



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
31.10.2007 Bulletin 2007/44

(51) Int Cl.:
H01R 33/94 ^(2006.01) **F21V 19/00** ^(2006.01)

(21) Application number: **06008723.6**

(22) Date of filing: **27.04.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

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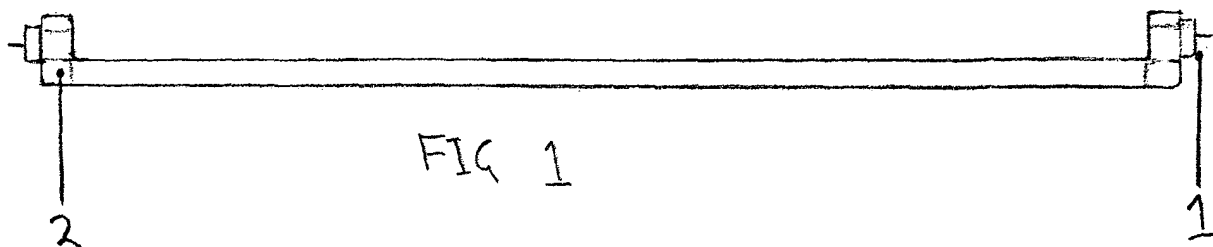
(54) **Fluorescent light fitting high frequency electronic control gear T5 to T8 conversion assembly**

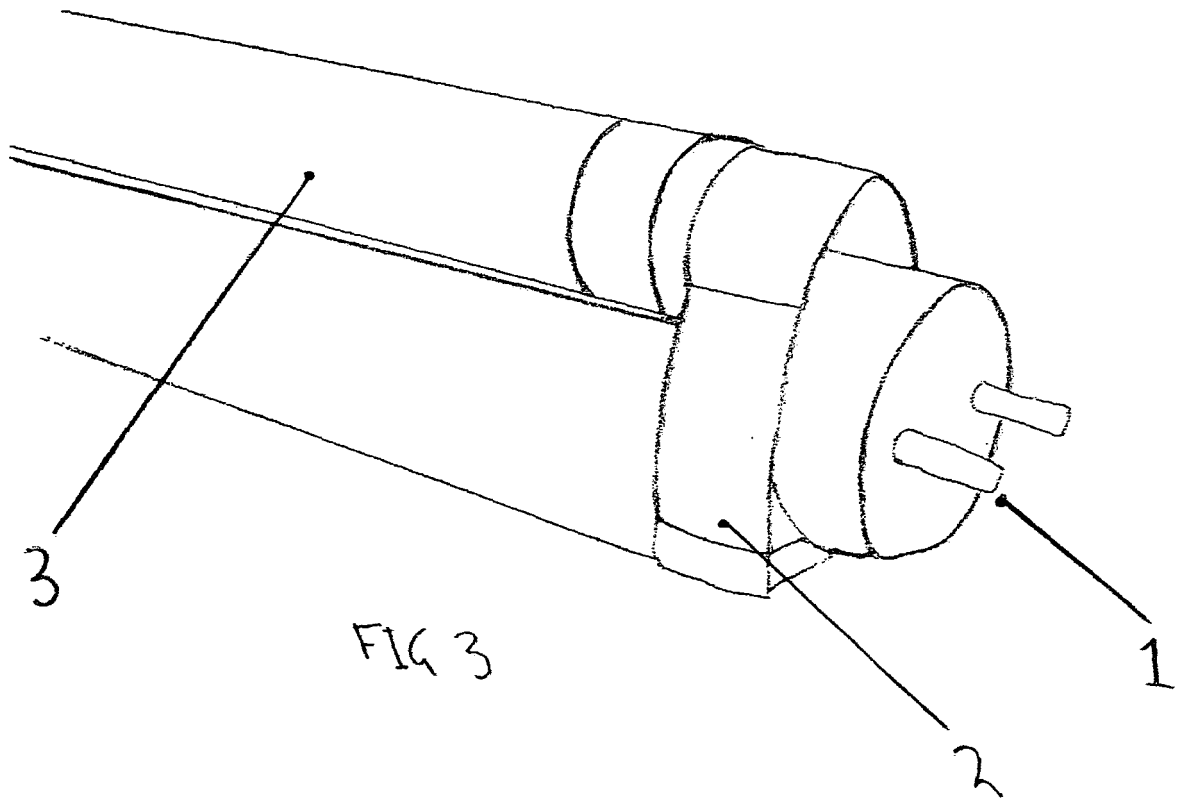
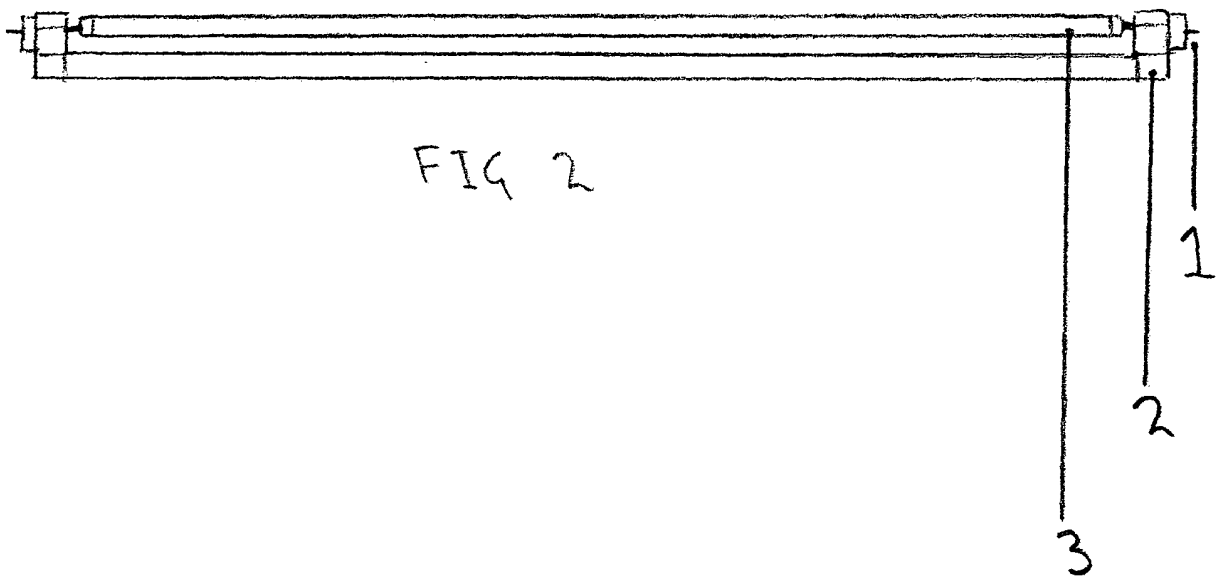
(57) A one piece assembly fluorescent light fitting device complete with internal high frequency ballast designed to enable the assembly to be installed into an existing T8 or T12 light fitting, allowing a T5 fluorescent tube to be fitted in the T8 or T12 fitting for operational purposes.

A one piece assembly with an internally fitted high frequency ballast when installed in a T8 or T12 light fitting isolates and makes redundant the existing 60hz -100hz

ballast required to operate the T8 or T12 and supplies the correct high frequency power to enable operation of the T5 tube.

A one piece assembly which enables a T5 tube, which is shorter in length and smaller in diameter than T8 or T12 tubes, to be fixed in an existing T8 or T12 light fitting for operational purposes, thus eliminating the need to remove the existing T8 or T12 light fitting and the need to install a completely new T5 light fitting.





Description

[0001] This invention relates to fluorescent light fittings. Standard fluorescent light fittings used in the Europe and throughout the world are known as T8 and T12. They use T8 and T12 type fluorescent tubes. The T12 tube has 1.5"/ 35mm diameter and the T8 a 1"/25mm diameter. The length of the fluorescent tube varies depending on power output.

[0002] More efficient fluorescent tubes are now available using new technology known as T5.

[0003] The T5 fluorescent tube has a smaller (5/8" / 16mm) diameter than the T8 and T12 tubes. The T5 range of fluorescent tubes are also shorter in length than the corresponding power T8 and T12 fluorescent tubes. The T5 is therefore smaller in diameter and shorter in length than corresponding power output T8 and T12 tubes.

[0004] The T5 is a highly efficient fluorescent tube with a lifespan of over 20,000 hours, compared to an approximate 8,000 hours life of a standard T8 or T12 fluorescent tube. The T5 tubes use less electrical power than a corresponding power output T8 or T12 tube with no considerable different in light output or light quality. T5 tubes contains approximate 38% less glass and phosphors with only a little mercury, when compared to the old T8 and T12 tubes and is considered to be more environmental friendly than T8 and T12 Tubes,

[0005] T8 and T12 fluorescent tube light fittings use electromagnet ballasts or transformers. These are electrical transformers, also known as Control Gear. These components are fitted inside every fluorescent light fitting and without this component no fluorescent tube would work. These T8 and T12 magnetic-ballasts operate at a frequency of 60 to 100 Hz. T5 tubes require a much higher frequency (35,000 Hz) electronic ballast to operate.

[0006] T5 fluorescent tubes are now produced by all major light manufacturers. As a result of producing similar luminance with lower power consumption and thereby reducing Co2 emissions T5 tubes are gradually replacing T8 and T12 lighting systems.

[0007] In order to use T5 tubes new T5 High Frequency Ballast light fittings have to be used, replacing T8 and T12 lighting fittings, which have to be completely removed. The replacement of T8 and T12 light fittings by T5 light systems is an expensive installation procedure.

[0008] This invention seeks to overcome the problem of replacing the T8 and T12 light fittings and its 60 Hz to 100 Hz inefficient control gear and allowing energy efficient and more environmentally friendly, but smaller diameter and shorter length T5 tubes with a high frequency ballast to be used in existing T8 and T12 light fittings.

[0009] The invention device is a complete, one piece assembly, T5 fluorescent tube light fitting complete with its own internal high frequency ballast. It is designed to enable the complete assembly to be installed into an existing T8 or T12 light fitting and allowing a T5 fluorescent tube to be fitted into the device for operational purposes.

[0010] The ends of the device are exactly the same shape, diameter, design as a standard T8 or T12 tube. The device has 2 metal pins which protrude out of each end of the device. These are the same design, shape and size of the 2 pins that protrude, and can be found on the end of every T8 or T12 fluorescent linear tube.

[0011] These two device pins are fixed and located on to the device in the same position as found on a T8 or T12 tubes. The complete device therefore has the same diameter at each end as the T8 or T12 tube, the same overall length of the T8 or T12 tube and the same 2 pin connectors, which it replaces.

[0012] When the existing T8 or T12 tube is removed the complete device is installed in the existing T8 or T12 light fitting, in the same way as a T8 or T12 fluorescent tube would be normally replaced. The complete device therefore 'mimics' the same shape and approximate dimensions of the T8 or T12 tube to be replaced.

[0013] When the device has been installed in the T8 or T12 light fitting the device, which is in itself a complete T5 tube light fitting with all the fixings of a standard T5 fluorescent tube fitting, is ready to accept a T5 fluorescent tube.

[0014] A T5 fluorescent tube can then be installed in the device, which is now installed and part of the existing T8 or T12 light fitting. When the T5 tube is installed and fixed into the device the T5 tube is connected through its 2 end pin connectors to high frequency ballast which is fitted inside the device.

[0015] The device has internally fitted 35,000 Hz high frequency electronic ballast, or more appropriately called Electronic Control Gear (ECG) that is designed to work specifically with T5 fluorescent tubes.

[0016] The existing 100 Hz to 60 Hz ballast fitted inside the T8 or T12 light fitting is by-passed by removing an electrical 'starter' component in the T8 or T12 fitting. This allows the high frequency ballast fitted inside the device to override the 60 Hz to 100 Hz ballast, which is made redundant.

[0017] The internal high frequency ballast in the device is connected through a metal conductivity assembly connecting the internally housed high frequency ballast to the power supply of the T8 and T12 light fittings, thus allowing electrical power to the high frequency ballast and though to the T5 tube. It is this power supply from the internal high frequency ballast which ignites and powers the T5 tube.

[0018] The device is a complete T5 fluorescent tube light fitting, designed to accept T5 tubes and fitted with internal high frequency ballast required to ignite and operate T5 tubes. It is designed to enable it to replace T8 or T12 tubes that are removed from an existing T8 or T12 light fitting and installation of the device into the T8 or T12 fitting is a similar procedure as that of replacing a used T8 or T12 tube with a new one.

[0019] The one piece assembly device therefore allows the smaller diameter and shorter T5 tubes to be used in existing T8 and T12 ballasts and thus providing

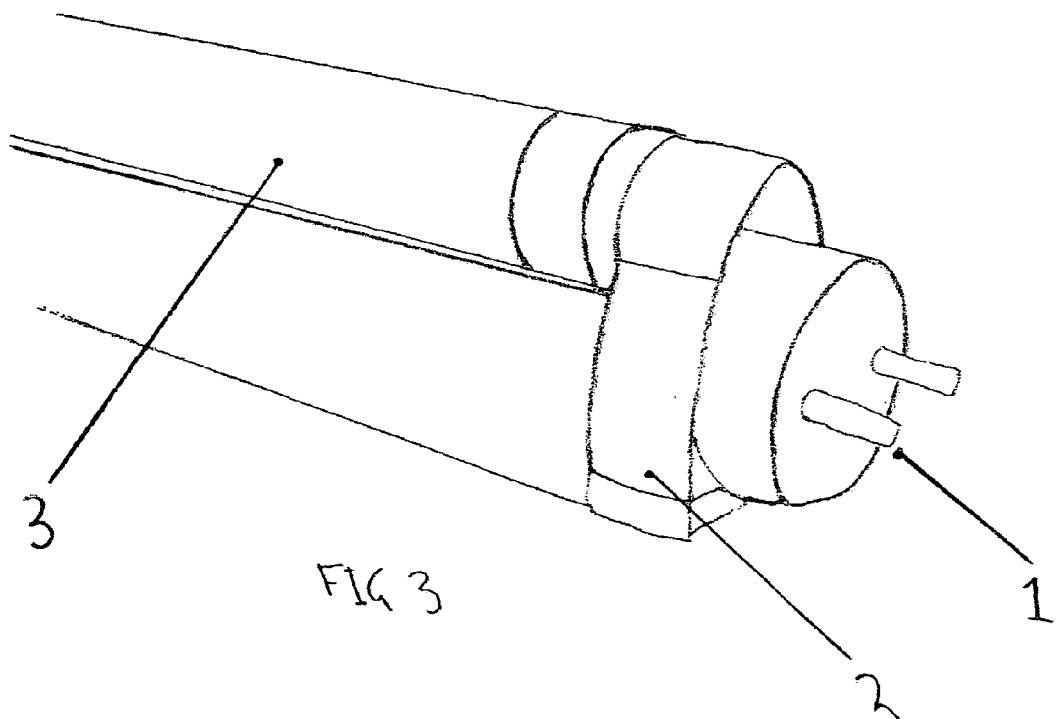
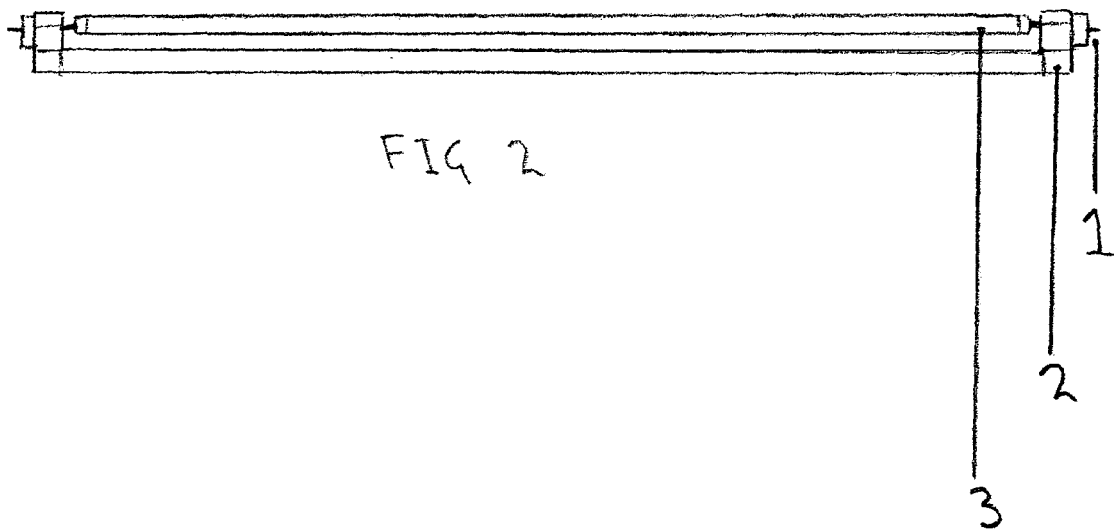
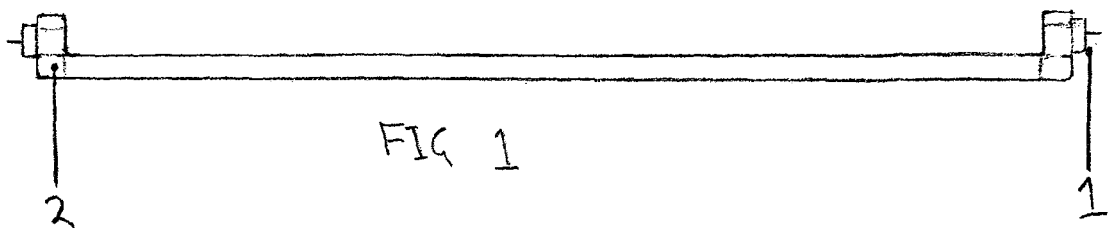
an immediate and long term solution to the complete removal of existing T8 or T12 fluorescent light fittings when more efficient, energy saving T5 lighting is required.

[0020] A preferred embodiment of the invention will now be described with reference to the accompanying drawing in which: 5

- FIGURE 1 : Shows a side view of the one piece assembly device without T5 tube fitted 10
- FIGURE 2 : Shows a side view of the one piece assembly device with T5 tube fitted
- FIGURE 3: Shows a perspective view of one end of the invention from the front and above. 15

Claims

1. A one piece assembly fluorescent tube light fitting device complete with its own internal high frequency ballast designed to enable the complete assembly to be installed into an existing T8 or T12 light fitting and thus allowing a T5 fluorescent tube to be installed into the existing T8 or T12 fitting for operational purposes. 20 25
2. A one piece assembly device which houses an internally fitted high frequency ballast and when installed in a T8 or T12 light fitting isolates and makes redundant the existing 60hz to 100hz ballast required to operate the T8 or T12 and supplies the correct high frequency power to enable the operation of the T5 tube. 30 35
3. A one piece assembly device which enables a T5 fluorescent tube, which is shorter in length and smaller in diameter than T8 or T12 tubes, to be fixed in an existing T8 or T12 light fitting for operational purposes, thus eliminating the need to remove and dispose of the existing T8 or T12 light fitting and the need to install a completely new T5 light fitting. 40 45
4. A one piece assembly device which as part of its internal high frequency ballast control gear includes a metal conductivity assembly connecting the internally housed high frequency ballast to existing, installed T8 or T12 fitting, thus allowing electrical power from the T8 or T12 fluorescent fitting to the high frequency ballast which in turn ignites and powers the T5 fluorescent tube. 50 55





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2005/277321 A1 (SHAH SURESH) 15 December 2005 (2005-12-15) * paragraph [0014]; figure 1 *	1-4	INV. H01R33/94
X	US 2001/034148 A1 (HOLZER WALTER) 25 October 2001 (2001-10-25) * paragraph [0024]; figures 1-9 *	1-4	ADD. F21V19/00
X	US 2004/104659 A1 (HOLZER WALTER) 3 June 2004 (2004-06-03) * page 2, paragraph 24; figures 1-8 *	1-4	
X	US 6 100 638 A (SHAH ET AL) 8 August 2000 (2000-08-08) * column 3, line 26 - line 31; figures 1-8 *	1-4	
X	DE 102 02 825 A1 (KAPPE, HEINER) 20 March 2003 (2003-03-20) * column 3, paragraph 30; figures 1-10 *	1-4	
			TECHNICAL FIELDS SEARCHED (IPC)
			H01R F21V
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 20 September 2006	Examiner Tappeiner, Roland
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			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 00 8723

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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20-09-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005277321 A1	15-12-2005	NONE	
US 2001034148 A1	25-10-2001	AU 5656601 A WO 0174122 A1	08-10-2001 04-10-2001
US 2004104659 A1	03-06-2004	NONE	
US 6100638 A	08-08-2000	DE 19900889 A1 ZA 200106277 A	13-07-2000 06-03-2002
DE 10202825 A1	20-03-2003	NONE	