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(54) Title of the Invention: **Linear recessed structure for lighting**
Abstract Title: **Linear recessed lighting structure**

(57) A linear recessed structure for lighting comprises a linear metal profile 1 of a generally omega-shaped cross section (or the general shape of an inverted 'U' having lateral wings). The interior surface has fixing elements 12 for the installation of light sources 11. Lateral segments 4 of the profile are each inserted in a casting 2 of gypsum, titanium and glass fibres. The profile 1 can be recessed in a wall or ceiling 6, the castings 2 being adapted to the wall or ceiling. A diffuser panel 10 may be attached to the structure.

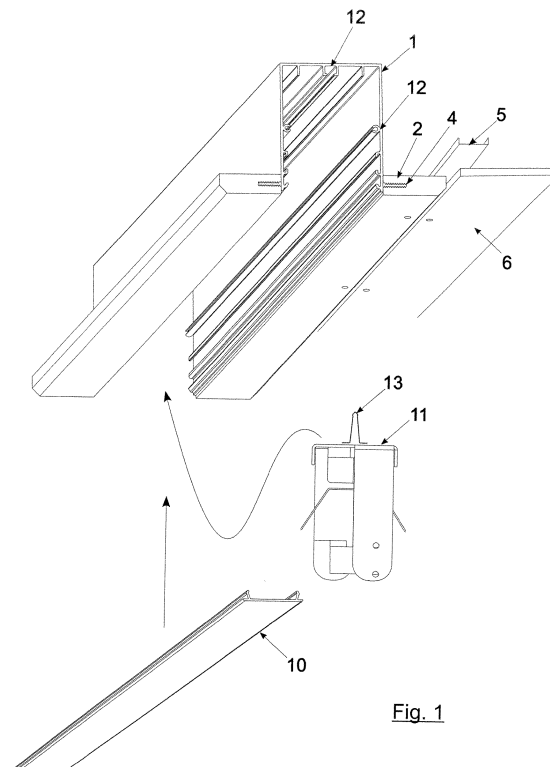


Fig. 1

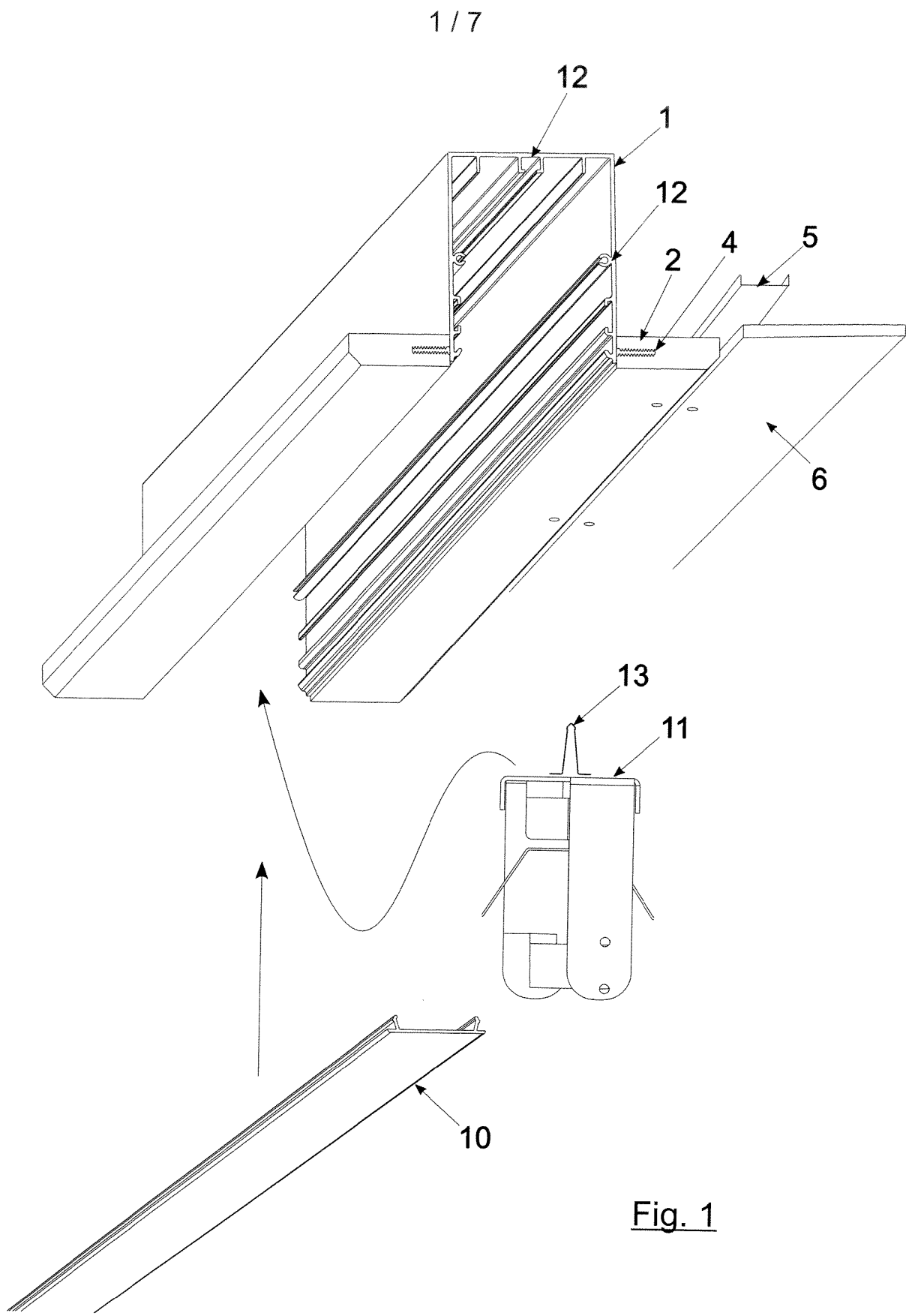


Fig. 1

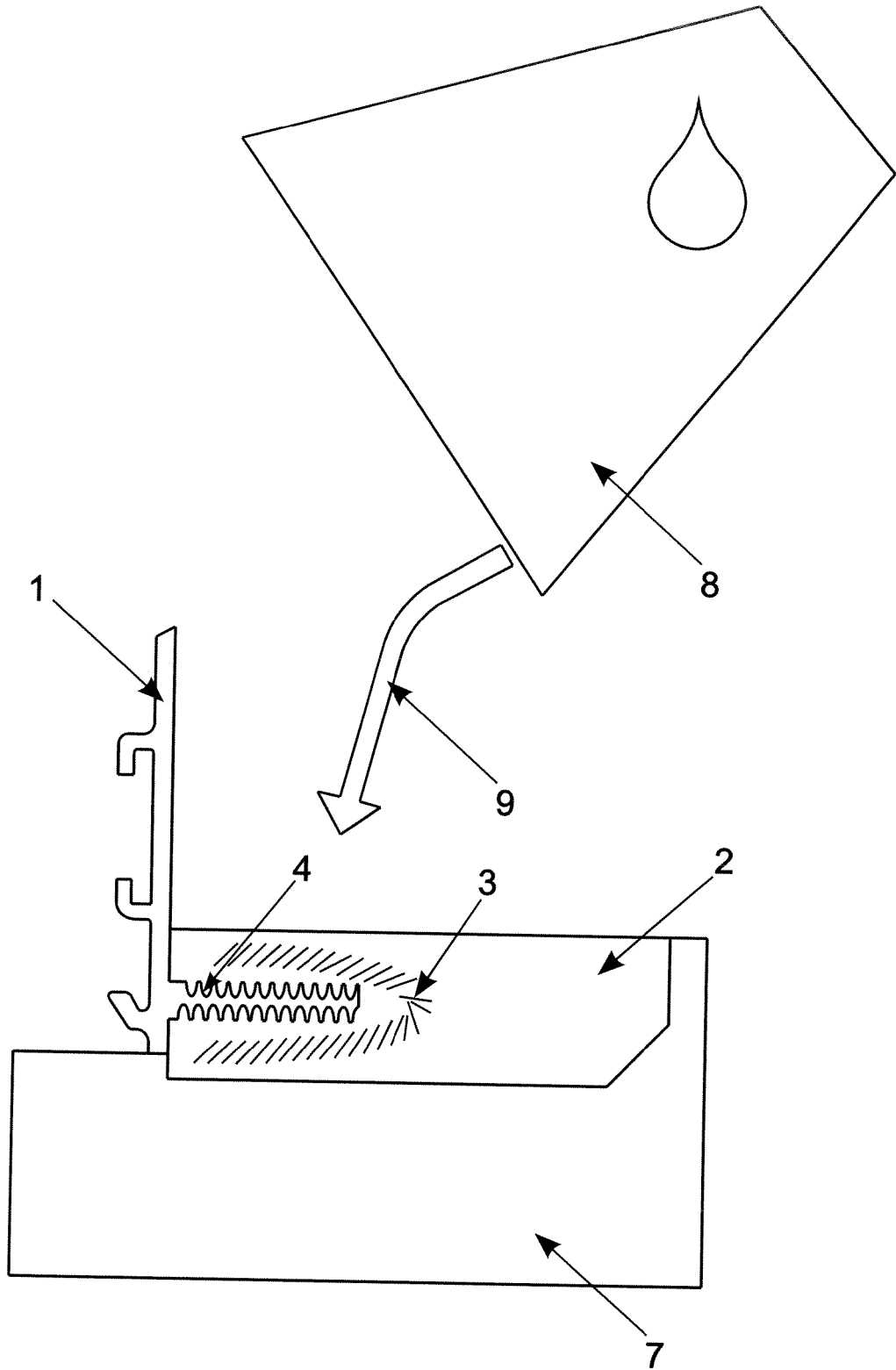


Fig. 2

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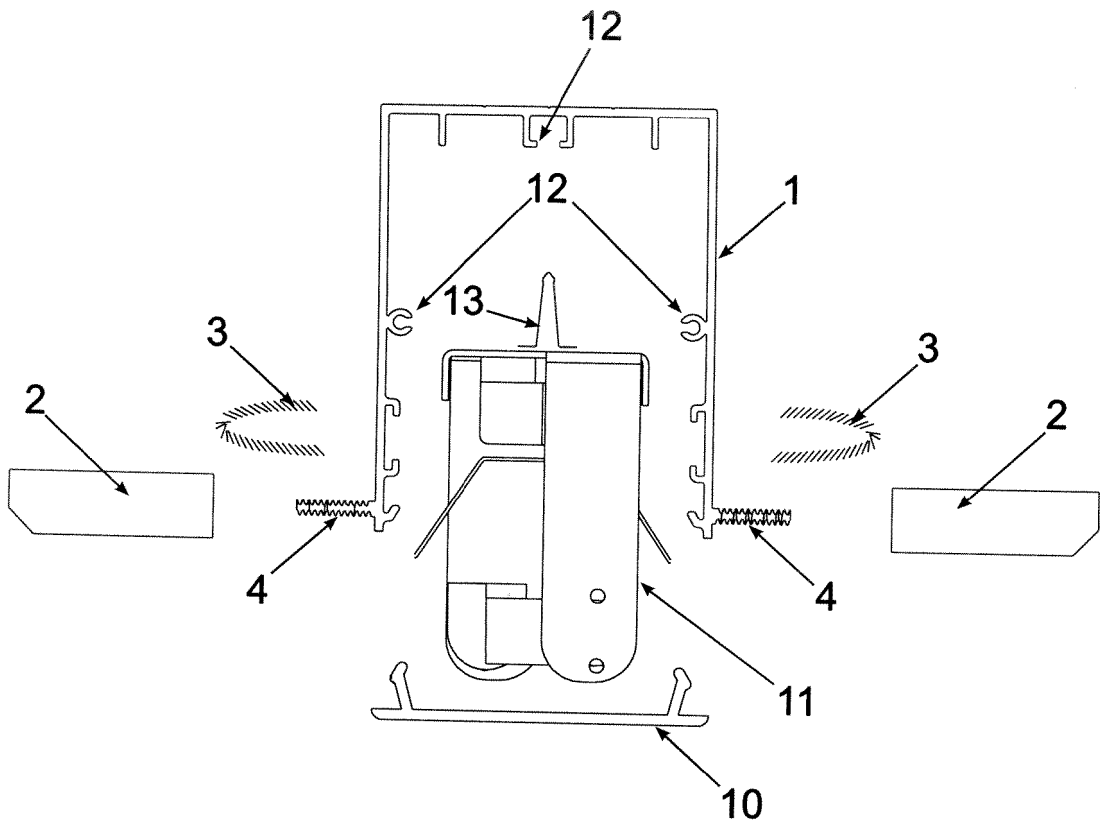


Fig. 3

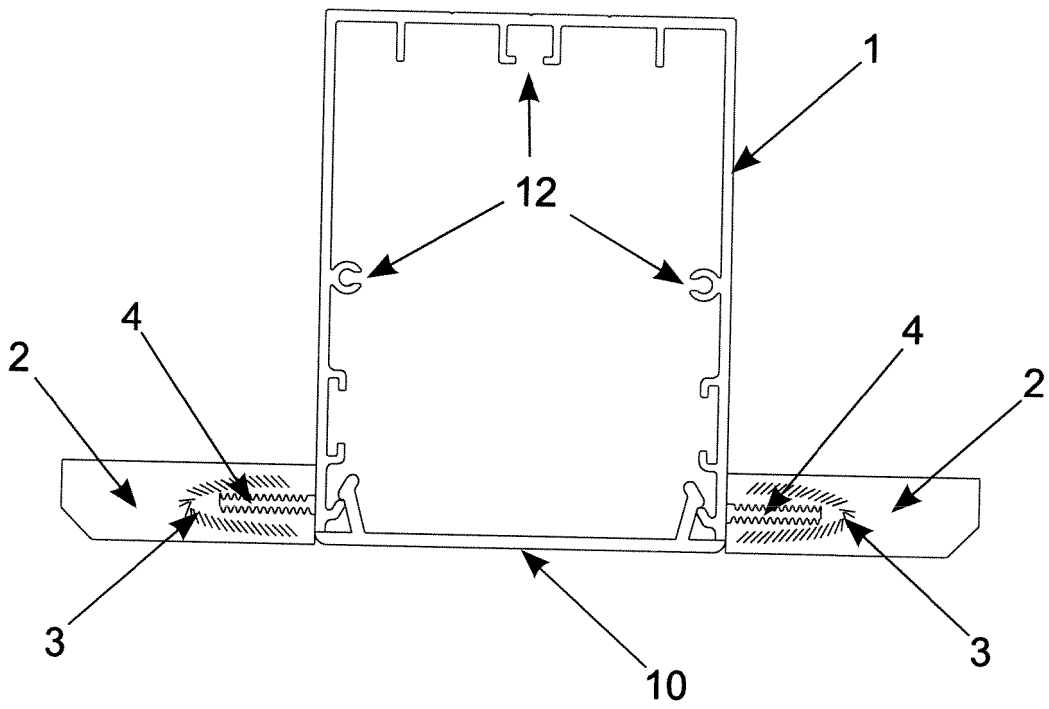


Fig. 4

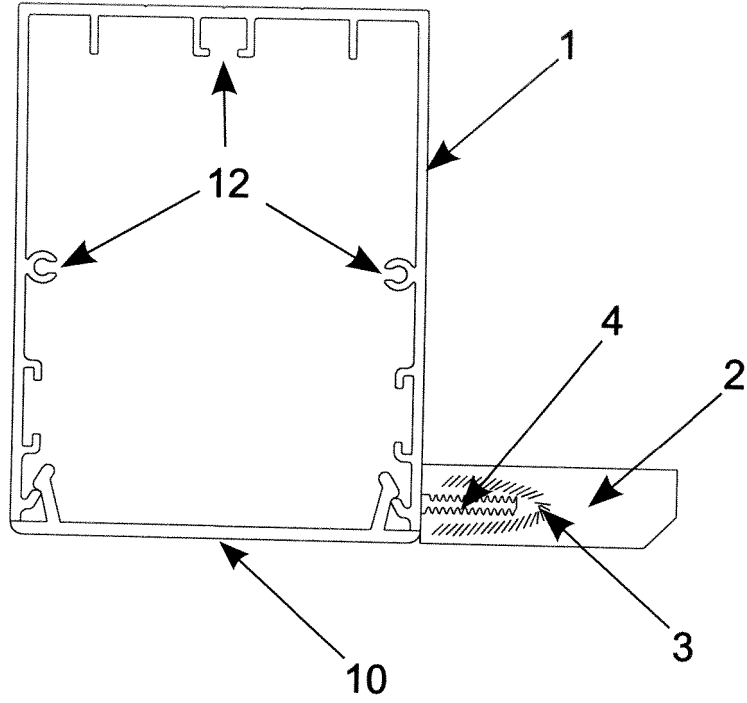


Fig. 5

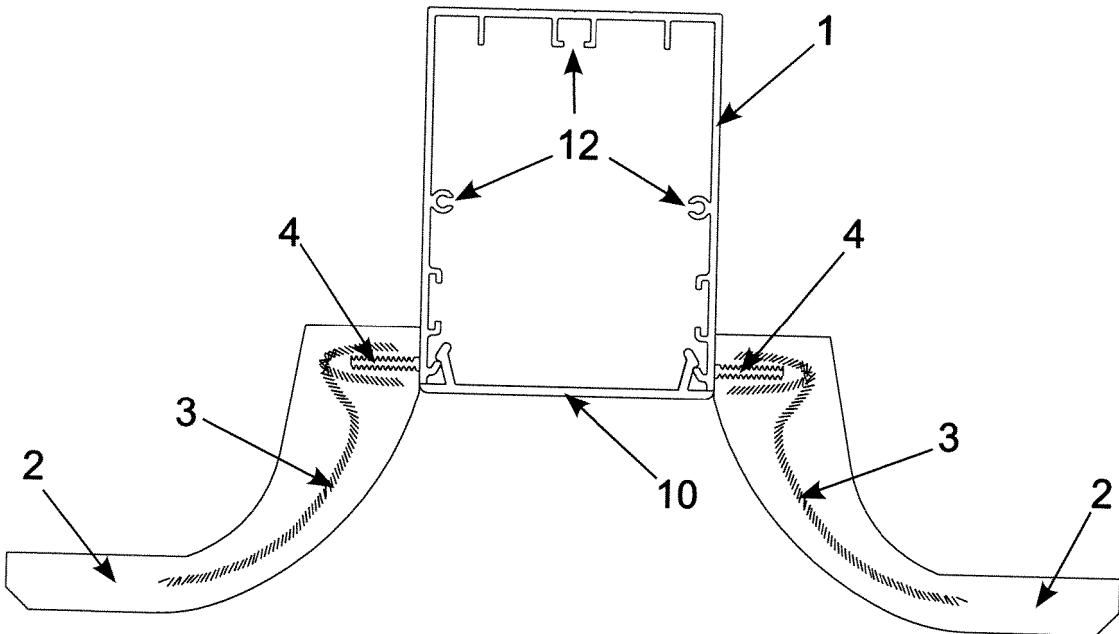


Fig. 6

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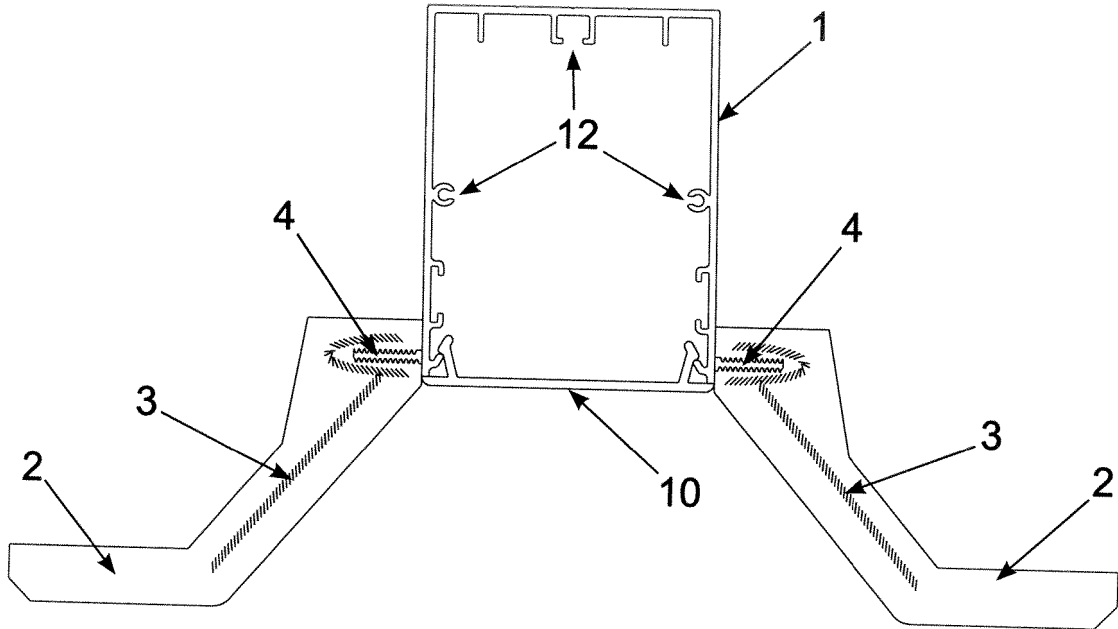


Fig. 7

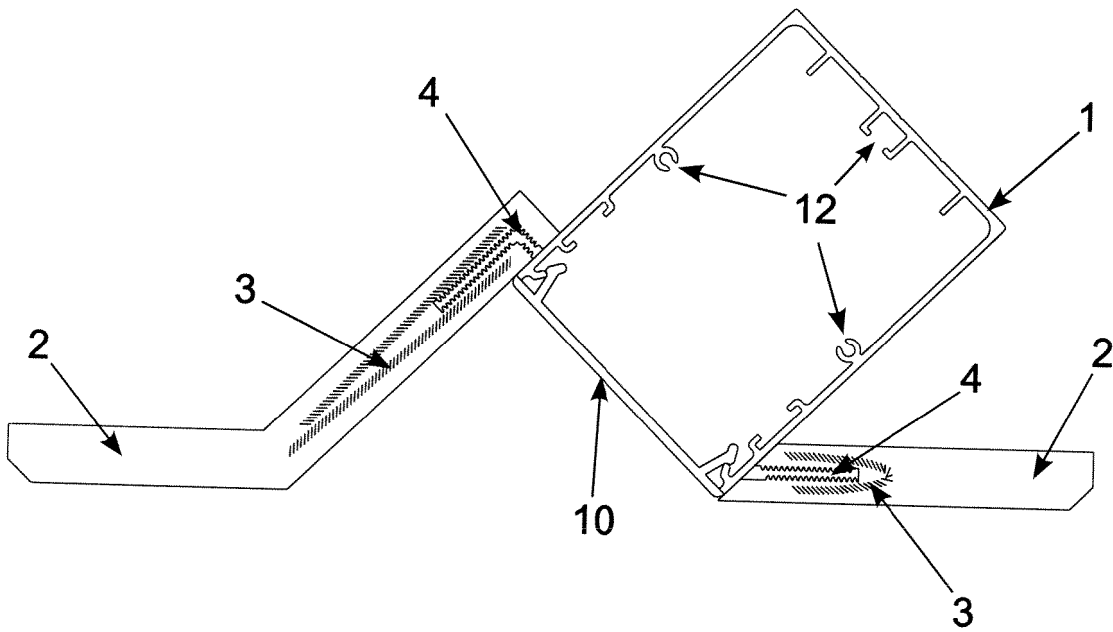
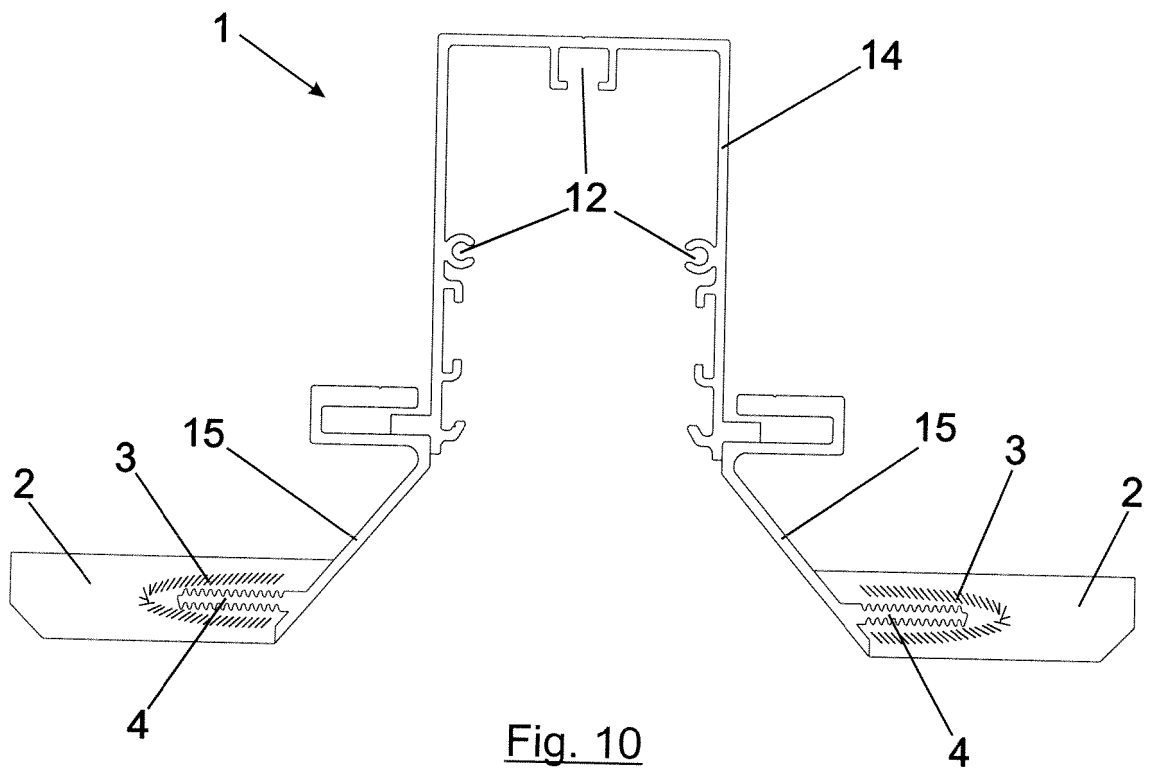
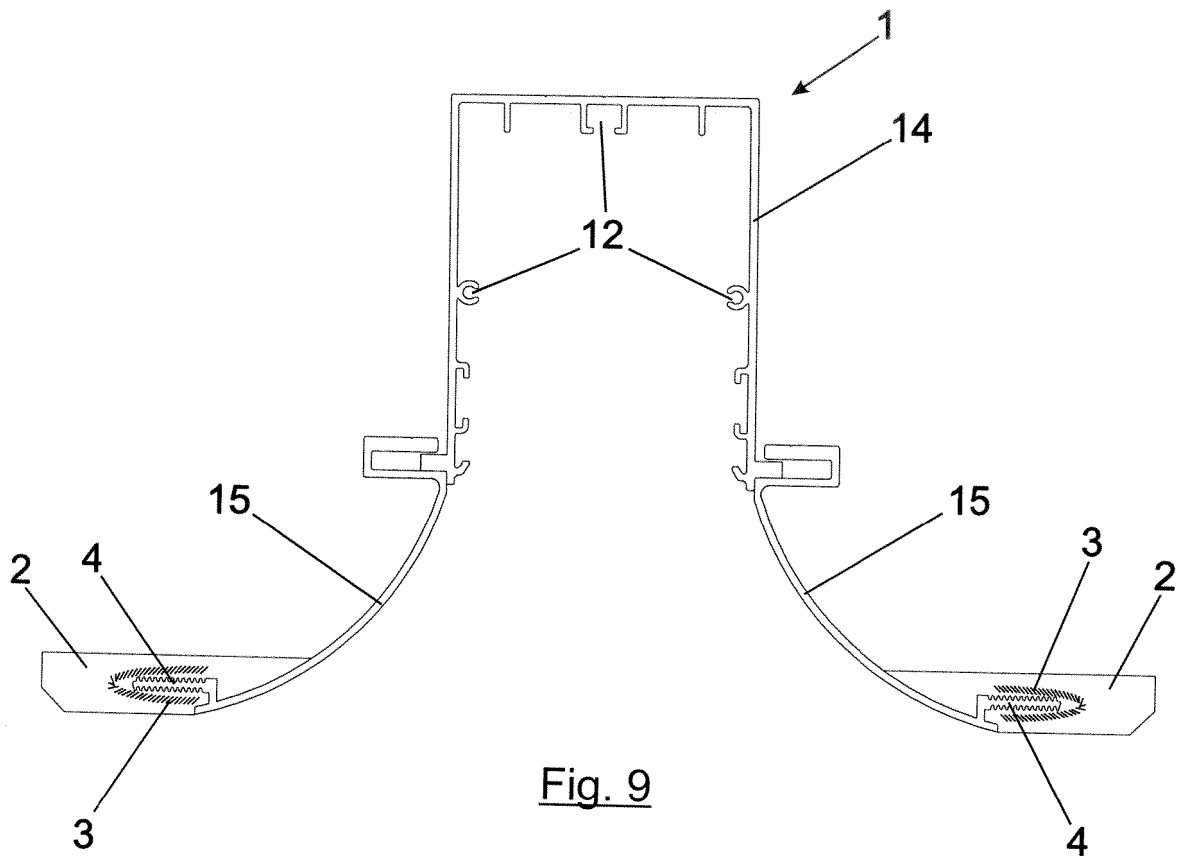


Fig. 8

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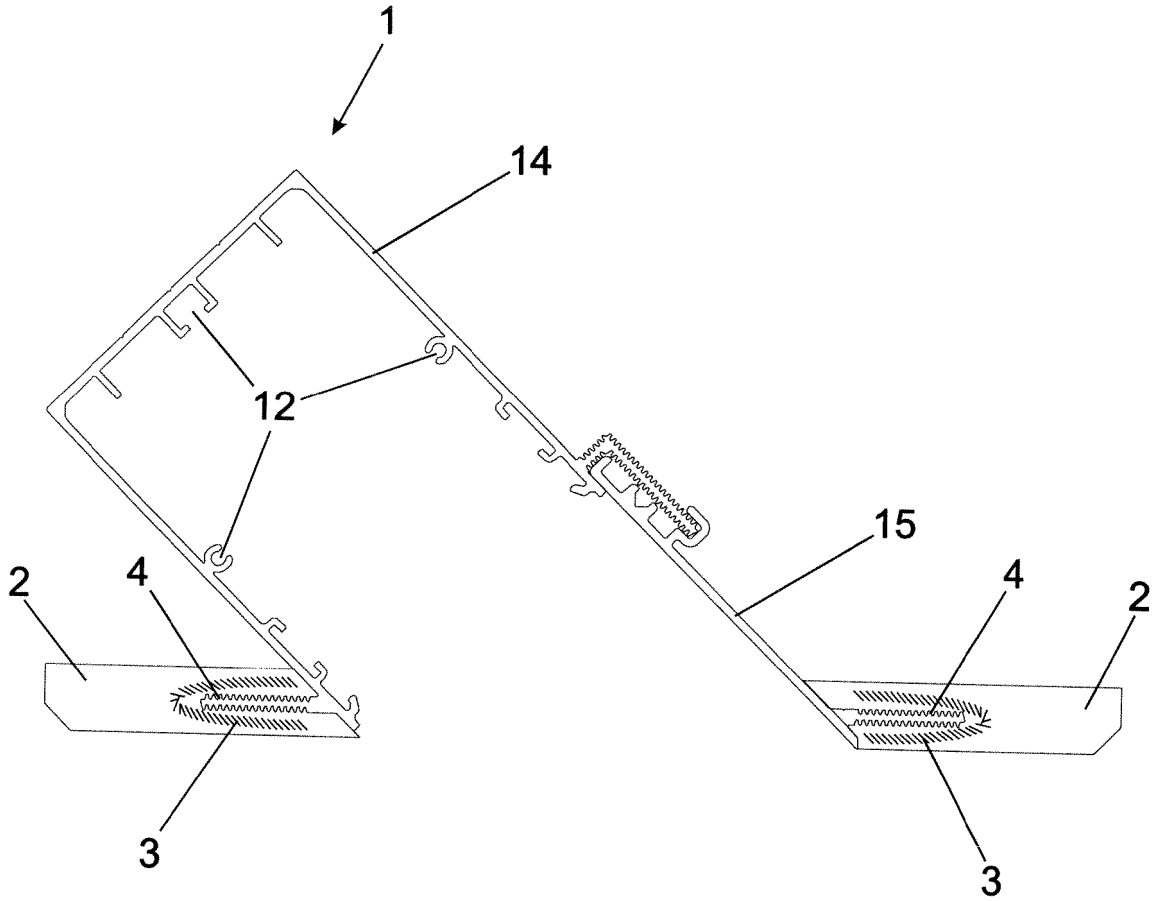


Fig. 11

LINEAR RECESSED STRUCTURE FOR LIGHTING

DESCRIPTION

Field of the Invention

The present invention belongs to the technical field of structures and supports for the disposition of lighting systems in ceilings and walls, and more specifically to the recessed into ceilings and walls structures and supports for the disposition of several light sources separated into tracks, fluorescent type, LED and the like.

The invention relates particularly to a linear recessed structure for lighting formed by a metal profile in which is placed the lighting system attached to a gypsum and titanium casting in such way that the metal profile is recessed and the gypsum and titanium casting is adapted to the surface of the ceiling or the wall.

Background of the invention

At present there are known diverse recessed structures for the placement of lighting sources such as fluorescent, LED, and any type of lighting system recessed into the ceiling or walls in a way that to illuminate through a diffuser.

These structures are usually encased or profiles shaped in "C" and are made from plaster, gypsum and similar materials to which once installed on the roof, wall or surface to illuminate is fixed a metal element which contains the lighting system.

These structures have the disadvantage of having to be installed in several stages, at first the gypsum and subsequently the metal elements in which is placed the lighting system, light bulbs, spots, fluorescent, LED, etc. Furthermore these structures do not allow the employment of systems of great length, having to overlap several of them to install linear lights of great length.

Therefore it is desirable a recessed structure to allow the employment of linear lighting systems of great length avoiding the existing disadvantages of the above structures prior art.

Description of the invention

The present invention solves the problems existing prior art through a linear recessed structure for lighting, having a linear metal profile with a "Ω" shaped section whose two lateral segments, or legs, are each inserted in a casting of gypsum and titanium.

The linear metal profile provides fixing elements in its inner surface for the fixing of different light sources such as fluorescent, halogen spots, LED lamps, etc.

In the resulting structure the linear metal profile with the lighting sources is recessed without frame into a conventional ceiling or a wall, as well as into a suspended ceiling while the casting from gypsum and titanium is adapted to the surface of the ceiling or wall, remaining substantially aligned with it. This provides a linear lighting system, i.e. of great length in comparison to its other dimensions, and continuous, i.e. without interruptions. Thus the length of the lighting system can be unlimited, according to the specifications of the installer.

For the accomplishment of the structure which is the object of the present invention molding is used. A metal profile is placed in the corresponding mold and fiberglass is introduced in the area of the lateral profile segments or legs. Then the liquid mixture of gypsum and titanium is introduced in the mold around the metal profile, and allowed to set. Once the structure is obtained with the bonded materials, it is ready to be attached to the ceiling or wall, and then simply and immediately to set the lighting sources inside.

These castings can be made preferentially in a Crismosil® base, presenting a high mechanical resistance to torsion and to buckling as well as a high hardness.

Particularly, the linear structure object of the present invention has a diffuser for the light emitted by the light sources, which is preferably a diffusing plate or surface by means of fixing to the open side of the metal profile, leaving enclosed in its interior the light sources.

On a preferable basis, to reinforce the gypsum and titanium castings and make them more resistant, they may present glass fibers as reinforcement, disposed at

least in areas of insertion of the lateral segments of the metal profile, although they may be included in different areas.

Brief description of the drawings

Following, to facilitate the understanding of the invention, by way of illustration but not limiting to, will be described an embodiment of the invention which refers to a series of figures.

Figure 1 is a perspective view of the linear recessed structure for lighting object of the present invention that shows a display of its main elements.

Figure 2 shows the different elements of the structure by the formation of molding.

Figure 3 is a front view of the linear recessed structure from Figure 1.

Figures 4-8 show different embodiments of the structure object of the invention, in accordance to different shapes of the castings from gypsum and titanium, where the lighting sources have been removed in order to provide simplicity.

Figures 9, 10 and 11 show alternative embodiments of the linear recessed structure with different implementations of the metal profile.

In these figures reference is made to a set of elements which are:

1. Linear metal profile
2. Castings from gypsum and titanium
3. Glass fibers
4. Lateral segments or legs of the metal profile
5. Metal supports behind the ceiling or wall
6. Ceiling or wall surface
7. Gravity casting mold
8. Casting bucket
9. Liquid mixture of gypsum and titanium

10. Diffuser
11. Light sources
12. Fixing elements
13. Strap retainers of the light sources
14. First element of the metal profile
15. Lateral wings of the metal profile

Detailed description of the invention

The object of the present invention is a linear recessed structure for lighting.

As shown in the figures, this structure is formed by a linear metal profile 1 and a casting 2 from gypsum and titanium.

The linear metal profile 1 presents a section in "Ω" and it has on its inner surface fixing elements 12 for the installation of light sources 11.

Preferably the metal profile 1 is a profile from extruded aluminum, although it can also be obtained by extrusion or molding of other light and resistant metals.

Figures 9, 10 and 11 show particular embodiments of the invention in which the linear metal profile 1 of section in "Ω" is formed by a first element 14 with an inverted "U" section and attached to each of its side is a lateral wing 15. These lateral wings 15 can be attached to the sides of the first element 14 by conventional fixing means.

Through these embodiments is obtained the advantage of lightening the weight of the structure due to the reduction of the material for the castings (2) from gypsum and titanium with a consequent reduction in the weight of the structure and savings in manufacturing costs.

The two lateral segments 4, or legs of the above-mentioned section in "Ω" of the metal profile 1, are each inserted in a casting 2 from gypsum and titanium.

By these means, the metal profile 1 is recessed into a ceiling or a wall, adapting the castings 2 from gypsum and titanium to the surface 6 of the ceiling or the

wall. As can be seen on Figures 4-8, these castings 2 present different shapes in order to adapt to the surface 6 where the structure is installed.

According to a preferable implementation of the invention shown in the figures, the castings 2 from gypsum and titanium present glass fibers 3 as reinforcement arranged at least in areas of insertion of the lateral segments 4 of the metal profile 1 to strengthen the bond with the metal section 1 and achieve a more resistant structure.

For the obtaining of the linear recessed structure for lighting object of the invention molding is used. To that end a metal profile 1 is placed in the corresponding mold 7 and glass fibers 3 are introduced in the area of the lateral segments 4 or legs of the section in "Ω" of the metal profile 1. Then, from a casting bucket 8 the liquid mixture 9 of gypsum and titanium is introduced into the mold 7, around the metal profile 1, and allowed to set. Once the structure is obtained from the bonded materials, it is ready to be fixed into the ceiling or wall, and then simply and immediately to set the light sources 11 in its interior by the strap retainer 13 of the above-mentioned light sources 11.

These molded parts 2 may be made preferably using a Crismosil® base, showing a high mechanical resistance to torsion and to buckling as well as a high hardness.

In particular, the recessed structure presents a diffuser 10, which is fixed to the open side of the metal profile 1, closing it and leaving in its interior the light sources 11, enabling the passing through of the light emitted by the above-mentioned light sources.

According to a particular implementation of the invention, this diffuser 10 is plate-shaped, from a thermoplastic material that is preferentially an acrylic material.

Preferably, this diffuser 10 is fixed to the metal profile 1 by means of clipping, which provides a very fast and simple assembly and disassembly for replacement or repair of the light sources.

Once clearly described the invention, it is noted that the particular implementation described above are subjects to modifications of detail provided they do not alter the fundamental principle and essence of the invention.

CLAIMS

1. Linear recessed structure for lighting, characterized in that it comprises
 - a linear metal profile (1) of section in "Ω", which comprises its interior surface fixing elements (12) for the installation of light sources (11), whose two lateral segments (4) of its section are inserted, each one in
 - a casting (2) from gypsum and titanium,being the above-mentioned metal profile (1) recessed in a ceiling or a wall, having the castings (2) of gypsum and titanium an adapted form to the surface (6) of the ceiling or the wall.
2. Linear recessed structure for lighting, according to claim 1, characterized in that the castings (2) of gypsum and titanium comprise fiberglass (3) for reinforcing arranged at least in the areas of insertion of the lateral segments (4) of the metal profile (1).
3. Linear recessed structure for lighting, according to any of the preceding claims, characterized in that the metal profile (1) is a profile from extruded aluminum.
4. Linear recessed structure for lighting, according to any of the preceding claims, characterized in that it comprises a diffuser (10) fixed to the metal profile (1) on its open side and closing it leaving in its interior the light sources (11).
5. Linear recessed structure for lighting, according to any of the preceding claims, characterized in that the diffuser (10) is made of a thermoplastic material.
6. Linear recessed structure for lighting, according to any of the preceding claims, characterized in that the diffuser (10) is made of an acrylic material.
7. Linear recessed structure for lighting, according to any of the preceding claims, characterized in that the diffuser (10) is fixed on the metal profile (1) by means of clipping.
8. Linear recessed structure for lighting, according to any of the preceding claims, characterized in that the metal profile (1) comprises a first element (14) with an inverted "U" section and attached to each of its sides is a lateral metal wing (15),

being disposed in the above mentioned lateral wings (15) the lateral segments (4) of insertion into the castings (2) from gypsum and titanium.



Application No: GB1504848.1

Examiner: Vaughan Phillips

Claims searched: 1-8

Date of search: 12 May 2015

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
A	-	WO 2014/020015 A1 (ZUMTOBEL) see abstract
A	-	DE 202014102549 U1 (BPM) equivalent of priority document - for information only

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

Worldwide search of patent documents classified in the following areas of the IPC

F21V

The following online and other databases have been used in the preparation of this search report

Online: WPI, EPODOC

International Classification:

Subclass	Subgroup	Valid From
F21V	0021/02	01/01/2006