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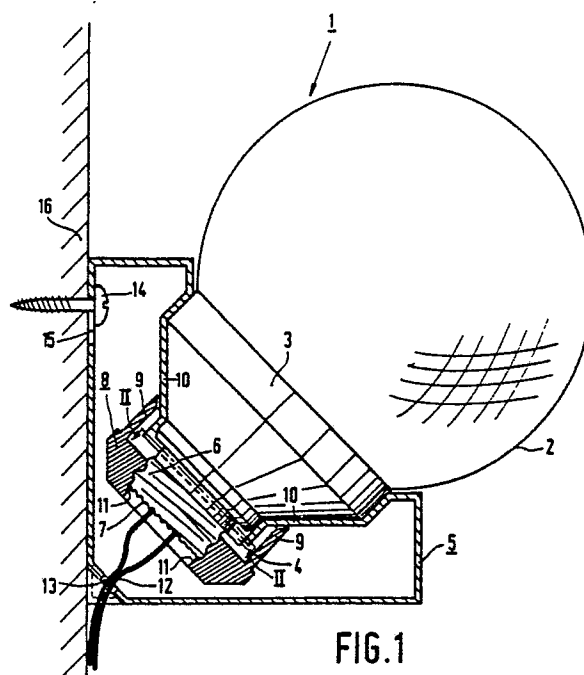
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54 **Low-pressure mercury vapour discharge lamp.**

57 A low-pressure mercury vapour discharge lamp having a folded discharge path and an electric ballast incorporated in an outer envelope and a lamp bowl connected thereto is secured without a lamp cap in a lamp housing. This fixation is preferably effected by means of a nut.



**EP 0 314 220 A1**

### Low-pressure mercury vapour discharge lamp.

The invention relates to a low-pressure mercury vapour discharge lamp comprising a folded discharge path and an electric ballast, which are incorporated in an outer envelope, and a lamp bowl connected thereto.

A low-pressure mercury vapour discharge lamp of this type is known from United States Patent 4,383,200. In the known lamp the lamp bowl has an Edison lamp cap. If desired, a Swan lamp cap instead of an Edison lamp cap can be provided on the lamp bowl. The lamp can be secured in a lamp housing provided with an associated lamp holder.

Such energy-saving low-pressure mercury vapour discharge lamps are replacing incandescent lamps for general illumination purposes, notably in hotels and other public buildings. The purchase price of these compact discharge lamps is relatively high as compared with the price of incandescent lamps. The risk of theft of these lamps is therefore certainly not to be ignored.

It is an object of the invention to provide a low-pressure mercury vapour discharge lamp having a limited risk of theft.

According to the invention a low-pressure mercury vapour discharge lamp of the type described in the opening paragraph is characterized in that the lamp bowl is secured without a lamp cap in a lamp housing.

Since the lamp bowl has no lamp cap, that is to say, the lamp bowl is not provided with an Edison or Swan lamp cap, it is not worthwhile to remove the lamp with the intention of using it elsewhere. In fact, the lamp according to the invention cannot be provided in a normal lamp holder suitable for an incandescent lamp. This limits the risk of theft of the compact low-pressure mercury vapour discharge lamps. The lamp bowl of the lamp according to the invention may be secured in the lamp housing by means of, for example, a screwed connection, a snap connection or a sealed connection.

An embodiment of a low-pressure mercury vapour discharge lamp according to the invention is characterized in that at least one of the components comprising lamp bowl and lamp housing has an eccentric projection and in that the other component has a recess engaging said projection. The projection and the recess ensure that the lamp bowl cannot be rotated with respect to the lamp housing. When attempting to separate the lamp bowl from the lamp housing a pulling movement must be made, which is more difficult than separation through a twisting movement. By providing the lamp bowl with a projection, it is not possible to

provide a lamp cap on the lamp bowl.

A practical embodiment of a low-pressure mercury vapour discharge lamp according to the invention is characterized in that the lamp bowl and the lamp housing are secured together by means of a nut which is screwed onto an end portion of the lamp bowl, which end portion projects through an opening in the lamp housing. If the portion of the lamp bowl on which the lamp cap is normally provided has been inserted through an opening in the lamp housing and if subsequently a nut urging against the inside of the lamp housing is provided instead of the lamp cap, a simple and satisfactory fixation is obtained between the lamp bowl and the lamp housing.

A preferred embodiment of a low-pressure mercury vapour discharge lamp according to the invention is characterized in that the nut is provided in the proximity of its circumference with pins substantially extending along the screw axis of the nut and urging against an inner side of the lamp housing. If the inner side of the lamp housing with the nut urging against it is tapered, a better fixation is obtained. In fact, the urging contact is then established over a broader base.

Another embodiment of a low-pressure mercury vapour discharge lamp according to the invention is characterized in that both the end portion of the lamp bowl on which the nut is secured and the nut itself have serrations which mesh with one another. This makes it impossible to unscrew the nut after it has been fixed to the lamp bowl. The lamp housing and the lamp are thus undetachably secured together.

The invention will now be described in greater detail, by way of example, with reference to the accompanying drawing.

Therein is:

Figure 1: a compact low-pressure mercury vapour discharge lamp which is secured without a lamp cap in a lamp housing, the lamp being shown in an elevational view and the lamp housing in a cross-section;

Figure 2: a cross-section along line II-II in Figure 1.

The compact low-pressure mercury vapour discharge lamp 1 has an outer envelope 2 and a lamp bowl 3. The lamp also comprises a folded discharge path and an electric ballast both of which are not visible in the drawing. The lamp bowl 3 has a projection 4 engaging an associated recess in the lamp housing 5. This prevents rotation of the lamp bowl with respect to the lamp housing. An end portion of the lamp bowl has a screwthread 6 and a

serration 7. The lamp bowl and the lamp housing are secured together by means of a nut 8. The nut, whose inner side is threaded, is screwed onto the lamp bowl. The pins 9 provided on the nut then urge against the tapered wall portion 10 of the lamp housing so that the lamp is satisfactorily secured in the housing. The nut has a serration 11 which co-operates with the serration 7 on the lamp bowl. After it has been fixed, the nut can only be separated from the lamp bowl by destructive methods. The lamp has two insulated wires 12 projecting through an opening 13 in the lamp housing. The lamp can be connected to a power supply source (not visible in the drawing) by means of these wires. The lamp housing is secured to a wall 16 by means of a screw 14 through a slotted hole 15.

The lamp housing may comprise two or more parts connected together to form one assembly. This connection may be such that the connected parts can only be separated by destructive methods. After complete assembly, a lamp with a lamp housing, which as a whole is a discardable article, is obtained in this way.

In Figure 2 parts corresponding to parts in Figure 1 have corresponding referal numerals. The recess in lamp house 5 is referenced 17.

5. A low-pressure mercury vapour discharge lamp as claimed in Claim 3 or 4, characterized in that both the end portion of the lamp bowl on which the nut is secured and the nut itself have serrations which mesh with one another.

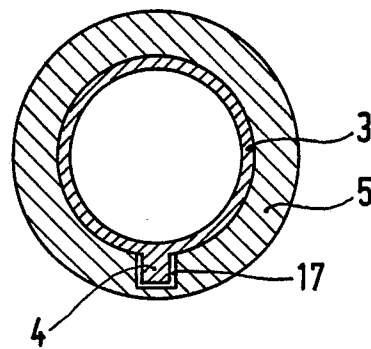
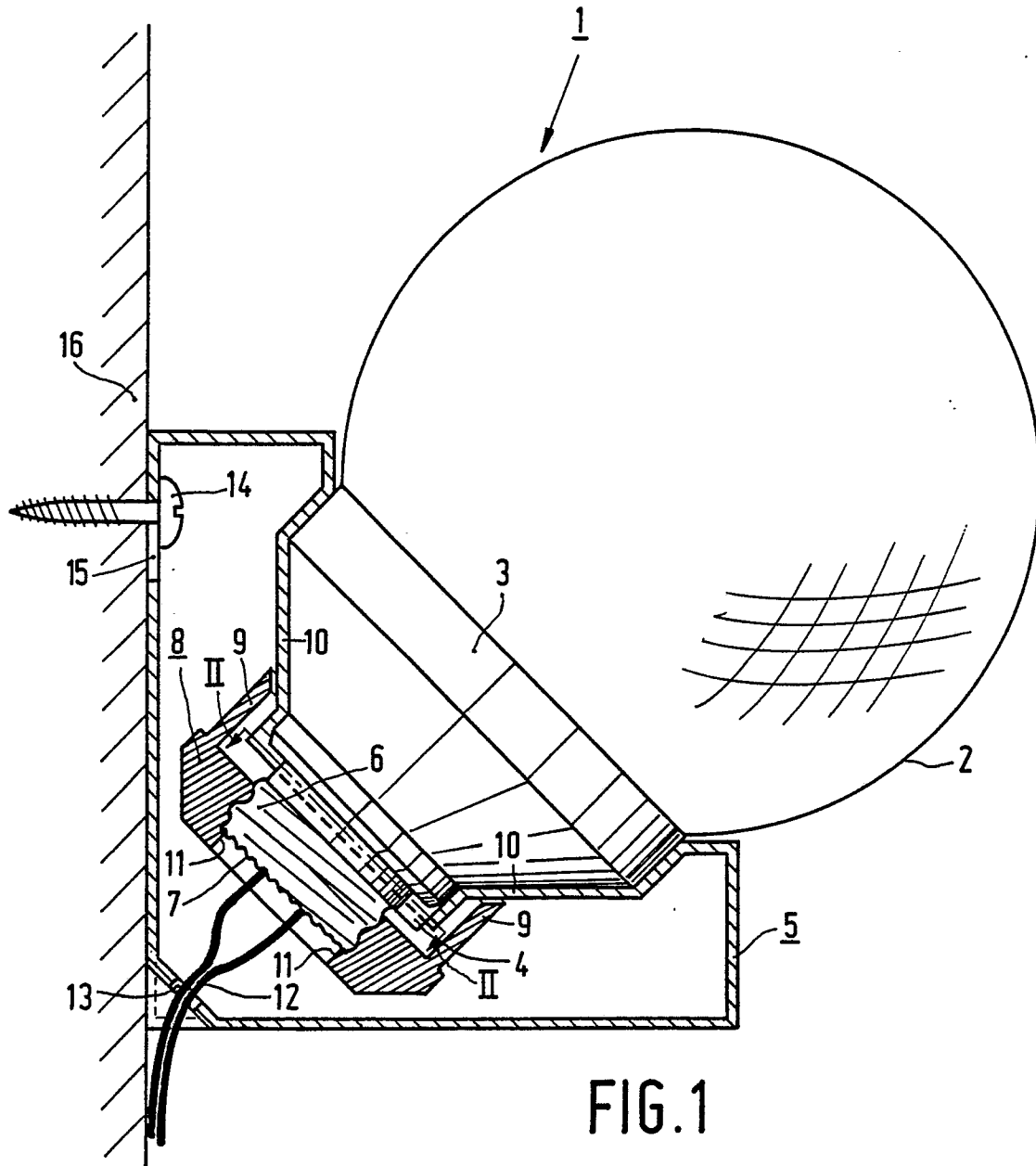
## Claims

1. A low-pressure mercury vapour discharge lamp comprising a folded discharge path and an electric ballast, which are incorporated in an outer envelope, and a lamp bowl connected thereto, characterized in that the lamp bowl is secured without a lamp cap in a lamp housing.

2. A low-pressure mercury vapour discharge lamp as claimed in Claim 1, characterized in that at least one of the components comprising lamp bowl and lamp housing has an eccentric projection and in that the other component has a recess engaging said projection.

3. A low-pressure mercury vapour discharge lamp as claimed in Claim 1 or 2, characterized in that the lamp bowl and the lamp housing are secured together by means of a nut which is screwed onto an end portion of the lamp bowl, which end portion projects through an opening in the lamp housing.

4. A low-pressure mercury vapour discharge lamp as claimed in Claim 3, characterized in that the nut is provided in the proximity of its circumference with pins substantially extending along the screw axis of the nut and urging against an inner side of the lamp housing.





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# EUROPEAN SEARCH REPORT

Application Number

EP 88 20 2236

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                   |                                                                                      |                                                |                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------|
| Category                                                                                                                                                                                                                                                                              | Citation of document with indication, where appropriate, of relevant passages        | Relevant to claim                              | CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)             |
| D,A                                                                                                                                                                                                                                                                                   | GB-A-2 072 942 (PHILIPS)<br>* Page 2, line 41 - page 3, line 2;<br>figure 1 *<br>--- | 1                                              | H 01 J 5/48<br>H 01 K 1/46<br>H 01 R 33/97                 |
| A                                                                                                                                                                                                                                                                                     | CH-A- 291 664 (A. ROESCH & CO.)<br>* Whole document *<br>---                         | 1,3,5                                          |                                                            |
| A                                                                                                                                                                                                                                                                                     | GB-A- 294 145 (C. BATY)<br>* Whole document *<br>-----                               | 1-4                                            |                                                            |
|                                                                                                                                                                                                                                                                                       |                                                                                      |                                                | TECHNICAL FIELDS<br>SEARCHED (Int. Cl.4)                   |
|                                                                                                                                                                                                                                                                                       |                                                                                      |                                                | H 01 K 1/00<br>H 01 J 5/00<br>H 01 J 61/00<br>H 01 R 33/00 |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                            |                                                                                      |                                                |                                                            |
| Place of search<br>THE HAGUE                                                                                                                                                                                                                                                          |                                                                                      | Date of completion of the search<br>06-12-1988 | Examiner<br>SARNEEL A.P.T.                                 |
| CATEGORY OF CITED DOCUMENTS                                                                                                                                                                                                                                                           |                                                                                      |                                                |                                                            |
| X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document                                                               |                                                                                      |                                                |                                                            |
| T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>.....<br>& : member of the same patent family, corresponding document |                                                                                      |                                                |                                                            |