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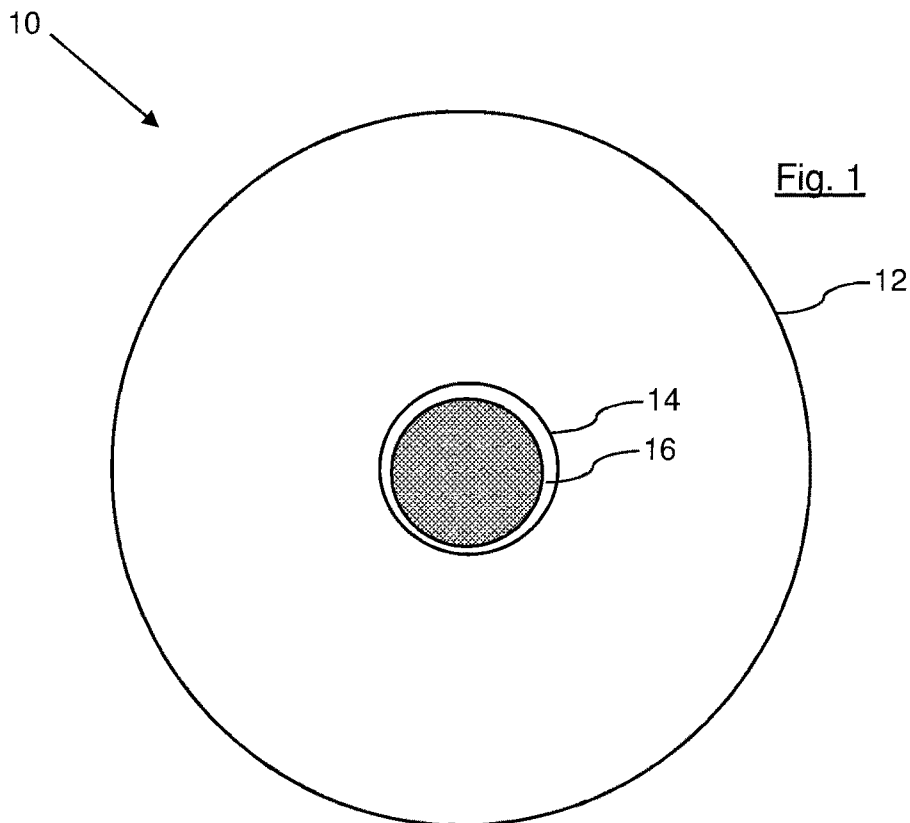
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(56) Documents Cited:
US 6830451 B1 US 6142846 A
US 5782668 A US 5434761 A
US 5066012 A US 2932917 A
US 20060146525 A1 US 20020012246 A1

(58) Field of Search:
INT CL F21L, F21V
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(54) Title of the Invention: **Squash light**
Abstract Title: **Squash light**

(57) A squash light device 10 comprises a deformable body 12 with a hole 14 formed therein, and a battery-operated LED light source 16 located in the hole 14. The device can be pushed into any available location and the body 12 will deform to the shape of the spot where the device is pushed to hold it in place, aiding illumination of the spot. A camera or a mirror may be placed in the hole 14 instead of a light source.



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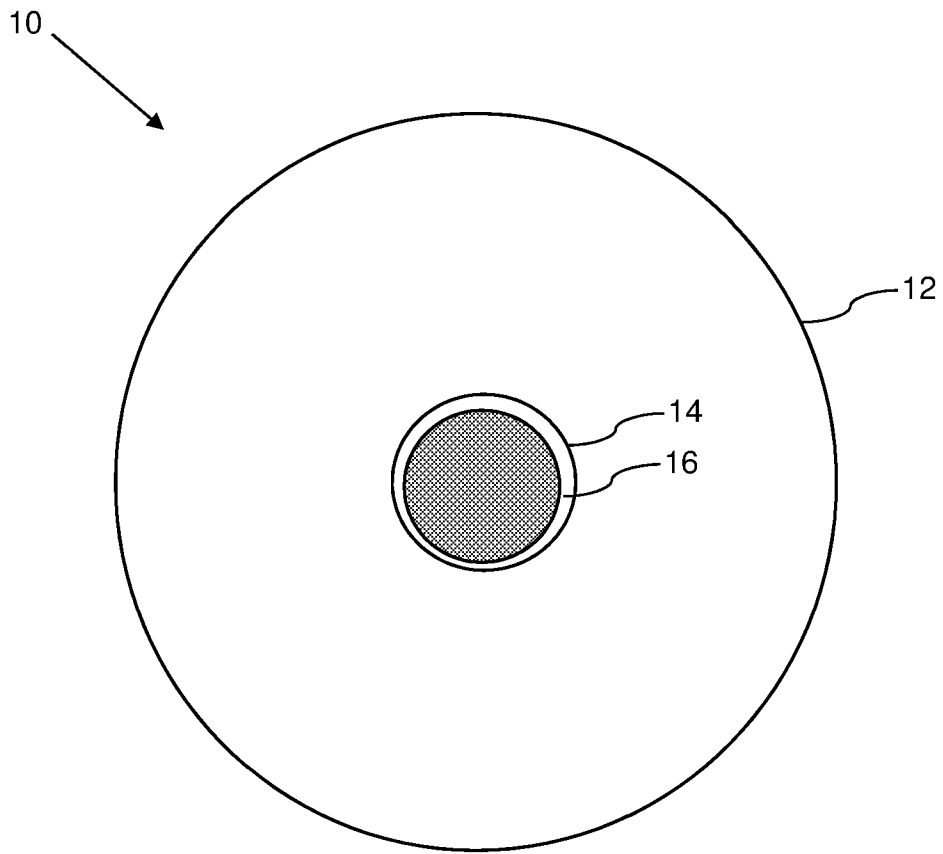


Fig. 1

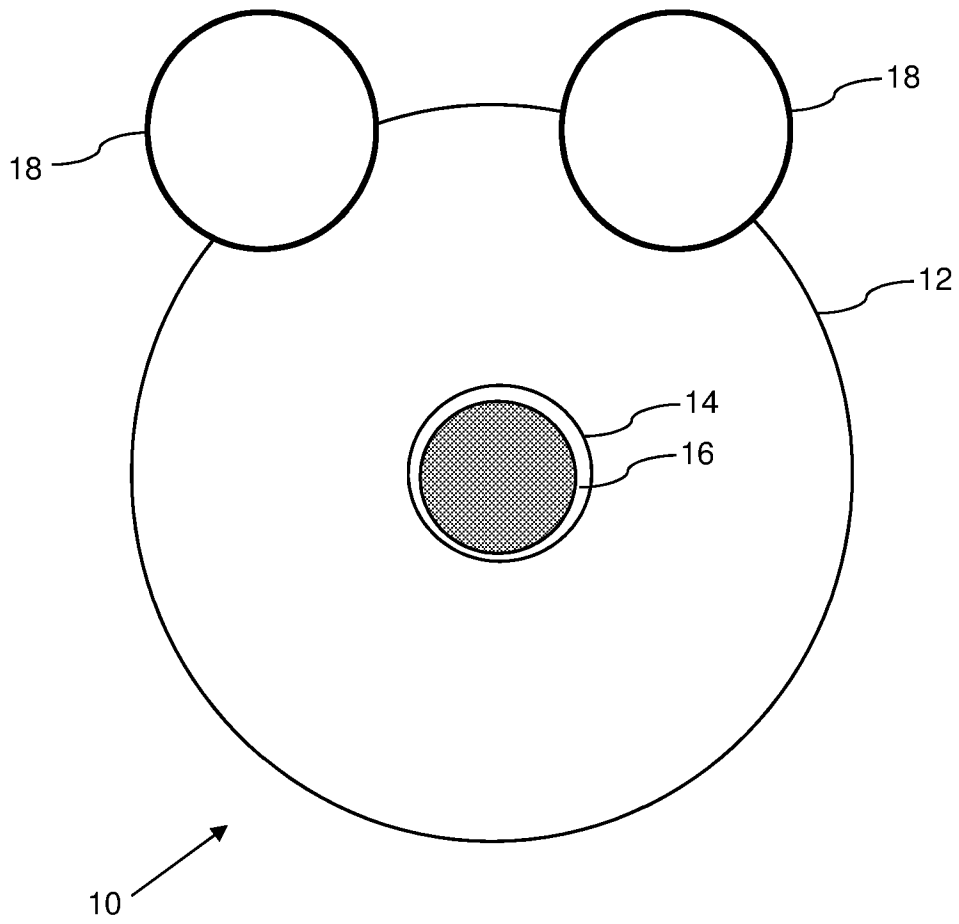


Fig. 2

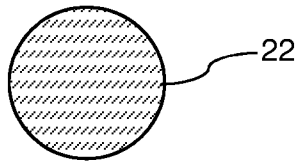
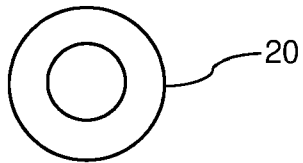
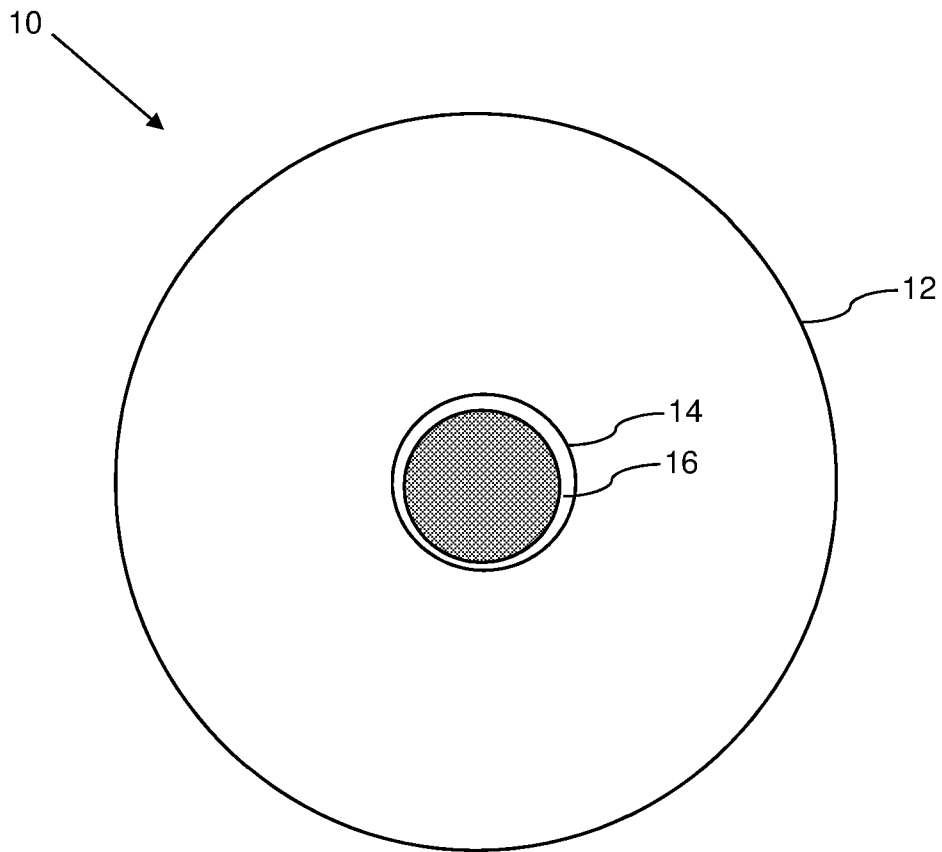


Fig. 3

DESCRIPTION

SQUASH LIGHT

5 This invention relates to a device comprising a deformable body and a light.

 It is common for engineers and tradesmen, when working in confined spaces, to use a torch to illuminate dark areas. For example a plumber may be
10 examining pipework under floorboards or in a loft or an engineer may be examining engine parts in a complex piece of machinery such as an aircraft engine. If natural lighting does not penetrate all of the areas in which the relevant person is working, then additional lighting is needed. Currently this is provided either with a hand-held torch, with a head mounted torch or with an
15 additional light that is provided with a stand or flexible "snake" to mount the additional light. None of these solutions is ideal. Using hand-held or head mounted torches can be cumbersome and do not necessarily work well in confined spaces. Users can also find that important areas that need to be seen are in shadow, this is also a problem with mounted torches which can easily
20 generate shadows from a user's body.

 It is therefore an object of the invention to improve upon the known art.

 According to the present invention, there is provided a device comprising a deformable body with a hole formed therein, and a light located
25 in the hole.

 Owing to the invention, it is possible to provide a device that can be used by an engineer and tradesmen that will generate light to illuminate the exact spot that is needed to be illuminated, without the problems of the prior art solutions. The deformable body of the device allows the device to be
30 pushed into a location that will illuminate the necessary location, while providing flexibility in how the device is located. The device can easily be removed once the user has completed the task at hand.

Preferably, the deformable body comprises a substantially spherical body and the deformable body comprises a foam material. The deformable body of the device is preferably a regular sphere of foam material. This provides the most flexibility in terms of the mounting of the device, since the device can be pushed into different sized and shaped cavities and the spherical and flexible nature of the foam material supports the easy use of the device in such different locations. A user can push the device into a cavity or into a space between two components (such as pipes for example) and angle the device such that the light points in the direction in which the user wishes to illuminate.

The device provides the ability to train a light accurately on a problem in the most confined space. The simple but effective solution produces a light that can be trained on the exact spot easily without power cables or bulky stands. Often the area that a user needs to see is not easily accessible with normal torches, being deep in engines, under flooring, flight decks and undercarriage bays. The device provides a simple solution to the problem of how to illuminate such areas.

The device is preferably manufactured from a sphere 70mm in diameter of memory foam and has a hole that is 15mm diameter through the middle to accept a high power LED mini light torch. The device preferably has an abrasion and oil resistant outer skin. The ability of the memory foam to squash down, be placed into a tight spot between structures and return to its original size thereby locking it in position is the key to the solution.

Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:-

Figure 1 is a front view of a device,

Figure 2 is a front view of the device of Figure 1 in use, and

Figure 3 is a further front view of the device.

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Figure 1 shows a device 10 which comprises a deformable body 12 with a hole 14 formed therein, and a light 16 located in the hole 14. The deformable

body 12 comprises a substantially spherical body 12 and the deformable body 12 comprises a foam material. The hole 14 has an aperture of between 15mm and 20mm. The hole 14 passes through the entirety of the body 12. The light 16 is readily removable from the hole 14. The light 16 comprises a torch including a switch for turning the torch on and off and the light 16 also includes a rechargeable battery. The light 16 uses an LED array to produce the light to be outputted.

The device 10 is a “squash light” that can be used by engineers and the like when the wish to illuminate a hard to reach spot, such as inside an enclosed space. The engineer can push the device 10 into any available location and the body 12 of the device 10 will deform to the shape of the spot where the device is being placed. The body 12 squashes as the deformable foam is sufficiently soft that the body 12 can be compressed to fit into a gap or hole that exists in the environment that the engineer wishes to illuminate. Once removed from its in-use location, the body 12 returns to its former shape.

Figure 2 shows the device 10 in use. Here the device 10 has been pushed into position between two pipes 18. For example, a plumber may be working in a confined space such as under-sink cupboard and needs additional illumination in the cupboard, as there is insufficient light within the cupboard to allow the plumber to work safely and competently. The plumber has forced the body 12 of the device 10 in-between the two pipes 18 and the device 10 is now held in place and the light 16 is providing the necessary illumination. The plumber can angle the device 10 as they see fit to provide the desired direction of the illumination from the light 16.

The advantages of the device 10 over conventional torches are many. For example, the device 10 can be fixed into position and then does not need to be carried or moved. The device 10 can be positioned so that no shadows are cast as the plumber is working and no stands or additional equipment are required to use the device 10. The device 10 is also protected from damage if it should fall or be dropped, as the external body 12 protects the light 16 from contact with hard surfaces. Anti-slip coatings can be applied to the exterior of the body 12 to assist in keeping the device 10 in position.

Figure 3 shows the device 10 with additional components, which are a camera 20 and a mirror 22. These can be located in the hole 14 in place of the light 16. The user of the device 10 can also place the device 10 in similar situations, but with either the camera 20 or the mirror 22 located within the hole 14. This broadens the functionality of the device 10 and allows the device 10 to be used in space constrained situations where a user cannot adequately see into particular parts of the working space. The user can switch between the different components, the light 16, the camera 20 and the mirror 22 as desired.

The body 12 of the device 10 can be deformed as before and this allows the device to be located in spaces and with the camera 20 or mirror 22 being pointed in the direction that the user wishes to obtain visual information that is currently out of reach. With the mirror 22 for example, the user can locate the device 10 so that the user can see a reflection of a working area in the mirror 22 that cannot be seen otherwise, allowing the user to work on specific elements within the working area while looking in the mirror 22 to see what they are actually doing. The user can easily exchange the different components in the hole 14, as desired.

CLAIMS

1. A device (10) comprising:
 - a deformable body (12) with a hole (14) formed therein, and
 - a light (16) located in the hole (14).
2. A device according to claim 1, wherein the deformable body (12) comprises a substantially spherical body (12).
3. A device according to claim 1 or 2, wherein the deformable body (12) comprises a foam material.
4. A device according to claim 1, 2 or 3, wherein the hole (14) has an aperture of between 15mm and 20mm.
5. A device according to any preceding claim, wherein the hole (14) passes through the entirety of the body (12).
6. A device according to any preceding claim, wherein the light (16) is readily removable from the hole (14).
7. A device according to any preceding claim, wherein the light (16) includes a rechargeable battery.
8. A device according to any preceding claim, wherein the light (16) comprises a torch including a switch for turning the torch on and off.
9. A device as described herein and as shown in any one of the drawings.



Application No: GB1617352.8

Examiner: Vaughan Phillips

Claims searched: 1-8

Date of search: 7 December 2016

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1, 2, 4-6, 8	US 2006/0146525 A1 (CHERNICK) see whole document
X	1, 4-8	US 2002/0012246 A1 (RINCOVER) see whole document
X	1, 3, 4, 7, 8	US 6830451 B1 (BAYAT) see whole document
X	1, 3, 4, 6, 8	US 6142846 A (OJAKAAR) see whole document
X	1, 2, 4-6	US 5782668 A (CHABERT) see whole document
X	1, 3, 4, 6-8	US 5434761 A (WITH DESIGN) see whole document
X	1, 3-6, 8	US 5066012 A (STARK) see whole document
X	1, 4, 6, 8	US 2932917 A (PATANE) see whole document

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

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Worldwide search of patent documents classified in the following areas of the IPC

F21L; F21V

The following online and other databases have been used in the preparation of this search report

Online: WPI, EPODOC

International Classification:

Subclass	Subgroup	Valid From
F21L	0004/00	01/01/2006
F21V	0021/08	01/01/2006