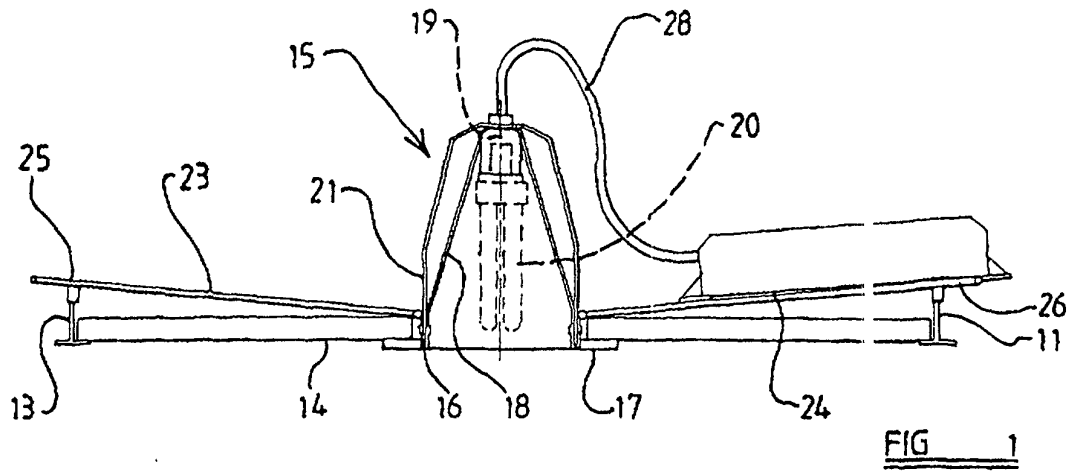


FIG 3

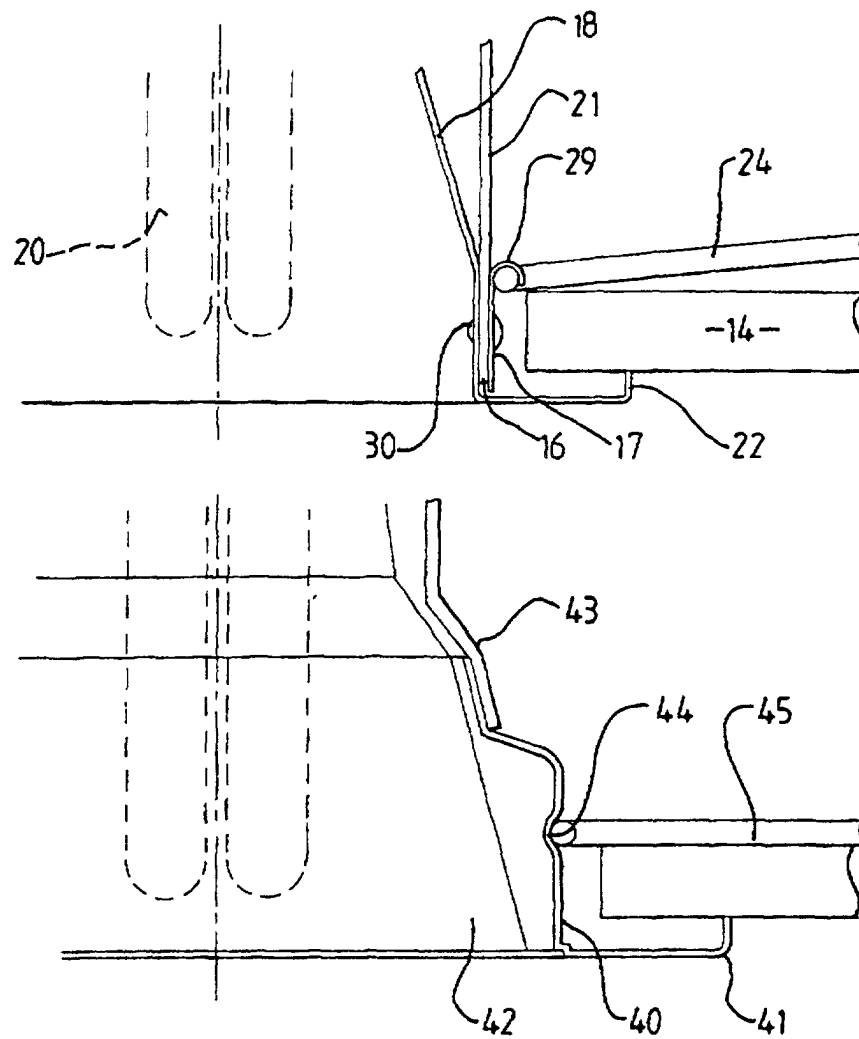


FIG 4

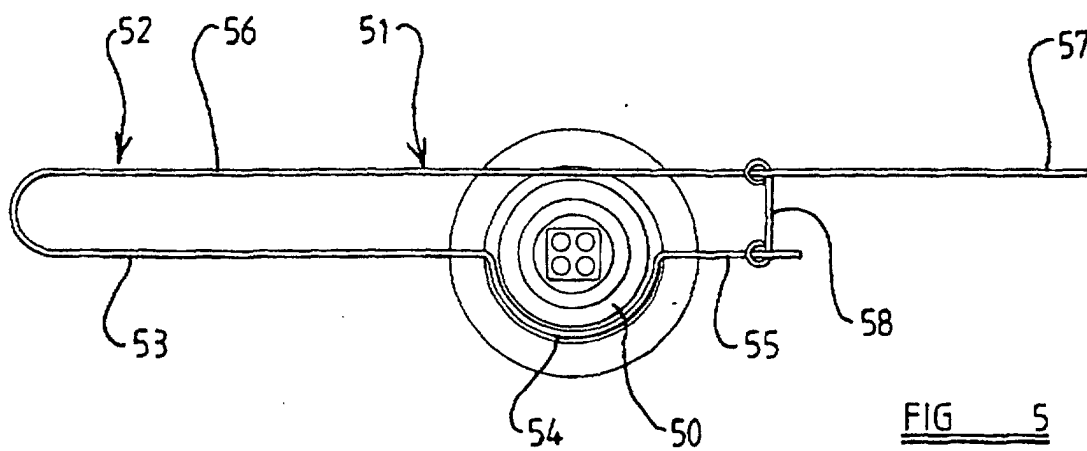
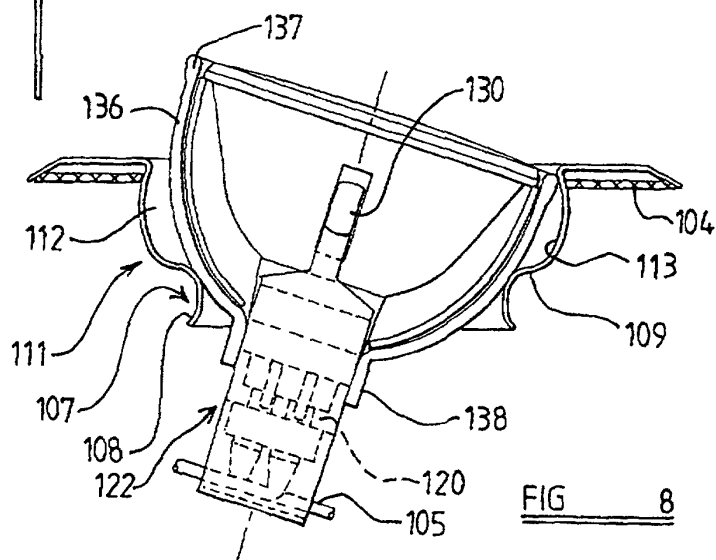
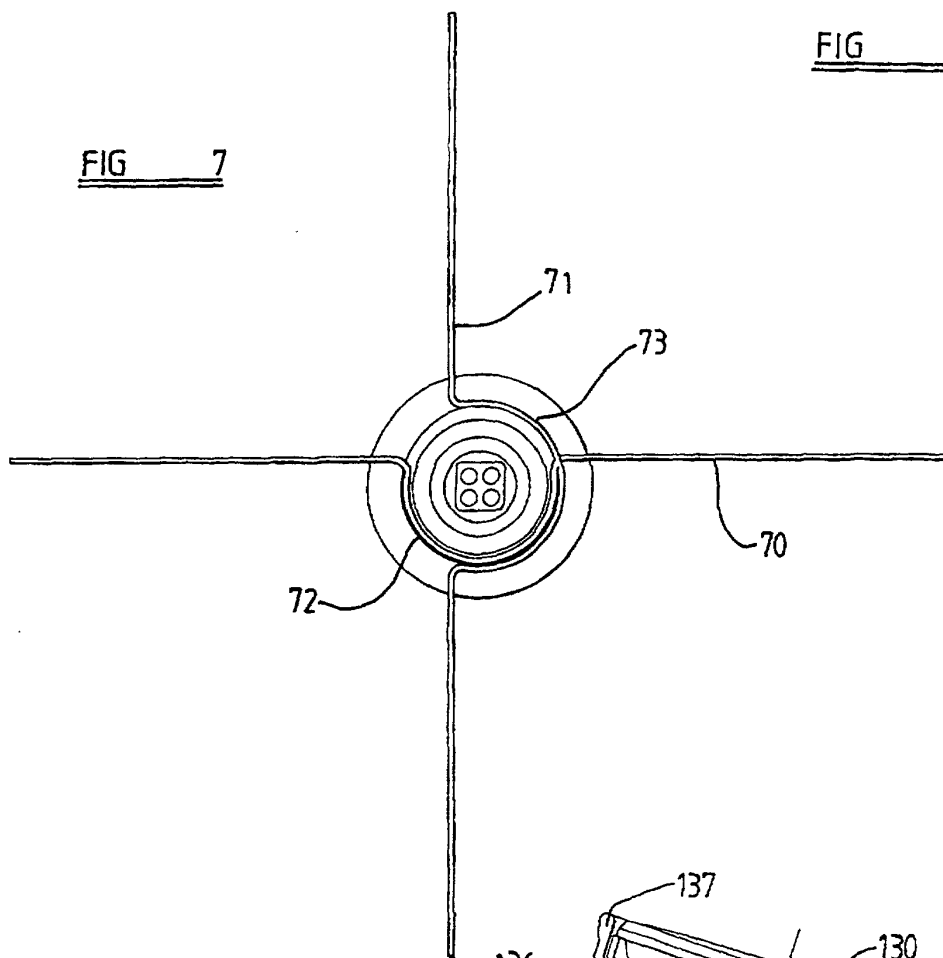
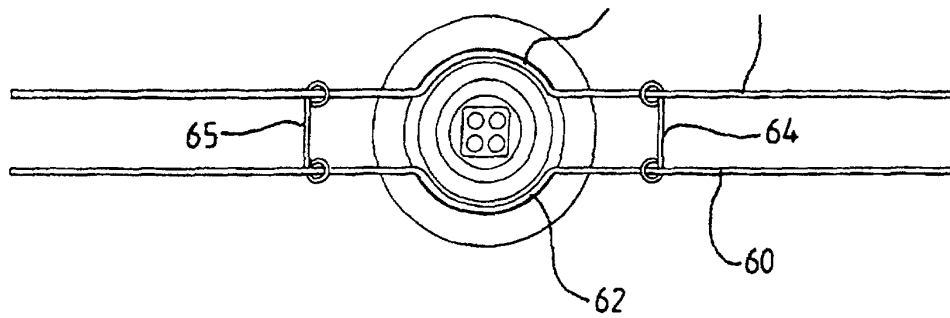


FIG 5



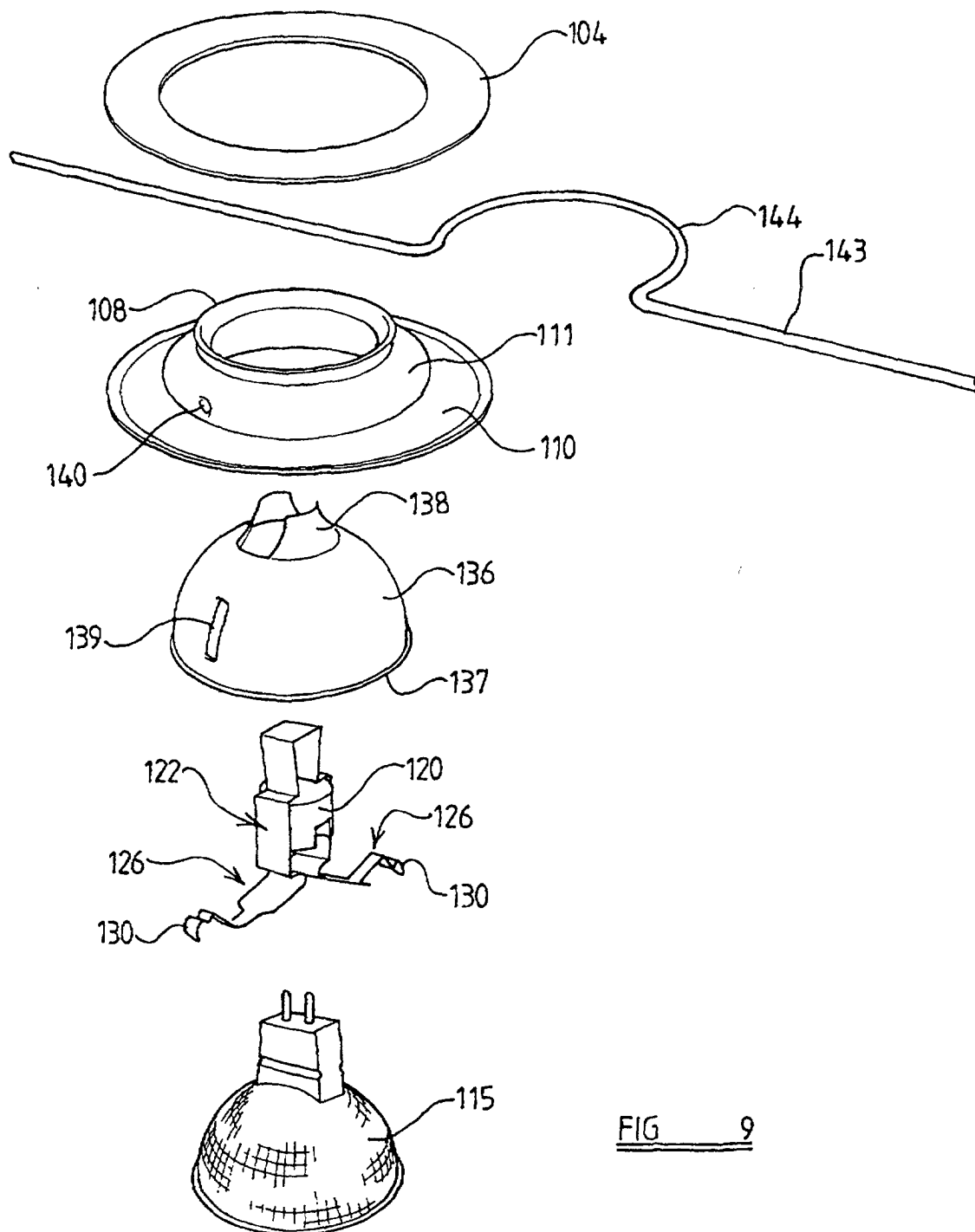


FIG 9