



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
11.09.2002 Bulletin 2002/37

(51) Int Cl.7: **F21S 10/00, F21V 14/06**

(21) Application number: **02075827.2**

(22) Date of filing: **01.03.2002**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR
 Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Gattari, Massimo**
62018 Potenza Picena (Macerata) (IT)

(74) Representative: **Zanardo, Giovanni**
Ing. Barzanò & Zanardo
Milano S.p.A.,
Via Borgonuovo 10
20121 Milan (IT)

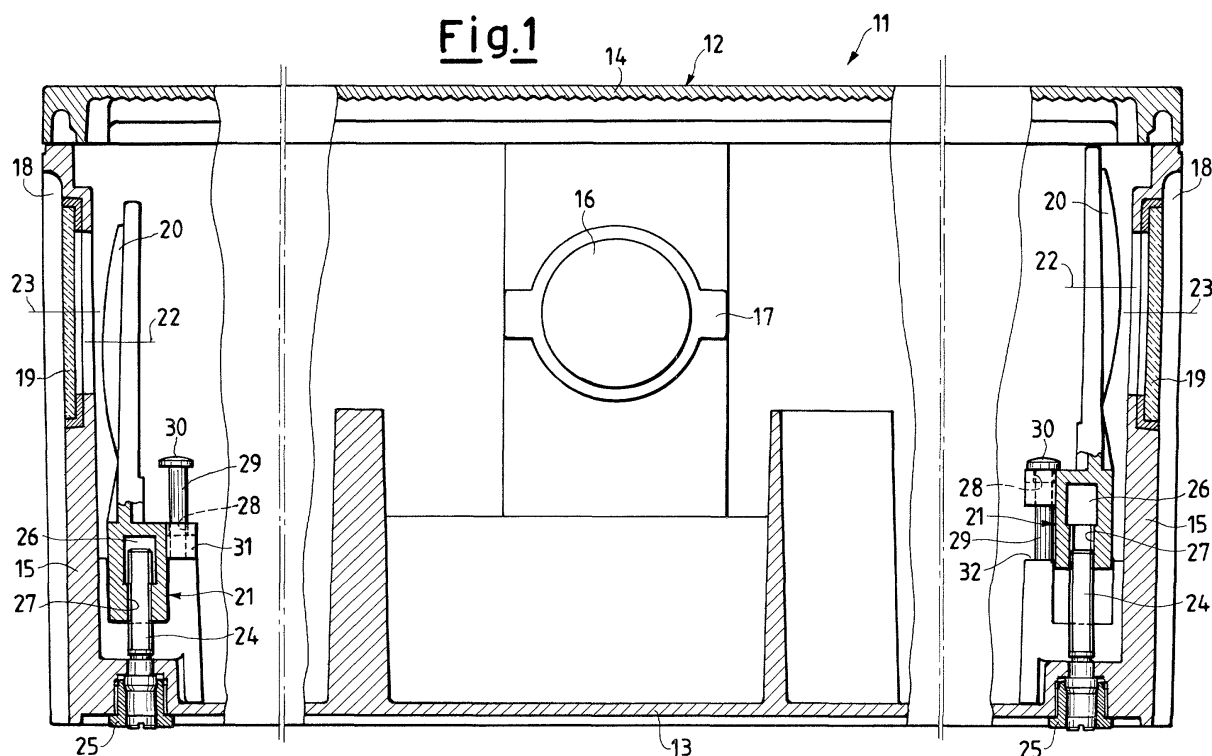
(30) Priority: **06.03.2001 IT MI010126 U**

(71) Applicant: **iGUZZINI ILLUMINAZIONE S.R.L.**
I-62019 Recanati, Macerata (IT)

(54) **Lighting apparatus with variable lighting effects**

(57) A lighting apparatus with variable lighting effects comprising a container body (12) which houses a light source (16,17) and which has base (13), top (14) and side (15) walls, at least one of said walls (13,14,15) foreseeing at least one opening (18,18') towards the outside in correspondence with which is arranged an el-

ement (20) for directing the light emitted by the light source (16,17), in which such an element (20) for directing the light is arranged on elements (21,24,25) for adjusting its position with respect to the opening, capable of being actuated from the outside, to vary the direction of an emitted beam of light (34).



Description

[0001] The present invention refers to a lighting apparatus with variable lighting effects.

[0002] Currently lighting apparatuses are realised attached to a wall or to the ceiling, comprising a body for containing one or more light sources, equipped with one or more openings from which the light beams are emitted.

[0003] These light beams have a specific direction since the light source employs an element to direct the light, such as a lens or the like, and therefore directs the light emitted to outside of the opening, in such a way realising a particular and well-defined lighting effect. These lighting effects have the task of illuminating individual walls, or else inward or outward-facing corners created by two walls inclined one with respect to the other.

[0004] Although such apparatuses carry out their lighting function in a satisfactory manner, they are not always capable of fully getting the most out of the environment in which they are arranged.

[0005] Moreover, in particular when lighting apparatuses are arranged in correspondence with an inward or outward-facing corner formed by two converging walls the light beams of the two apparatuses do not always precisely meet or at least require difficult adjustments by operators who are experts in assembling the apparatuses. Indeed, spacings, small variations in the position of the entire apparatus and checks of the direction and the positioning of the beam emitted must be carried out.

[0006] A directed adjustment as indicated above proves particularly difficult in the case in which the lighting apparatus has many openings and realises many beams of light in output. In this arrangement it is almost impossible to realise an adjustment which allows the simultaneous variation of many beams directed on different portions of wall or on different walls.

[0007] The purpose of the present invention is that of realising a lighting apparatus which, whilst still producing lighting effects on the wall to which it is applied, has the possibility of adjusting the direction of the beam itself, without any special interventions.

[0008] Another purpose of the present invention is that of realising a lighting apparatus which does not require adjustment of the position of its container body, whilst still allowing a clear and defined lighting according to the desired direction.

[0009] Yet another purpose of the present invention is that of realising an easy adjustment of the direction of the beam also in the presence of many openings and many beams in output from the apparatus itself.

[0010] These and other purposes are achieved according to the present invention by a lighting apparatus with variable lighting effects according to claim 1.

[0011] The further claims define the additional characteristics of the present invention.

[0012] The characteristics and the advantages of a lighting apparatus with variable lighting effects according to the present invention shall become clearer from the following description, given as an example and not for limiting purposes, referring to the attached schematic drawings in which:

figure 1 is a partial side elevation section which shows a lighting apparatus with variable lighting effects according to the invention in which two element adjustment groups to direct the light emitted by a light source, such as a lens, are arranged at opposite ends.

figure 2 is a plan view from above, without a cover and on a smaller scale, of the apparatus according to the present invention of figure 1,

figures 3 and 4 show schematic drawings of an application of an apparatus of the invention in correspondence with an inward or outward-facing corner formed by two walls.

[0013] With reference to figures 1 and 2, a lighting apparatus with variable lighting effects, according to the invention, is wholly indicated with the reference numeral 11.

[0014] Such a lighting apparatus 11, in a general embodiment thereof, consists of a container body 12, which comprises base, upper and side walls 13, 14 and 15, respectively. The container body 12 in the example houses a light source, consisting of a bulb 16, arranged on a relative bulb socket 17. It is clear that the body 12 can also house more than one bulb, without however changing the object of the present invention.

[0015] The container body 12 is equipped on the walls 13-15, preferably the side walls 15, with one or more openings 18 which allow the light to spread to the outside, to light up a wall or the like in an indoor or outdoor environment.

[0016] In correspondence with each opening 18 a diffusion and protection element is arranged, such as a glass plate 19, whereas inside the container body 12 near to such an opening 18 an element for directing the light emitted by the light source, such as a lens 20, is arranged.

[0017] This lens 20 is supported on elements for adjusting its position with respect to the opening, capable of being actuated from the outside, to vary the direction of the beam of light emitted. Indeed, the lens 20 is supported by and bound to a base 21 which can move vertically with respect to the opening 18 so that an axis 22 of the lens 20 can be offset in position with respect to an axis 23 of the opening 18.

[0018] The displacement of the base 21 is carried out through a screw 24, for example with a notched or hexagonal head, after said base has been freed to translate by acting to loosen a locking bush 25 through a key (not shown). Inside the base 21 a hole 26 is formed which is longer than the threaded part of the screw 24 and the

hole 26 has a threaded portion 27 at its free end turned towards the inside which engages on the screw 24.

[0019] The base 21 is, moreover, equipped with a further pair of through holes 28 inside which rods 29 slide which function as guide elements during the vertical adjustment of the base with respect to the opening facing the outside.

[0020] The rods 29 have enlarged heads 30 which act as an upper stopper for the base 21, which is equipped with a lower attachment 31 which acts as a lower stopper with respect to an abutment surface 32 which extends from the base wall 13 of the container body 12.

[0021] The operation of such a lighting apparatus with variable lighting effects, according to the present invention, is briefly illustrated later on in the present description.

[0022] The light emitted by the light source 16 of the apparatus 11 crosses, for example, a glass plate 19 after having been addressed by the lens 20 according to a certain direction which depends upon the arrangement of said lens with respect to the opening. The lens 20, thanks to its curvature, is indeed capable of directing the beam of light according to a given specific direction.

[0023] As shown by figures 3 and 4, an outgoing emitted beam of light 34 has, therefore, a given direction on an outer wall 33 and it is possible for it not to be aligned with a desired and required direction, for example a change in plane of a building or a cornice thereof.

[0024] Regarding which, it is sufficient to intervene by unlocking the bush 25 and thus being able to act on the inner screw 24 through a screwdriver or an Allen key for hexagonal heads.

[0025] The screwing of the screw 24 determines the rotation thereof and the threaded portion 27 is made to slide along the screw itself. The sliding of the threaded portion 27 determines the translation of the base 21 integral with it and the displacement of the lens 20 in an almost vertical direction. Alternatively, the threaded portion can be realised with an insert (not shown) arranged in the base 21.

[0026] The lens 20, or rather its axis 22, is thus displaced with respect to the axis 23 of the glass plate and of the opening 18. The beam of light 34 is varied in direction according to that which is necessary and sought after from the alignment on the wall 33 according to an arrow 35. Indeed, it is possible to adjust in such a manner the inclination of the thin beam of light by a few degrees, for example +/- 5 degrees. Thus an angular variation is obtained with a certain excursion of the lens which can be a few millimetres. Possible over-excursions are prevented by the presence of the stoppers consisting of the enlarged head 30 of the rods 29 or of the abutment surface 32 and of the attachment 31 of the base 21.

[0027] The beam 34 can therefore take on a different direction on the wall 33.

[0028] The apparatus shown has a linear configuration, but as shown in figures 3 and 4 it can foresee an

angled arrangement so as to be able to be arranged in correspondence with an inward or outward-facing corner between two walls. Moreover, an opening 18' can also be foreseen on the roof 14 of the container body 12.

[0029] From the description which has been made the characteristics of the lighting apparatus which is object of the present invention are clear, just as the advantages are also clear.

[0030] Finally, it is just as clear that numerous variants can be brought to the lighting apparatus for the creation of lighting effects, object of the present invention, without for this reason departing from the novel principles inherent to the basic inventive concept.

[0031] In the practical actuation of the invention, the materials, the shapes and the sizes of the illustrated details can be whatever according to requirements and they can be replaced with others which are technically equivalent.

Claims

1. Lighting apparatus with variable lighting effects comprising a container body (12) which houses a light source (16, 17) and which has base (13), top (14) and side (15) walls, at least one of said walls (13, 14, 15) foreseeing at least one opening (18, 18') towards the outside in correspondence with which is arranged an element for directing the light (20) emitted by said light source (16, 17), **characterised in that** said element for directing the light (20) is arranged on elements (21, 24, 25) for adjusting its position with respect to said opening, capable of being actuated from the outside, to vary the direction of an emitted beam of light (34).
2. Lighting apparatus according to claim 1, **characterised in that** said adjustment elements comprise a base (21) capable of translating vertically through actuation elements (24, 25).
3. Lighting apparatus according to claim 1 or 2, **characterised in that** said actuation elements consist of a screw (24) which can be locked through a bush (25) in the predetermined position, said screw (24) being inserted in a threaded portion (27) of said base (21).
4. Lighting apparatus according to claim 2, **characterised in that** stopper elements (30, 31, 32) are associated with said base (21) which limit the movement thereof.
5. Lighting apparatus according to claim 2, **characterised in that** guide elements (29) are associated with said base (21) which guide the translation thereof.

6. Lighting apparatus according to claim 1, **characterised in that** said element for directing the light emitted by the light source is a lens (20).
7. Lighting apparatus according to claim 1, **characterised in that** a glass plate (19) is arranged in correspondence with said opening (18). 5
8. Lighting apparatus according to any one of the previous claims, **characterised in that** it is an apparatus arranged in correspondence with an inward-facing corner created by two walls (33) which are inclined one with respect to the other. 10
9. Lighting apparatus according to any one of the claims 1 to 6, **characterised in that** it is an apparatus arranged in correspondence with an outward-facing corner created by two walls (33) which are inclined one with respect to the other. 15
10. Lighting apparatus according to claim 8 or 9, **characterised in that** said opening (18') is arranged in correspondence with said base wall (13) and/or said top wall (14). 20

25

30

35

40

45

50

55

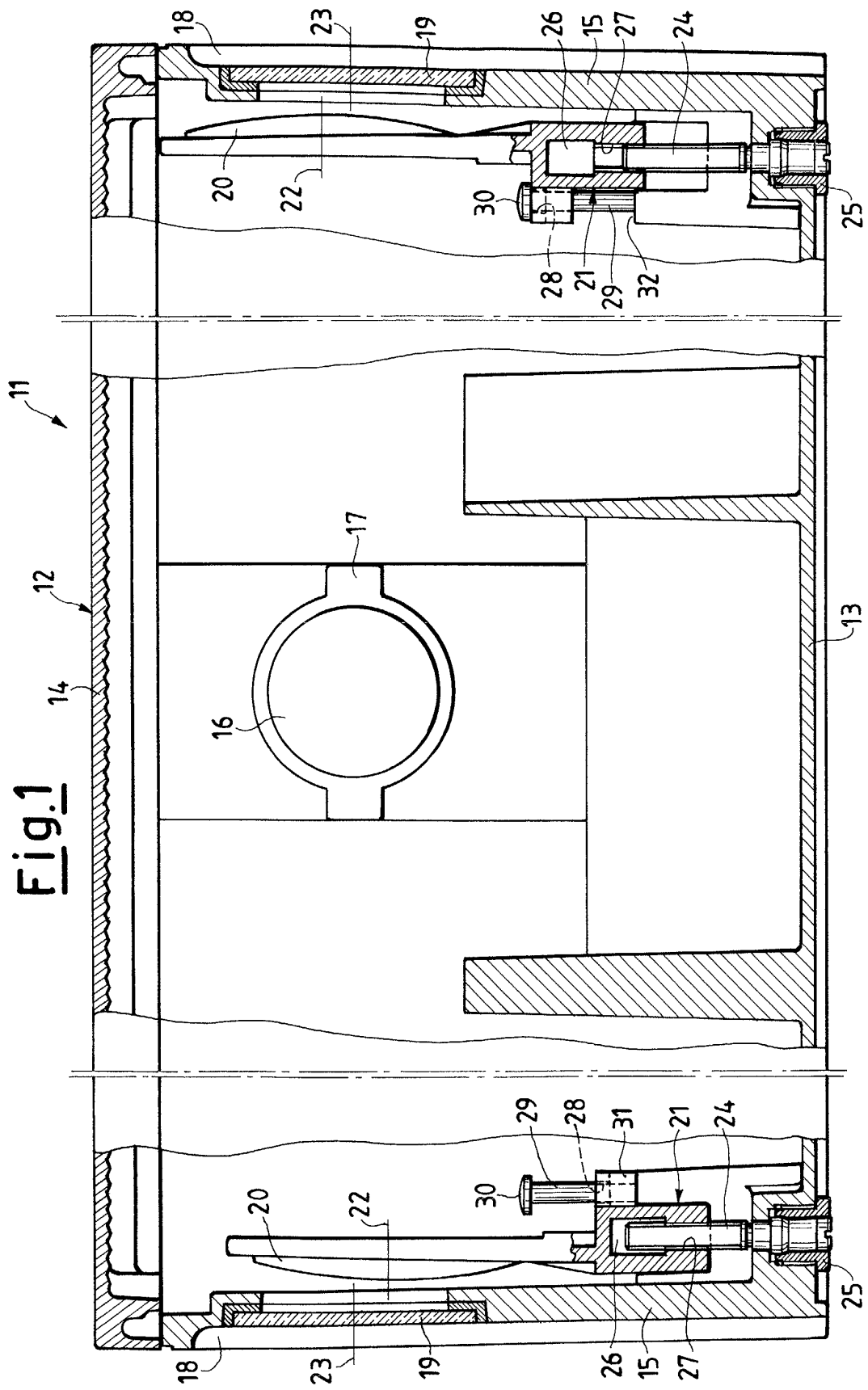


Fig.2

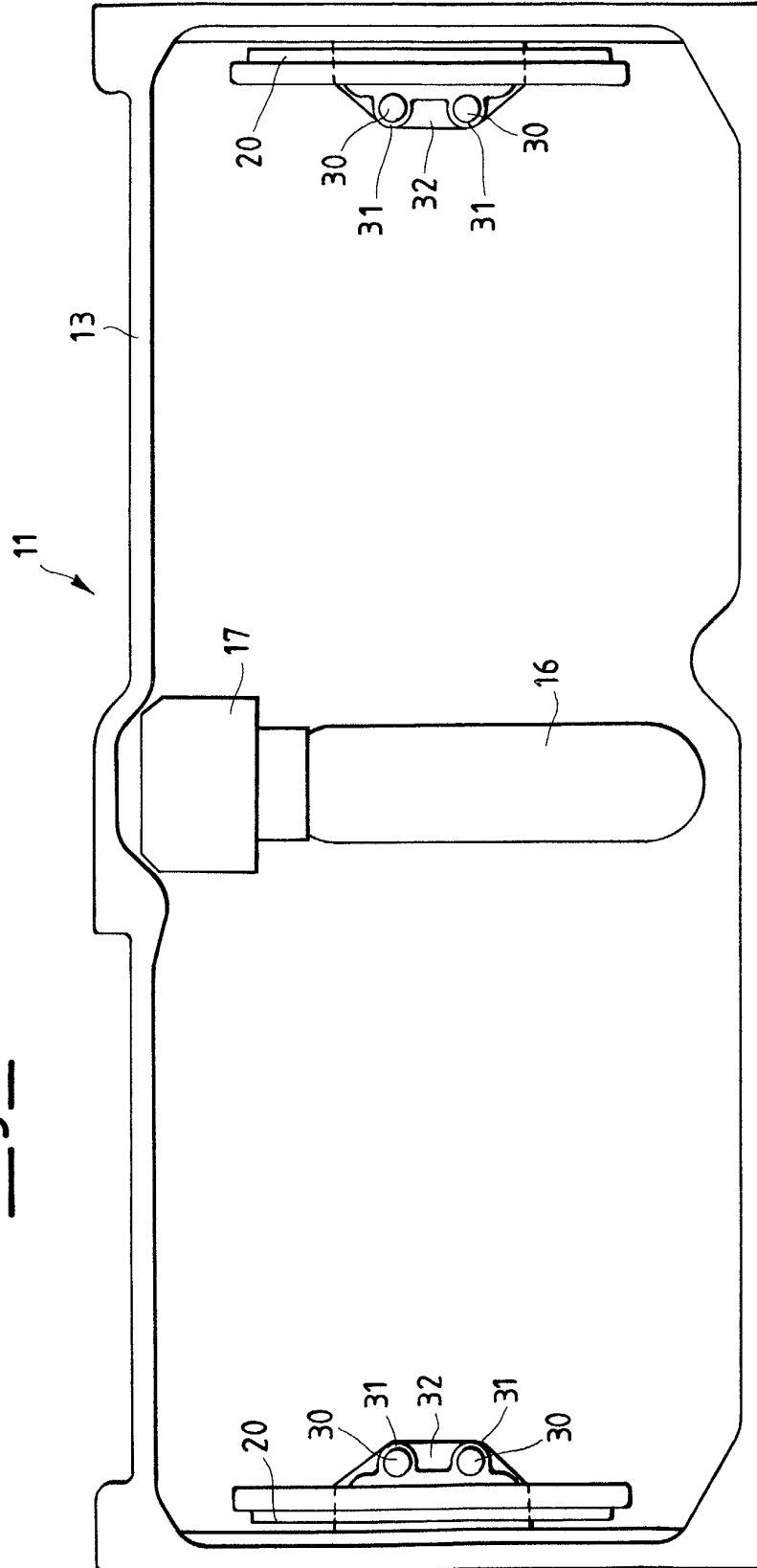


Fig.3

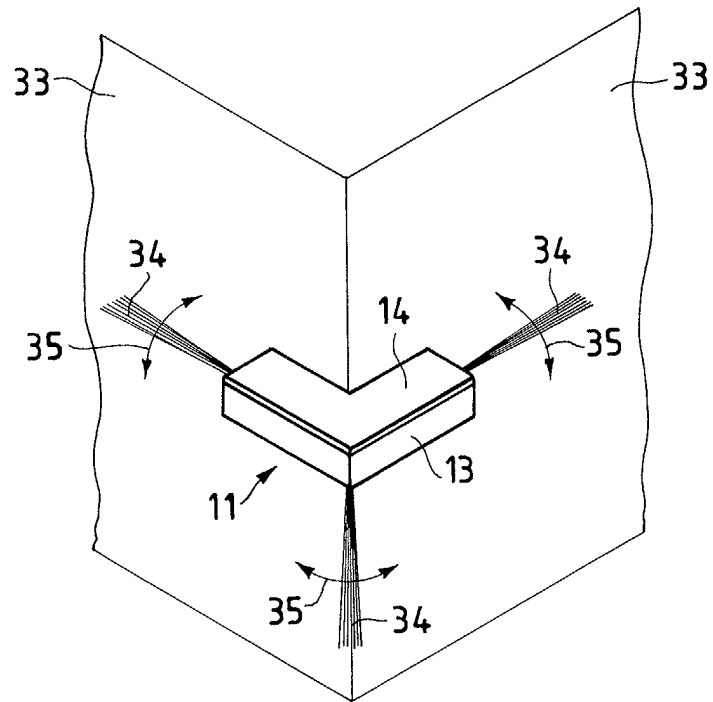


Fig.4

