

PATENT

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Illumination device, in particular an exterior lamp for motor vehicles.

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The invention relates to an illumination device, in particular an exterior lamp for motor vehicles, consisting of a light source in the form of at least one incandescent lamp or similar apparatus, an illumination body translucent to light, and means for attaching the whole illumination device, e.g., to the exterior body of a motor vehicle.

The conventional type of illumination devices with their bodies of glass or with cover plates of glass are essentially shock sensitive, and what's more, may break during attachment, when specific voltages occur in the illumination body, due to slight differences in the dimensions of the attachment means. Furthermore, this type of illumination devices must always conform to the shape of the part supporting them, e.g., the body of a motor vehicle, at the considered location. Thus, a large number of various illumination bodies is often needed, rendering manufacturing and assembly uneconomic and complicating maintenance.

The invention proposes to solve this problem by removing these disadvantages. In order to solve this problem with the illumination devices mentioned in the preamble, the invention essentially consists in the fact that the body of the illumination device is made of a flexible synthetic material, which receives, at least at one location, an illumination source, whose light illuminates the full extent of the body

The illumination device according to the invention has the advantage of being non-shock-sensitive. Besides, it is independent of the exterior profile of the section supporting it, i.e., the body of the illumination device may be adapted to the different shapes of this structural component.

Moreover, it has the advantage that the light emanating from an illumination source propagates in the body of the illumination device, and also around curved parts or angles, so to speak. This illumination device may thus be used in an especially advantageous manner in the manufacture of a motor vehicle and, above all, for illumination devices for indicating or warning.

The body of the illumination device referred to above as being flexible may also be made of a resilient synthetic material according to another feature of the invention. This produces other advantages, which will be described in further detail below.

Generally speaking, it should be considered to provide the body of the illumination device with a longitudinal extension substantially greater than its transverse extension or depth. This can be realized advantageously according to the type of piece part in the form of a streamlined body [~continuous molding]. This affords the advantage that it can be cut to measure and mounted in some way for each application based on a standard piece.

According to the invention, a preferred embodiment of the present invention realizes the body of the illumination device in the form of pipe or rod with a substantially round cross-section. For larger cross-sections, a hollow pipe-shaped embodiment is thus advantageous for weight-saving reasons.

According to another embodiment of the invention, the body of the illumination device is provided substantially in the shape of a strip.

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Prior art indeed teaches us how bodies of an illumination device can be provided in some fashion as piece parts. However, this case involves a completely different type of illumination device, particularly of the electroluminescent [~light-emitting, fluorescent] type. This type of bodies of an illumination device is far more expensive for the applications considered to be preferable here, and special conditions are also required for their illumination.

In contrast, the illumination device proposed by the present invention affords the advantage of utilizing conventional incandescent lamps, which are possibly already present as an illumination source.

In principle, this illumination source may be mounted in any manner, however, an embodiment, in which the body of the illumination device has, at least at one end, a recess extending substantially in the longitudinal axis and allowing for the insertion of a filament lamp serving as an illumination source, is preferred by the invention.

Naturally, bodies of illumination devices with a round cross-section, or the like, are best suited for this purpose. Of course, it is also possible to arrange the recesses in the body of the illumination devices transversally [relative] to its longitudinal axis and, also in several locations. The recess for inserting the filament lamp is nevertheless advantageously profiled in a way that allows for the lamp to be replaced.

In one embodiment of the invention, the body of the illumination device is fitted with a cylindrical pin into the recess of a cap attached to the incandescent lamp serving as the illumination source. This embodiment is advantageous primarily for bodies of illumination devices with a complex cross-section and also where several illumination sources are used.

If the body of the illumination device has a rounded cross-section, it may itself be fitted, by its ends, into the recess of a cap, as well. The cap of the incandescent lamp is advantageously made of the same material as the body of the illumination device.

According to another feature of [the object of] the invention, the body of the illumination device, due to its inherent deformation capacity, is furthermore used for attaching the lamp to the component supporting it. In this case, of course, a resilient body of the illumination device is preferred and inserted, e.g., with a rabbet, directly into the recess, e.g., into the metal sheet of the body of a motor vehicle and staying there due to its own resilience.

According to another embodiment of the invention, the body of the illumination device

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exhibits a profile along its entire longitudinal extent allowing it to be fitted or inserted into a corresponding recess of the receiving component; Thus, for example, a body of an illumination device provided with a round cross-section device may be inserted with a longitudinal dove-tail-shaped rib into the corresponding mortise of a decorative molding on the motor vehicle.

Furthermore, it is conceivable that the body of the illumination device provided in the form of a strip with its two longitudinal inwardly bent edges embraces [or: surrounds] a substantially T-shaped rail in the supporting component; For this type, a body of the optionally strip-shaped illumination device may optionally be mounted on the bumper of a motor vehicle, at least in certain locations, whereby the bumper as a whole forms the T-shaped rail.

According to one proposal of the invention, the body of the illumination device could conceivably be provided in color. This may be achieved by a mixture in the synthetic material or, however, as a result of the body of the illumination device being mounted on a colored background.

As mentioned above, several illumination sources may be combined with a body of the illumination device. In this case, using different illumination sources for various purposes remains within the scope of the invention. To this end, the uniform bodies of the illumination devices could conceivably be divided by opaque partitions and optionally each illumination source could be combined with a different color.

Various embodiments of the invention are shown by way of example in the accompanying drawings, where:

Fig. 1 is a schematic end view of a rod-shaped illumination device;

Figs. 2, 3 and 4 are cross-sectional views of alternate bodies of an illumination device.

According to Fig. 1, body 10 of the illumination device consists of a flexible rod of a synthetic material with a substantially round cross-section. This rod of a synthetic material is translucent and made to illuminate along its whole extension due to the incandescent lamp 11 mounted at either end. The light propagates in the body 10 of the illumination device around any curve or angle, and causes body 10 of the illumination device [itself] to illuminate.

The latter thus becomes clearly visible in its entire length. It may be used on a motor vehicle, e.g., as an indicator or warning light, in which case, it may be mounted advantageously, turning around the four corners of the motor vehicle.

The incandescent bulb 11 is inserted into a recess 12 situated at the end of body 10 of the illumination device, and extending in its longitudinal axis. This may involve an incandescent lamp of a conventional design, which may be connected in a novel way to the vehicle's lighting system.

According to Fig. 2, the body 10 of the illumination device, essentially realized again with a circular cross-section, has a longitudinal rib 13 in the shape of a dovetail. The body 10 is fitted or inserted with this rib into the corresponding mortise 14 of a decorative molding 15 fastened in a conventional and typical way on the exterior body of a motor vehicle.

The incandescent lamp serving as an illumination source may, in this case, be mounted on the end of body 10 of the illumination device according to the aforesaid manner and type.

In Fig. 3, the decorative molding again has a dovetail-shaped mortise 14. A body 16 of an illumination device is fitted or inserted into this mortise, acquiring the shape of a strip in the assembly, and attaining substantially a cross-sectional lens shape. The bottom of mortise 14 is covered by a colored layer 17, e.g., a red layer, such that the body 16 of the illumination device lights up in red over its entire extent.

This kind of embodiment is especially suitable as an indicator light or tail light.

For assemblies according to Figs. 2 and 3, it should be mentioned that, in principle, the receiving mortise, of course, also may be arranged in the body of a motor vehicle or other component. It is furthermore conceivable, e.g., in the case of a truck bed, to arrange appropriate mortises substantially in the upper edges of the truck bed.

According to Fig. 4, the bumper 18 of an automobile is attached in a per-se known and typical manner, the details of which are immaterial here, on a support 19 of the vehicle. On its exterior, the bumper 18 has a substantially T-shaped core 20, whose two outer edges are embraced by the strip-shaped body 21 of the illumination device, at its exterior inwardly bent ribs 22.

It is likewise conceivable that at least in certain locations, the bumper itself in some way forms a T-support [~T-bracket] for the body of the lighting device.

ABSTRACT

The invention relates to:

1. An illumination device, in particular an exterior light for motor vehicles, consisting of an

illumination source in the form of at least one incandescent lamp or similar part, a translucent body of an illumination device, and means for attaching the whole illumination device, e.g., on the exterior body of a motor vehicle, which device is characterized by the following features, separately or in combination:

The body of the illumination device is made of a flexible synthetic material, which [itself] receives, at least in one location, an illumination source, whose light illuminates the whole extent of the body.

2. The body of the illumination device is made of an elastic synthetic material;

3. The body of the illumination device is provided in the form of a pipe or rod with a substantially round cross-section;

4. The body of the illumination device is provided essentially in the shape of a strip;

5. The body of the lighting device has, at least at one end, a recess extending substantially in the longitudinal axis [intended] for the insertion of an incandescent lamp serving as an illumination source;

6. The body of the illumination device is fitted with a cylindrical pin into the recess of a cap, which is attached to the incandescent lamp serving as an illumination source.

7. Due to its inherent deformation capacity, the body [itself] of the illumination device is at the same time used for attaching the illumination device;

8. Over the whole longitudinal extent of the body of the illumination device, its profile allows it to be fitted or inserted into a corresponding recess in the receiving structural component;

9. The body of the illumination device provided in the form of a strip embraces with its two longitudinal inwardly bent edges a substantially T-shaped rail in the supporting structural component;

10. The body of the illumination device is provided in color.

11. As a novel industrial product, the illumination device is realized in one of the ways described above.

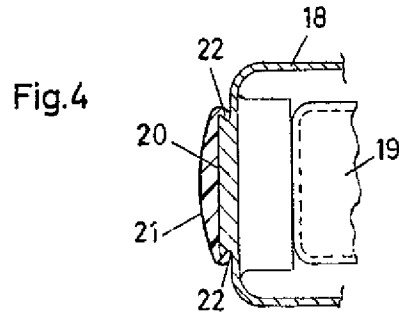
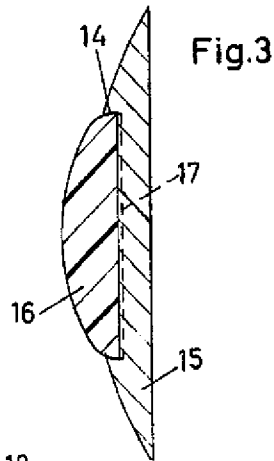
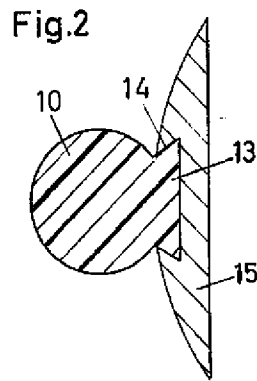
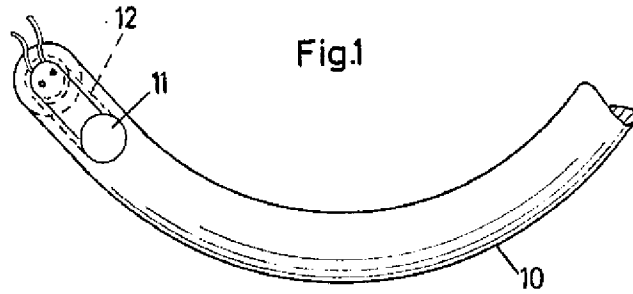
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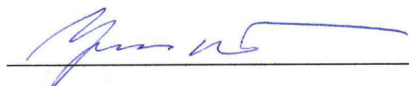
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