(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 123 971 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.11.2009 Bulletin 2009/48

(21) Application number: **08380157.1**

(22) Date of filing: **20.05.2008**

(51) Int Cl.:
F21S 8/00 *(2006.01)* ***F21V 15/01*** *(2006.01)*
F21V 21/00 *(2006.01)*

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(71) Applicant: **C & G Carandini, S.A.**
08007 Barcelona (ES)

(72) Inventor: **Perez Nebot, Ramon**
08007 Barcelona (ES)

(74) Representative: **Morgades y Manonelles, Juan Antonio**
C/ Rector Ubach, 37-39, bj. 2a
08021 Barcelona (ES)

(54) Improved layout for multiple lighting

(57) The invention refers to the layout using a combination of various parts forming a light. Its configuration and design allows different embodiments to be mounted with minimum cost in labour and handling of the different parts. It may be fitted indoors with different types of lamps and equipment for different levels of electrical protection.

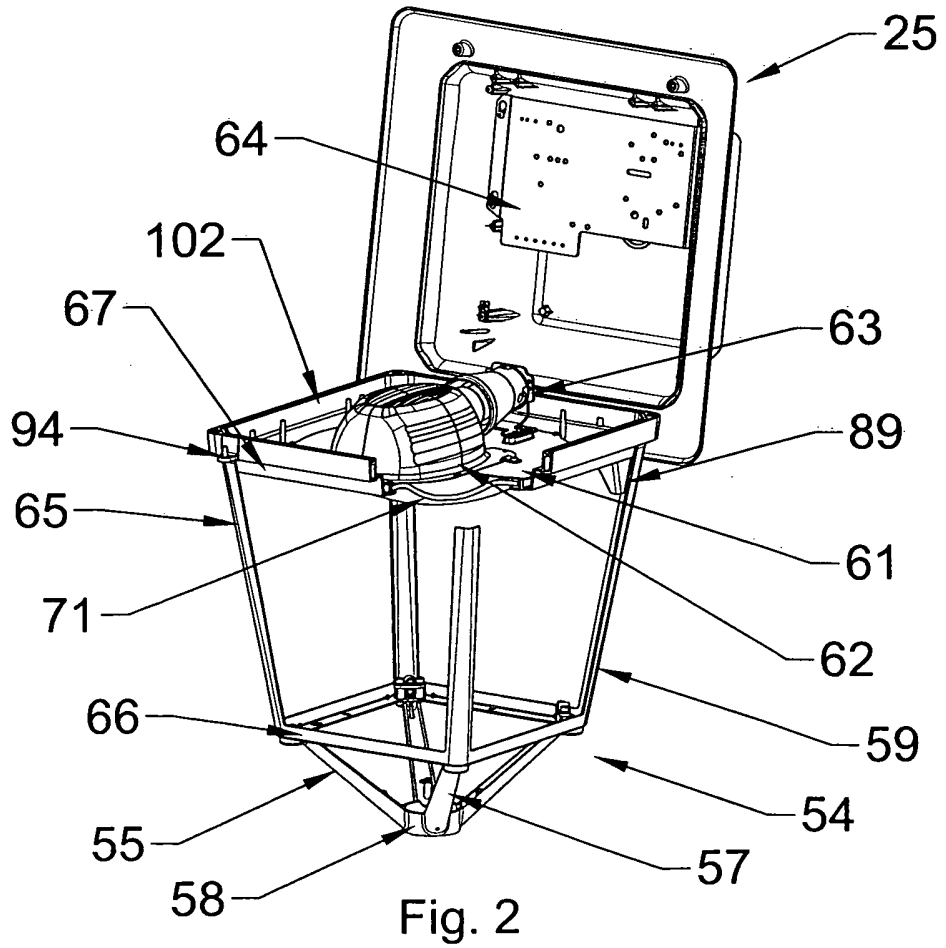

Fig. 2

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Description

Purpose of the Invention.

[0001] More specifically, the invention refers to the layout using a combination of various parts forming a light. Its configuration and design allows different embodiments to be mounted with minimum cost in labour and handling of the different parts. It may be fitted indoors with different types of lamps and equipment for different levels of electrical protection.

Scope of the Invention.

[0002] The market requires different applications for this style in the lighting market without the customer having to keep a large stock of spare parts. It also requires a certain degree of uniformity between the different applications to preserve the same style and function, but with different applications.

[0003] Additionally, the same line also requires the option for combining the same elements without the requirement for assembly with specialised preparation.

[0004] Additionally and as a consequence of the specified applications for each light, it may be equipped for different types of ambience.

Background of the Invention.

[0005] There are different layouts existing on the market which therefore may be considered to be the status of the technique. These different lights with the same function combining different parts all have the joint possibility of having different applications for lights with the same function using a very limited number of elements or parts. An example of this type of device is the European Community patent application No. 1.845.302 with the same owner.

Description of the invention.

[0006] The specified layout is the combination of lights equipped with different lighting methods inside held from above or from below by an arm maintaining it attached to a vertical surface, wall, façade or similar. Its attachment is therefore possible using appropriate means without the requirement for such arm on a conventional shaft for this type of light with a base on the lower section holding it to the floor.

[0007] The layout includes a set of main, interchangeable parts such as:

- The lighting itself comprising a cage with support to join it to the arm or the end of a column or shaft, the dome on top of the cage, the glass enclosing the cage allowing light from the lamp or reflector to pass through.
- Arms to hold the light on top of the arm or below the same.
- Coupling to join the lights in its variations to the arms.
- Reflectors, lamps with their equipment and plates to retain the same.
- Lens glass.
- End dome.

[0008] The lighting in its different versions is manufactured according to the central cage delineated by an opening on its upper section supporting a seal joint, a lamp holder or reflector support plate, a dome with a equipment holding plate inside, an end dome and on the lower section in the lower opening a mounting formed by arms converging into a support or sleeve on its lower ends supporting the light, whereas on the opposite end joined at the lower opening.

[0009] When the light is supported on the arm, that is to say on top of it, and to hold the dome to the cage, a retaining screw or upper end is used. However, when the light is suspended from the arm on the upper section of the dome and in its centre, a sleeve is attached to facilitate attachment to the said arm.

[0010] The arms in their different variations are formed by braces coming from a plate or support to attach the arm to a vertical face, wall or similar and on the opposite end joining an extension to a horizontal section the end of which has means of holding the arm to the different lights.

[0011] There are two methods for holding the lights to the arm:

- The first of these is to have the light on the upper section with a preferably conical body the base of which comes out of a coupling sleeve with washers and nuts.
- The second is to suspend the light with the lower section of the arm having an inverted conical body.

Description of the figures.

[0012]

Figure 1 is a front elevation view of the lighting (10), according to one of possible embodiments.
Figure 2 is a perspective view of the light (10) with the dome (25) open in one of the possible embodiments.
Figure 3 is a front elevation view of the lighting (10), according to other possible embodiments.
Figure 4 is a perspective view of the light (10) with the dome (25) open in another of the possible embodiments.

Figure 5 is a front elevation view of the lighting (10), according to other possible embodiments.
Figure 6 is a perspective view of the light (10) with the dome (25) open in another of the possible embodiments.
Figure 7 is a front elevation view of the lighting (10), according to other possible embodiments.
Figure 8 is a perspective view of the light (10) with the dome (25) open in one of the possible embodiments.
Figure 9 is a front elevation view of the lighting (10), according to other possible embodiments.
Figure 10 is a perspective view of the light (10) with the dome (25) open in another of the possible embodiments.
Figure 11 is a front elevation view of the lighting (10), according to other possible embodiments.
Figure 12 is a perspective view of the light (10) with the dome (25) open in another of the possible embodiments.
Figure 13 is a perspective view of the arm (11) to hold the light (10) in all of its possible embodiments.
Figure 14 is a front elevation view of the arm (11) to hold the light (10) in all of its possible embodiments.
Figure 15 is a front elevation view of the base (12) of the arm (11) to hold the light (10) in all of its possible embodiments.
Figure 16 is a perspective view of the arm (11) the end of which has a coupling (49) to the shaft.
Figure 17 is a front elevation view of the arm (11) the end of which has a coupling (49) to the shaft.
Figure 18 is a front elevation view of the rear section of the base (12) of the arm.
Figure 19 is a front elevation view of the coupling (33) attached to the shaft (84).
Figure 20 is a perspective view of the coupling (33) attached to the shaft (84).
Figure 21 is a front elevation view of the end (81) of the dome (25) to retain the lights (10) in all of its possible embodiments.
Figure 22 is a perspective view of the end (81) of the dome (25) to retain the lights (10) in all of its possible embodiments.
Figure 23 is a perspective view of the trim screw (21) built into the upper section of the dome (25), in the lights (10) in all of its possible embodiments.
Figure 24 is a front elevation view of the trim screw (21) built into the upper section of the dome (25), in the lights (10) in all of its possible embodiments.
Figure 25 is other perspective view of the trim screw (21) built into the upper section of the dome (25), in the lights (10) in all of its possible embodiments.
Figure 26 is other front elevation view of the trim screw (21) built into the upper section of the dome (25), in the lights (10) in all of its possible embodiments.
Figure 27 is a perspective view of the shade (29) for soft lighting (10).
Figure 28 is a front elevation view of the shade (29) for soft lighting (10).
Figure 29 is a front elevation view of the transparent shade (45) for lights (10).
Figure 30 is a front elevation view of the prismatic shade (56) for lights (10).
Figure 31 is a front elevation view of a light (10) attached to a shaft (68) using a coupling (33) and screws (101).
Figure 32 is a front elevation view of the position of the end (81) in a dome (25) of a light (10).
Figure 33(a) is a profile view of the shaft (80), housed in the base (85), (b) a front view of the shaft (80) which comes in various lengths and (c) a perspective view of the base (85).
Figure 34 is (a) a perspective of the reinforcing plate (102), (b) is a front elevation view of the reinforcing plate (102), (c) is a top view of (102) and (d) is a bottom view of the reinforcing plate (102).
Figure 35 is (a) a front elevation view of the cover (87) and (b) is a top view of this cover (87).
Figure 36 is (a) a perspective of the equipment plate (88) and (b) is a top plan view of (88), manufactured in plastic.
Figure 37 is (a) a perspective of the cable guide (89) and (b) is a top plan view (89).
Figure 38 is (a) a perspective of the metal equipment plate (90) and (b) is a top plan view of (90).

Description of a preferred embodiment of the invention.

[0013] The specified layout is a combination of common parts such as a light (10), in its different variations and features as described below, equipped with lighting methods such a reflectors (61), or lamps (79), means of holding these lights (10), such as arms (11) in their different versions, means of supporting such lights (10) such as the supports (15) and (50) on the aforementioned arms (11), or onto different lengths of shaft (80), with its base (85) and domes (25), with their ends (81), common to all variations of (10). The shaft (80) is in turn and as shown by Figure 33 formed by a column (84) supplied with a base (85), on the lower end of which is a horizontal skirting (86) around the edge to allow to be held on the floor.

[0014] In one of the preferred embodiments of this invention as shown in Figure 1, 3, 5, 7, 9, and 11 the lights (10) are formed by a mounting (55) formed by braces (57) joined together in a ring (58) on one of its ends, the lower ends whereas the opposite ends the upper ends on these arms (57), are fixed by suitable means to the structure or cage (59) onto which the reinforced plate is mounted (102), see Figures 2 and 4, on which the plate (61) for the reflector rests (62) with its lamp holder (63), attached to the reinforced plate (60) the dome (25) with the equipment holding plate (64) and dome support (25) the end (81).

[0015] The characteristics of the plate (64) are shown in Figure No. 38, the body of which is formed by a flat surface (90), the smaller side bases of which are folded into wings (95), equipped with drilled holes (96) to mount it on the dome (25), as shown in Figure No. 4.

[0016] To protect the reflector (62) a glass lens has been fitted (71), supported (71) on a seal joint (72) which in turn includes an upper opening (67), see figures 2, 4, 6 and 8.

[0017] In turn the cage (59) has been designed to include different types of glass as shown in Figures No. 28, 29 and 30 with different configurations. However these may by included in any face of the said cage (59). Alternatively and to avoid light contamination, the cage (59) has an intrusive light shade (29), see figures 28 and 29, which has a conical configuration and is equipped with tabs (32) with a central drilled hole (31), facilitating its coupling to the upper opening (67) of (59), partially covering the faces of the cage (59). To facilitate the passage of electrical cables, as shown in Figure No. 37 there is a cable guide (89) attached as shown in the Figure No. 2, in one of the corners of the upper opening (67).

[0018] Between the cage (59) and the dome (25) there is a reinforcing plate (102), the configuration and characteristics of which is shown in Figure No. 34, which (102) has a slightly quadrangular body (91), with a central opening (92), through which the reflector light passes (62), from the four corners of the openings (93) to mount (102) onto the cage (59) with screws (94), see Figure No. 2.

[0019] The reinforced plate (102) has a reflector (62) with its lamp holder (63), as shown in figures Nos. 2, 4 and 6.

[0020] The glass (45) see Figure No. 29 has a trapezoidal shape fully matching the faces of the cage (59), which may be attached by a conventional seal or by gluing.

[0021] In another alternative version the light (10) has a standard glass enclosure (73) on a seal joint (72), mounted on the upper opening (67), as shown in Figures Nos. 4, 5 and 6.

[0022] In another alternative version, see Figure 6, the light (10) includes an enclosing box (74), equipped with a lamp (79) as a means of lighting with its lamp holder support (76), which is supported on a plate (77), which in turn has a seal joint (78).

[0023] The lights (10) as shown in Figures No. 1, 3, 5, 7, 9, and 11 in the same configuration and design have different applications, but have a common cage (59) with a slightly conical shape, constructed with bars (65) one end of which meet in the lower opening (66) with the opposite ends in the upper opening (67) of the quadrangular edge.

[0024] The lower opening (66) in one of the possible embodiments for the light (10), see figures Nos. 1, 3 and 5, has braces (57) shaped as a support (55) one of the ends of which are held to the cage (59), whereas the opposite end are joined together in a ring (58). This ring (58) allows a light (10) to be attached to a shaft with various possible lengths (68) and its base (85), with the assistance of a coupling (33), see Figure No. 31.

[0025] The same light (10) in one of the possible embodiments, see figures Nos. 7, 9, 11, has an arm (11), as shown in Figures Nos. 13 and 14, using a combination of a lug (16) which fits into a hole (70) in the sleeve (69), see Figure No. 7, located on the upper section of light (10) on top of the dome (25) joining the light (10) and the arm (11) allowing the (10) to be suspended from this arm (11).

[0026] In the same way, the light itself (10) in another possible embodiment is on the upper section of this arm (11), for example as shown in Figures Nos. 1, 3 and 5. In order to do this the arm itself (11) is used with the characteristics shown in Figure Nos. 16, 17, and 18, with the application of the end (81) on the dome (25), using screws passing through the hole (95).

[0027] The end (81), which may be attached on the dome (25), as shown in Figures No. 21 and 22, has a tetraconical pyramidal body (26) the lower edge of which extends along the edge skirting (27).

[0028] The arm (11), as shown in Figure Nos. 16, 17, and 18, has a support area (12) with a slightly prismatic shape with smaller rounded bases, with a slot in its central section (18) and with a larger upper base (60) to hold the braces (13-14) with one of their ends starting in the support area (12), whereas the opposite ends of these braces (13-14) join together into a slightly conical support (50), designed to attach the light (10), so that (10) stays above the arm (11), whereas, as shown in Figure Nos. 13, 14, and 16, the light (10) remains below this arm (11), the arm (11) is held on the rear base (19) of the support area (12) by screws passing through the drilled hole (17) in the support (12).

[0029] The support (12) has openings (20) in the smaller side bases to pass power supply cables through for the light's electrics (10).

[0030] In order to facilitate the adjustment of the light (10) on the shaft (80) a support-coupling (33) has been designed the details of which are shown in Figure Nos. 19 and 20, the body of (33) is a slightly inverted cone and its upper base (54) has an extending coupling sleeve (34) with its nut (35), and washers (36) surrounding the neck of the said sleeve (34). The light (10) is held to the sleeve (34) by its opening (44), by conventional screws (81), see Figure No. 31 passing on top of the sleeve (58) on the upper section of the cage (59), whereas its lower section (43) is attached to the shaft (80), holding the support (33) to the shaft (80) by Allen studs (42) in the holes (41).

[0031] When the light (10) is attached to the lower section of the arm (1) the support (50) is used the conical end of which has a lug (16), as shown in the Figure No. 13.

[0032] The lights (10) allow the possibility to trim the dome (25) with the screws (21). These screws (21) as shown in Figure Nos. 23, 24, 25, and 26 have a body formed by a slightly spherical section (22), which extends

downwards to a polygonal section (23) and this in a cylindrical section (24) or screw stem with the corresponding thread.

[0033] The dome (25), in addition to including the plate (64) and depending on the level of the light's protection the lighting (10) may be equipped with these plates as shown in Figure Nos. 35 and 36.

[0034] The plate (87), see Figure No. 35 has a completely flat surface equipped with openings (96) in the corners to mount it to the dome (25) using appropriate screws.

[0035] The equipped plate (88), see Figure No. 36, is a flat surface (97) with a slightly rectangular edge and skirting (98) and wings (99) with drilled holes (100) to mount the plate (88) to the dome (25).

[0036] Having sufficiently described this invention using the figures attached, it is easy to understand that any modification may be made to the detail which may be deemed to be appropriate, whenever these changes do not alter the essence of the invention summarised in the following claims.

Claims

1. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** formed by the combination of different parts to install lights on vertical walls and similar, with the lights being able to occupy different positions **characterised by** the fact that this layout is formed by lights (10) with the option for mounting them on the upper section or lower section of an arm (11), and on one of its ends, whereas the opposite end of the said arm (11) is held onto a vertical wall or similar by a support plate (12) equipped with arms (13-14), including, between the said light (10) and the arm (11), supports (15-50), or mounting the light (10) onto a shaft (80) a varying length formed by a column (84) with a base (85).

2. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that the lighting (10) includes a cage (59) with a slightly conical shape constructed from bars (65), the ends of which converge into a lower opening (66) with the opposite ends into an upper opening (67) both with a quadrangular edge, the lower opening (66) receives braces (57) which are laid out in accordance with the mounting (55), one the ends of which retain the cage (59), whereas the opposite end meet in a ring (58), the ring (58) allows the light (10) to be attached to a shaft (80) with its base (85), using a coupling (33).

3. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the previous claims, **characterised by** the fact that the upper reinforcement (67) of the light (10) is attached to the reinforcing plate (102) on the body (91), which is slightly quadrangular with a circular opening (92) centred in the body (91), to allow light form the reflectors (62) to pass through located near to the corners of the body (91) openings (93).

4. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that the arm (11) in one of its end has a support (12) with a slightly prismatic shape, with smaller rounded bases and with a larger upper base (60), used to retain the braces (13-14) one end of which starts in the said support (12), whereas the opposite ends joint together in a slightly conical support (33), to attach the light (10), so that the light (10) remains above the arm (11), and in turn the support (12) has openings (20) on the smaller side bases to pass cables through for the light's (10) electrics.

5. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claims 1 and 3, **characterised by** the fact that the arm (11) on one of its end sections has a support (12) with a slightly prismatic shape with smaller rounded bases and with a larger upper base used to retain the braces (13-14) one end of which starts in the said support (12), whereas the opposite ends joint together in a slightly conical support (50), to attach the light (10), so that the light (10) remains above the arm (11), and in turn the support (12) has openings (20) on the smaller side bases to pass cables through for the light's (10) electrics, with (12) a slot (18) and a hole (17) to attach (12) to a wall or similar using the rear base (19).

6. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that the adjustment of the light (10) to the shaft (80) has been designed with a support-coupling (33) the body of which (33) is an inverted cone with its upper base (54) having a projecting coupling sleeve (34) with its nut (35), and washers (36) surrounding the neck of the said sleeve (34), retaining the light (10) to the sleeve (34) through its opening (44), by a conventional screw (101), which passes over the sleeve (58) on the upper section of the cage (59), and enters by the opening (44) into the said sleeve (34), retaining the support coupling (33) to the shaft (80) using Allen screws (42) which are placed in the holes (41) in the support (33).

7. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that the lights (10) allow the possibility of holding the dome (25) onto the cage (59) using screws or ends (21), which (21) have a body formed by a slightly spherical section (22) extending downwards to a polygonal section (23) and this into a cylindrical section (24) or screw stem (21) with its corresponding thread.

8. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that the lights (10) allow the possibility of being held to the shaft (80) which includes a column (84), the lower end of which is inserted into a base (85) with a horizontal skirting (86) emerging from the lower edge to anchor it to the floor.

9. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that the light (10) and its cage (59) includes glass (45) in its four sides coupled to bars (65), with the glass (45) having a trapezoidal shape.

10. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that alternatively the light (10) and its cage (59) has a light diffuser (29) on its four faces with a conical shape equipped with tabs (329 on the upper base with a central hole (31) to attach it to the upper opening (67) on the said cage (59).

11. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the previous claims, **characterised by** the fact that the reinforcing plate (102) is attached above the upper opening (67) of the cage (59), where the plate rests (61) for the reflector (62) with its lamp holder (63) and above the upper edge of the reinforcing plate (102) the dome (25) with the equipment plate (64) on which (25) the end (81) is mounted.

12. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the previous claims, **characterised by** the fact that In which the lower section of the reflector (62) has an enclosing glass (71) attached supported (71) by the closure seal (72) resting on the upper opening (62).

13. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that according the level of electrical protection required for the light (10) there are different plates inside the dome (25) (87-88-64).

14. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claims 1 and 13, **characterised by** the fact that the plate (87) is a body formed by a flat surface (97) with a slightly quadrangular shape, with openings (96) in the corners to attach it to the dome (25).

15. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claims 1 and 13, **characterised by** the fact that the equipped plate (88) is a flat surfaced body (97) from the edge of which emerges a skirting (98) and wings (99) into which holes have been drilled (100) to mount the plate (88) onto the dome (25).

16. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claims 1 and 13, **characterised by** the fact that the plate (64) has a flat body (90) the smaller bases of which are folded into wings (95), equipped with holes (96) to mount it onto the dome (25), to be housed in the hole (70) in the sleeve (69) holding (16) in (70) with the corresponding stay bolt.

17. **"IMPROVED LAYOUT OF A MULTIPLE LIGHT"** according to the claim 1, **characterised by** the fact that the support (50) with the end of the arm (11) has a conical shape from the lower base of which emerges the lug (16).

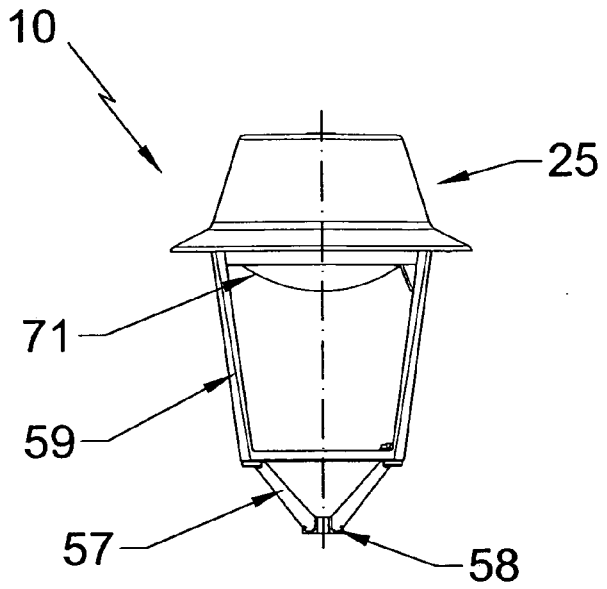


Fig. 1

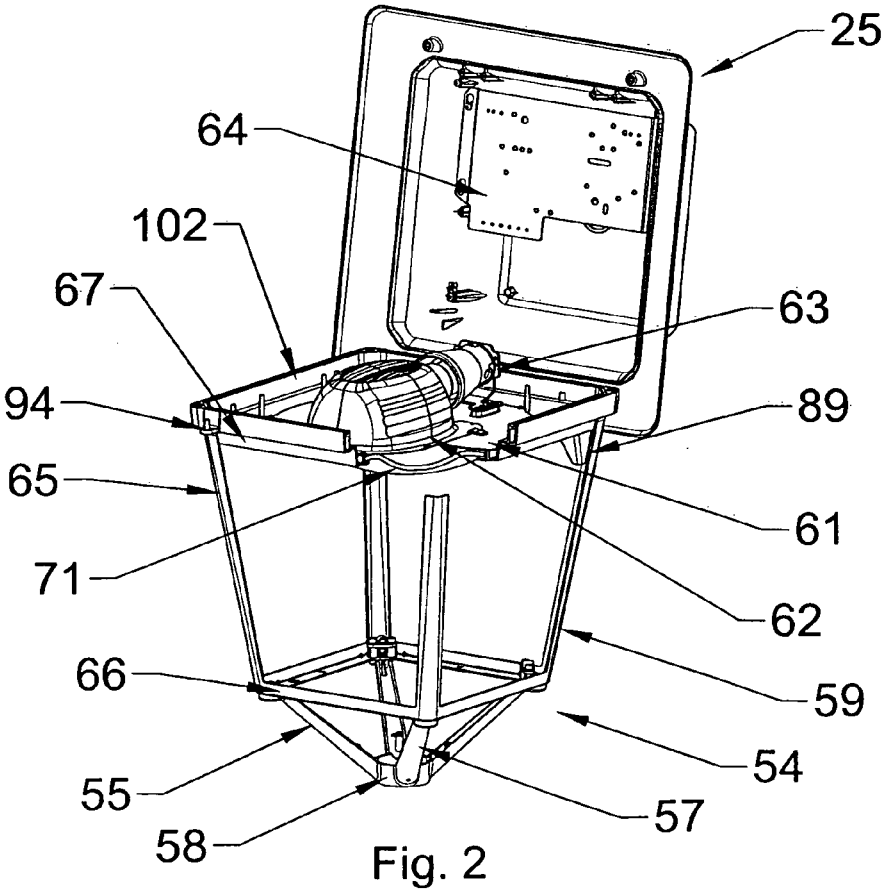


Fig. 2

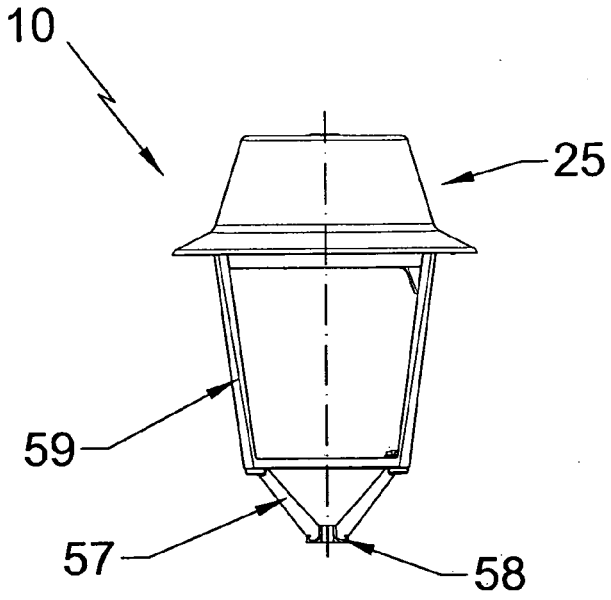


Fig. 3

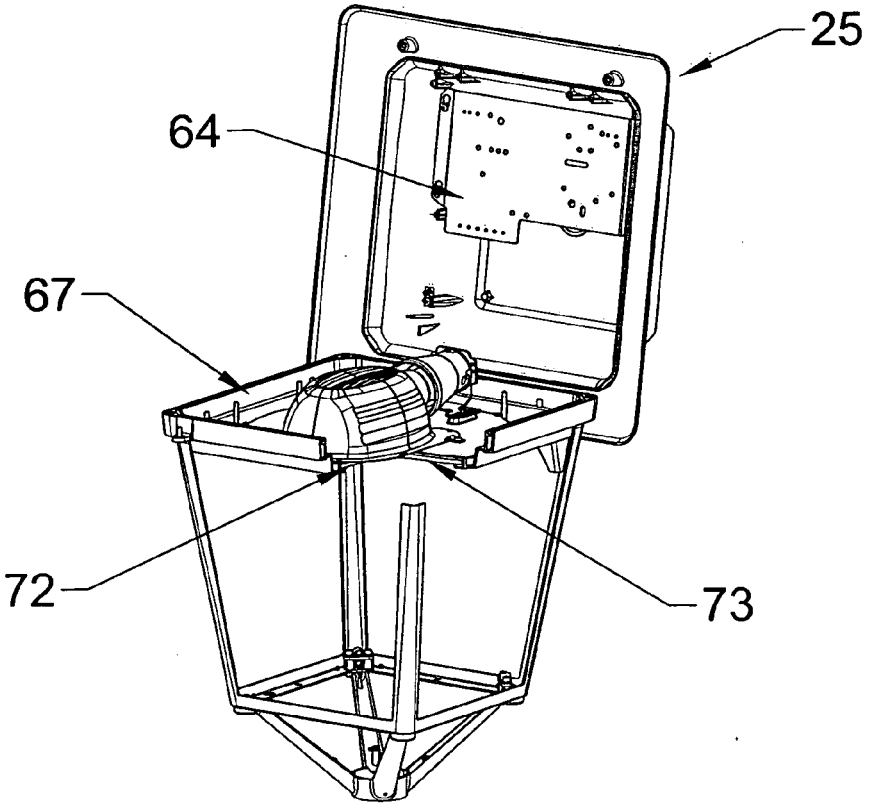


Fig. 4

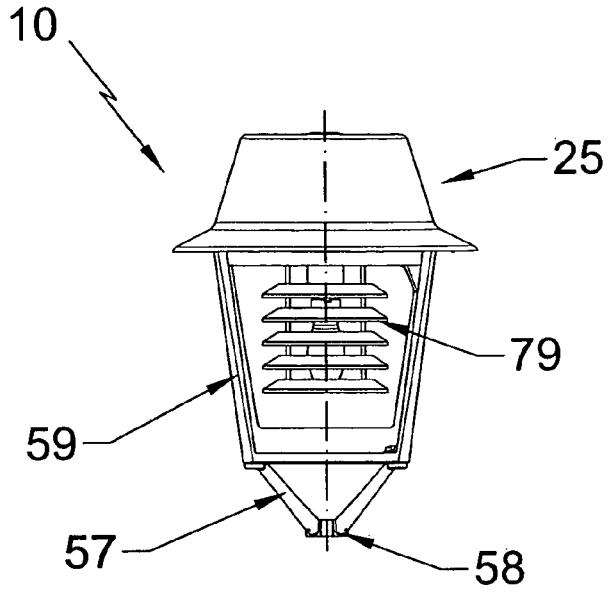


Fig. 5

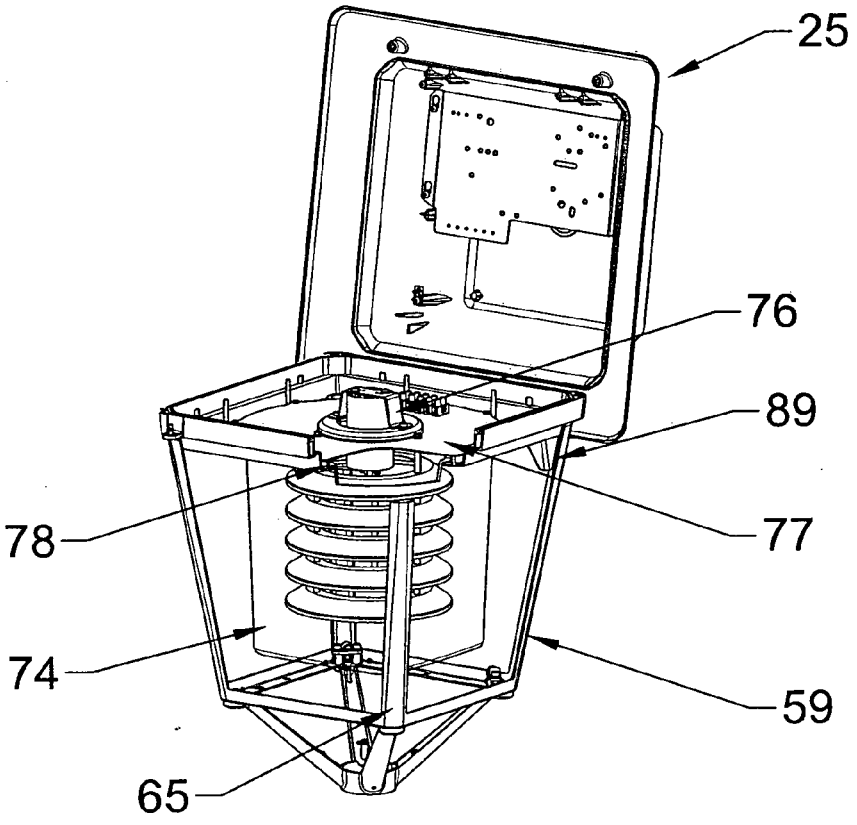


Fig. 6

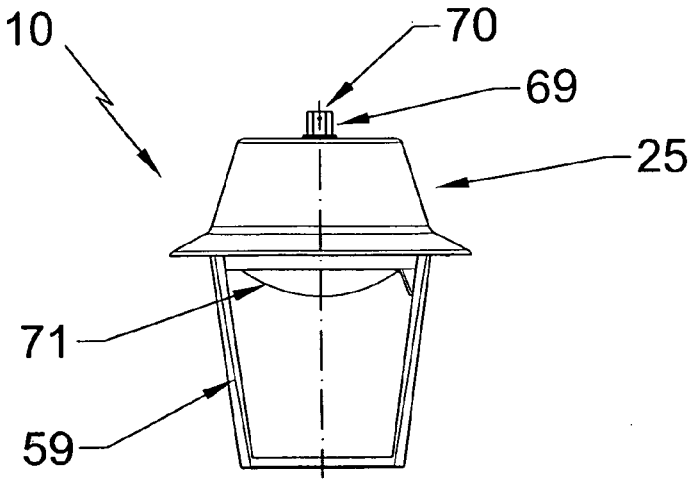


Fig. 7

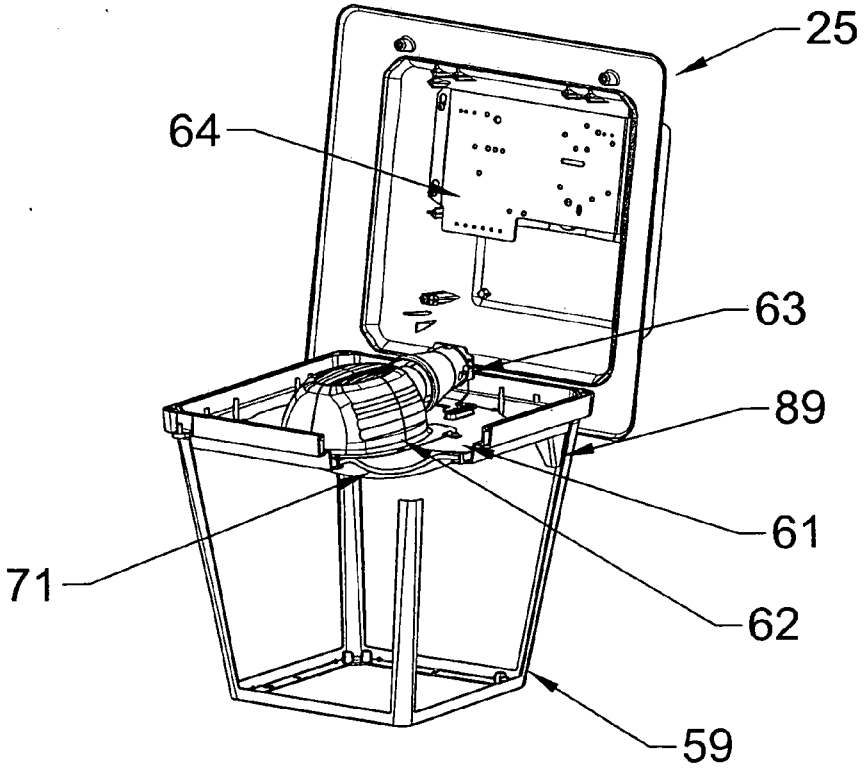


Fig. 8

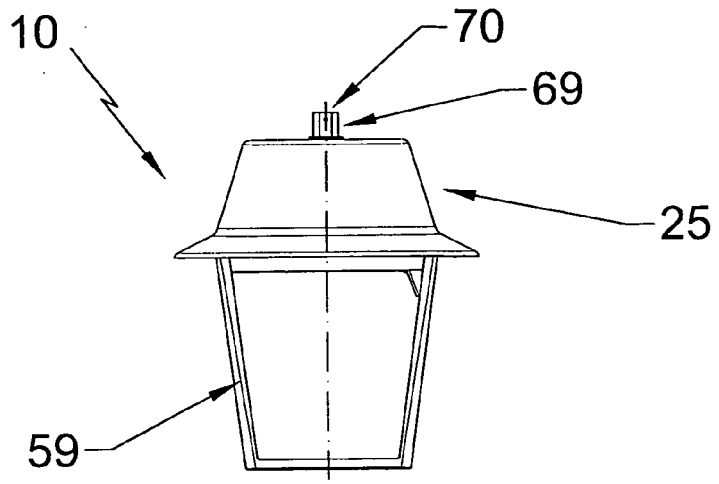


Fig. 9

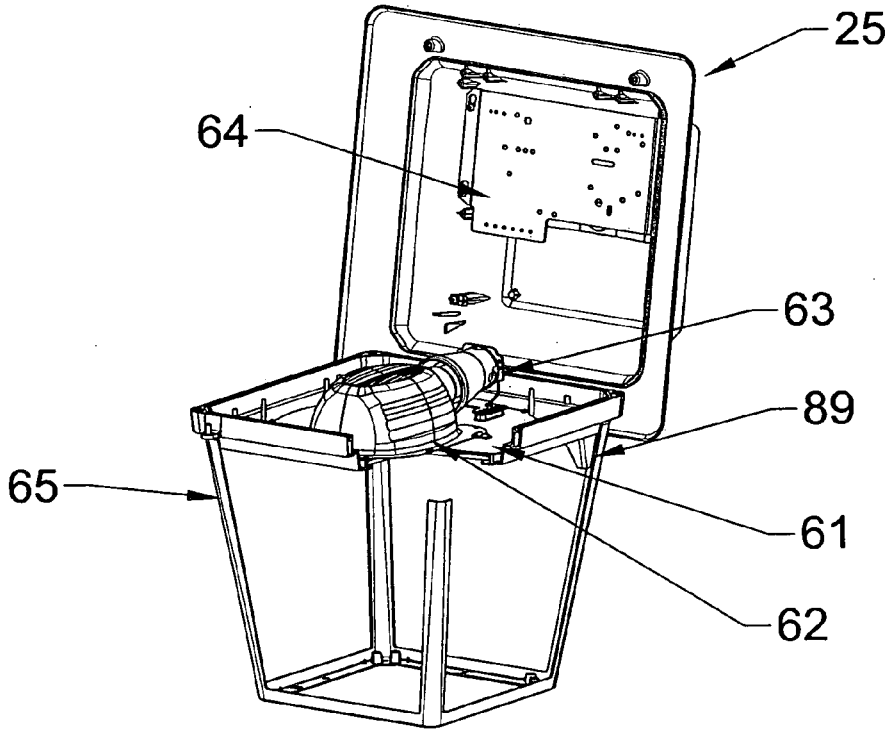


Fig. 10

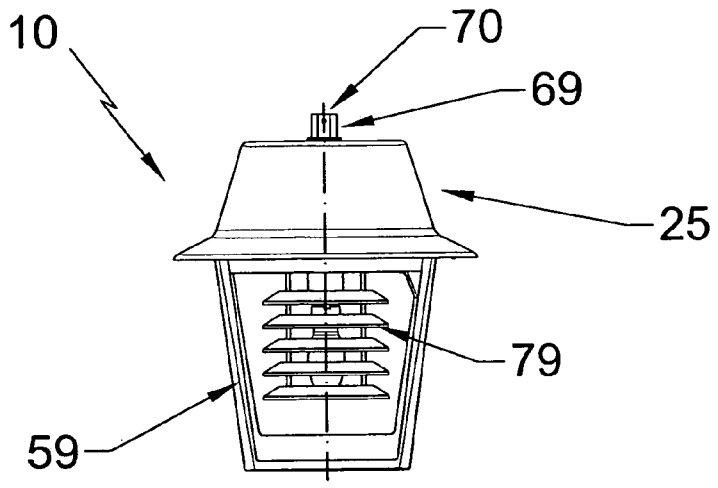


Fig. 11

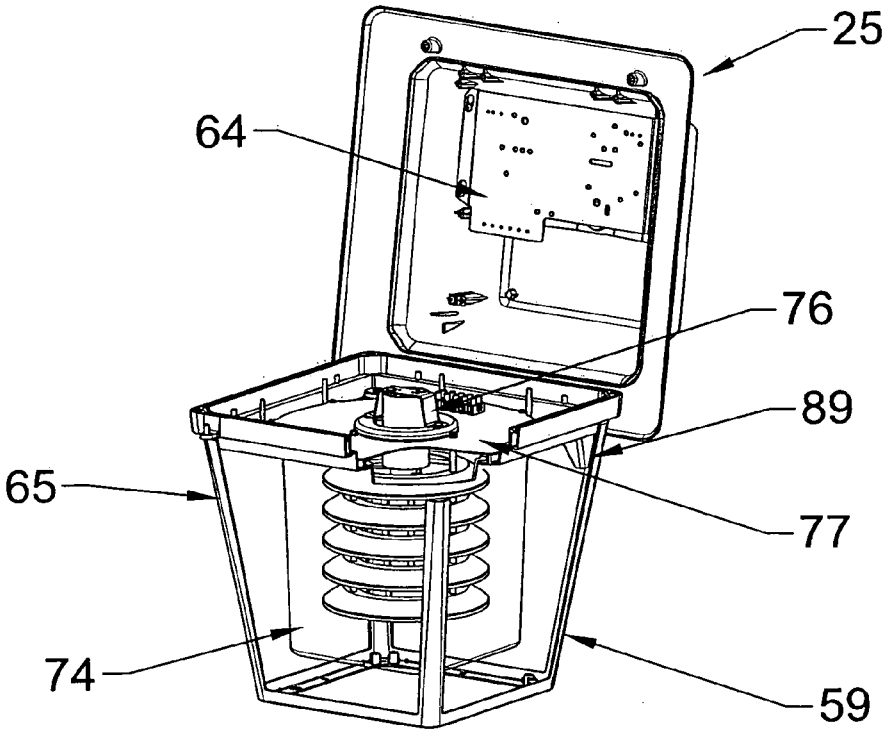


Fig. 12

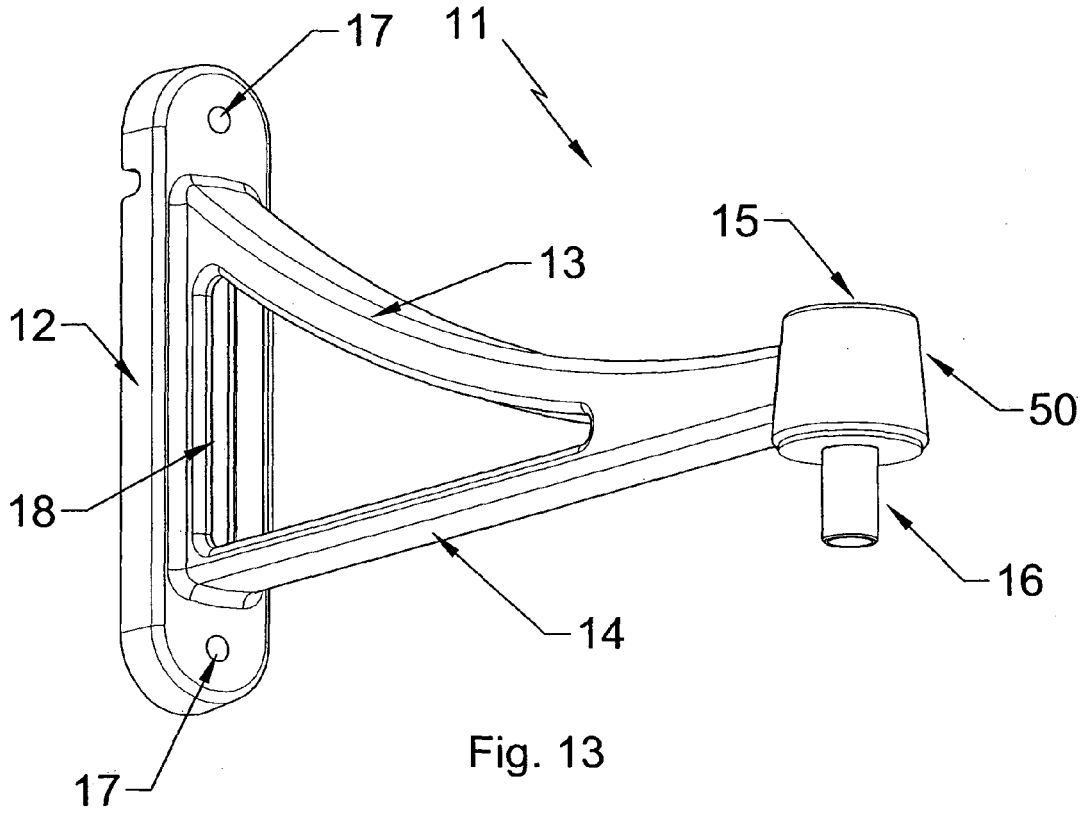


Fig. 13

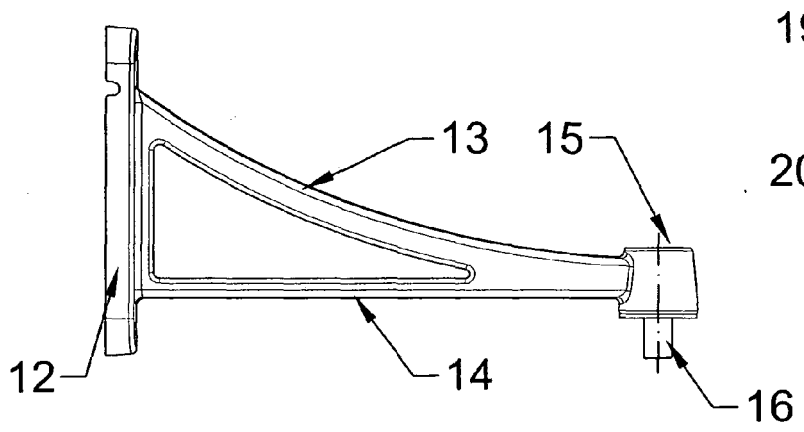
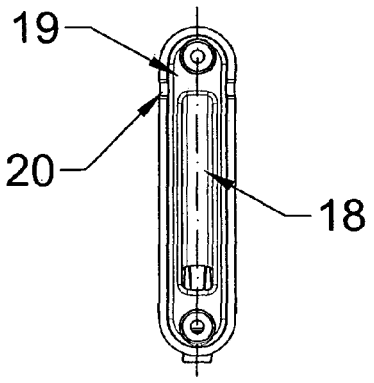


Fig. 14



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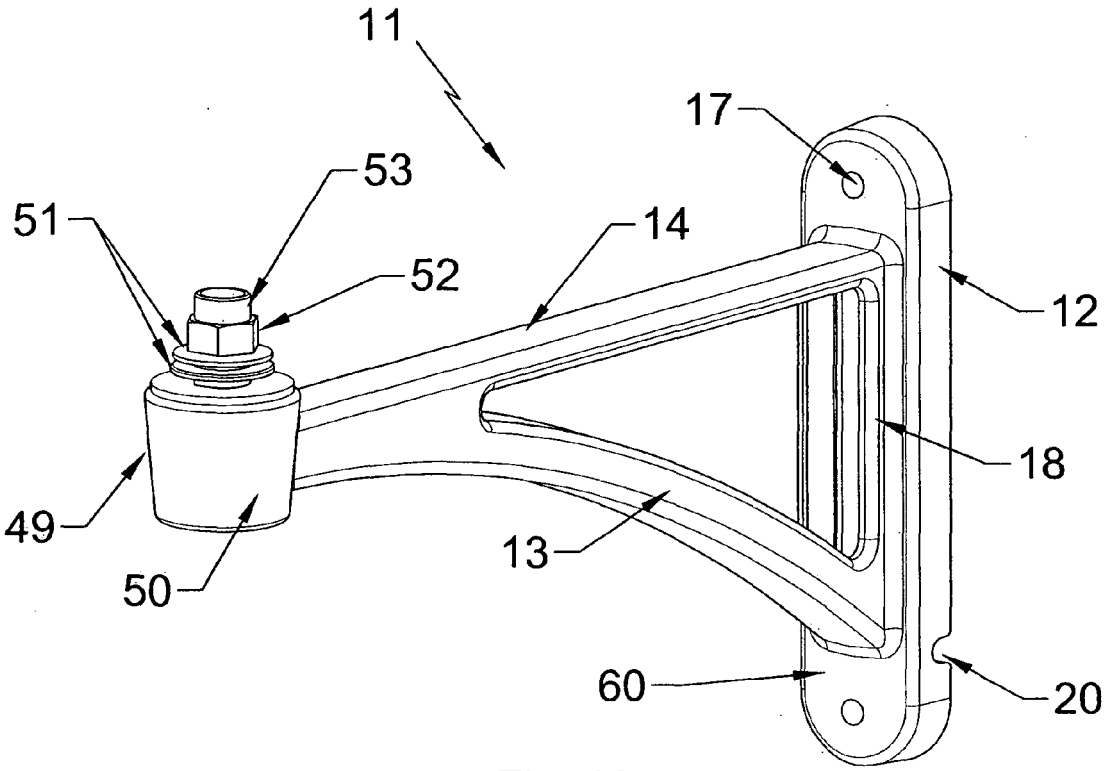

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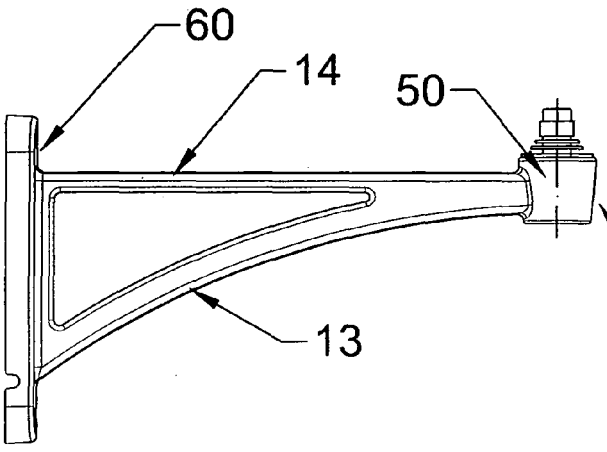


Fig. 17

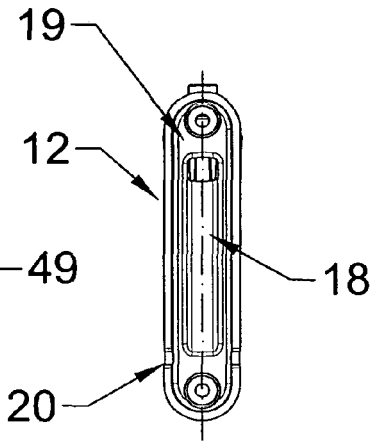
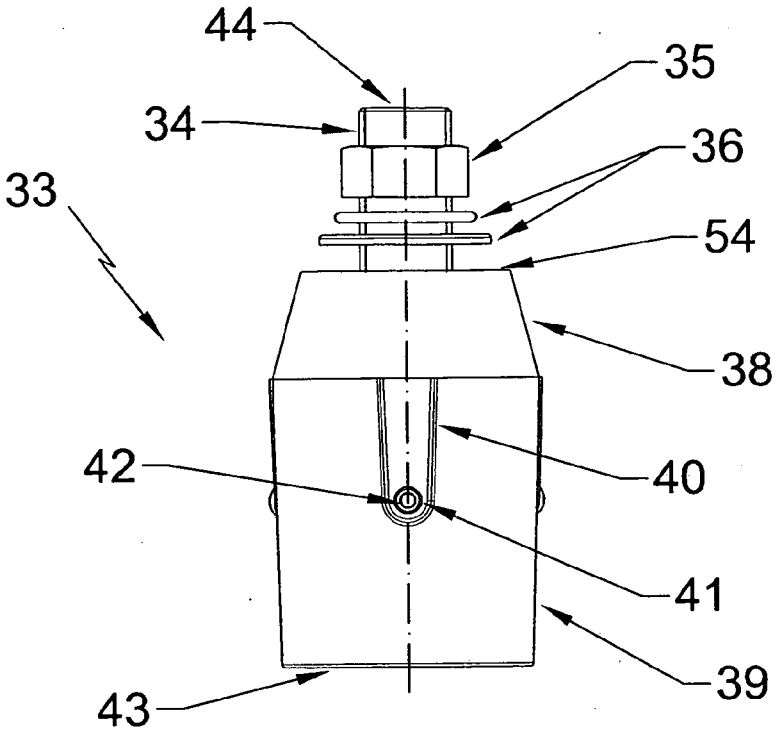


Fig. 18



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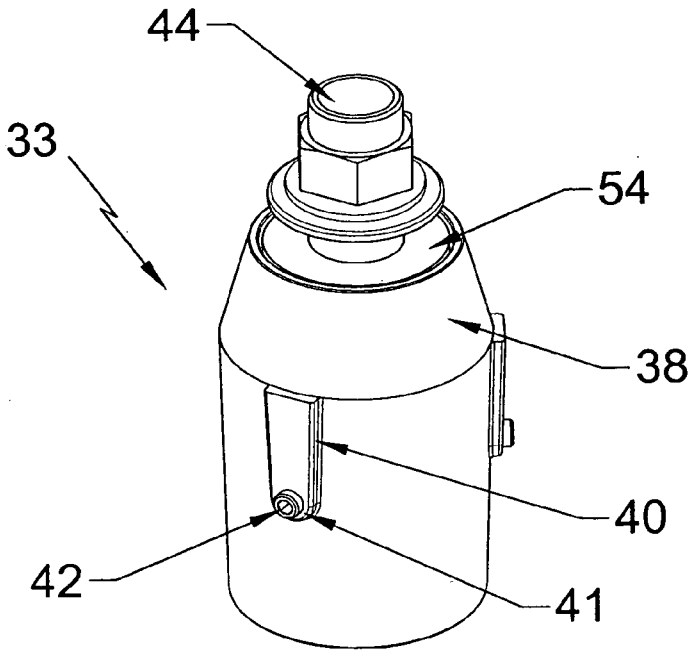
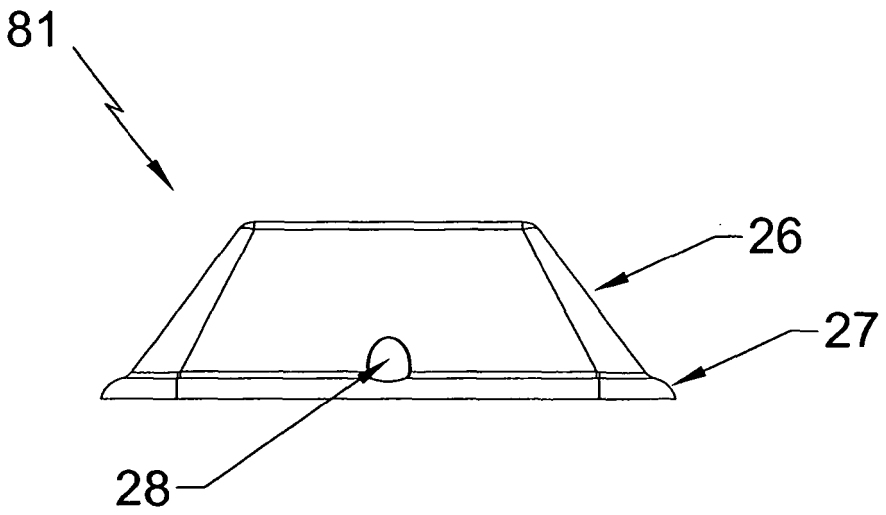


Fig. 20



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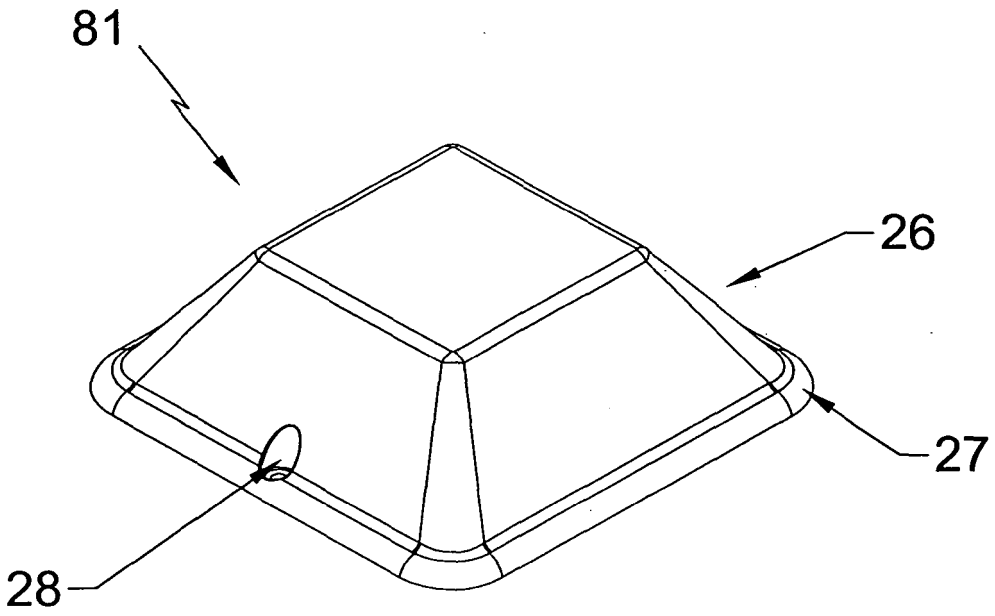


Fig. 22

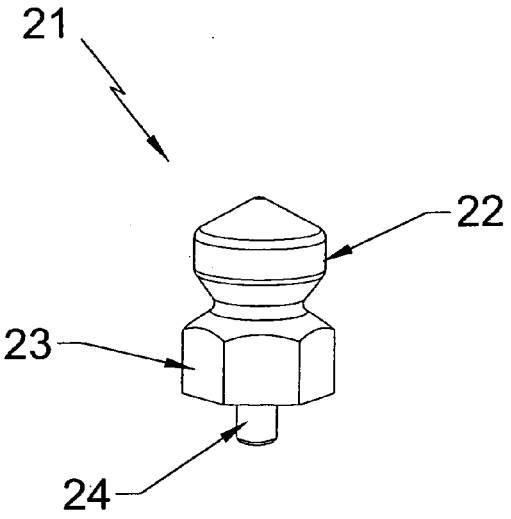


Fig. 23

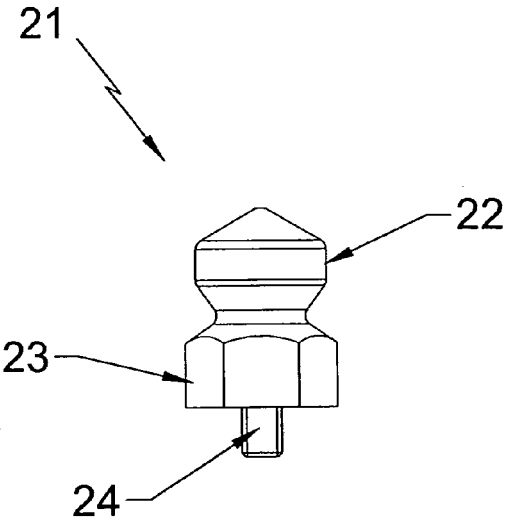


Fig. 24

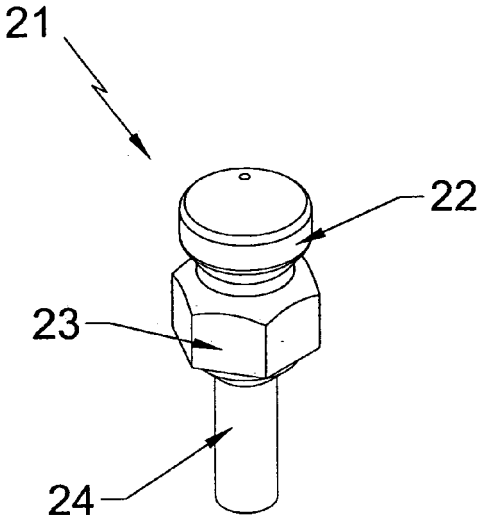
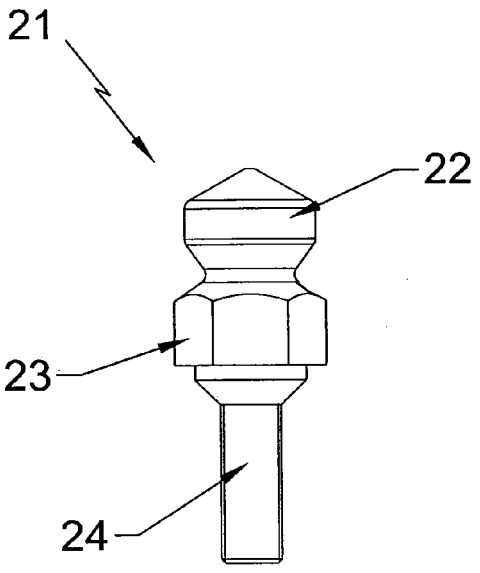


Fig. 25



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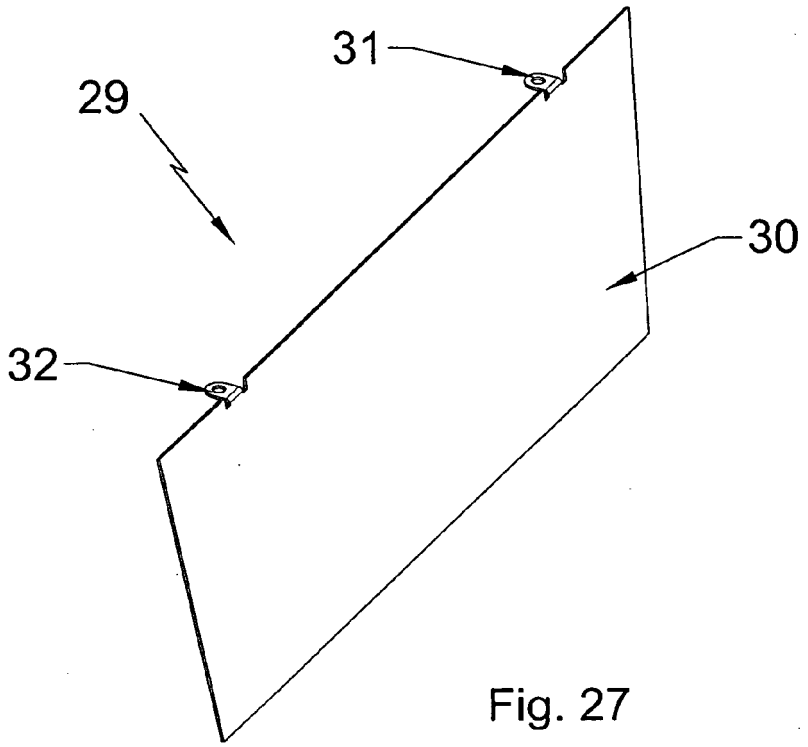


Fig. 27

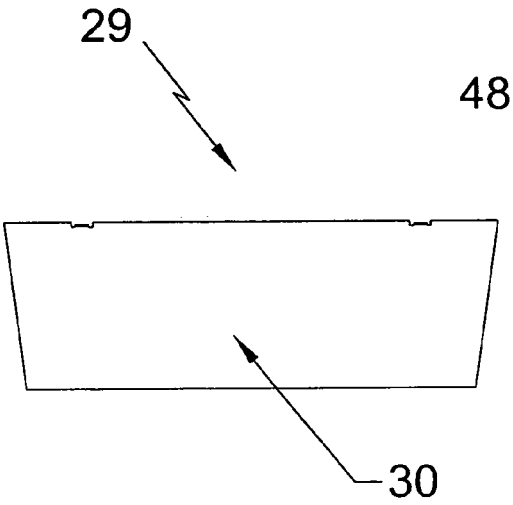


Fig. 28

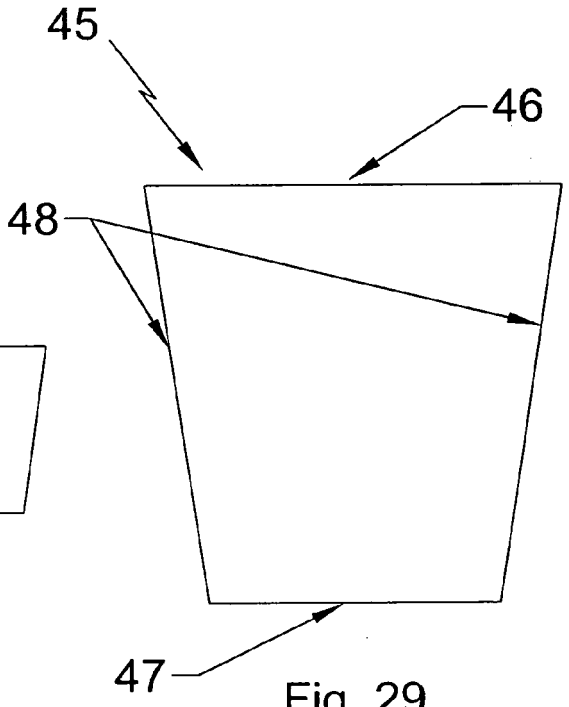


Fig. 29

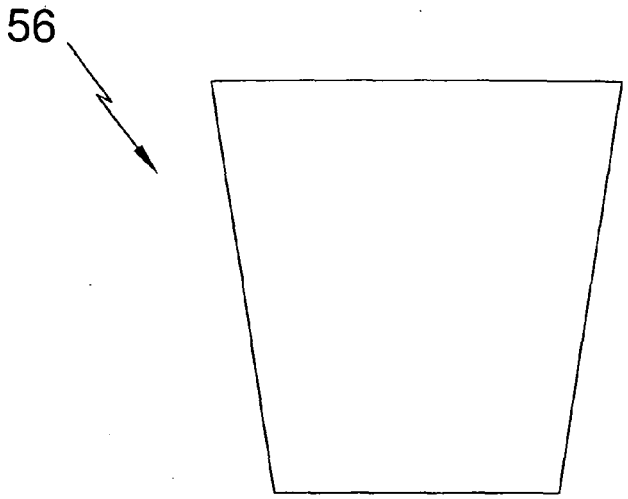


Fig. 30

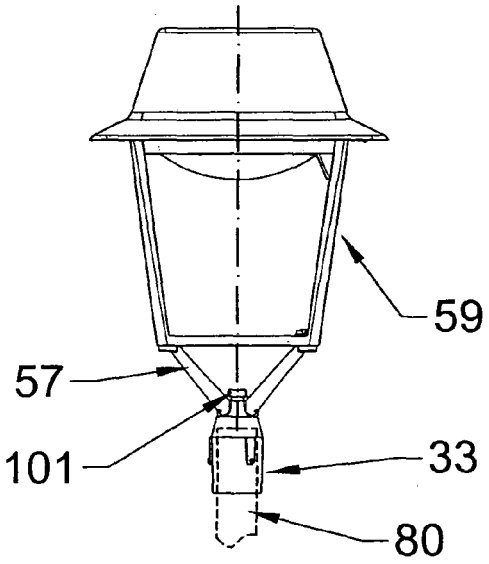
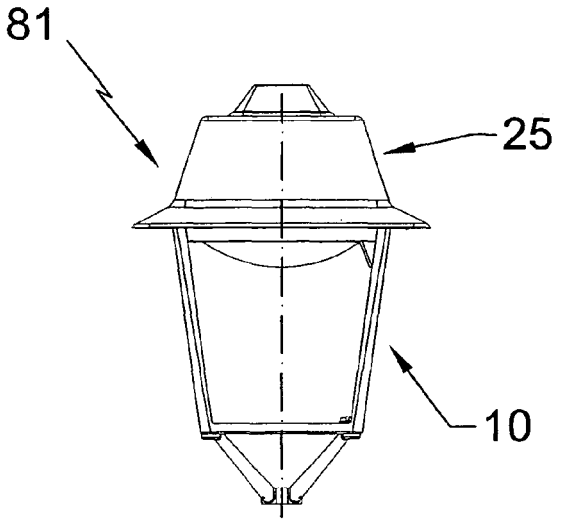


Fig. 31



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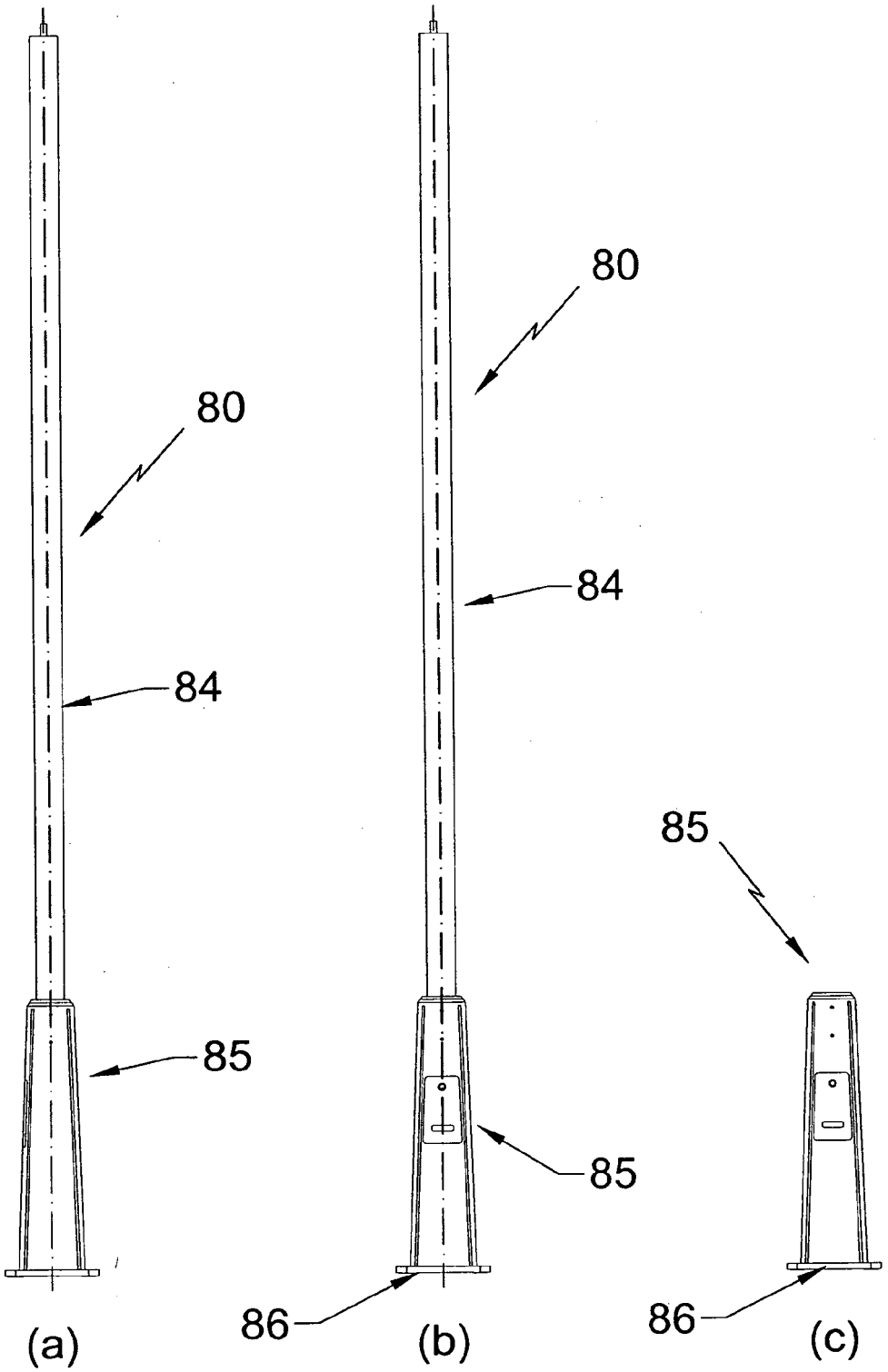
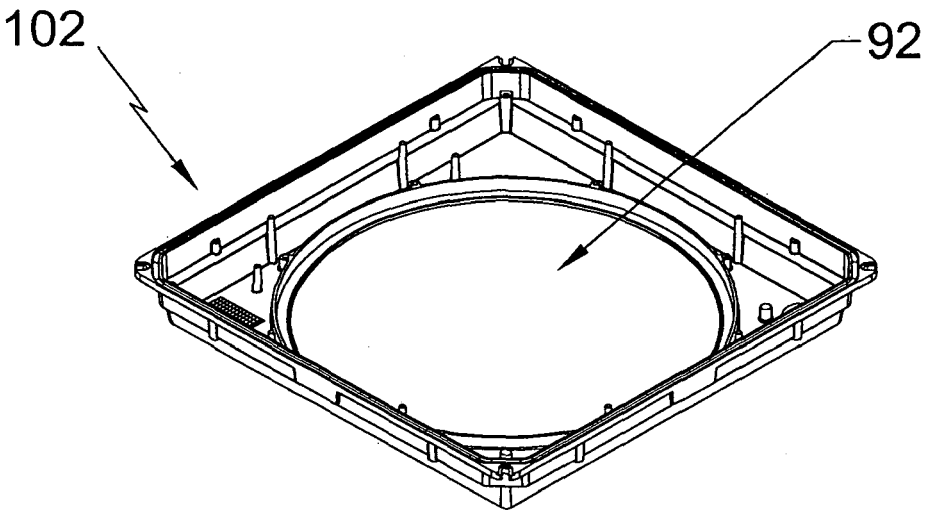
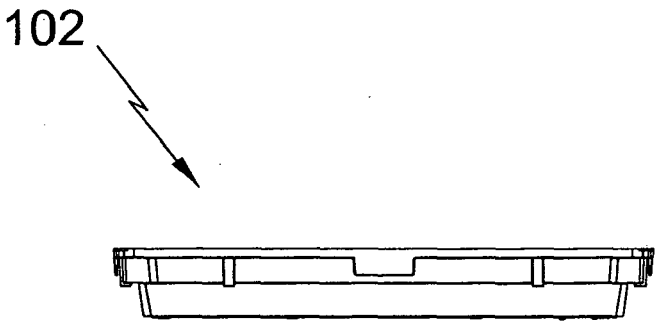


Fig. 33

Fig. 34

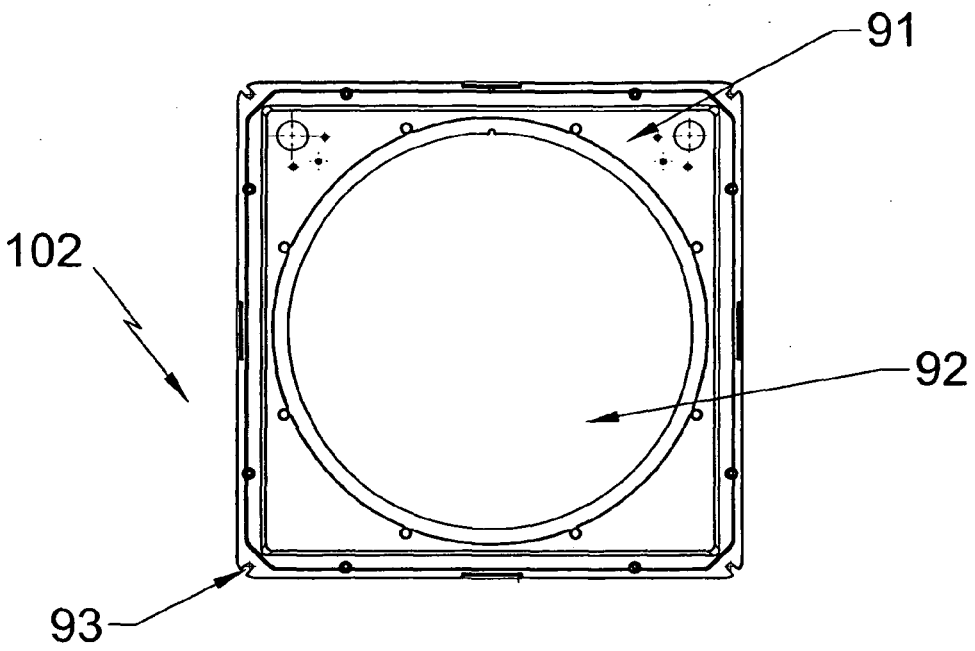


(a)



(b)

Fig. 34



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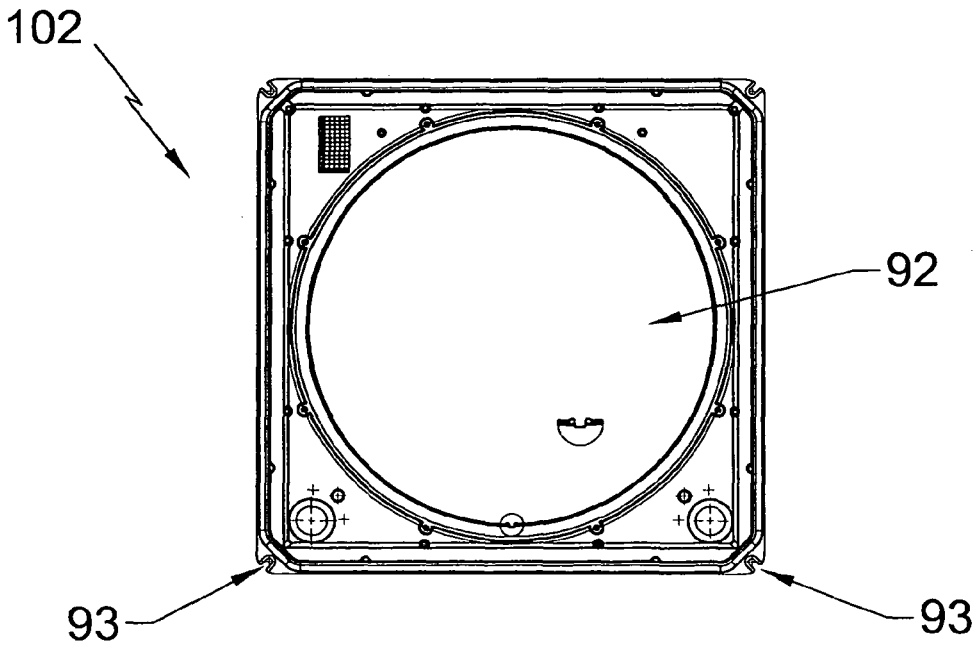
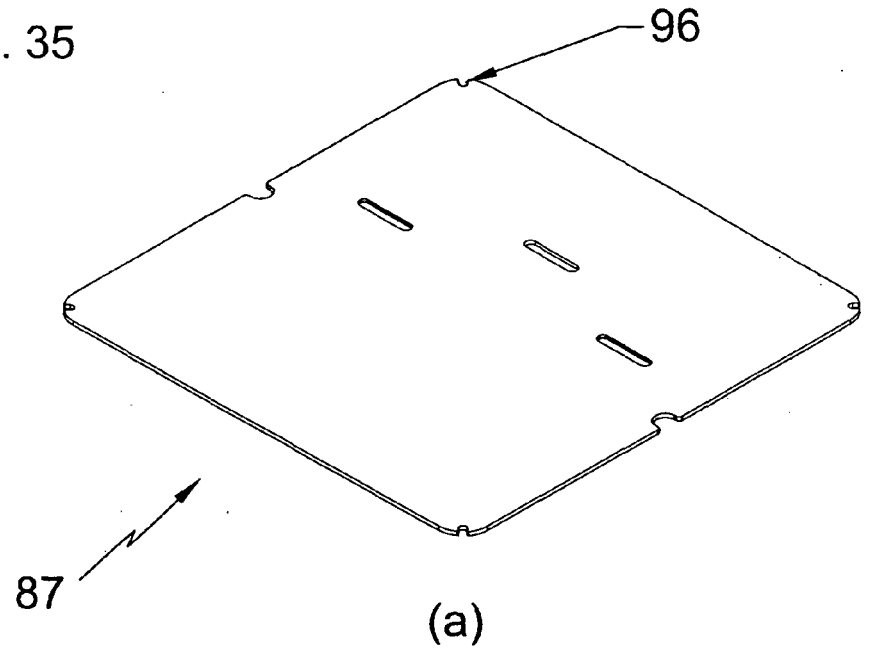


(d)

Fig. 35



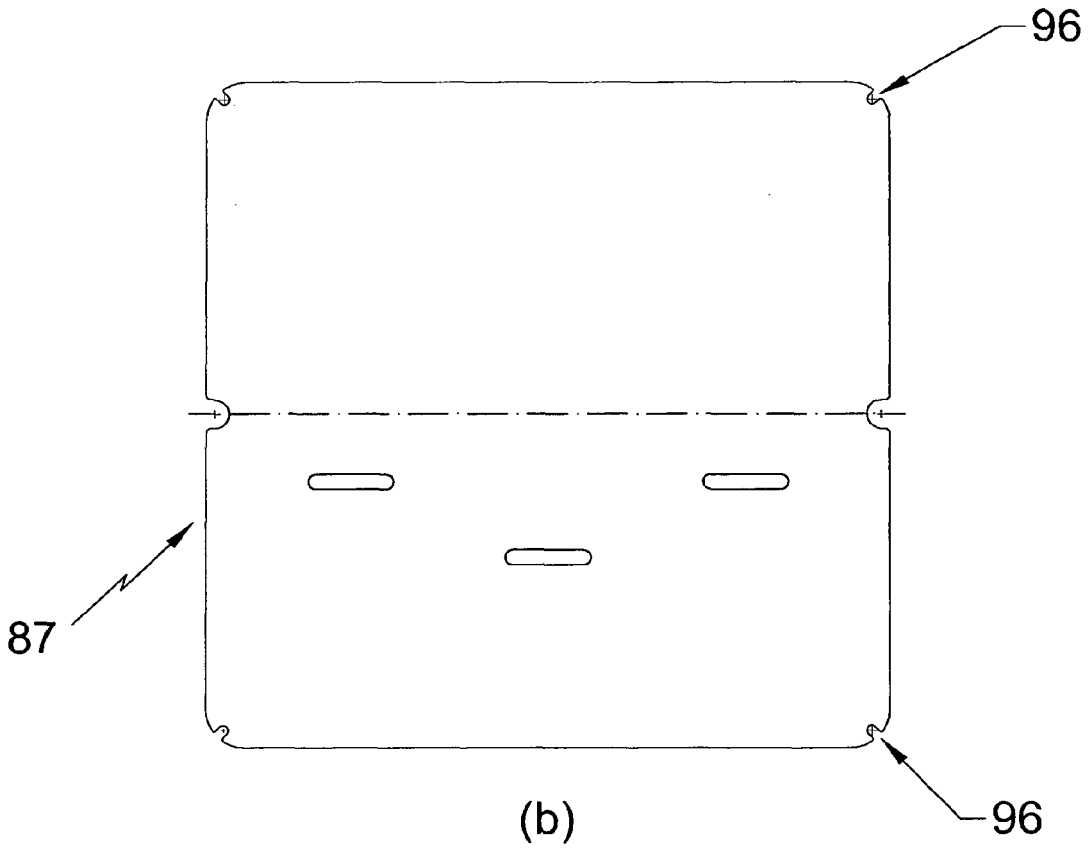
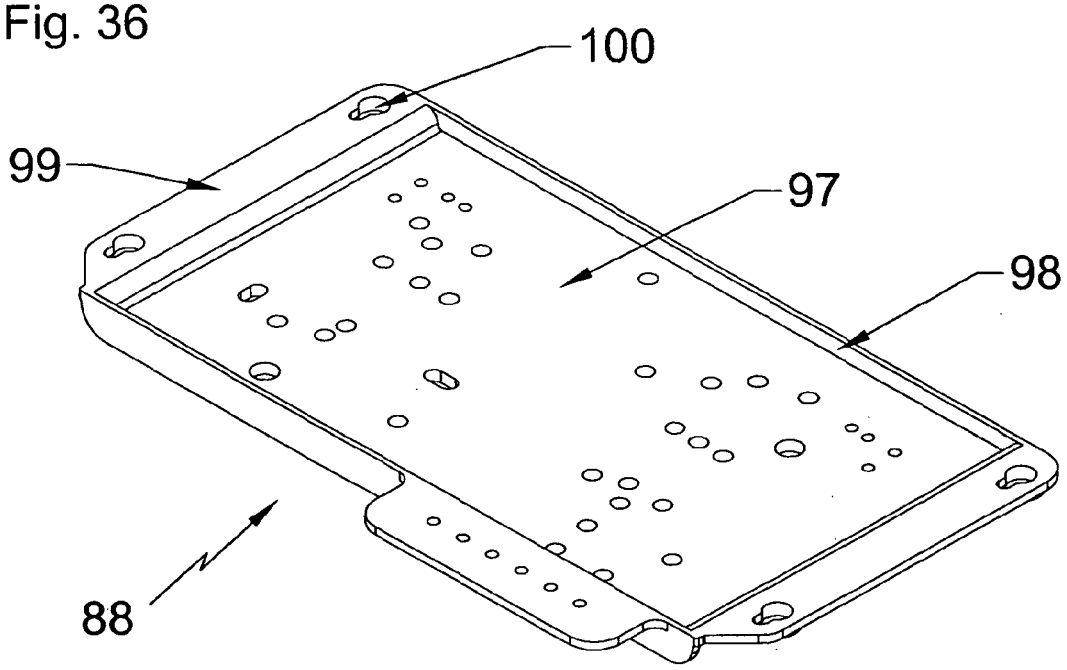
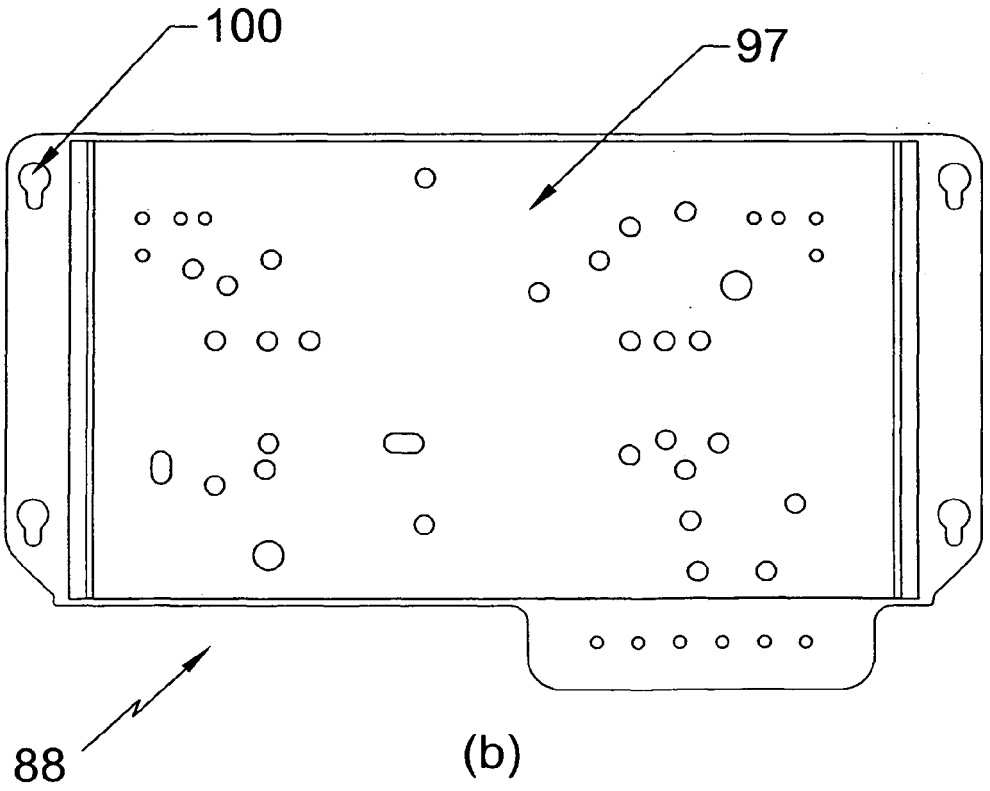


Fig. 36

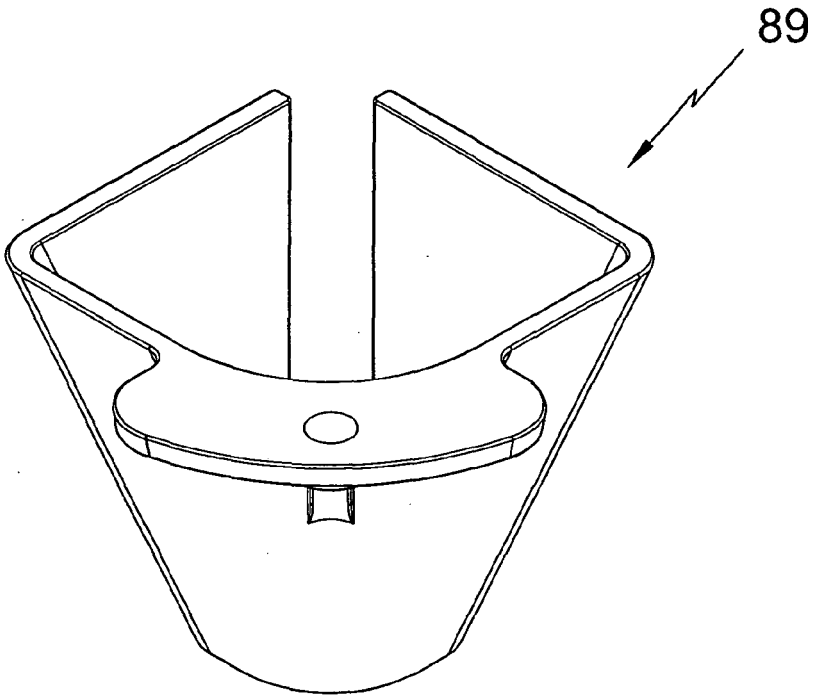


(a)



(b)

Fig. 37



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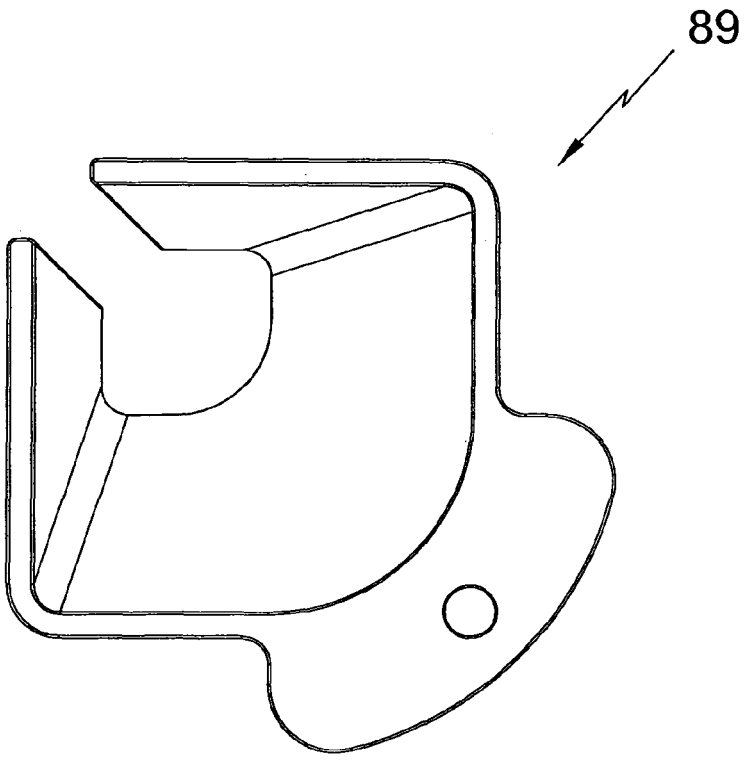
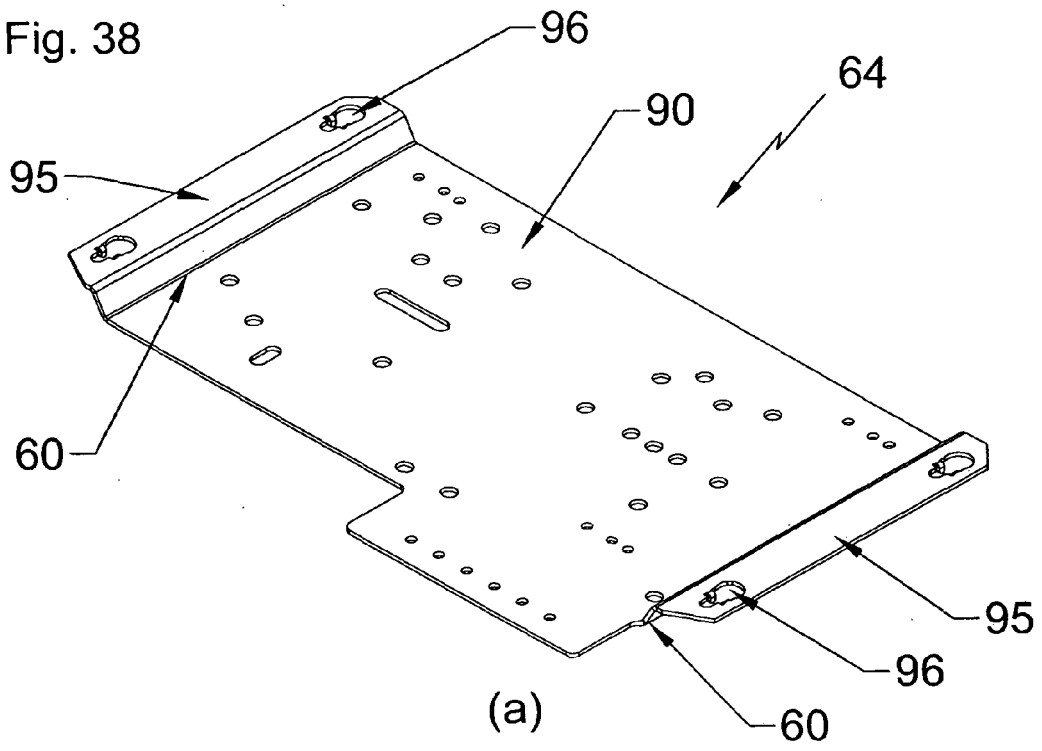


(b)

Fig. 38



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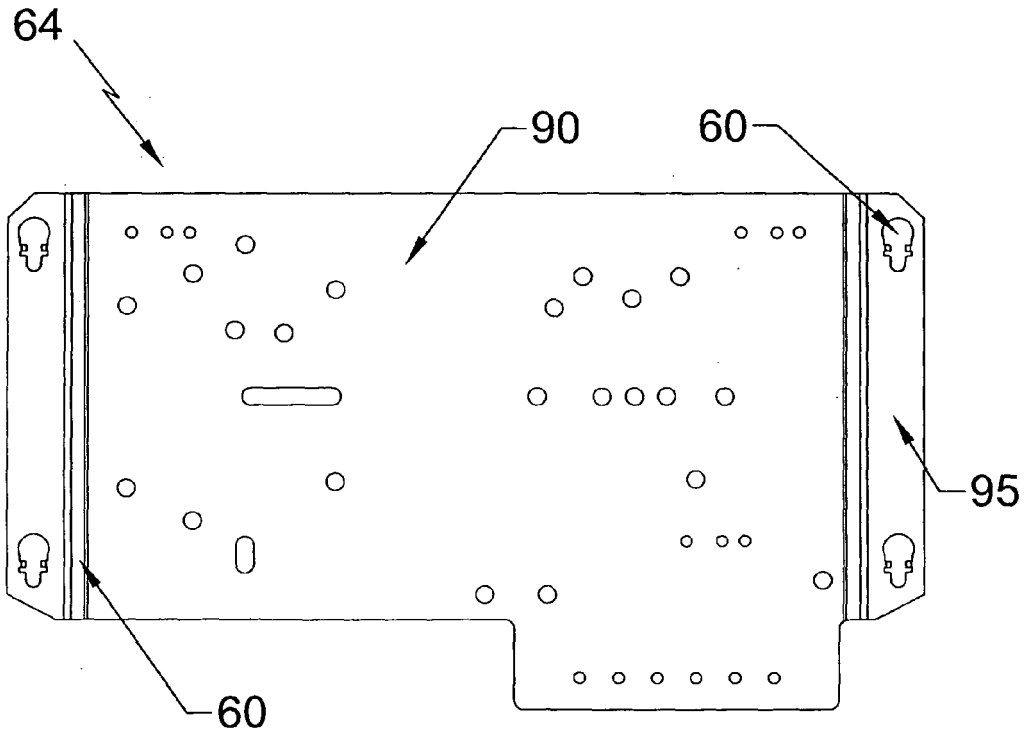

(b)

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EUROPEAN SEARCH REPORT

Application Number
EP 08 38 0157

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 296 09 772 U1 (MASSIVE N V [BE]) 5 September 1996 (1996-09-05) * page 3, line 16 - line 30 * * page 4, line 1 - line 4 * * page 4, line 12 - line 28 * * page 5, line 6 - line 26 * * page 7, line 29 - page 8, line 10 * * figures 1-6 *	1,2,4,6, 9,10,17	INV. F21S8/00 F21V15/01 F21V21/00
Y		3,12	
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Y	CH 481 346 A (ALUMAG BELMAG AG [CH]) 15 November 1969 (1969-11-15) * column 1, line 33 - column 2, line 4 * * figures 1-3 *	3,12	TECHNICAL FIELDS SEARCHED (IPC) F21S F21V
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Y	US 2005/208448 A1 (BACHINSKI THOMAS J [US] ET AL BACHINSKI THOMAS J [US] ET AL) 22 September 2005 (2005-09-22) * page 1, paragraph 16-18 * * figures 1-5 *	8	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	17 September 2008	Lange, Christian

CATEGORY OF CITED DOCUMENTS

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