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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.

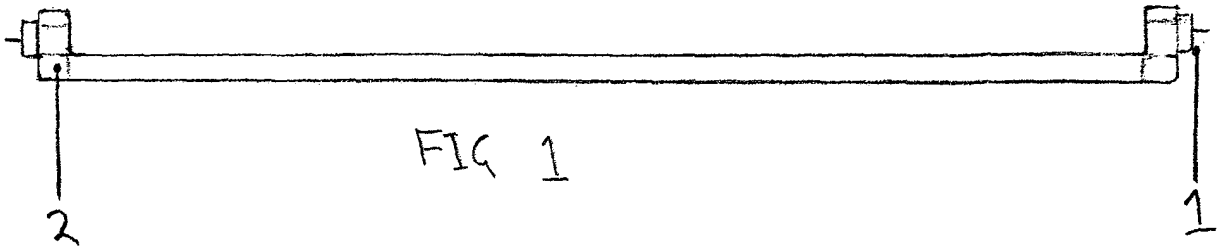


FIG 1

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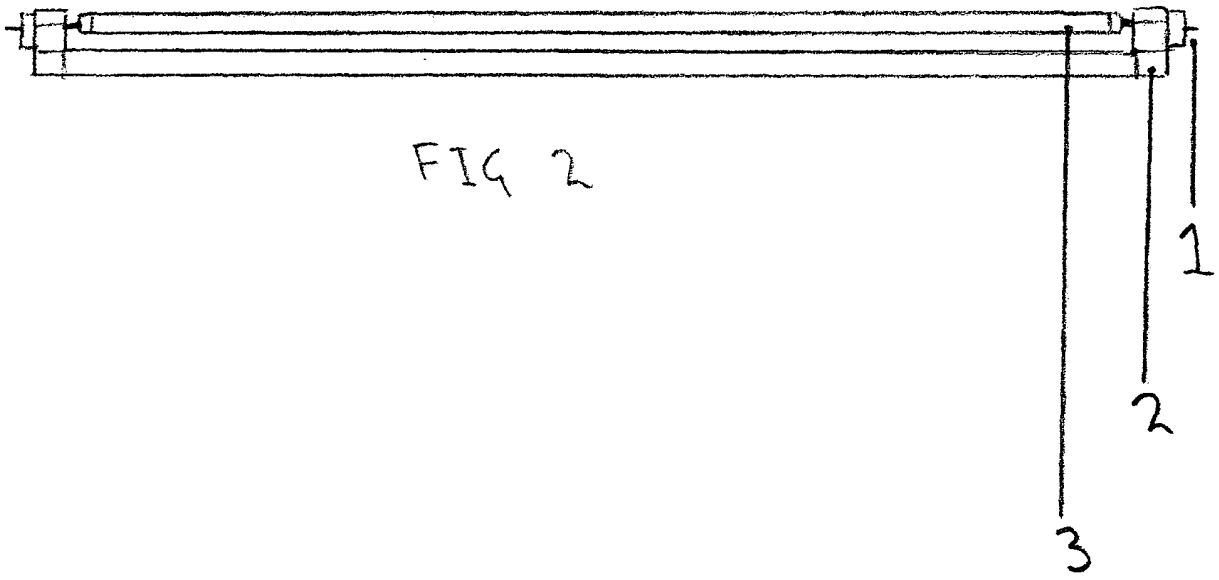


FIG 2

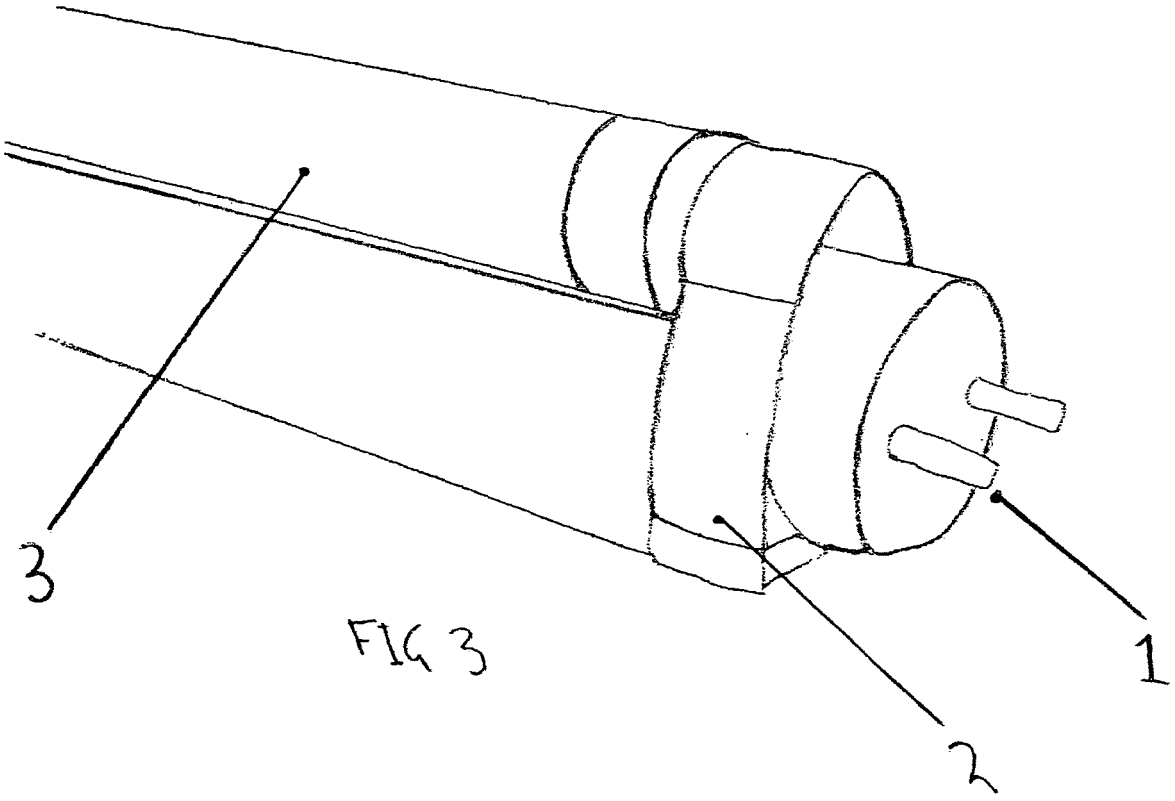


FIG 3

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:

FIGURE 1 : Shows a side view of the one piece assembly device without T5 tube fitted

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.

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.

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.

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.

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.

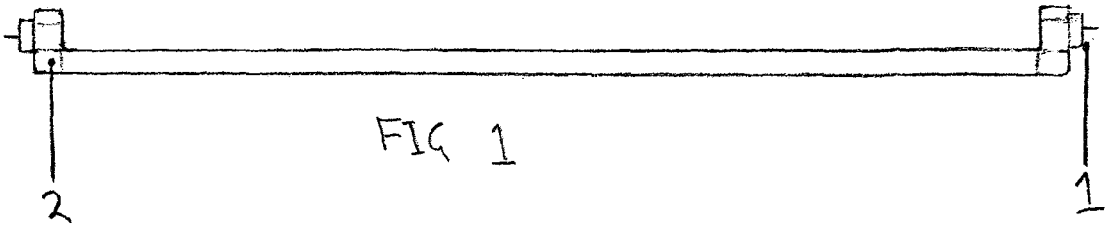


FIG 1

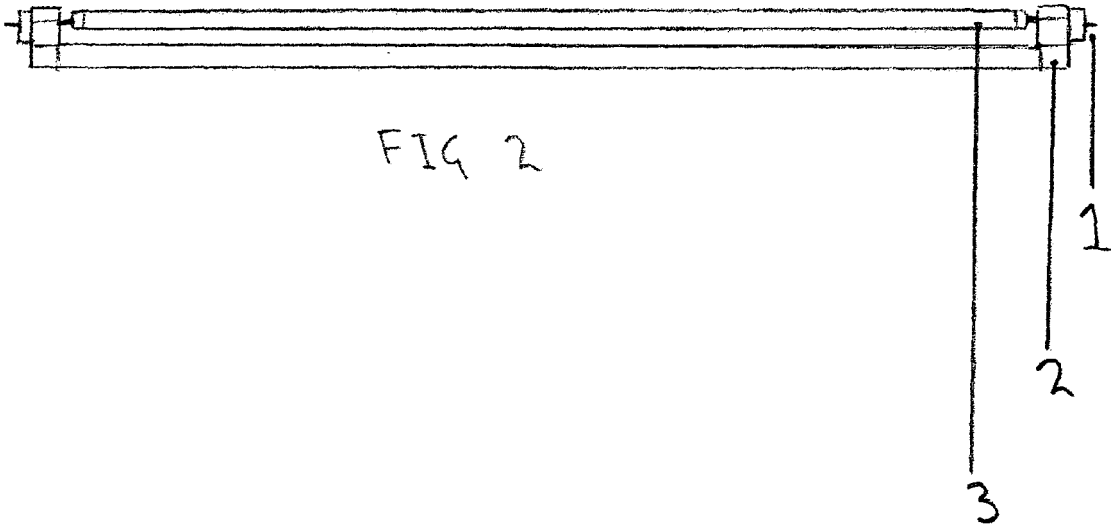


FIG 2

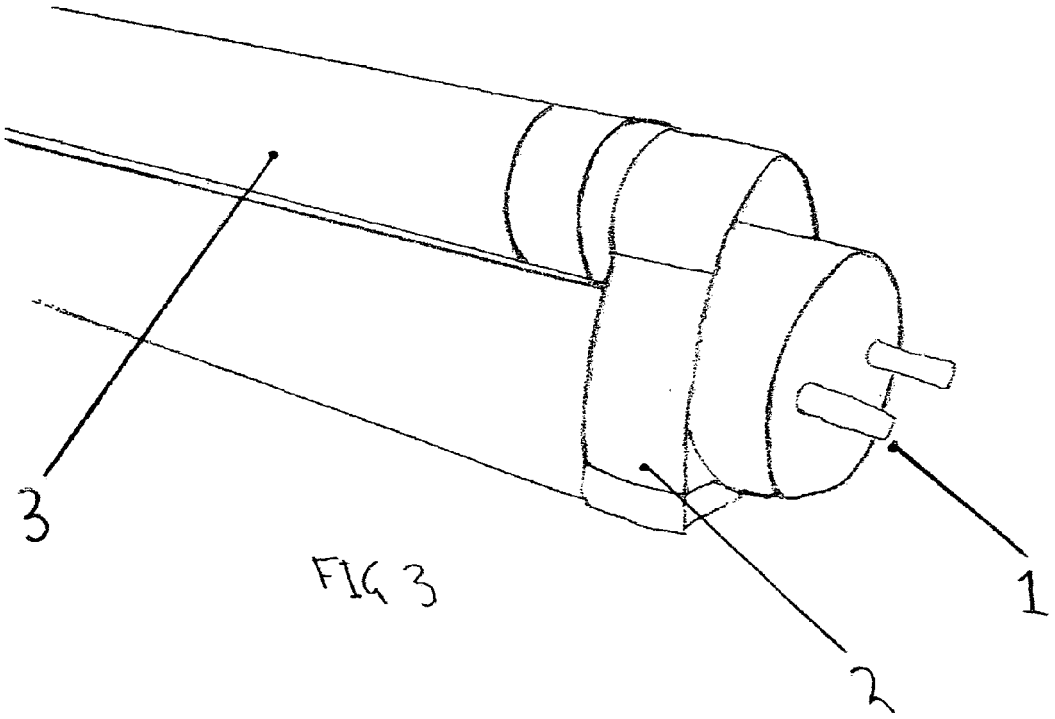


FIG 3

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EUROPEAN SEARCH REPORT

Application Number
EP 06 00 8723

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			TECHNICAL FIELDS SEARCHED (IPC) H01R F21V

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	20 September 2006	Tappeiner, Roland

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 00 8723

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20-09-2006

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