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(54) **Luminaire for line illumination**

Leuchteneinheit für Lichtbandsystem

Luminaire pour chemin lumineux

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(73) Proprietors:
• **Koninklijke Philips Electronics N.V.**
5621 BA Eindhoven (NL)
Designated Contracting States:
AT BE FR GB
• **Philips Intellectual Property & Standards GmbH**
20099 Hamburg (DE)
Designated Contracting States:
DE

(72) Inventors:
• **Jämmrich, Hans Hermann**
Prof. Holstlaan 6,
5656 AA Eindhoven (NL)
• **Henze, Wolfgang**
Prof. Holstlaan 6,
5656 AA Eindhoven (NL)
• **Stigrot, Bernd**
Prof. Holstlaan 6,
5656 AA Eindhoven (NL)

(74) Representative: **van der Veer, Johannes Leendert**
Philips
Intellectual Property & Standards
P.O. Box 220
5600 AE Eindhoven (NL)

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Description

[0001] The invention relates to a luminaire for line illumination, comprising:

a first trunk with a top wall and side walls connected thereto;
 an elongate batten provided with an outer surface which has means for accommodating and supplying an electric lamp and which is detachably fastened to said trunk;
 a channel-shaped coupling piece with a longitudinal direction, a top wall, and side walls for connecting the first trunk to an adjoining trunk, which coupling piece partly overlaps the first trunk and the adjoining trunk and comprises means for fixing it to the first trunk and the adjoining trunk.

[0002] Such a luminaire according to the preamble of claim 1 is known from FR 2 680 560 A. Another luminaire of the above type is known from DE-A-32 14 595.

[0003] In the known luminaire, the coupling piece is present inside the relevant trunks, supported in flanged rims thereof. Projections are present at the top wall of the coupling piece, which projections can be manually rotated about an axis parallel to the top wall by means of a handle and can press against the top walls of the trunks. Owing to the deformations which occur during this, bulges in the side walls of the coupling piece will press against the side walls of the trunks, so that these trunks are tightly clamped.

[0004] It is a major disadvantage of the known luminaire that the coupling piece leads to a substantial local narrowing of the trunks. This means that the trunks must be given a more voluminous shape than if the coupling piece were absent. It is another disadvantage that deformations in the coupling piece and/or the trunk must be realized in order to render the bulges effective. There is a risk that deformations of the trunk may become visible.

[0005] A coupling piece for trunks is known from US-A-3,275,355 which comprises two mutually opposed U-shaped bodies which enter one another and whose bottoms can be pulled towards one another by means of screws, such that the bodies will clamp themselves into the trunks. The coupling piece is very voluminous, also on account of a reinforcement provided therein. A coupling piece inside a trunk has the additional disadvantage that it may form an obstacle to any continuous electric wiring present in the trunk.

[0006] A coupling piece which is U-shaped in cross-section is known from DE-U-1 874 882, whose top wall has flat extensions with holes, which extensions face away from one another. The coupling piece is laid over two adjoining elongate luminaires and fixed to these luminaires at the areas of the extensions by means of bolts and nuts. A suspension member can be fastened to the coupling piece between the luminaires for suspending the luminaires. The coupling piece has the disadvantage

that it is difficult to fasten and that it provides a connection of low rigidity between the luminaires, so that the linearity of luminaires connected to one another is not ensured. It is a further disadvantage that the coupling piece still has fastening means inside the luminaires.

[0007] It is an object of the invention to provide a luminaire of the kind described in the opening paragraph whose coupling piece occupies little space in the trunk and is nevertheless of a simple, sturdy construction which is easy to operate.

[0008] According to the invention, this object is achieved in that the coupling piece has inwardly flanged, longitudinally extending portions at its side walls, by means of which portions the coupling piece hooks itself externally around the first trunk, and in that the coupling piece has a pressure piece between its top wall and the top wall of the first trunk, which pressure piece is held clamped against the top wall of the first trunk by means of a screw passed through a threaded hole in the top wall of the coupling piece.

[0009] The coupling piece of the luminaire now is present not inside, but externally around the trunk, so that it occupies no space at all in this trunk and allows free passage to any elements which may extend through the trunk, such as electrical cables. The coupling piece may hook entirely around side walls of the trunk by means of its flanged portions, for example flanged rims, or around a profile extending in the longitudinal trunk direction, for example an external or internal fold or rim.

[0010] The pressure piece may be so dimensioned that it cooperates with the first trunk only. A separate pressure piece for an adjoining trunk may then be present. It is important, however, for a rigid coupling of trunks when the pressure piece extends substantially throughout the entire coupling piece, and the coupling piece has a second screw in a second threaded hole so as to keep the pressure piece clamped against an adjoining trunk.

[0011] The pressure piece may take the form, for example, of a plate. In a favorable embodiment, the pressure piece has side walls which bear on the side walls of the trunk. These side walls not only provide a major stiffening of the pressure piece, and thus of the coupling piece, and thus of the coupling between the trunks, but they also contribute to an accurate alignment of trunks parallel to their top walls.

[0012] It is important for the ease of mounting of the coupling piece to the trunk that the coupling piece and the pressure piece should be permanently interconnected while their mutual distance is variable. A permanent connection may be realized, for example, in that tongues of the pressure piece project through slots in the top wall of the coupling piece and have folded ends. The length of the tongues determines the distance over which the coupling piece and the pressure piece can be moved relative to one another then. When the coupling piece is provided around a trunk, the coupling piece now is a coherent unit, while the pressure piece can nevertheless move towards the top wall of the coupling piece so as to

provide space for the trunk, and can subsequently be clamped against this trunk.

[0013] In a favorable modification, the coupling piece and the pressure piece are coupled with an adjustable mutual distance. It is possible then to set a comparatively small mutual distance for the purpose of easy mounting around the trunk.

[0014] In an embodiment, accordingly, the pressure piece has for each screw a respective opening in a projecting portion facing the top wall of the coupling piece, through which projecting portion a narrowed portion of the relevant screw projects with rotation possibility and in which projecting portion a widened free-end portion of the screw is accommodated. This embodiment has the additional advantage that the compression force of the screws is transmitted to the trunk with a better distribution over the pressure piece. The widened free-end portion may be obtained, for example, in that the narrowed portion is upset at its free end, so that it can no longer pass through the opening.

[0015] The coupling piece may be used for suspending a linear arrangement of luminaires from a ceiling by means of suspension members or cables. Threaded holes in the coupling piece may, for example, have been broken out from the inside and provided with screw-threads. The coupling piece is suitable for comparatively high mechanical loads, for example if the trunk has a length suitable for accommodating several battens.

[0016] An embodiment of the luminaire according to the invention is shown in the drawing, in which

Fig. 1 is an exploded view of the luminaire;
Fig. 2 is an exploded view of the coupling piece; and
Fig. 3 is a cross-section taken on the line III-III in Fig. 1.

[0017] In Figs. 1 and 3, the luminaire for line illumination comprises a first trunk 10 with a top wall 11 and side walls 13 connected thereto. The trunk 10 has a mounting opening 12 opposite the top wall 11 for accommodating an elongate batten 1 which has an outer surface 2 comprising means 3 for accommodating and supplying an electric lamp, for example an elongate fluorescent lamp. The batten 1 can be detachably fastened to the trunk 10, in the Figures by means of a coupling member 6. The luminaire has a channel-shaped coupling piece 30 with a longitudinal direction, a top wall 31, and side walls 32 for connecting the first trunk 10 in line with an adjoining trunk 10', such that the coupling piece 30 partly overlaps the first trunk 10 and the adjoining trunk 10'. The coupling piece 30 comprises means for fixing it to the first trunk 10 and the adjoining trunk 10'.

[0018] The coupling piece 30, see Fig. 3, has inwardly flanged portions 33 at its side walls 32, in the form of hooks in the Figure, which extend in its longitudinal direction and with which the coupling piece 30 hooks itself around the first trunk 10, i.e. into inward folds 15 present in the side walls 13 of the trunk 10 in the Figure. The

coupling piece 30 has a pressure piece 36 between its top wall 31 and the top wall 11 of the first trunk 10, which pressure piece is held clamped against the top wall 11 of the first trunk 10 by means of a screw 34 passed through a threaded hole 35 in the top wall 31 of the coupling piece 30.

[0019] Before the batten 1, see Figs. 1 and 3, is provided in the trunk 10, the trunk 10 can be pressed sideways into the coupling piece 30 because the trunk 10 is still elastic then. Once the batten 1 is present, the trunk can only be passed into the coupling piece 30 in its longitudinal direction.

[0020] The pressure piece 36, see Fig. 2, extends substantially throughout the entire coupling piece 30. The coupling piece 30 has a second screw 34 in a second threaded hole 35 for keeping the pressure piece 36 clamped against the adjoining trunk 10'.

[0021] In the Figures, the pressure piece 36 has side walls 37 which will bear on the side walls 13 of the trunk 10.

[0022] The channel-shaped coupling piece 30 and the pressure piece 36 are permanently coupled to one another with a mutual movement possibility, in the Figures with an adjustable mutual distance, see Fig. 3. The pressure piece 36 has for each screw 34 a respective opening in a projecting portion 38 which is directed towards the top wall 31 of the coupling piece 30 and through which a narrowed portion 39 of the relevant screw 34 is passed with rotation possibility, while a widened free-end portion 40 of the screw 34 is accommodated in said projecting portion 38. When the screws 34, for example Allen screws, are turned out, the pressure piece 36 is pulled up towards the top wall 31 of the channel-shaped coupling piece 30. The pressure piece 36 will retain any selected position once given to it and suitable for moving the trunk 10 into the interior of the coupling piece 30. The pressure piece 36 is suspended on the widened free-end portion 40. When the trunk 10 has been brought into position, the screw 34 can be turned inwards.

[0023] The channel-shaped coupling piece has openings 41, see Fig. 2, in which, for example, a suspension member or a chain can be fastened and through which a supply cable can be passed into the interior. A corresponding oval opening 42 is present in the pressure piece 36.

Claims

1. A luminaire for line illumination, comprising:

a first trunk (10) with a top wall (11) and side walls (13) connected thereto;
an elongate batten (1) provided with an outer surface (2) which has means (3) for accommodating and supplying an electric lamp and which is detachably fastened to said trunk (10);
a channel-shaped coupling piece (30) with a lon-

gitudinal direction, a top wall (31), and side walls (32) for connecting the first trunk (10) to an adjoining trunk (10'), which coupling piece (30) partly overlaps the first trunk (10) and the adjoining trunk (10') and comprises means for fixing it to the first trunk (10) and the adjoining trunk (10'),

characterized in that the coupling piece (30) has inwardly flanged, longitudinally extending portions (33) at its side walls (32), by means of which portions the coupling piece (30) hooks itself externally around the first trunk (10), and **in that** the coupling piece (30) has a pressure piece (36) between its top wall (31) and the top wall (11) of the first trunk (10), which pressure piece is held clamped against the top wall (11) of the first trunk (10) by means of a screw (34) passed through a threaded hole (35) in the top wall (31) of the coupling piece (30).

2. A luminaire as claimed in Claim 1, **characterized in that** the pressure piece (36) extends substantially throughout the entire coupling piece (30), and the coupling piece (30) has a second screw (34) in a second threaded hole (35) so as to keep the pressure piece (36) clamped against the adjoining trunk (10').
3. A luminaire as claimed in Claim 1 or 2, **characterized in that** the pressure piece (36) has side walls which bear on the side walls (13) of the trunk (10).
4. A luminaire as claimed in Claim 1, 2 or 3, **characterized in that** the channel-shaped coupling piece (30) and the pressure piece (36) are permanently interconnected while their mutual distance is variable.
5. A luminaire as claimed in Claim 4, **characterized in that** the channel-shaped coupling piece (30) and the pressure piece (36) are coupled to one another with an adjustable mutual distance.
6. A luminaire as claimed in Claim 5, **characterized in that** the pressure piece (36) has for each screw (34) a respective opening in a projecting portion (38) facing the top wall (31) of the coupling piece (30), through which projecting portion (38) a narrowed portion (39) of the relevant screw (34) projects with rotation possibility, and in which projecting portion (38) a widened free-end portion (40) of the screw (34) is accommodated.

Patentansprüche

1. Leuchte für ein Lichtband, mit:
einer ersten Schiene (10) mit einer oberen Wand

(11) und damit verbundenen Seitenwänden (13);

einer länglichen Leiste (1), die mit einer Außenfläche (2) versehen ist, die Mittel (3) zum Aufnehmen und Speisen einer elektrischen Lampe aufweist, und die loslösbar an der genannten Schiene (10) befestigt ist;

einem kanalförmigen Koppelstück (30) mit einer Längsrichtung, einer oberen Wand (31), und Seitenwänden (32) zum Verbinden der ersten Schiene (10) mit einer angrenzenden Schiene (10'), welches Koppelstück (30) die erste Schiene (10) und die angrenzende Schiene (10') teilweise überlappt und Mittel umfasst, um es an der ersten Schiene (10) und der angrenzenden Schiene (10') zu befestigen,

dadurch gekennzeichnet, dass das Koppelstück (30) an seinen Seitenwänden (32) nach innen umgebogene, in Längsrichtung verlaufende Abschnitte (33) aufweist, mit deren Hilfe das Koppelstück (30) sich außen um die erste Schiene (10) herum festhakt, und dass das Koppelstück (30) zwischen seiner oberen Wand (31) und der oberen Wand (11) der ersten Schiene (10) ein Druckstück (36) aufweist, das an der oberen Wand (11) der ersten Schiene (10) mit Hilfe einer durch ein Gewindeloch (35) in der oberen Wand (31) des Koppelstückes (30) geführten Schraube (34) festgeklemmt gehalten wird.

2. Leuchte nach Anspruch 1, **dadurch gekennzeichnet, dass** sich das Druckstück (36) im Wesentlichen durch das gesamte Koppelstück (30) hindurch erstreckt, und das Koppelstück (30) eine zweite Schraube (34) in einem zweiten Gewindeloch (35) aufweist, um das Druckstück (36) an der angrenzenden Schiene (10') festgeklemmt zu halten.
3. Leuchte nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** das Druckstück (36) Seitenwände hat, die auf den Seitenwänden (13) der Schiene (10) ruhen.
4. Leuchte nach Anspruch 1, 2 oder 3, **dadurch gekennzeichnet, dass** das kanalförmige Koppelstück (30) und das Druckstück (36) bei veränderlichem gegenseitigen Abstand dauerhaft miteinander verbunden sind.
5. Leuchte nach Anspruch 4, **dadurch gekennzeichnet, dass** das kanalförmige Koppelstück (30) und das Druckstück (36) mit einstellbarem gegenseitigen Abstand miteinander gekoppelt sind.
6. Leuchte nach Anspruch 5, **dadurch gekennzeichnet, dass** das Druckstück (36) für jede Schraube (34) eine jeweilige Öffnung in einem der oberen

Wand (31) des Koppelstückes (30) zugewandten hervorstehenden Abschnitt (38) aufweist, durch welchen hervorstehenden Abschnitt (38) ein verengter Abschnitt (39) der betreffenden Schraube (34) drehbar hindurch steckt, und in welchem hervorstehenden Abschnitt (38) ein erweiterter freier Endabschnitt (40) der Schraube (34) aufgenommen ist.

Revendications

1. Luminaire pour chemins lumineux, comprenant :

un premier support en forme de conduit (10) muni d'une paroi supérieure (11) à laquelle sont reliées des parois latérales (13);

une barre d'éclairage allongée (1) munie d'une surface extérieure (2) qui est munie de moyens (3) pour loger et alimenter une lampe électrique et qui est fixée de façon détachable audit support en forme de conduit (10) ;

une partie d'accouplement en forme de canal (30) présentant une direction longitudinale, une paroi supérieure (31) et des parois latérales (32) pour la connexion du premier support en forme de conduit (1) à un support en forme de conduit voisin (10'), laquelle partie d'accouplement (30) chevauche partiellement sur le premier support en forme de conduit (1) et le support en forme de conduit voisin (10') et est munie de moyens pour sa fixation au premier support en forme de conduit (10) et le support en forme de conduit voisin (10'),

caractérisé en ce que la partie d'accouplement (30) est munie de parties rabattues vers l'intérieur s'étendant longitudinalement (33) prévues à ses parois latérales (32), à l'aide desquelles la partie d'accouplement (30) s'accroche elle-même autour du premier support en forme de conduit (10), et **en ce que** la partie d'accouplement (30) est munie d'une pièce de pression (36) prévue entre sa paroi supérieure (31) et la paroi supérieure (11) du premier support en forme de conduit (10), laquelle pièce de pression est maintenue serrée contre la paroi supérieure (11) du premier support en forme de conduit (10) à l'aide d'une vis (34) passant par un trou fileté (35) ménagé dans la paroi supérieure (31) de la partie d'accouplement (30).

2. Luminaire selon la revendication 1, **caractérisé en ce que** la pièce de pression (36) s'étend essentiellement sur toute la partie d'accouplement (30) et la partie d'accouplement (30) présente une deuxième vis (34) prévue dans un deuxième trou fileté (35) de façon à maintenir la pièce de pression (36) serrée contre le support en forme de conduit voisin (10').

3. Luminaire selon la revendication 1 ou 2, **caractérisé en ce que** la pièce de pression (36) est munie de parois latérales qui reposent sur les parois latérales (13) du support en forme de conduit (10).

4. Luminaire selon la revendication 1, 2 ou 3, **caractérisé en ce que** la partie d'accouplement en forme de canal (30) et la pièce de pression (36) sont reliées entre elles de façon permanente, alors que leur espacement mutuel est variable.

5. Luminaire selon la revendication 4, **caractérisé en ce que** la partie d'accouplement en forme de canal (30) et la pièce de pression (36) sont accouplées l'une à l'autre à un espacement mutuellement réglable.

6. Luminaire selon la revendication 5, **caractérisé en ce que** pour chaque vis (34), la pièce de pression (36) est munie d'une ouverture respective ménagée dans une partie en saillie (38) située en face de la paroi supérieure (31) de la partie d'accouplement (30), partie en saillie (38) que traverse de façon à pouvoir tourner une partie rétrécie (39) de la vis en question (34), et **en ce qu'**une partie à extrémité libre (40) de la vis (34) est logée dans la partie en saillie (38).

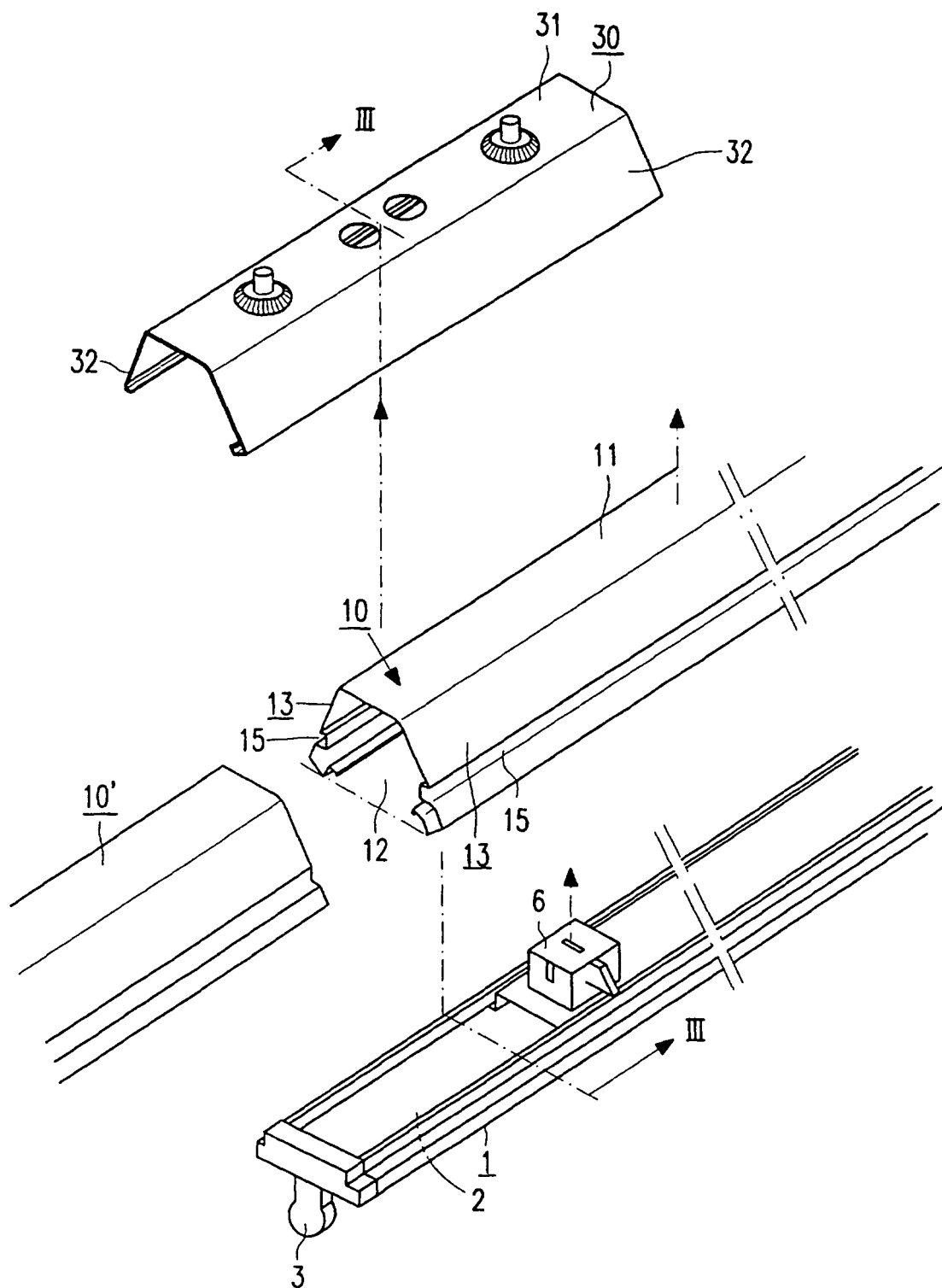


FIG. 1

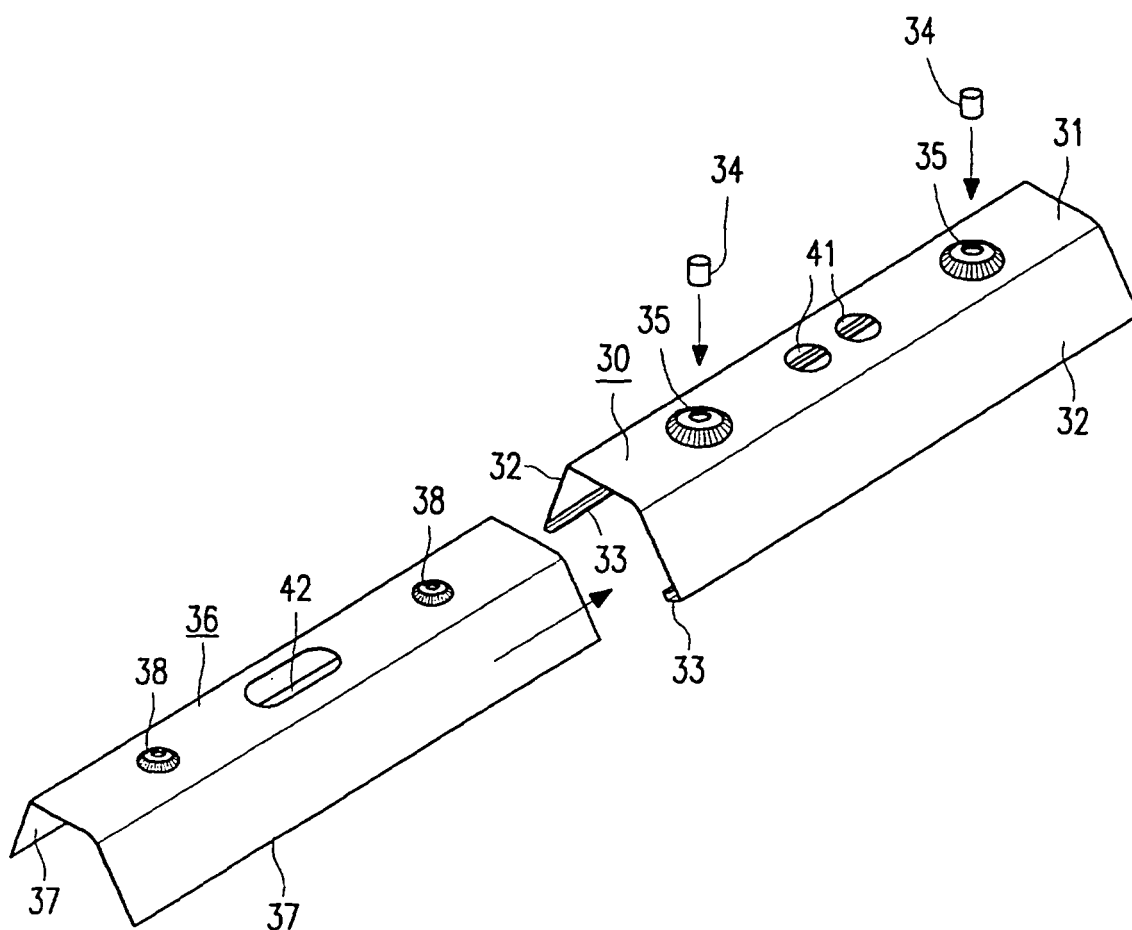


FIG. 2

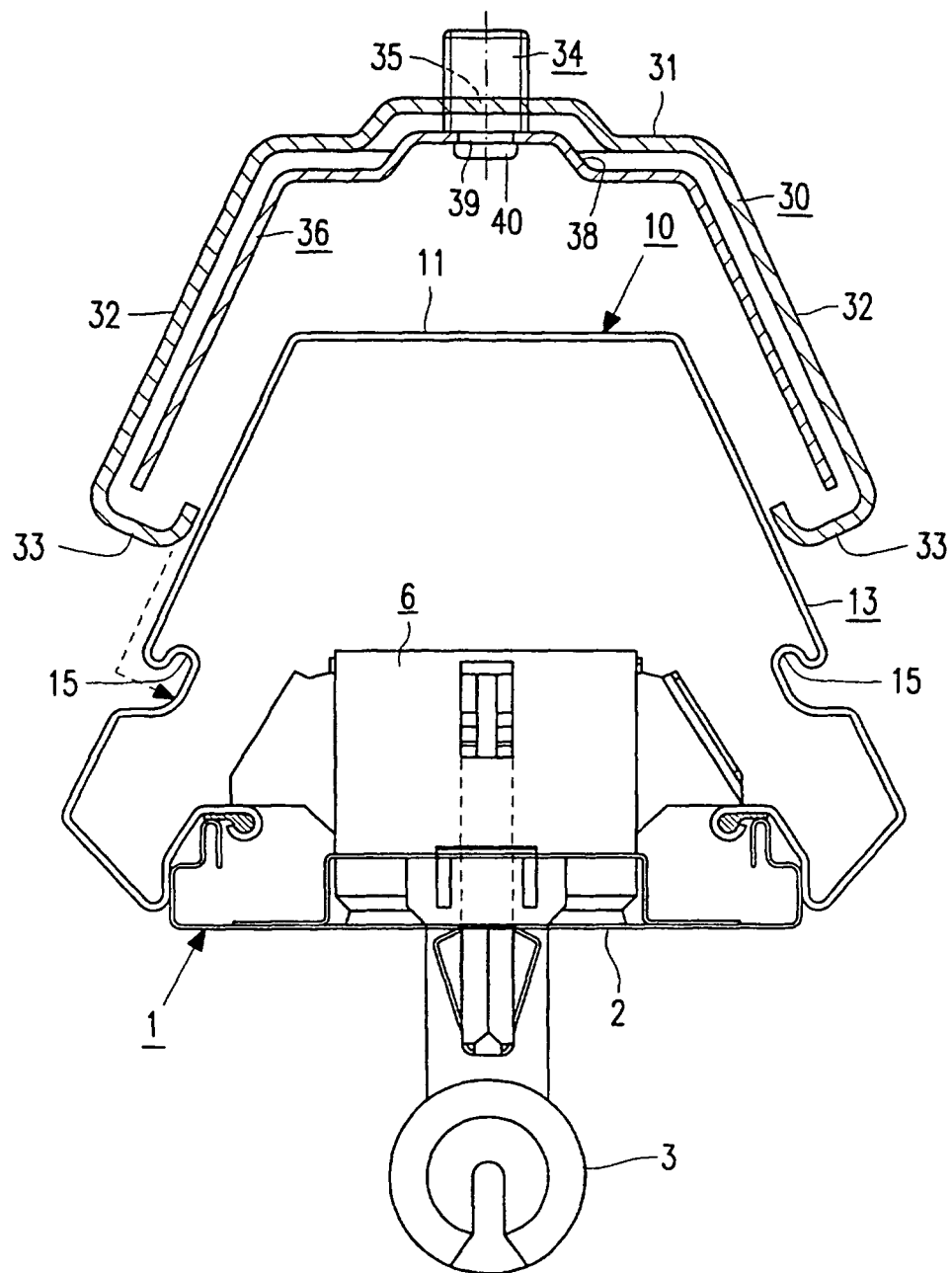


FIG. 3