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(54) **Mounting device for mounting an electrical devcie on a ceiling beam**

Montagevorrichtung für ein elektriches Gerät auf einem Deckenbalkenträger

Dispositif de montage pour appareil électrique sur une poutre de plafond

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Description

TECHNICAL FIELD

[0001] The present invention relates to mounting devices for mounting electrical devices to a ceiling.

BACKGROUND

[0002] An inner ceiling system for commercial and industrial applications typically consists of a plurality of ceiling suspended beams positioned at a distance from the actual ceiling, placed under elements of air-conditioning, plumbing and electrical installations.

[0003] The inner ceiling system many times also serve as suspension system for electrical device, such as lighting devices and loud speakers, in which case the ceiling suspended beams serve as channels hiding the electrical cables.

[0004] As the electrical devices suspended in the ceiling suspended beams typically are placed beneath the ceiling suspended beams, cables needs to travel from the secure placing in the channel to the electrical devices suspended under the ceiling suspended beams. These electrical cables create cable loops in which other objects may be trapped.

[0005] Also, as the electrical cables are exposed, they may be injured by for example forklifts or melted by for example hot spotlight, which may cause short circuits or in the worst case that maintenance personnel receives electrical shocks when contacting the electrical devices or ceiling suspended beams.

US2712590 (to Doble), discloses an electrical heater particularly for heating water. The electrical heater comprises tube formed to a hook, such that the electrical heater can be hung over the edge of a e.g. a tub.

SUMMARY

[0006] A mounting device for mounting an electrical device to a ceiling suspended beam is provided. The mounting device comprises an internal portion adapted to be positioned on a first side of a sheet portion of the ceiling suspended beam and an external portion adapted to be positioned on a second side of the sheet portion of the ceiling suspended beam. The external portion comprises a fixating structure for fixating the electrical device.

[0007] The mounting device further comprises a load bearing portion, adapted to be placed external to the ceiling suspended beam, connecting the internal portion to the external portion. The load bearing portion comprises an engaging surface adapted to engage an upwards facing edge surface of the sheet portion of the ceiling suspended beam and transfer at least some of the weight of the electrical device to the ceiling suspended beam. The load bearing portion of the mounting device is hollow and comprises an integrated electrical conduit extending within said hollow load bearing portion from the internal portion to the external portion.

[0008] By the load bearing portion comprising an electrical conduit, electrical power can be transferred from the internal portion to the external portion while the electrical conduit remains concealed and protected by the mounting device.

[0009] According to one embodiment, the mounting device is adapted to be mounted to a ceiling suspended beam being a channel, which may be a channel with a U-shaped cross-section, adapted to contain electrical cables, such that the cables remain protected and concealed in the channel while supplying electrical power to electrical devices mounted by means of the mounting device.

[0010] According to the invention, the mounting device is adapted to be mounted to a sheet portion having the first side being located on the inside of the channel, and the second side being located on the outside of the channel.

[0011] According to one embodiment of the mounting device, the integrated electrical conduit is connected to an electrical connect integrated in the internal portion, such that the integrated electrical conduit can be connected to a power source. As the electrical connect may be a standard electrical connect, the electrical device can be replaced together with the mounting device without removing the electrical cable from the channel, which enables faster exchange of electrical devices.

[0012] According to one embodiment, the electrical device is an electrical lighting device.

[0013] According to one embodiment, the internal portion comprises a protrusion adapted to engage a protruding portion of the sheet portion, on the first side thereof, such that the mounting device is locked to the ceiling suspended beam at least in an upwards direction, which enables the mounting device to be moved along the ceiling suspended beam, while remaining locked to the ceiling suspended beam.

[0014] According to one embodiment, the external portion of the mounting device comprises a planar surface adapted to engage a planar surface on the second side of the sheet portion of the ceiling suspended beam, such that the mounting device is stabilized by the planar surface of the ceiling suspended beam.

[0015] According to one embodiment, the engaging surface of the load bearing portion is adapted to engage the upwards facing surface of the sheet portion along a longitudinal extension of the ceiling suspended beam, such that the mounting device can be suspended by the upwards facing surface of the ceiling suspended beam while being movable along the longitudinal extension of the beam.

[0016] According to one embodiment, at least a portion of the internal portion, the external portion and the load bearing portion are portions of the same piece of material.

[0017] Please note that the embodiments herein could be combined in any way unless clearly contradictory.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The invention is now described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a schematic side view of a mounting device according to one embodiment, when mounted to a ceiling suspended beam having a U-shaped cross-section.

Fig. 2 is a schematic side view of a mounting device according to one example, when mounted to a ceiling suspended beam having a V-shaped cross-section.

Fig. 3 is a schematic side view of a mounting device according to an embodiment in which the mounting device is locked to a ceiling suspended beam in the vertical direction.

Fig. 4 is a schematic side view of a mounting device according to one embodiment, when mounted to a ceiling suspended beam having a L-shaped cross-section.

Fig. 5 is a detailed side view of a mounting device comprising an electrical connect and a fixating structure.

Fig. 6 is a detailed elevated perspective view of the mounting device of fig. 5, when mounted to a ceiling suspended beam.

DETAILED DESCRIPTION

[0019] In the following a detailed description of embodiments of the invention will be given with reference to the accompanying drawings. It will be appreciated that the drawings are for illustration only and are not in any way restricting the scope of the invention. Thus, any references to directions, such as "up" or "down", are only referring to the directions shown in the figures. It should be noted that the features having the same reference numerals have the same function, a feature in one embodiment could thus be exchanged for a feature from another embodiment having the same reference numeral, unless clearly contradictory. The descriptions of the features having the same reference numerals should thus be seen as complementing each other in describing the fundamental idea of the feature and thereby showing the features versatility.

[0020] To alleviate at least some of the drawbacks of mounting devices of the prior art, a mounting device for mounting an electrical device to a ceiling suspended beam is provided. A ceiling suspended beam is to be understood as any form of ceiling suspended element forming part of an inner ceiling or functioning as a structure for mounting objects. A ceiling suspended beam could for example be a beam having a U-shaped cross section and thus forming a channel in which for example electrical cables may be placed such that they are hidden from viewers watching the inner ceiling from underneath.

[0021] An electrical device capable of being mounted using the mounting device is to be understood as any electrical device relevant to mount in a ceiling suspended beam. Electrical device includes, but are not limited to, lighting devices (such as for example spot lights), loud speakers, fans, air conditioning equipment, surveillance cameras, infrared detectors and smoke and/or heat detectors.

[0022] The ceiling suspended beam typically consists of sheet material, such as metal (typically steel or aluminum), a polymer material or wood, which has been joined, bent, corrugated or extruded to form a beam.

[0023] According to one embodiment, the mounting device comprises an internal portion adapted to be positioned on a first side of a sheet portion of the ceiling suspended beam, and an external portion adapted to be positioned on a second side of the sheet portion of the ceiling suspended beam. In embodiments where the beam forms a channel, the first side of the sheet portion is the side facing the inside of the channel, whereas the second side of the sheet portion is the side on the outside of the channel.

[0024] The external portion of the mounting device comprises a fixating structure for fixating the electrical device, which for example could be a hook, a protrusion, a recess or cavity, or a portion comprising inner or outer threads.

[0025] The external portion further comprises a load bearing portion, adapted to be placed external to the ceiling suspended beam, connecting the internal portion to the external portion. The load bearing portion in turn comprises an engaging surface adapted to engage an upwards facing surface of the sheet portion of the ceiling suspended beam, and the load bearing surface is thus adapted to transfer at least some of the weight of the electrical device to the ceiling suspended beam, such that the electrical device is at least partly suspended by the ceiling suspended beam. The load bearing portion is hollow and comprises an integrated electrical conduit extending within said hollow load bearing portion from the internal portion to the external portion. The electrical conduit can be adapted to transfer electrical energy and/or electrical signals containing information from the internal portion to the external portion. As the electrical conduit is placed within the load bearing portion, the electrical conduit is protected and concealed from the environment and already securely in place when the mounting device is mounted onto the ceiling suspended beam.

[0026] As previously mentioned the electrical device may be at least partly suspended by the ceiling suspended beam, which could mean that the electrical device additionally is supported by for example additional hooks or fixating screws.

[0027] Fig. 1 shows a schematic side view of a mount-

ing device 10' for mounting an electrical device 15 to a ceiling suspended beam 20', according to one embodiment. The mounting 10' device comprises an internal portion 11 adapted to be positioned on a first side **F** of a sheet portion 13 of the ceiling suspended beam 20'and an external portion 12 adapted to be positioned on a second side **S** of the sheet portion 13 of the ceiling suspended beam 20'. The external portion 12 comprises a fixating structure 14 for fixating the electrical device 15. The mounting device 10' further comprises a load bearing portion 16 placed external to the ceiling suspended beam connecting the internal portion 11 to the external portion 12. The load bearing portion 16 comprises an engaging surface 17 adapted to engage an upwards facing edge surface 18 of the sheet portion 13 of the ceiling suspended beam 20' and transfer at least some of the weight of the electrical device 15 to the ceiling suspended beam 20'.

[0028] The load bearing portion 16 is hollow and comprises an integrated electrical conduit 19 extending within said hollow load bearing portion 16 from the internal portion 11 to the external portion 12.

[0029] According to the embodiment shown in fig. 1, the ceiling suspended beam 20' is a channel 20' having a U-shaped cross section and being adapted to contain electrical cables, and the first side **F** of the sheet portion 13 is located on the inside of the channel 20', and the second side **S** of the sheet portion 13 is located on the outside of the channel 20'.

[0030] According to the embodiments described with reference to figs. 1 - 4, the electrical device is an electrical lighting device. However, it is equally conceivable that the electrical device is another type of electrical device, such as for example a loud speaker, a fan, air conditioning equipment, a surveillance camera, an infrared detector or a smoke or heat detector.

[0031] According to the embodiment shown in fig. 1, the external portion 12 of the mounting device 10' comprises a planar surface P1 adapted to engage a planar surface P2 on the second side **S** of the sheet portion 13 of the ceiling suspended beam 20'. The planar surfaces P1, P2 engages each other when the mounting device is at rest in its mounting position, such that the electrical device 15 is stabilized by the connection of the planar surfaces and suspended in the ceiling suspended beam 20'.

[0032] Fig. 2 schematically shows an example of the mounting device 10" when mounted to a ceiling suspended beam 20", similar to the embodiment described with reference to fig. 1. The difference being that the ceiling suspended beam of fig. 2 has a V-shaped cross section and is made from a sheet material with only one bend. In the embodiment of fig. 2 the external portion 12 of the mounting device 10" is not in contact with the sheet portion 13 of the ceiling suspended beam 20", and is thus entirely suspended and stabilized by the internal portion 11, which is in contact with the inner surface of the sheet portion 13, and the load bearing portion 16, which is in contact with an upwards facing surface 18 of the sheet portion 13.

[0033] Fig. 3 schematically shows an embodiment of the mounting device 10"' similar to the embodiment shown with reference to fig. 1, with the difference that the internal portion 11 of the mounting device 10"' of fig. 3 comprises a protrusion 31 adapted to engage a protruding portion 32 of the sheet portion 13, on the first side thereof F, such that the mounting device 10"' is locked to the ceiling suspended beam 20"' in the upwards direction and the mounting device 10"' thus needs to be tilted counter clockwise and moved towards the inside of the channel 20"', such that the protrusion 31 can pass the protruding portion 32 of the sheet portion 13, such that the mounting device 10"' can be removed from the ceiling suspended beam 20"'.

[0034] Fig. 4 schematically shows an embodiment of the mounting device 10"" similar to the embodiment shown in fig. 1, the difference being that the ceiling suspended beam 20"" has an L-shaped cross-section and thus do not form a channel. The embodiment of fig. 4 shows that the shape of the ceiling suspended beam 20"" is not crucial to the design of the mounting device 10"" and can be altered without creating a need to alter or adapt the design of the mounting device 10"".

[0035] Fig. 5 shows a side view of a mounting device 10 for mounting an electrical device to a ceiling suspended beam, according to one embodiment. The mounting device 10 comprises an internal portion 11 adapted to be positioned on a first side of a sheet portion of the ceiling suspended beam (as shown in fig. 6) and an external portion 12 adapted to be positioned on a second side of the sheet portion.

[0036] The external portion 12 comprises a fixating structure 14 for fixating the electrical device (such as shown in figs 1 - 4). In the embodiment shown in fig. 5, the fixating structure comprises a protruding pipe portion comprising an outer thread 53 adapted to receive an electrical device comprising a sleeve having an inner thread corresponding to the outer thread 53 of the fixating structure 14.

[0037] The mounting device 10 further comprises a load bearing portion 16 connecting the internal portion 11 to the external portion 12. The load bearing portion 16 comprises an engaging surface 17 adapted to engage an upwards facing surface (shown as 18 in fig. 6) of the sheet portion of the ceiling suspended beam (as shown in fig. 6) and transfer at least some of the weight of the electrical device to the ceiling suspended beam. The internal portion 11 of the embodiment of fig. 5 further comprises an electrical connect 51, shown in the embodiment of fig. 5 as a standardized electrical plug. The load bearing portion 16 is hollow and comprises an integrated electrical conduit 19 extending within said hollow load bearing portion 16 from the electrical connect 51 of the internal portion 11 to the fixating structure 14 of the external portion 12, such that the electrical device can be powered via the integrated electrical conduit 19 concealed and

protected by the mounting device 10.

[0038] As the electrical connect 51 of the internal portion 11 may be a standard electrical connect 51, the electrical device can be replaced together with the mounting device 10, without removing the electrical cable from the channel, which enables faster exchange of electrical devices.

[0039] Turning to the structure of the mounting device 10, the internal portion 11 comprises a substantially rectangular portion comprising the electrical connect 51. The rectangular portion transfers into a slanted portion extending towards the load bearing portion 16 which in turn travels over the sheet portion of the ceiling suspended beam (as shown in fig. 6) and turns downwards transferring into the external portion 12 comprising a planar surface P1 extending vertically, aligned with a planar surface of a ceiling suspended beam (again, as shown in fig. 6), and a slanted planar surface P3 forming the external surface of the external portion 12. The slanted planar surface P3 extends until the slanted planar surface P3 reaches the lowermost portion of the external portion 12 which is substantially rectangular and comprises the threaded 53 fixating structure 14. The load bearing portion 16 being placed external to the ceiling suspended beam is to be understood as the load bearing portion 16 not travelling through a hole of the ceiling suspended beam, which means that the mounting device 10 can be removed from the ceiling suspended beam while remaining intact.

[0040] The mounting device 10 of the embodiment shown in fig. 5 further comprises a protrusion 31 adapted to engage a protruding portion of the sheet portion of the ceiling suspended beam (shown as 32 in fig. 6), such that the mounting device 10 is locked to the ceiling suspended beam in the upwards (vertical) direction and the mounting device 10 thus needs to be tilted counter clockwise and moved to the left, such that the protrusion 31 clears the protruding portion of the sheet portion, such that the mounting device 10 can be removed from the ceiling suspended beam.

[0041] Fig. 6 shows the mounting device 10 according to the embodiment described with reference to fig. 5, when mounted to a ceiling suspended beam 20. The engaging surface (shown as 17 in fig. 5) of the load bearing portion 16 is adapted to engage the upwards facing edge surface 18 of the sheet portion 13 along a longitudinal extension **L** of the ceiling suspended beam 20.

[0042] As shown in fig. 5, the mounting device further comprises a protrusion (in fig. 6 concealed by the sheet portion 13) adapted to engage a protruding portion 32 of the sheet portion 13 of the ceiling suspended beam 20, which is a bent portion of the upper most portion of the sheet portion 13 which is somewhat slanted towards the inside and bottom of the channel, at a proximal angle to the sheet portion of 45°. By means of the protrusions 31, 32, the mounting device 10 is locked to the ceiling suspended beam 20 in the upwards (vertical) direction and the mounting device 10 thus needs to be tilted counter clockwise and moved to the left in fig. 6 (towards the inside of the channel of the beam 20), such that the protrusion of the mounting device 10 clears the protruding portion 32 of the sheet portion 13, such that the mounting device can be removed from the ceiling suspended beam. When being mounted, and thus vertically locked, the mounting device 10 may still be moved horizontally in the longitudinal extension **L** of the ceiling suspended beam 20, and the position of electrical devices mounted to the ceiling suspended beam 20 can thus be adjusted without the removal of the mounting device 10 from the ceiling suspended beam 20.

[0043] According to the embodiment of the mounting device shown in figs. 5 and 6, the internal portion, load bearing portion and external portion are made from the same piece of homogenous material, which for example could be a polymer or metal material casted to form the mounting device. In the particular embodiment shown in fig. 6, the mounting device is made from two casted portions 54a, 54b which are joined by means of screws. The hollow inside, in which the electrical conduit extends (shown as 19 in fig. 5), can thus be accessed by separating the two casted portions 54a, 54b. However, it is equally conceivable that the mounting device 10 is made as a single piece from the same material and that access to the hollow inside of the mounting device is made possible by means of an access opening or small hatch in the mounting device 10.

[0044] The electrical connect 51 positioned on the inside of the channel formed by the beam 20 may be connected to electrical cables adapted to be placed in the channel and connected to a power source, such as grid connection and/or a transformer or a battery. The mounting device 10 thus keeps cables securely placed inside of the channel and securely transfers electrical power from inside of the channel to an electrical device fixated to the mounting device 10.

[0045] Any detailed description should be interpreted in its broadest outline as a general summary of the invention as defined by the appended claims.

Claims

1. Mounting device (10) for mounting an electrical device (15) to a ceiling suspended beam (20) being a channel having a substantially U-shaped cross-section and having a sheet portion (13) along a longitudinal extension of the ceiling suspended beam, whereby the first side (F) of the sheet portion is the side facing the inside of the channel and the second side (S) of the sheet portion is the side on the outside of the channel, the mounting device comprising:
   an internal portion (11) adapted to be positioned at least partly within the channel on the first side (F) of the sheet portion (13) of the ceiling suspended beam (20),

   - an external portion (12) adapted to be posi-

tioned outside of the channel on the second side (S) of the sheet portion (13) of the ceiling suspended beam (20), the external portion (12) comprising a fixating structure (14) for fixating the electrical device (15), and
- a load bearing portion (16) adapted to be placed external to the ceiling suspended beam (20), connecting the internal portion (11) to the external portion (12), wherein the load bearing portion (16) comprises an engaging surface (17) adapted to engage an upwards facing edge surface (18) of the sheet portion (13) of the ceiling suspended beam (20) and transfer at least some of the weight of the electrical device (15) to the ceiling suspended beam (20), wherein the load bearing portion (16) is hollow and comprises an integrated electrical conduit (19) extending within said hollow load bearing portion (16) from the internal portion (11) to the external portion (12), **characterized in that** the external portion (12) further comprises a planar surface (P1) adapted to engage a planar surface (P2) on the second side (S) of the sheet portion (13) of the ceiling suspended beam (20), such that the electrical device (15) is stabilized by the connection of the planar surfaces and suspended in the ceiling suspended beam 20.

2. The mounting device according to claim 1, wherein the internal portion (11) comprises a protrusion (31) adapted to engage a planar surface of the first side (F) of the sheet portion (13) of the ceiling suspended beam (20) such as to limit angular movement of the device around an axis parallel with the ceiling suspended beam (20).

3. The mounting device according to claim 1, wherein the mounting device is adapted to be mounted to a ceiling suspended beam (20) adapted to contain electrical cables.

4. The mounting device according to any one of the preceding claims, wherein the integrated electrical conduit (19) is connected to an electrical connect (52) integrated in the internal portion (11), such that the integrated electrical conduit (19) can be connected to a power source.

5. The mounting device according to any one of the preceding claims, wherein the electrical device (15) is an electrical lighting device (15).

6. The mounting device according to any one of the preceding claims, wherein the protrusion (31) of the internal portion (11) is adapted to engage a protruding portion (32) of the sheet portion (13), on the first side (F) thereof, such that the mounting device (10) is locked to the ceiling suspended beam (20) at least in an upwards direction

7. The mounting device according to any one of the preceding claims, wherein the engaging surface (17) of the load bearing portion (16) is adapted to engage the upwards facing edge surface (18) of the sheet portion (13) along a longitudinal extension (L) of the ceiling suspended beam (20).

8. The mounting device according to any one of the preceding claims, wherein at least a portion of the internal portion (11), the external portion (12) and the load bearing portion (16) are portions of the same piece of material.

Patentansprüche

1. Befestigungsvorrichtung (10) zum Befestigen einer elektrischen Vorrichtung (15) an einem Hängedeckenträger (20), die ein Kanal ist, der einen im Wesentlichen U-förmigen Querschnitt hat und der einen Blechteil (13) entlang einer Längsausdehnung das Hängedeckenträgers hat, wobei die erste Seite (F) das Blechteils die Seite ist, die zur Innenseite des Kanals gewendet ist, und die zweite Seite (S) des Blechteils die Seite auf der Außenseite des Kanals ist, wobei die Befestigungsvorrichtung umfasst:

einen internen Teil (11), der dafür ausgelegt ist, zumindest teilweise innerhalb des Kanals auf der ersten Seite (F) des Blechteils (13) des Hängedeckenträgers (20) positioniert zu werden,

- einen externen Teil (12), der dafür ausgelegt ist, außerhalb des Kanals auf der zweiten Seite (S) des Blechteils (13) des Hängedeckenträgers (20) positioniert zu werden, wobei der externe Teil (12) eine Befestigungsstruktur (14) zum Befestigen der elektrischen Vorrichtung (15) umfasst, und
- einen lasttragenden Teil (16), der dafür ausgelegt ist, extern zum Hängedeckenträger (20) platziert zu werden, der den internen Teil (11) mit dem externen Teil (12) verbindet, wobei der lasttragende Teil (16) eine Eingriffsfläche (17) umfasst, die dafür ausgelegt ist, in eine nach oben weisende Kantenfläche (18) des Blechteils (13) des Hängedeckenträgers (20) einzugreifen und zumindest einen Teil des Gewichts der elektrischen Vorrichtung (15) auf den Hängedeckenträger (20) zu übertragen, wobei der lasttragende Teil (16) hohl ist und eine integrierte elektrische Kabelführung (19) umfasst, die sich innerhalb des hohlen lasttragenden Teils (16) vom internen Teil (11) zum externen Teil (12) erstreckt, **dadurch**

gekennzeichnet, dass der externe Teil (12) ferner eine ebene Fläche (P1) umfasst, die dafür ausgelegt ist, in eine ebene Fläche (P2) auf der zweiten Seite (S) des Blechteils (13) des Hängedeckenträgers (20) so einzugreifen, dass die elektrische Vorrichtung (15) durch die Verbindung der ebenen Flächen stabilisiert wird und im Hängedeckenträger (20) aufgehängt ist.

2. Befestigungsvorrichtung nach Anspruch 1, wobei der interne Teil (11) einen Vorsprung (31) umfasst, der dafür ausgelegt ist, in eine ebene Fläche der ersten Seite (F) des Blechteils (13) des Hängedeckenträgers (20) derart einzugreifen, dass die Winkelbewegung der Vorrichtung rund um eine Achse parallel zum Hängedeckenträger (20) begrenzt wird.

3. Befestigungsvorrichtung nach Anspruch 1, wobei die Befestigungsvorrichtung dafür ausgelegt ist, an einem Hängedeckenträger (20) befestigt zu werden, der dafür ausgelegt ist, elektrische Kabel zu enthalten.

4. Befestigungsvorrichtung nach einem der vorherigen Ansprüche, wobei die integrierte elektrische Kabelführung (19) mit einem elektrischen Anschluss (52) verbunden ist, der in den internen Teil (11) derart integriert ist, dass die integrierte elektrische Kabelführung (19) an eine Stromquelle angeschlossen werden kann.

5. Befestigungsvorrichtung nach einem der vorherigen Ansprüche, wobei die elektrische Vorrichtung (15) eine elektrische Beleuchtungsvorrichtung (15) ist.

6. Befestigungsvorrichtung nach einem der vorherigen Ansprüche, wobei der Vorsprung (31) des internen Teils (11) dafür ausgelegt ist, in einen vorragenden Teil (32) des Blechteils (13) einzugreifen, auf der ersten Seite (F) desselben, derart dass die Befestigungsvorrichtung (10) am Hängedeckenträger (20) zumindest in einer Aufwärtsrichtung verriegelt ist.

7. Befestigungsvorrichtung nach einem der vorherigen Ansprüche, wobei die eingreifende Fläche (17) des lasttragenden Teils (16) dafür ausgelegt ist, in die nach oben weisende Kantenfläche (18) des Blechteils (13) entlang einer Längsausdehnung (L) des Hängedeckenträgers (20) einzugreifen.

8. Befestigungsvorrichtung nach einem der vorherigen Ansprüche, wobei zumindest ein Teil aus dem internen Teil (11), dem externen Teil (12) und dem lasttragenden Teil (16) Teile desselben Materialstücks sind.

Revendications

1. Dispositif de support (10) destiné à supporter un dispositif électrique (15) sur une poutre suspendue de plafond (20) qui est un canal présentant une section transversale essentiellement en forme de U et comportant une partie formant plaque (13) le long d'une étendue longitudinale de la poutre suspendue de plafond, le premier côté (F) de la partie formant plaque étant le côté orienté vers l'intérieur du canal et le second côté (S) de la partie formant plaque étant le côté situé à l'extérieur du canal, le dispositif de support comprenant :

   - une partie intérieure (11) conçue pour être positionnée au moins partiellement à l'intérieur du canal sur le premier côté (F) de la partie formant plaque (13) de la poutre suspendue de plafond (20),
   - une partie extérieure (12) conçue pour être positionnée à l'extérieur du canal sur le second côté (S) de la partie formant plaque (13) de la poutre suspendue de plafond (20), la partie extérieure (12) comprenant une structure de fixation (14) servant à fixer le dispositif électrique (15), et
   - une partie porteuse de charge (16) conçue pour être placée extérieurement à la poutre suspendue de plafond (20), raccordant la partie intérieure (11) avec la partie extérieure (12), la partie porteuse de charge (16) comprenant une surface de contact (17) conçue pour venir en contact avec une surface de bord orientée vers le haut (18) de la partie formant plaque (13) de la poutre suspendue de plafond (20) et transférer au moins une partie du poids du dispositif électrique (15) à la poutre suspendue de plafond (20), la partie porteuse de charge (16) étant creuse et comprenant un conduit électrique intégré (19) s'étendant à l'intérieur de ladite partie porteuse de charge (16) creuse, de la partie intérieure (11) à la partie extérieure (12), **caractérisé en ce que** la partie extérieure (12) comprend en outre une surface plane (P1) conçue pour venir en contact avec une surface plane (P2) sur le second côté (S) de la partie formant plaque (13) de la poutre suspendue de plafond (20), de telle sorte que le dispositif électrique (15) soit stabilisé par le raccordement des surfaces planes et suspendu dans la poutre suspendue de plafond (20).

2. Dispositif de support selon la revendication 1, dans lequel la partie intérieure (11) comprend une saillie (31) conçue pour venir en contact avec une surface plane du premier côté (F) de la partie formant plaque (13) de la poutre suspendue de plafond (20) de façon à limiter le déplacement angulaire du dispositif

autour d'un axe parallèle à la poutre suspendue de plafond (20).

3. Dispositif de support selon la revendication 1, le dispositif de support étant conçu pour être supporté sur une poutre suspendue de plafond (20) conçue pour contenir des câbles électriques.

4. Dispositif de support selon l'une quelconque des revendications précédentes, dans lequel le conduit électrique intégré (19) est raccordé à un connecteur électrique (52) intégré dans la partie intérieure (11), de telle sorte que le conduit électrique intégré (19) puisse être raccordé à une source d'alimentation.

5. Dispositif de support selon l'une quelconque des revendications précédentes, dans lequel le dispositif électrique (15) est un dispositif électrique d'éclairage (15).

6. Dispositif de support selon l'une quelconque des revendications précédentes, dans lequel la saillie (31) de la partie intérieure (11) est conçue pour venir en contact avec une partie saillante (32) de la partie formant plaque (13), sur son premier côté (F), de telle sorte que le dispositif de support (10) soit bloqué sur la poutre suspendue de plafond (20) au moins dans une direction allant vers le haut.

7. Dispositif de support selon l'une quelconque des revendications précédentes, dans lequel la surface de contact (17) de la partie porteuse de charge (16) est conçue pour venir en contact avec la surface de bord orientée vers le haut (18) de la partie formant plaque (13) le long d'une étendue longitudinale (L) de la poutre suspendue de plafond (20).

8. Dispositif de support selon l'une quelconque des revendications précédentes, dans lequel au moins une partie de la partie intérieure (11), de la partie extérieure (12) et de la partie porteuse de charge (16) sont des parties de la même pièce de matériau.

Fig.1

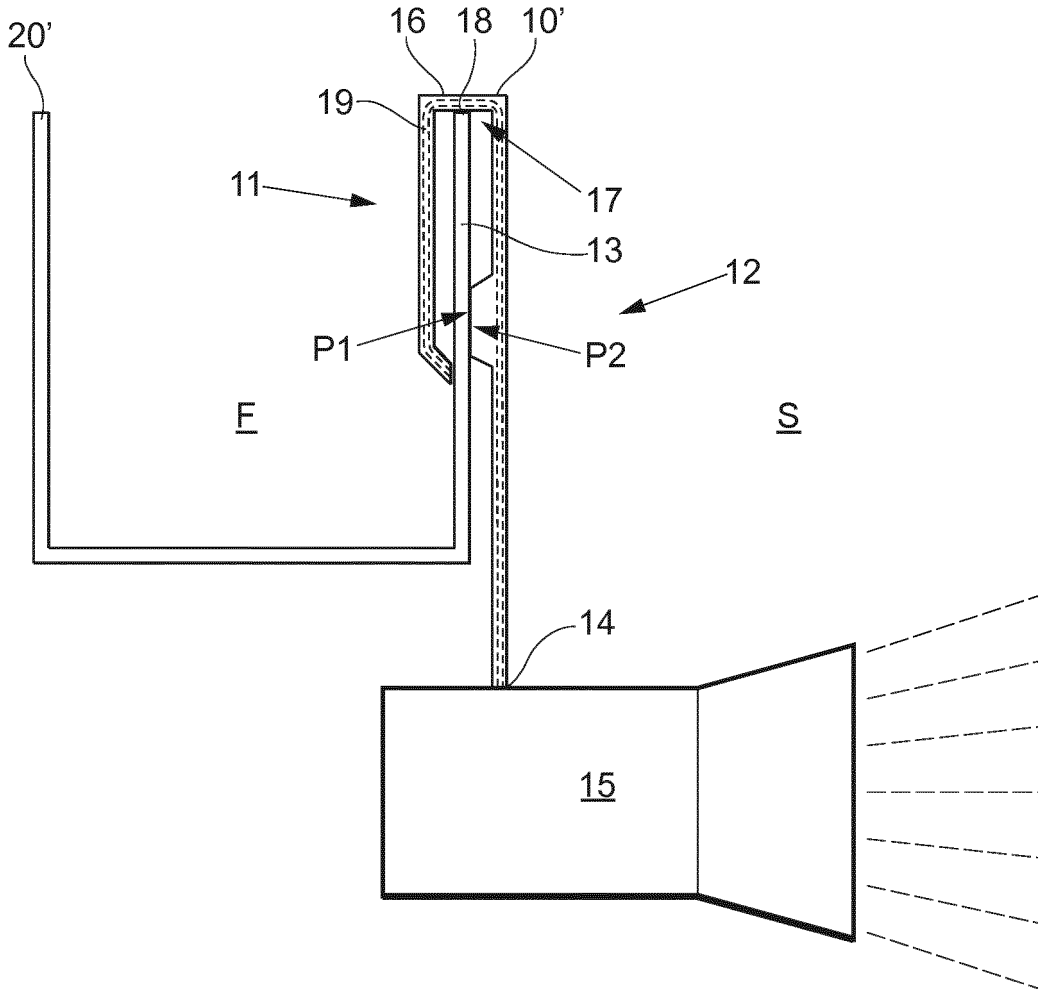


Fig.2

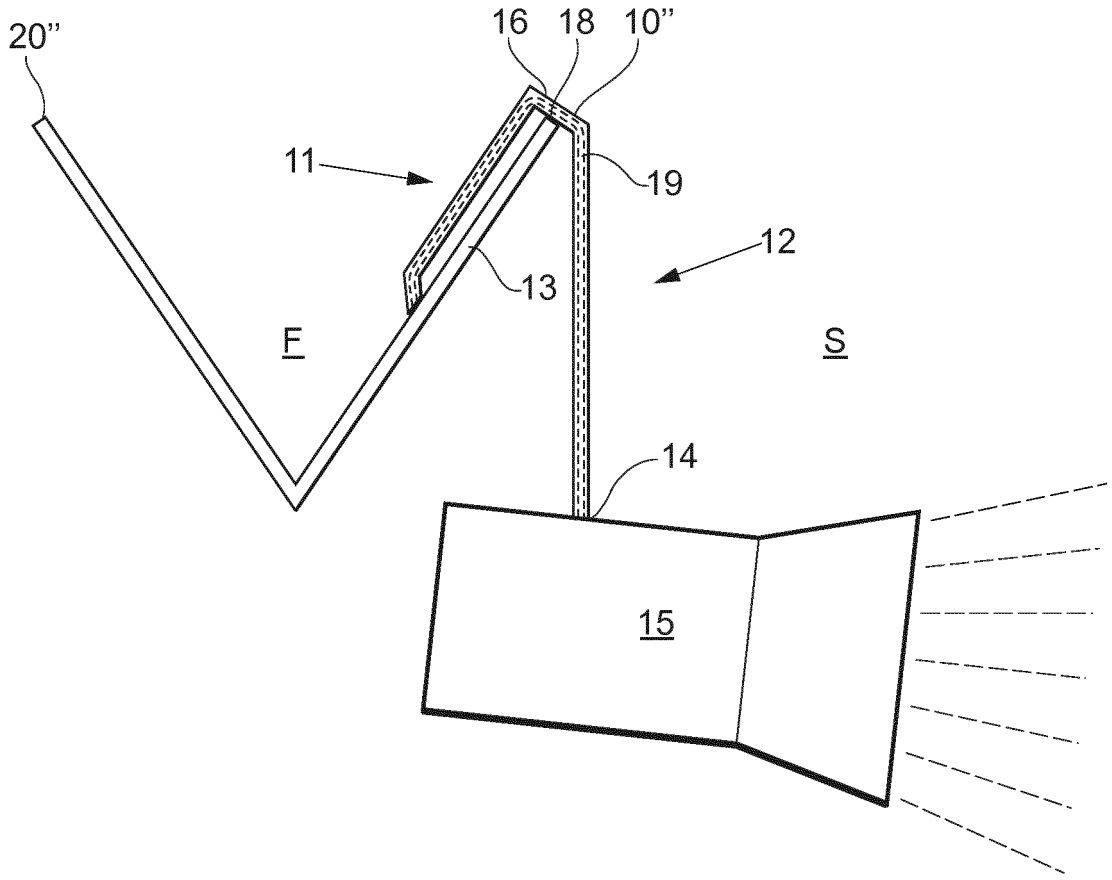


Fig.3

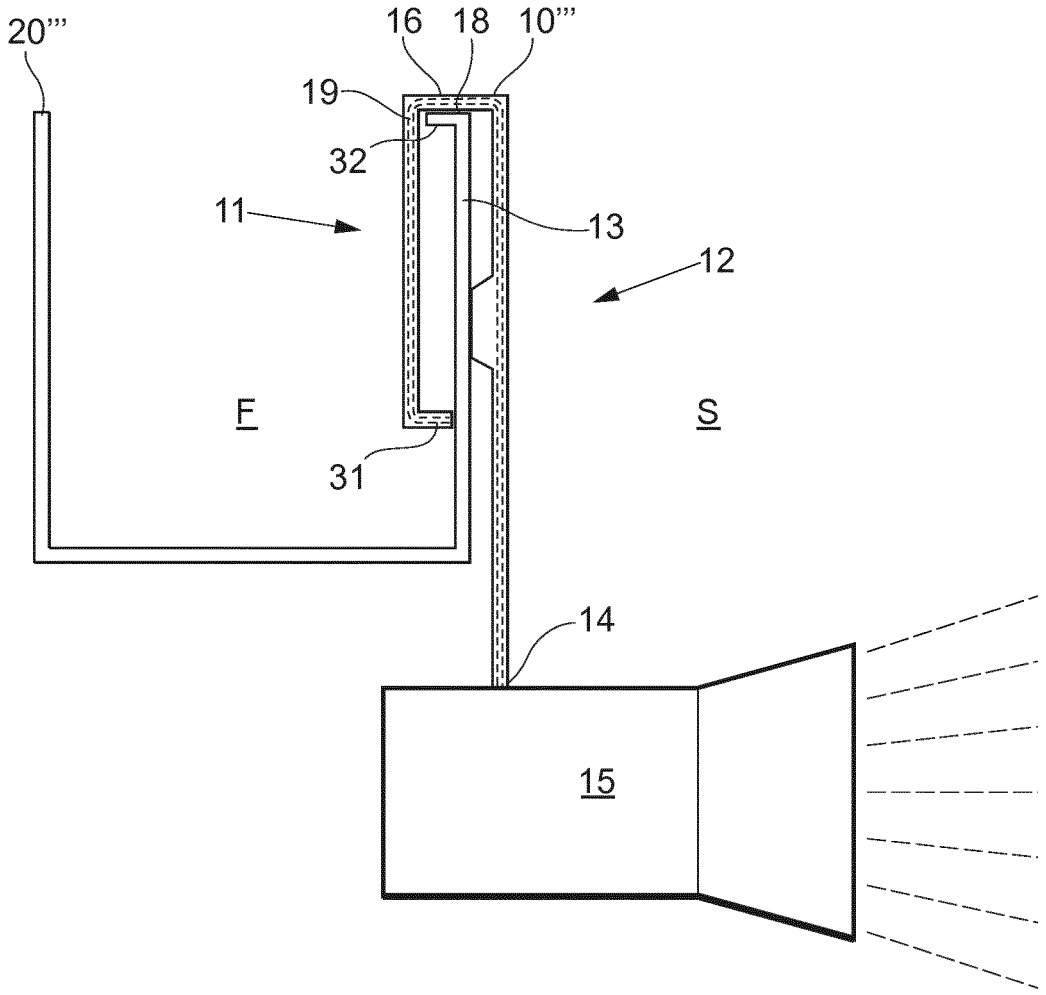


Fig.4

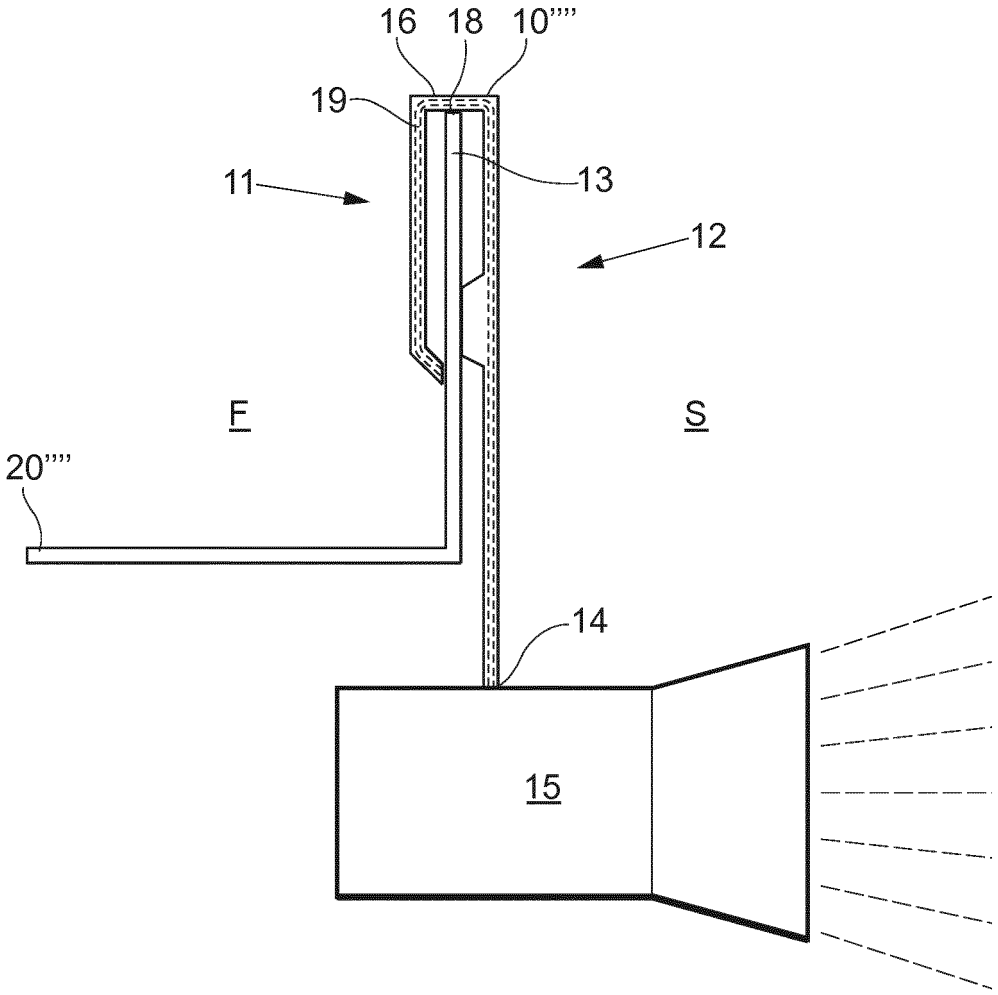


Fig.5

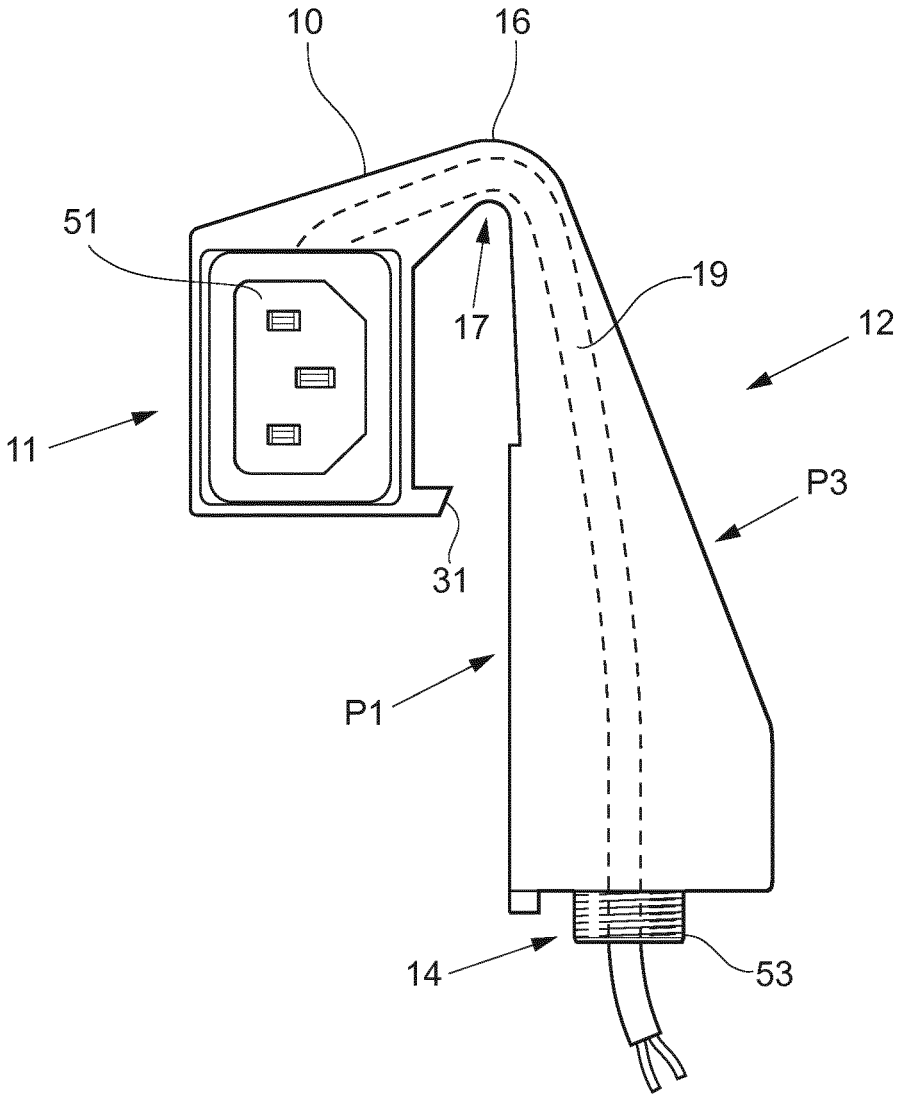
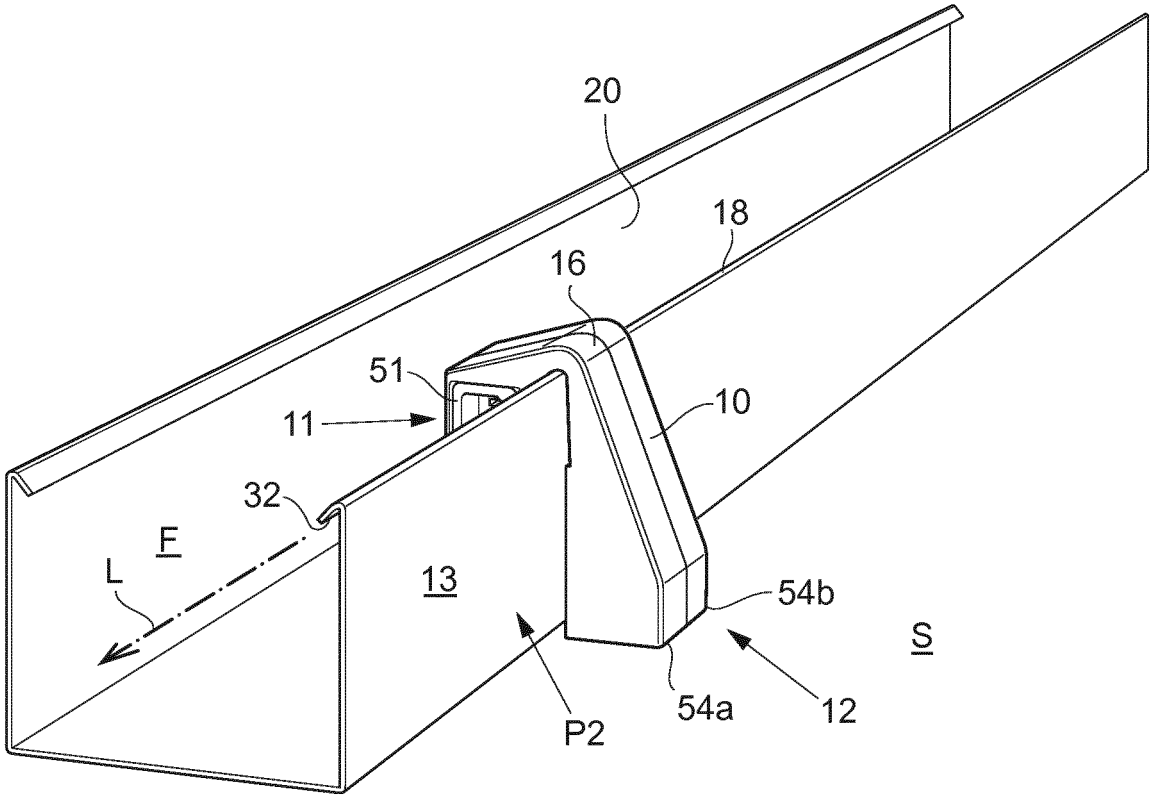


Fig.6



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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