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(54) **ILLUMINATABLE SIGN**

LICHTZEICHEN

ELEMENT DE SIGNALISATION POUVANT ETRE ECLAIRE

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Description

This invention relates to an illuminatable sign and particularly, although not exclusively, relates to a sign element, a sign comprising a plurality of sign elements and a method of constructing a sign.

There are many known ways of constructing illuminatable signs in which a plurality of alphanumeric characters are arranged to be illuminated. For example, a simple illuminatable sign may comprise a display panel upon which alphanumeric characters are painted and a series of spotlights arranged to direct light at the characters. A more complex known illuminatable sign comprises a neon tube which is arranged to define a plurality of alphanumeric characters. When power is supplied to the tube, the characters are illuminated with a pink colour, characteristic of the neon gas emission spectrum.

Both of the signs described above are powered using mains electricity and, accordingly, installation of the signs can be both a complex and relatively time-consuming task.

It is an object of the present invention to address problems associated with known illuminatable signs.

The prior art referred to in the preamble of claim 1 can be found disclosed in DE-A-3 715 943

According to the invention, there is provided a sign element comprising character defining means arranged to define a character, an integral illumination means for illuminating a character and an integral power supply means for supplying power to the illumination means.

Said sign element is characterized by the feature defined in the second part of claim 1.

Said character defining means is preferably arranged to define an alphanumeric character. Said character defining means is preferably arranged to define a single character. Said character defining means is preferably arranged to define a character against a background. Said character defining means is preferably arranged to define a character by the character and background being visually contrasting when the illumination means is in use. In one embodiment, the background itself may be illuminated in use, with the character being relatively unilluminated. In a preferred embodiment, however, the character is illuminated in use and the background is relatively unilluminated.

Said character defining means is preferably arranged to allow light transmission through a character-shaped region arranged to define a character. A relatively opaque region preferably surrounds the character-shaped region. Said character-shaped region may be defined by means of a character-shaped opening in a first panel member. Said first panel member is preferably associated with, suitably by being in face-to-face contact with, a second panel member. Said second panel member is preferably arranged to transmit light, at least in a region on which said character-shaped region is superimposed. Said second panel is preferably arranged inwardly of the first panel. Said first panel preferably defines an outermost element of the sign element. Said first and second panel members are preferably secured to one another, preferably by adhesive means.

Said integral illumination means preferably comprises a multiplicity of illumination elements. Said illumination elements are arranged to define the character defined by said character defining means. Said illumination elements are preferably light emitting diodes (LEDs).

Said integral illumination means is preferably arranged inwardly of the character defining means.

Said integral power supply means preferably comprises a battery. Said battery is preferably re-chargeable. Re-charging means is preferably provided for re-charging the battery. Said re-charging means preferably includes a solar panel arranged to convert light to electricity for charging the battery.

Sensing means is preferably provided for sensing the ambient light level. Said sensing means is preferably arranged to allow power to be supplied to the illumination means when the ambient light level falls below a predetermined level. A manually operable switch means may also be provided for arming the sign element.

A control means, for example, a printed circuit board is preferably provided and said illumination means and/or said power supply means and/or said sensing means and/or said manually operable switch means are in electrical contact therewith.

Said sign element is preferably a self-contained unit. Said element preferably comprises a casing. Said casing is preferably a watertight unit. Said integral illumination means and said power supply means are preferably arranged within the casing. An outer wall of the casing is preferably defined, at least in part, by said character defining means. For example, where the character defining means comprises a first panel as described above, said first panel is preferably a component of said outer wall. Where the character defining means comprises first and second panels secured to one another, this arrangement may be a component of said outer wall. Preferably, said first panel or the arrangement comprising secured together first and second panels includes co-operation means for co-operating with other parts of the casing. Said co-operation means may comprise a stepped arrangement.

Said sign element preferably includes securement means for securing the element to a surface. Said securement means is preferably associated with a lower surface of the element. Said securement means is preferably arranged to be wholly concealed when the element is secured to a surface. Said securement means preferably comprises an adhesive means, for example in the form of a double-sided adhesive material such as adhesive tape.

The invention extends to a sign comprising a plurality of sign element of the type described above.

Said sign elements of said sign are preferably jux-

taposed.

The invention further extends to a method of constructing a sign comprising securing a sign element which comprises character defining means, an integral illumination means and an integral power supply means, to a surface.

Advantageously, in the method, no external power supply needs to be connected to the sign element.

Specific embodiments of the invention will now be described, by way of example, with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a front elevation, partly in cross-section of a sign element; and

Figure 2 is a cross-section along line II-II of Figure 1.

The sign element 2 comprises a rectangular casing 4 having a stepped peripheral rim 6. A re-chargeable battery (not shown) is secured, for example by means of an adhesive, to an upwardly facing surface of a lower wall 8 of the casing.

A printed circuit board 10 is provided within the casing and is seated in a recess (not shown) defined in the casing. The printed circuit board is arranged to be powered by the battery.

An array 12 of light emitting diodes (LEDs) is provided above the printed circuit board. The array 12 comprises a multiplicity of LEDs arranged to define an alphanumeric character. For example, in the element 2 shown in the figures, the LEDs are arranged to define the letter "A". The LEDs are arranged to direct light upwardly.

The casing 4 is closed by means of an upper member 14. The member 14 comprises a smoked Perspex (Trade Mark) panel 16 and a white opaque plastics panel 18 which are bonded to one another in face-to-face contact. The panels 16, 18 are arranged to define a stepped arrangement which co-operates with the stepped peripheral rim 6 so that the upper member 14 and casing 4 can readily be secured to one another in a watertight manner.

The smoked panel 16 is a planar rectangular panel. The opaque panel 18 is rectangular and generally planar, except that an opening 20, arranged in the shape of an alphanumeric character (for example the letter "A" in the figures), is defined therein. In order to properly define the letter "A", a generally oval-shaped part 22, made of white opaque plastics material, is bonded to an upper surface 24 of the smoked panel 16. It will be appreciated that some alphanumeric characters can be defined by providing an opening in the panel 18 whereas others (e.g. the letters A, B, D, O, P, Q and R; and the numerals 0, 4, 6, 8 and 9) will require additional appropriately shaped parts to be bonded to smoked panel 16.

When the upper member 14 is secured to the casing, the letter "A" defined therein is directly above the letter "A" defined by the LEDs in the array 12.

The upper member 14 also incorporates a solar cell 26 which is arranged to re-charge the battery.

A light level sensing device (not shown) is associated with the element 2. The device is arranged to sense when the ambient light level falls below a predetermined level and to cause the element 2 to operate automatically in this event.

The element 2 is provided with a layer of double-sided adhesive tape (not shown) on its lower surface 28.

A sign comprising a plurality of sign elements 2 of the type described above may be assembled, for example outside a shop, simply by securing selected elements to a planar surface using the double-sided adhesive tape provided on the elements. As an alternative, a sign comprising a plurality of sign elements 2 could be mounted on a free-standing and/or portable unit. When assembled each element of the sign operates as described below.

During daylight hours, the solar cell generates an electric current which re-charges the battery of the sign element. When the light level falls below the predetermined level, the light sensing device communicates this fact to the printed circuit board 10 which, accordingly, allows current to flow to the LEDs which, therefore, emit light. The emitted light is transmitted through the smoked panel 16 and through the opening(s) defined in the opaque panel 18 and, accordingly, the alphanumeric character defined by the shape of the opening(s) appears as an illuminated character.

It should be appreciated that it is very easy to construct a sign using a plurality of sign elements 2. For example, a surface on which the elements are to be secured does not need to be drilled. Also, since the elements are self-contained, sealed units they are substantially maintenance free. The sign elements may be made of any desired size. In a preferred embodiment the elements have a height of about 15 cm, a width of about 10 cm and a depth of about 2 cm.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

Each feature disclosed in this specification (including any accompanying claims, abstract and drawings), may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

The invention is not restricted to the details of the

foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

Claims

1. A sign element comprising character defining means arranged to allow light transmission through a character shaped region in order to define a character, an integral illumination means for illuminating said character and an integral power supply means for supplying power to the illumination means, characterised in that said illumination means is also arranged to define said character defined by said character defining means.

2. An element according to Claim 1, wherein said character defining means is arranged to define a single character.

3. An element according to Claim 1 or Claim 2, wherein said character defining means is arranged to define a character against a background.

4. An element according to any preceding claim, wherein a relatively opaque region surrounds the character-shaped region.

5. An element according to any preceding claim, wherein said character-shaped region is defined by means of a character-shaped opening in a first panel member.

6. An element according to Claim 5, wherein said first panel member is in face-to-face contact with a second panel member which is arranged to transmit light, at least in a region on which said character-shaped region is superimposed.

7. An element according to any preceding claim, wherein said integral illumination means comprises a multiplicity of illumination elements.

8. An element according to any preceding claim, wherein sensing means is provided for sensing the ambient light level.

9. An element according to Claim 8, wherein said sensing means is arranged to allow power to be supplied to the illumination means when the ambient light level falls below a predetermined level.

10. A sign comprising a plurality of sign elements according to any preceding claim.

11. A method of constructing a sign comprising securing a sign element according to any preceding claim to a surface.

Patentansprüche

1. Zeichenelement mit einem, einen Buchstaben definierenden Mittel, gestaltet zum Ermöglichen einer Lichttransmission durch einen buchstabenförmigen Bereich um einen Buchstaben zu definieren, eine integrale Beleuchtungseinrichtung zum Beleuchten des Buchstabens sowie eine integrale Leistungsversorgung zum Zuführen von Leistung zur Beleuchtungseinrichtung, dadurch gekennzeichnet, daß die Beleuchtungseinrichtung auch dazu vorgesehen ist, den Buchstaben zu definieren, der durch das Buchstaben-definierende Mittel definiert ist.

2. Element nach Anspruch 1, wobei das Buchstaben-definierende Mittel dazu vorgesehen ist, einen einzigen Buchstaben zu definieren.

3. Element nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß das Buchstaben-definierende Mittel dazu vorgesehen ist, einen Buchstaben gegen einen Hintergrund zu definieren.

4. Element nach einem der vorausgehenden Ansprüche, wobei ein relativ opaker Bereich den buchstabenförmigen Bereich umgibt.

5. Element nach einem der vorausgehenden Ansprüche, wobei der buchstabenförmige Bereich mittels einer buchstabenförmigen Öffnung in einem ersten Panelelement definiert ist.

6. Element nach Anspruch 5, wobei das erste Panelelement in Flächenkontakt mit einem zweiten Panelelement steht, das dazu vorgesehen ist, Licht wenigstens in einem Bereich zu übertragen, welchem der buchstabenförmige Bereich überlagert ist.

7. Element nach einem der vorausgehenden Ansprüche, wobei die integrale Beleuchtungseinrichtung eine Mehrzahl von Beleuchtungselementen umfaßt.

8. Element nach einem der vorausgehenden Ansprüche, wobei ein Sensor zum Erfassen des Umgebungslichtpegels vorgesehen ist.

9. Element nach Anspruch 8, wobei der Sensor dazu dient, der Beleuchtungseinrichtung dann Leistung zuzuführen, wenn der Umgebungslichtpegel unter einen bestimmten Wert fällt.

10. Zeichen mit einer Mehrzahl von Zeichenelementen gemäß einem der vorausgehenden Ansprüche.

11. Verfahren zum Herstellen eines Zeichens, umfassend das Befestigen eines Zeichenelementes gemäß einem der vorausgehenden Ansprüche an einer Fläche.

Revendications

1. Elément formant signe comprenant des moyens de définition d'un caractère agencés pour permettre une transmission de lumière à travers une zone en forme de caractère pour définir un caractère, des moyens d'éclairage intégrés pour éclairer ledit caractère et des moyens d'alimentation en énergie intégrés pour fournir de l'énergie aux moyens d'éclairage, caractérisé par le fait que lesdits moyens d'éclairage sont également agencés pour définir ledit caractère défini par les moyens de définition de caractère.

2. Elément selon la revendication 1, dans lequel lesdits moyens de définition de caractère sont agencés pour définir un caractère unique.

3. Elément selon la revendication 1 ou la revendication 2, dans lequel lesdits moyens de définition de caractère sont agencés pour définir un caractère par rapport à un arrière-plan.

4. Elément selon l'une quelconque des revendications précédentes, dans lequel une zone relativement opaque entoure la zone en forme de caractère.

5. Elément selon l'une quelconque des revendications précédentes, dans lequel ladite zone en forme de caractère est définie au moyen d'une ouverture en forme de caractère ménagée dans un premier organe formant panneau.

6. Elément selon la revendication 5, dans lequel ledit premier organe formant panneau est placé en contact face à face avec un deuxième organe formant panneau agencé pour transmettre de la lumière, au moins dans une zone sur laquelle ladite zone en forme de caractère est superposée.

7. Elément selon l'une quelconque des revendications précédentes, dans lequel lesdits moyens d'éclairage intégrés comprennent une pluralité d'éléments d'éclairage.

8. Elément selon l'une quelconque des revendications précédentes, dans lequel des moyens de détection sont prévus pour appréhender le niveau lumineux ambiant.

9. Elément selon la revendication 8, dans lequel lesdits moyens de détection sont agencés pour permettre d'alimenter les moyens d'éclairage, lorsque le niveau de lumière ambiant descend au-dessous d'un niveau prédéterminé.

10. Signe comprenant une pluralité d'éléments de signe selon l'une quelconque des revendications précédentes.

11. Procédé de construction d'un signe, comprenant la fixation d'un élément de signe selon l'une quelconque des revendications précédentes sur une surface.

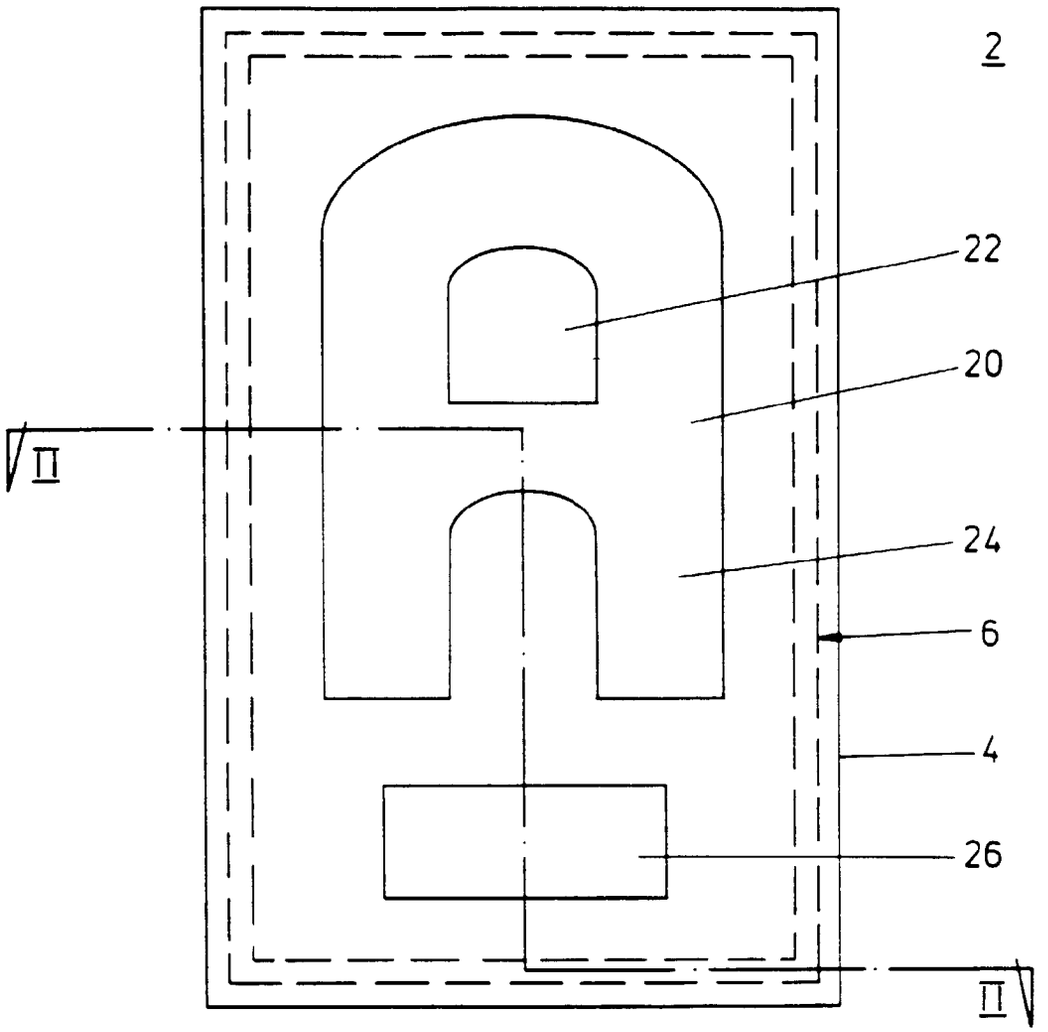

FIG. 1

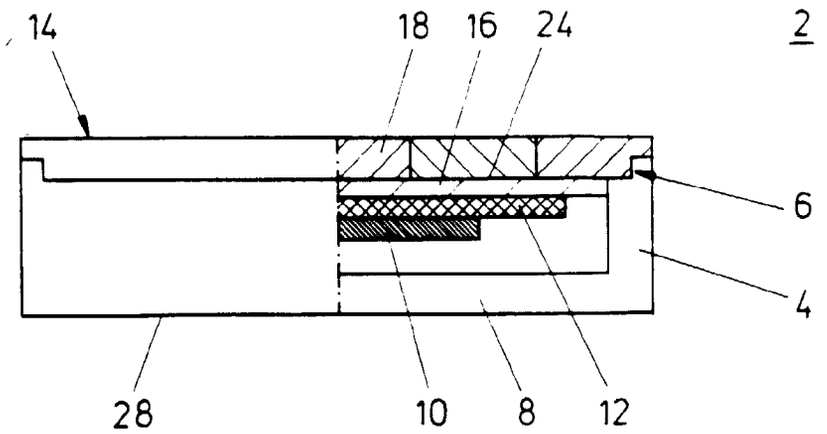

FIG. 2