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(11)

**EP 2 348 168 A1**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**27.07.2011 Bulletin 2011/30**

(51) Int Cl.:  
**E04H 12/02 (2006.01)**

(21) Application number: **10172729.5**

(22) Date of filing: **13.08.2010**

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

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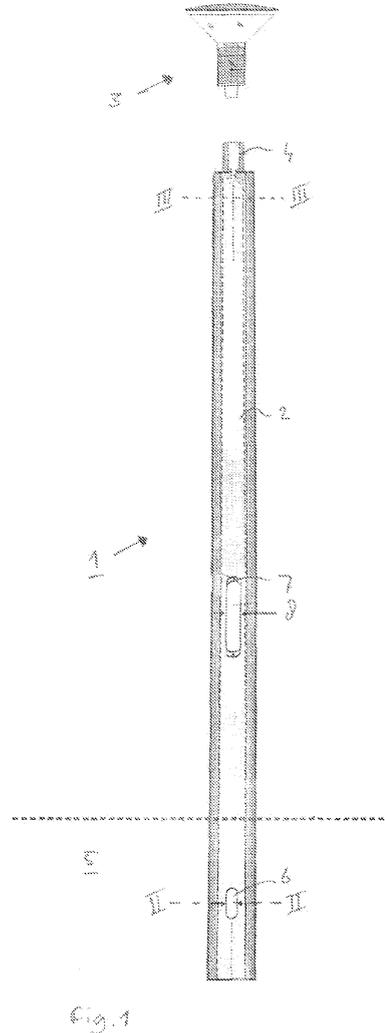
(30) Priority: **22.01.2010 NL 1037644**

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(54) **Lamppost**

(57) The present invention relates to a lamppost comprising an elongated hollow post which is provided with a luminaire at one end. The post of the lamppost is mainly made of plastic material. The plastic may comprise recycled plastic and reinforcing fibres may be randomly distributed over the plastic.



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## Description

**[0001]** The present invention relates to a lamppost comprising an elongated hollow post which is provided with a luminaire at one end.

**[0002]** Lampposts form part of a familiar street scene. Lampposts exist in various forms and sizes. Known lampposts comprise a tube of aluminium, (stainless) steel, wood or a composite material, through which wiring extends from the bottom end, or through an opening in the circumferential wall near the bottom end, to the luminaire at the upper end of the post. The tube of a lamppost must furthermore meet certain requirements relating to resistance against weather influences and safety in case a road user should collide with the lamppost. Said requirements may vary per region, but they will invariably relate to stiffness and elasticity, among other characteristics.

**[0003]** Although the current lampposts are satisfactory per se, the known lampposts burden the environment, in particular considered over their life cycle. Posts made of steel or a composite material, for example, are hardly recyclable, if at all, and wood degrades significantly when a post is recycled. Aluminium posts require a surface treatment and relatively much maintenance, whilst their life span is short.

**[0004]** Accordingly it is an object of the present invention to provide a lamppost which, considered over its life cycle, burdens the environment less, at least on average and possibly also in an absolute sense, than the known lampposts. This object is accomplished by the present invention in that the post of the lamppost is mainly made of plastic material. Many suitable plastics, in particular thermoplastics, are readily recyclable and have significant advantages over the materials used so far, such as a good recyclability, no residual waste, a relatively low specific weight, no need for surface treatment, little maintenance and a relatively low burden on the environment upon production thereof. Moreover, a plastic post has a relatively long life, as a result of which not only the total burden on the environment, but also the periodic burden on the environment is very low. A drawback of plastic is that a plastic post has a relatively low strength. The inventor has come to the conclusion that this drawback can be overcome whilst retaining the aforesaid advantages by a suitable design and by the use of relatively more material. As a rule, the lamppost according to the invention will therefore be wider than known lampposts. The object of the present invention is thus accomplished.

**[0005]** Preferably, the post is mainly made of a thermoplastic plastic. Thermoplastic material is relatively easy to process, for example extrude, and is relatively easy to melt, also after use, for subsequent recycling.

**[0006]** The plastic preferably comprises material from the group consisting of ABS, PP and EP. Said materials are not only relatively easy to process, but in the end product they exhibit a suitable combination of properties for use as a lamppost. Besides the aforesaid plastics, also other plastics may be present in a blend that may

be used.

**[0007]** In order to realise an adequate relief of the burden on the environment, it is preferable if the plastic mainly comprises recycled plastic material. Thus, no new raw material is needed for producing a post, and used plastic can be usefully reused without any significant loss of value. A recycled plastic may mainly comprise ABS, PP and/or EP. The presence of any other materials or a so-called residual fraction cannot always be excluded when a recycled basic material is used.

**[0008]** When the plastic comprises fibres, for example glass fibres, randomly distributed therein, the stiffness of the material is increased. This makes it possible to manufacture a post while using less material than in the case of a post made of comparable plastic that does not comprise any fibres. The phrase "randomly distributed fibres" is understood to mean that the fibres used for producing the post are incorporated in the melt, in contrast to a composite material, in which fibre mats are used. Composites are hardly recyclable, if at all.

**[0009]** The post may also be stiffened by means of a metal tube. The metal tube may form the inner wall of the post, but its inner wall and outer wall may also be coated with the plastic.

**[0010]** The length of the post is preferably at least 300 cm. As a result, the luminaire is disposed at an attractive height for irradiating an area.

**[0011]** In a preferred embodiment of the present invention, the outer circumference of the post has the shape of a polygon. The polygon may be a quadrangle, a pentagon, a hexagon, an octagon or a dodecagon, for example, without excluding other polygons. The post may also have a circular outer circumference, but a polygon gives the post a higher resistance against ambient conditions, for example against bending upon prolonged exposure to sunlight. As a rule, however, a circular post will need to have a relatively thicker wall than a polygonal post in order to realise the same specifications.

**[0012]** In a preferred embodiment of the invention, the outer circumference of the post decreases in the direction of the luminaire, i.e. upwards in the installed condition. In the lower part the post must take up large forces than in the upper part. As a result, the upper part of the post can be of lighter construction than the lower part. One way of realising this is to reduce the outer circumference of the post.

**[0013]** To realise a simple extrusion process of the post, it is preferable if the inner circumference of the post is substantially constant.

**[0014]** If the wall thickness of the post is substantially constant along the entire length thereof, the strength of the post decreases approximately uniformly in upward direction, which corresponds to the lower required strength of the post.

**[0015]** According to the invention, the luminaire may be mounted to the post via an extension bracket.

**[0016]** To provide access to the interior of the post from outside, for example for maintenance or repair of the pow-

er supply, a door is preferably provided in the circumferential wall.

**[0017]** To prevent third parties from undesirably gaining access to the interior of the post, it is preferable if locking means are provided for locking the door. Said locking means may comprise a lock which can only be opened by means of a key. In this context the term "key" is to be interpreted in the broadest sense of the word.

**[0018]** The present invention will now be explained in more detail on the basis of a preferred embodiment of a lamppost according to the present invention and with reference to the appended figures, in which:

Figure 1 is a side view of a lamppost according to the present invention;

Figure 2a is a cross-sectional view of the lamppost of figure 1 along the line II-II;

Figure 2b is a cross-sectional view of an alternative lamppost having the external shape of figure 1 along the line II-II; and

Figure 3 is a cross-sectional view of the lamppost according to figure 1 along the line III-III.

Figure 1 shows a side view of a lamppost 1 according to the present invention, a hollow post 2 and a luminaire 3 of which are shown spaced from each other in order to indicate that also the different luminaire may be mounted to the post 2, for example a luminaire in an extension bracket that extends in transverse direction from the upper end of the post 2.

**[0019]** The post 2 has been extruded from recycled ABS and has a height of 4.18 m, its outer circumference has a hexagonal cross-section over the entire height, as is shown in figures 2a and 3, which are not drawn to scale. In figure 1 dotted lines indicate the inner wall of the post 2, which has a circular cross-section. The wall of the post 2 has a substantially constant thickness, seen in longitudinal direction. Because the inner circumference and the outer circumference have different shapes, the thickness of the wall in circumferential direction varies between 40 mm and 50 mm, as is shown in figures 2a, 2b and 3. At ground level, the width of the post 2 is 270 mm. At the upper end, the width of the cross-section is 150 mm, whilst a coupling sleeve 4 having a circular outer circumference with a diameter of 76 is provided for arranging the luminaire 3 around said coupling sleeve.

**[0020]** As is usual with many lamppost, the post 2 is installed in a ground surface 5. Below ground level, a cable hole 6 having a height of 150 mm and a width of 50 mm is provided in the wall of the post 2, through which cable hole an electric cable (not shown) is inserted into the hollow post 2 in use, in a manner which is known per se, which cable extends through the hollow post 2 for energizing the luminaire 3. Above ground level, a maintenance hole 8 is provided at an attractive working height, which hole is closed by means of a door 7.

**[0021]** Figures 2a and 2b show two cross-sectional views, not to scale, of two alternative embodiments of a

post 2 according to figure 1, at the level of the cable hole 6, in which the post 2 of figure 2a has a substantially constant wall thickness (corresponding to the inner wall shown in dotted lines in figure 1) and the post of figure 2b has an inner wall with a constant internal diameter (in contrast to the inner wall of figure 1). Because this is a sectional view from below, the internal circumference of the coupling sleeve 4 is visible through the hollow post 2.

**[0022]** Figure 3 is a cross-sectional view of the upper side of the post 2 of figure 1. The dimensions of the wall thickness substantially correspond to those of the post 2 of figure 2a.

**[0023]** The post 2 can be produced in a simple manner conventional to those of average skill in the art by extrusion of hollow elongated objects.

**[0024]** The present invention has been shown in the figures and discussed in the above description on the basis of only one embodiment of a lamppost according to the present invention. It will be understood that many variants, which may or may not be obvious to those skilled in the art, are conceivable within the scope of the present invention, which is defined by the appended claims.

## Claims

1. A lamppost comprising an elongated hollow post which is provided with a luminaire at one end, **characterised in that** the post is mainly made of plastic material.
2. A lamppost according to claim 1, **characterised in that** the post is mainly made of a thermoplastic plastic.
3. A lamppost according to claim 1 or 2, **characterised in that** said plastic preferably comprises material from the group consisting of ABS, PP and EP.
4. A lamppost according to one or more of the preceding claims, **characterised in that** the plastic mainly comprises recycled plastic material.
5. A lamppost according to one or more of the preceding claims, **characterised in that** the plastic comprises glass fibres randomly distributed therein.
6. A lamppost according to one or more of the preceding claims, **characterised in that** the post is stiffened by means of a metal tube.
7. A lamppost according to one or more of the preceding claims, **characterised in that** the length of the post is at least 300 cm.
8. A lamppost according to one or more of the preceding claims, **characterised in that** the outer circumference of the post has the shape of a polygon.

9. A lamppost according to one or more of the preceding claims, **characterised in that** the outer circumference of the post decreases in the direction of the luminaire. 5
10. A lamppost according to one or more of the preceding claims, **characterised in that** the inner circumference of the post is substantially constant. 10
11. A lamppost according to one or more of claims 1-9, **characterised in that** the wall thickness of the post is substantially constant along the entire length thereof. 15
12. A lamppost according to one or more of the preceding claims, **characterised in that** the luminaire is mounted to the post via an extension bracket. 20
13. A lamppost according to one or more of the preceding claims, **characterised in that** a door is provided in the circumferential wall for providing access to the interior of the post from outside. 25
14. A lamppost according to claim 13, **characterised in that** locking means are provided for locking the door. 30

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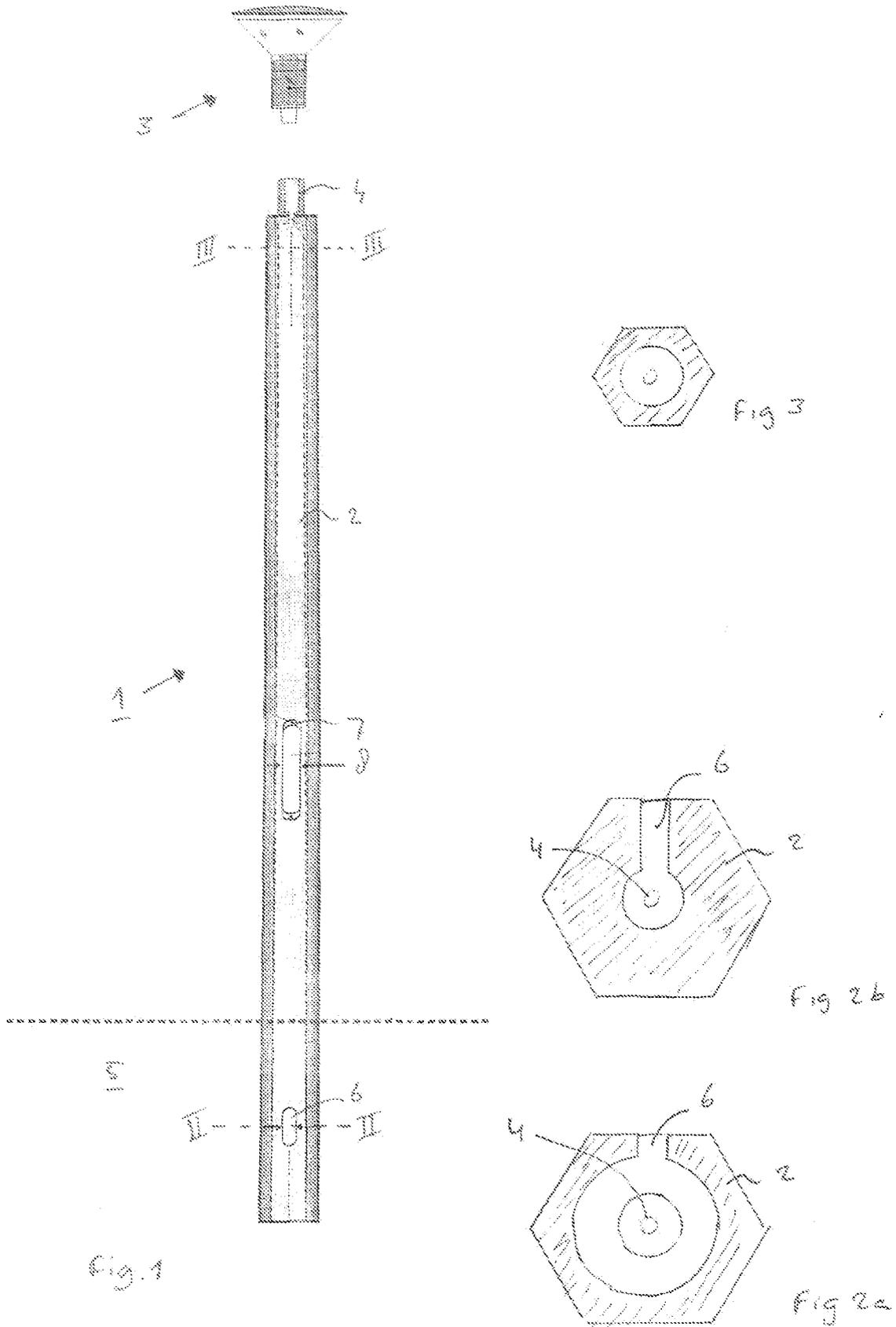
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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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