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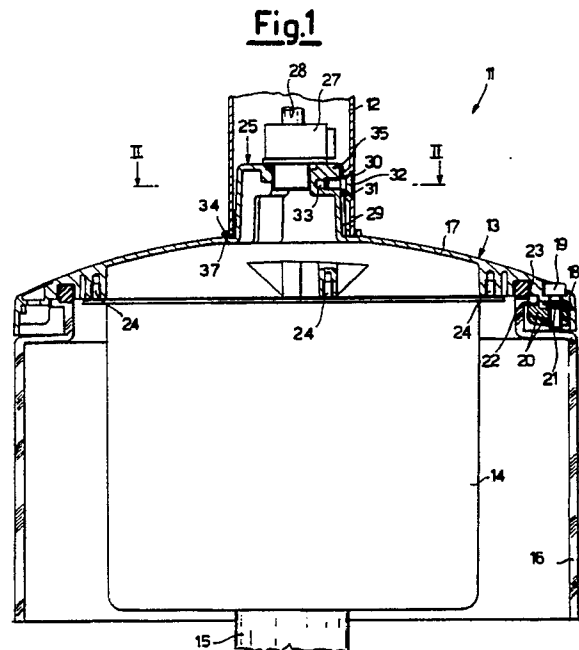
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Lighting appliance with tight-sealing connection for a diffuser element.

A lighting appliance (11) with a tight-sealing connection for a diffuser element (16) comprising a support plate (13) equipped with a protruding element suitable for being affixed to a stationary support element (12) of tubular type, a diffuser element (16) suitable for being associated with the support plate (13), and a lamp element (15) suitable for being positioned inside the diffuser element (16), wherein the protruding element extending from the support plate is a male coupling element (25) having an essentially cylindrical shape with a closed base end, suitable for being slid into an end of the stationary support element (12), the male coupling element (25) being provided on the closed base end with a through hole (26) provided in order to enable a power supply cable (28) to pass through, and with blind bores (33) on its side surface, suitable for receiving fastening elements (32) performing the task of fastening the lighting appliance relatively to the stationary support element.



LIGHTING APPLIANCE WITH TIGHT-SEALING CONNECTION FOR A DIFFUSER ELEMENT

The present finding relates to a lighting appliance equipped with a tight-sealing connection for a diffuser element.

The use of lighting appliances equipped with diffuser elements made from glass, or plastic materials, of different shapes (i.e., spherical, cubic, ellipsoidal elements, and so forth), which are fastened onto the support structure (poles, arms, and so on), through suitable connections, is very frequent in outdoor lighting.

Such connections known from the prior art act as connection elements, and simultaneously as elements for fastening the lamp socket and/or possibly present electric equipment, onto the support element.

Usually, said connections, on their support-structure side, i.e., on their side opposite to the side on which the diffuser element is installed, are provided with a female coupling inside which the end portion of the pole or arm support gets engaged.

In such a way, inasmuch as a mutual penetration is accomplished between the arm or pole, and the connection provided on the lighting appliance by using suitable locking systems, such as, e.g., screw locking systems, said two elements can be made integral with each other, and a stably fixed assembly can be obtained, which is capable of withstanding the dynamic stresses caused by the thrust by the wind.

However, in case of appliances having particular configurations, in particular, e.g., having that configuration in which the diffuser element is orientated downwards and the connection structure is situated in its top side, the female coupling element of the same connection individuates a hollow which unavoidably tends to get filled with water, unless special tight-sealing systems are accomplished for the arm-connection coupling.

Unfortunately, such tight-sealing systems are not easily accomplished, in that the dimensional allowances of the two parts are not particularly narrow, and because the mutual coupling of both elements with each other generally takes place either at the building yard, during the installation step, or directly during the production step.

Furthermore, the female coupling element is generally provided with a hole which is suitable for allowing the lamp power feed cable -- which is situated inside the interior of the same arm or pole -- to pass through, and surely said hole cannot be tightly sealed without causing damages to the same power feed cable.

It is evident that the possible filling with water of the hollow provided on the connection would

then cause same water to enter the interior of the diffuser through such a hole, so that water will come to directly interact with the lamp and with any further electrical components, owing to the diffuser being orientated downwards, with harmful consequences.

The purpose of the instant finding is of obviating these drawbacks of the connection lacking tightness, as hereinabove cited, without that no particular actions have anyway to be performed either during the lighting appliance installation step, or during the step of preparation of said lighting appliance.

This purpose according to the instant invention is achieved by providing a lighting appliance with a tight-sealing connection for a diffuser element, which appliance essentially comprises a support plate equipped with a protruding element suitable for being affixed to a stationary support element of tubular type; a diffuser element suitable for being associated with said support plate, and a lamp element suitable for being positioned inside said diffuser element, which lighting appliance is characterized in that said protruding element extending from said support plate is a male coupling element having an essentially cylindrical shape with a closed base end, suitable for being slid into an end of said stationary support element, said male coupling element being provided on said closed base end with a through hole provided in order to enable a power supply cable to pass through, and with blind bores on its side surface, suitable for receiving fastening elements performing the task of fastening said lighting appliance relatively to said stationary support element.

The structural and functional features and the advantages of a lighting appliance according to the present finding will be more clearly understood from the following disclosure referred to the hereto attached schematic drawings, in which:

Figure 1 shows a partial view in longitudinal section of a lighting appliance equipped with the connection according to the instant finding; and

Figure 2 shows a top plan view of the lighting appliance, in sectional view according to the path II-II of Figure 1.

Referring to the figures, a lighting appliance according to the present invention is indicated by the reference numeral 11, and is positioned, e.g., onto the free end of a stationary support element 12, such as an arm of hollow tubular type overhanging from up downwards, or of a similar pole.

The lighting appliance 11 is essentially composed by a support plate 13, which can be fixedly fastened onto the stationary arm 12, on which

support plate 13 an electrical component unit 14 is fastened, which receives and houses a lamp element 15, with both of said electrical component unit 14 and said lamp element 15 being enclosed by an external diffuser element 16, of various shapes, made from plastic material, or from glass.

The support plate 13, e.g., manufactured by means of pressure die-casting of aluminum, comprises a rounded dish portion 17 peripherally provided with a downwards orientated circumferential edge 18, which edge 18 is provided, along its periphery, and on the internal side thereof, with at least one pair of fastening means suitable for fastening the external diffuser element 16. In the herein depicted example, such fastening means are each composed by a screw 19 which gets screwed down inside a threaded bore provided through a fastening plaque 20 with the interposition of a spring 21, with said fastening plaque 20 performing the task of blocking -- by acting in a vice-like fashion -- an edge 22 of the external diffuser element 16 against the inner surface of the support plate 13. Along the peripheral portion of the rounded-dish portion 17 and on the interior side thereof, a circumferential channel 23 is furthermore provided, which is suitable for receiving the end of said external diffuser element 16 or, at least, a gasket cooperating with the edge 22 of the same diffuser element.

Furthermore, inside the rounded-dish portion 17 a set of seats 24 are provided, which seats 24 can be either screw-threaded or not, which perform the task of enabling the electrical component unit 14, as hereinabove mentioned, and/or the lamp socket (not shown in the figures) to be suitably fastened.

In the centre portion of the support plate 13, and extending outwards, a male coupling element 25 is provided, which is suitable for being inserted inside the interior of the hollow end of said support arm 12. Such a male coupling element 25 has an essentially cylindrical shape, closed at a free base end 35, wherein it is provided with a through, screw-threaded bore 26 inside which a clamp element 27 is stably positioned, which performs the task of clamping a power supply cable 28 (partially shown in figure).

The male coupling element 25 is furthermore provided with longitudinal grooves 29 on its side surface, inside which grooves radial, inwards protruding portions -- i.e., drawn portions -- 30 can run, which radial, inwards protruding portions 30 are provided by drawing in the arm 12, and are provided with a central hole as shown in 31, so as to receive fastening screws 32 which get engaged inside blind bores 33 provided on the side surface of the same male coupling element 25. Said male coupling element is preferably given a cone-frustum

shape, tapered towards the free, closed base end, so as to make said male coupling element more easily slid into said stationary support element.

Around the base of said coupling element 25 and above the rounded-dish portion 17 of the support plate 13 a relieved collar is provided which, in the herein depicted example, is constituted by three collar sectors 34, between which small openings 36 are interposed.

The free end of the arm 12 is thus suitable for being slid around the external side of the male coupling element 25, until said free end comes to rest against the flat portion of annulus shape 37 on the upper surface of the support plate 13 and bounded by the three collar sectors 34 which constitute the relieved collar and the side surface of the same coupling element 25.

A lighting appliance according to the present invention is hence equipped with a support plate 13 provided with a so-said coupling of male type, suitable for entering the tubular, or box-like, structure of the support element, i.e., in the herein depicted example, the support arm 12. Such a type of assemblage shows, first of all, the considerable advantage that any hollow regions, which could be completely filled with water, are eliminated.

Then, no any tight sealing types or systems, of any kind, such as the hereinabove mentioned tight sealing between the elements which constitute the lighting appliance and the relevant support, are necessary any longer.

Furthermore, one can observe that having positioned the hole 26, through which the conductor lead or power feed cable passes, at the free base end 35, i.e., in a region which is considerably far away from the region of mutual coupling of the support arm 12 and the lighting appliance, i.e., better, the support plate 13, prevents any phenomena of water penetration into the interior of the lighting appliance.

Advantageously, it was furthermore provided for water not to possibly penetrate through the holes of mutual connection of the support arm 12 and the male coupling element 25. This result was achieved by providing blind bores 33 suitable for receiving the fastening screws 32, or, optionally, similar elements for fastening the lighting appliance onto the support arm.

The lighting appliance according to the present invention is furthermore suitable for being advantageously used both with the diffuser element being orientated upwards, in that it is equipped with the relieved collar 34 -- either constituted by a plurality of sectors, or not -- provided around the male coupling element 25, which relieved collar acts as a drop trap, preventing water from penetrating by capillarity through the coupling element and the support arm.

Claims

1. Lighting appliance with a tight-sealing connection for a diffuser element, which appliance essentially comprises a support plate equipped with a protruding element suitable for being affixed to a stationary support element of tubular type; a diffuser element suitable for being associated with said support plate, and a lamp element suitable for being positioned inside said diffuser element, which lighting appliance is characterized in that said protruding element extending from said support plate is a male coupling element having an essentially cylindrical shape with a closed base end, suitable for being slid into an end of said stationary support element, said male coupling element being provided on said closed base end with a through hole provided in order to enable a power supply cable to pass through, and with blind bores on its side surface, suitable for receiving fastening elements performing the task of fastening said lighting appliance relatively to said stationary support element.

2. Lighting appliance according to claim 1, characterized in that around said male coupling element above said support plate a relieved collar is provided, inside which an end of said stationary support element gets engaged.

3. Lighting appliance according to claim 2, characterized in that said relieved collar is constituted by a plurality of sectors, between which small openings are interposed.

4. Lighting appliance according to claim 1, characterized in that said male coupling elements has a slightly conical shape, tapered towards said closed base end.

5. Lighting appliance according to claim 1, characterized in that said male coupling element is provided, on its side surface, with longitudinal grooves suitable for receiving inwards protruding portions radial relatively to said stationary support element, which radial, inwards protruding portions are provided with a central hole, so as to make it possible fastening means of screw type to be stably positioned inside blind bores provided on said side surface inside said longitudinal grooves.

6. Lighting appliance according to claim 1, characterized in that said through bore provided on said free, closed base end is screw-threaded, so as to receive a clamp element in order to clamp a power feed conductor cable.

7. Lighting appliance according to claim 1, characterized in that said support plate comprises a rounded-dish portion provided, along its peripheral region, with a downwards orientated circumferential edge and is furthermore provided, along its perimetrical region and on the inner side of said perimetrical region, with at least one pair of fasten-

ing means for fastening said diffuser element.

8. Lighting appliance according to claim 7, characterized in that said support plate is provided, in its rounded-dish portion, with a circumferential channel suitable for receiving the free end of said diffuser 30 element, and/or a gasket.

9. Lighting appliance according to claim 7, characterized in that each one of said fastening means comprises a screw and a fastening plaque with the interposition of a spring, wherein said screw enters a screw-threaded bore provided through said fastening plaque in order to fasten, by acting in a vice-like fashion, an edge of said diffuser element.

Fig.1

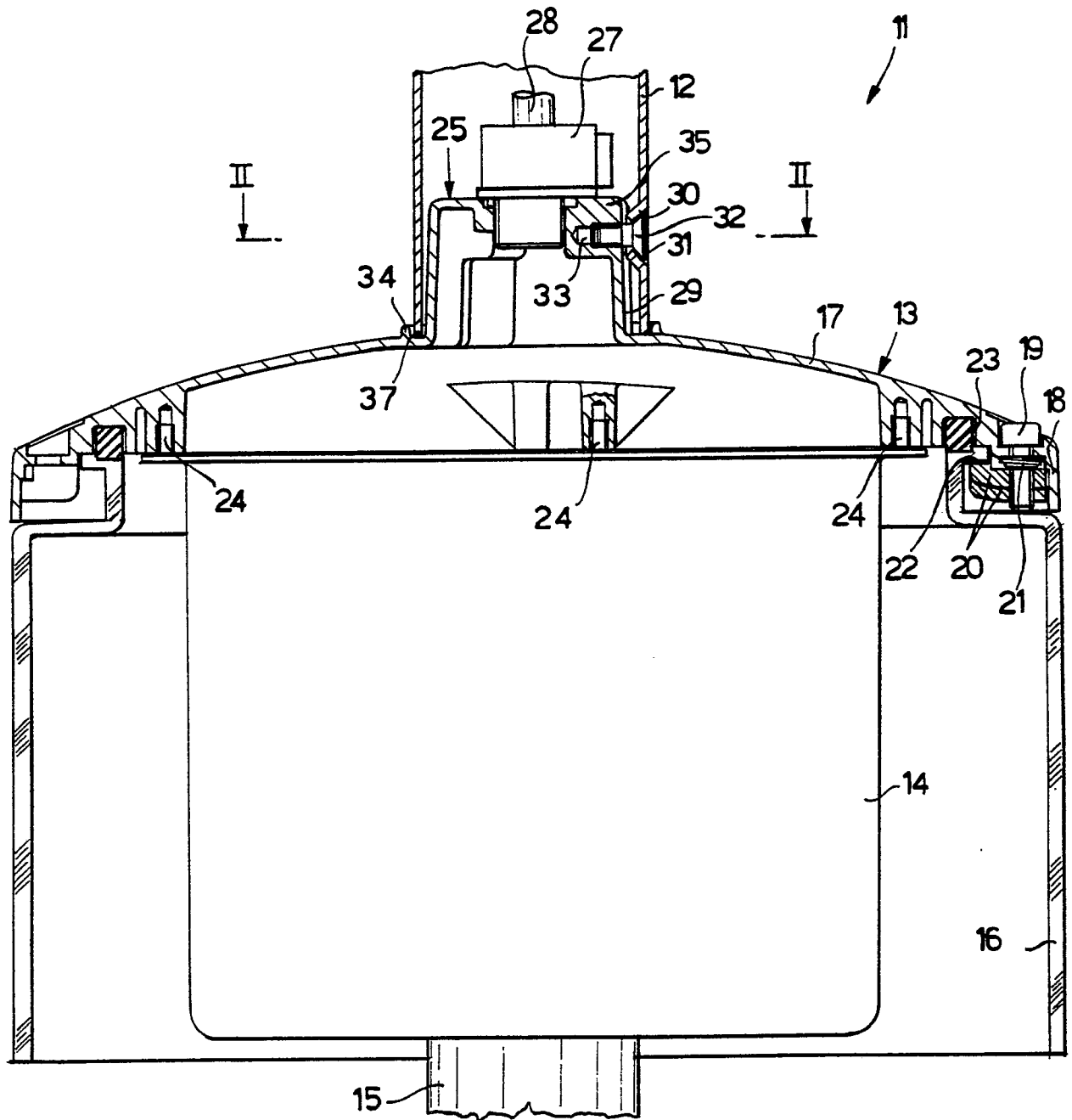
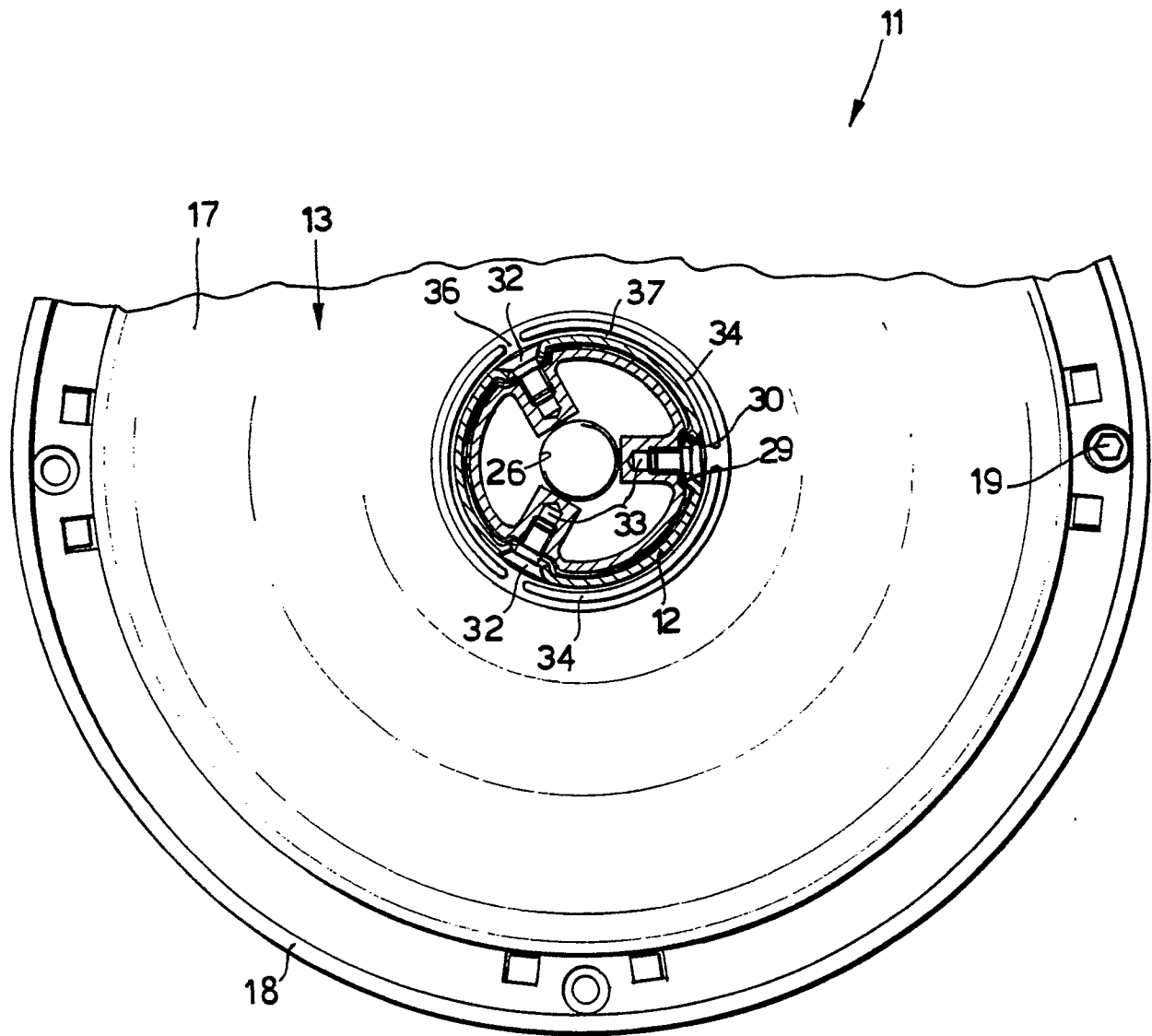


Fig.2





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.5)
Y	US-A-3 679 891 (QUACK) * Column 2, lines 13-54; figure 1 * ---	1,4	F 21 V 21/10
Y	US-A-3 317 724 (PFAFF, Jr. et al.) * Column 2, lines 1-24; figures 2,3,5 * ---	1,4	
A	---	7,9	
A	US-A-4 074 941 (JABLONSKI) * Column 1, line 66 - column 2, line 17; figures 1-3 * ---	1,4,7-9	
A	US-A-3 366 787 (KELLEY) * Column 2, lines 18-29; figure 1 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			F 21 V F 21 S
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15-05-1990	Examiner MARTIN C.P.A.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			