

June 21, 1960

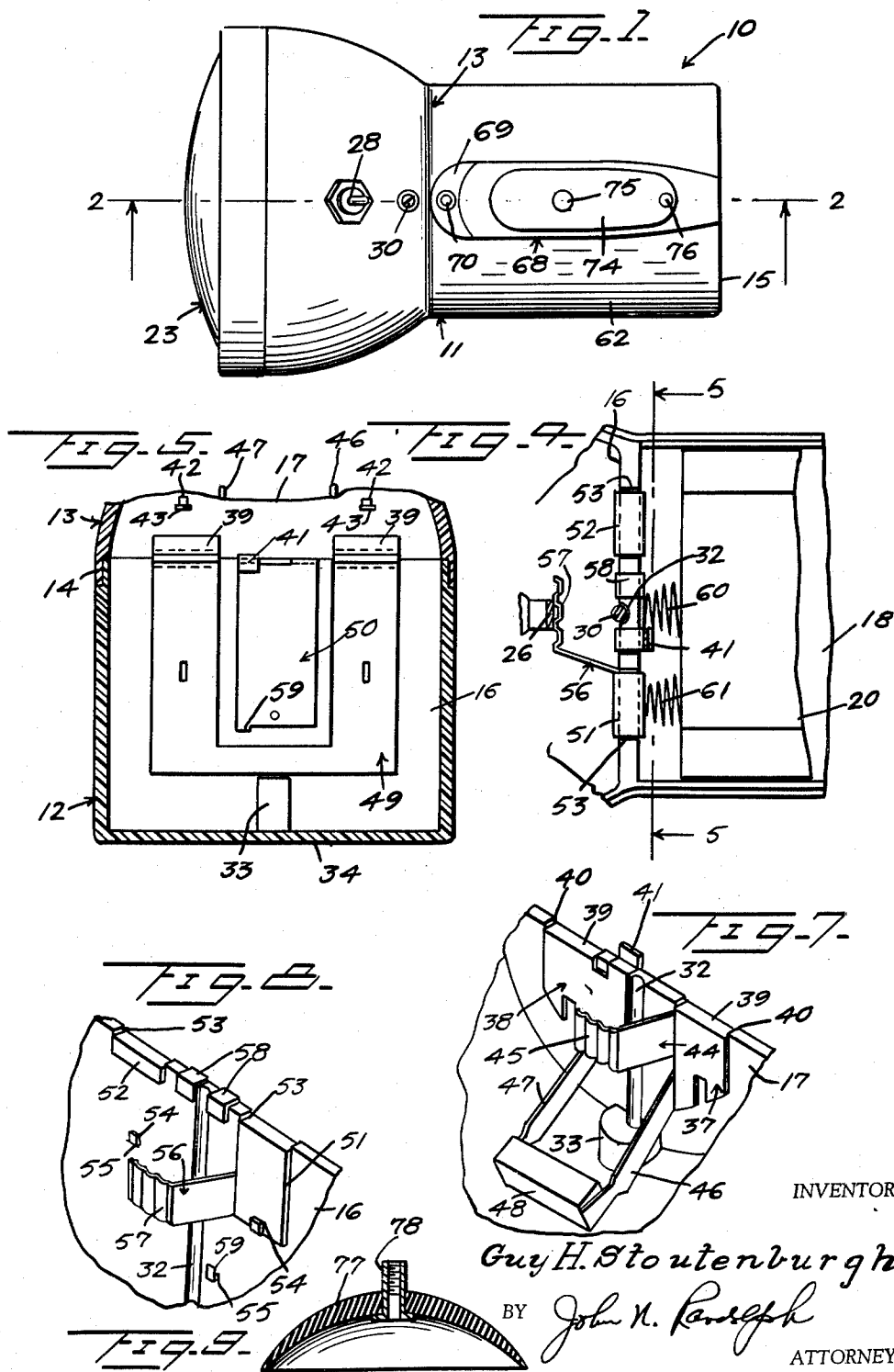
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2,942,102

PORTABLE SELF-CONTAINED LIGHT

Filed March 28, 1958

2 Sheets-Sheet 1



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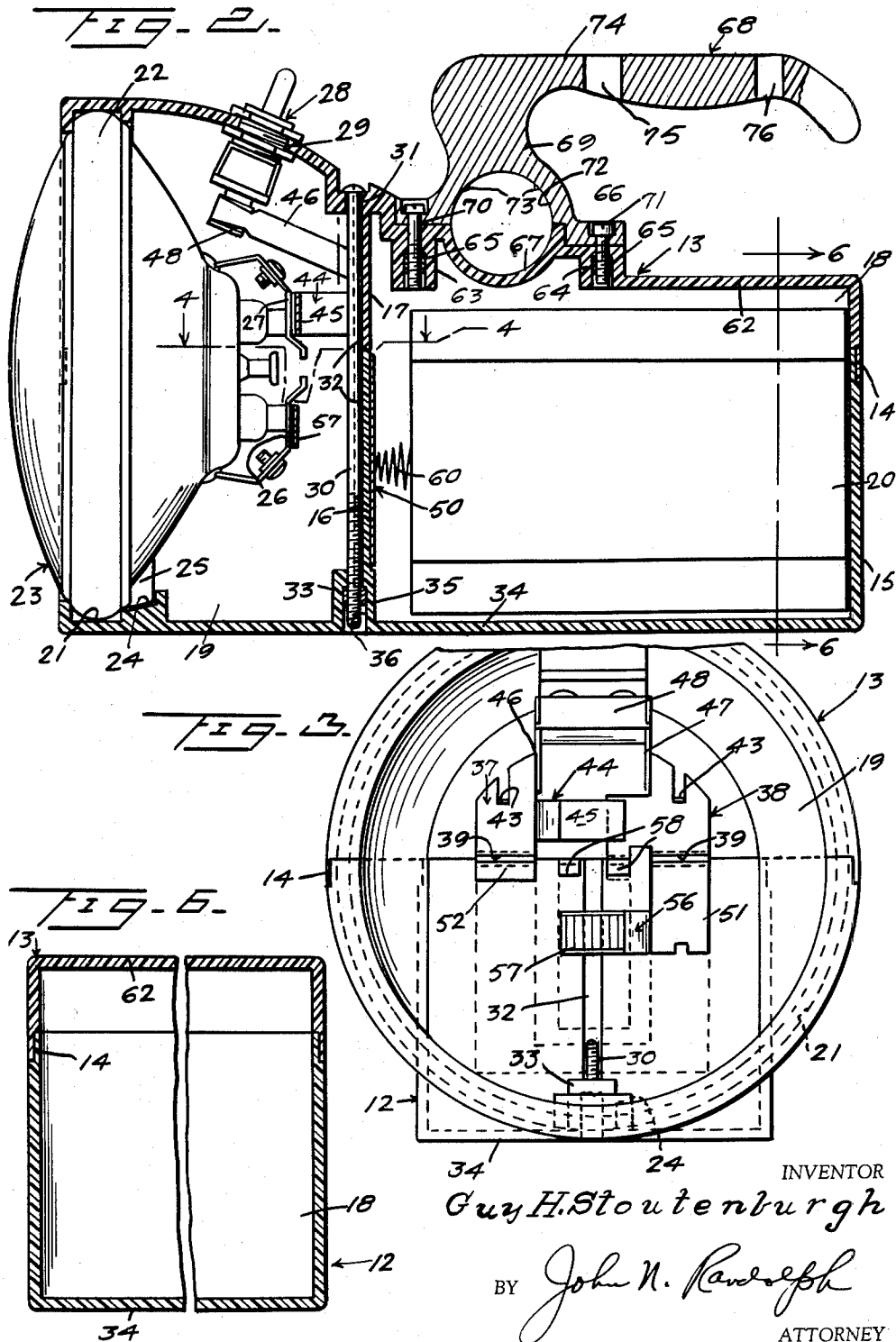
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## PORTABLE SELF-CONTAINED LIGHT

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3 Claims. (Cl. 240—10.63)

This invention relates to a novel self-contained manually supported light of extremely simple construction, which may be readily carried manually or placed upon a supporting surface in either a horizontal or vertical position, or which can be readily secured to a handle bar, small tree branch or other object of substantially circular cross section.

Another object of the invention is to provide a self-contained portable light which may be readily secured to the body or fender of a vehicle or to substantially any other supporting surface.

Still another object of the invention is to provide a portable light of extremely simple construction and which can be dismantled by the removal of a single screw fastening for replacing the battery, light source or control switch thereof.

Still a further object of the invention is to provide a portable light having a novel arrangement of electrical conductors electrically connecting the battery or current source to the switch and light source and which involves no wires, binding posts, screws or other forms of fastenings requiring disconnection and connection when the light is dismantled or assembled, respectively.

Still a further object of the invention is to provide a portable light wherein the novel electrical connections additionally function as resilient retaining means for retaining the light source immovable in the casing when the casing is assembled.

Various other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating a presently preferred embodiment thereof, and wherein:

Figure 1 is a top plan view of the portable light;

Figure 2 is an enlarged longitudinal sectional view thereof, taken substantially along a plane as indicated by the line 2—2 of Figure 1;

Figure 3 is a fragmentary front elevational view thereof with the light source removed;

Figure 4 is a fragmentary horizontal sectional view, taken substantially along a plane as indicated by the line 4—4 of Figure 2;

Figure 5 is a fragmentary transverse sectional view taken substantially along a plane as indicated by the line 5—5 of Figure 4;

Figure 6 is a fragmentary transverse sectional view of the casing, taken substantially along a plane as indicated by the line 6—6 of Figure 2;

Figure 7 is a fragmentary perspective view of a part of the upper section of the casing;

Figure 8 is a fragmentary perspective view of a part of the lower section of the casing, and

Figure 9 is a central vertical sectional view of an attachment for use with the portable light.

Referring more specifically to the drawings, the self-contained portable light in its entirety is designated generally 10 and includes an elongated casing, designated generally 11, which is composed of a bottom section 12 and a top section 13. The sections 12 and 13 are pro-

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vided with externally and internally reduced interfitting edge portions forming a joint 14 where the sections are connected and which joint extends across the rear end 15 of the casing 11 and along both sides thereof. The part of the joint formed by the upper section 13 overlies and is disposed externally of the part of the joint formed by the lower section 12. The casing 11 includes a partition or bulkhead which is disposed transversely thereof and which is composed of a lower part 16, forming a part of the lower section 12, and an upper part 17, which constitutes a part of the upper section 13. Said partition or bulkhead 16, 17 divides the casing 11 into a rear chamber 18 and a front chamber 19.

The rear chamber 18 is completely closed when the sections 12 and 13 are assembled and is of substantially rectangular shape in cross section, as seen in Figure 6, and is adapted to accommodate a self-contained current source such as a conventional six volt battery 20. The front part of the casing 11, defining the chamber 19, is flared and is of substantially circular form in cross section and is provided with a circular open forward end having an annular internal groove 21 of a proper size and shape to snugly receive a rim portion 22 of a conventional sealed beam lamp unit 23. The bottom portion of the casing immediately behind the groove 21 is provided with a socket 24 to receive a fit or projection 25 of the unit 23 and whereby said unit is prevented from turning in the casing 11, and for maintaining the two electrical contacts 26 and 27 of the sealed beam unit 23 in vertical alignment.

An actuator part of a conventional toggle electric switch, designated generally 28, extends through and is secured in an opening 29 of the upper casing section 13 and projects into the upper part of the forward chamber 19, above and behind the sealed beam unit 23.

A long bolt 30 extends downwardly through an opening 31 of the upper casing section 13 and engages a groove 32 in the forward sides of the bulkhead sections 16 and 17. The threaded lower end of the bolt 30 extends through a hollow internal boss 33 in the casing bottom 34 and engages a nut 35 which is secured immovably in a downwardly opening socket 36 of the internal boss 33. The bolt 30 and nut 35 constitute a single fastening by means of which the casing sections 12 and 13 are detachably secured together.

Two electrical conductor elements 37 and 38, formed of resilient metal stampings, are mounted on the upper bulkhead section 17. The conductor elements 37 and 38 are disposed primarily on the forward side of the bulkhead section 17 but have portions 39 engaging the rear side of said bulkhead section and which extend through notches 40 in the edge of said bulkhead section 17, as best seen in Figure 7. Said portions 39 resiliently grip the bulkhead section to releasably clamp the conductor elements 37 and 38 thereto. The conductor element 38 has an angular extension 41 which extends across the bottom edge of the bulkhead section 17, adjacent the groove 32, and which projects downwardly therefrom. Tongues 42 are struck from the conductor elements 37 and 38 and extend rearwardly through openings 43 of the bulkhead section 17 and are bent upwardly against the rear side thereof for anchoring said conductor elements 37 and 38 immovably to said bulkhead section, as seen in Figure 5.

The conductor element 37 includes a resilient contact strip 44 which extends forwardly from the inner edge thereof and which has a transversely extending free end portion 45 which yieldably bears against the rear side of the upper contact 27 of the sealed beam unit 23. The conductor elements 37 and 38 have resilient arms 46 and 47, respectively, which extend upwardly and forwardly from their inner edges. The free ends of said resilient

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arms 46 and 47 are detachably connected to the ends of a conventional switch member 48 which forms a part of the switch 28, and by means of which an electrical connection is made between the switch 28 and said conductor elements 37 and 38.

The lower bulkhead section 16 likewise supports two stampings 49 and 50 of spring metal and which constitute electrical conductor elements. Said stampings 49 and 50 are disposed against the rear side of the bulkhead section 16. The conductor element 49 is substantially U-shaped, as seen in Figure 5, and has its terminals bent forwardly and back upon themselves to provide portions 51 and 52 which yieldably bear against the forward side of the bulkhead section 16 and which extend through notches 53 in the upper edge of said bulkhead section 16, as seen in Figure 8. The stamping 49 has struck-out tongues 54 which extend forwardly through openings 55 of the bulkhead section 16 and which are bent upwardly on the forwardly side thereof to anchor said conductor element 49 immovably to the bulkhead section 16. The conductor element 49 includes a contact strip 56 which projects forwardly from its front terminal portion 51 and which has a transversely extending free end 57 which yieldably bears against the rear side of the lower contact 26 of the sealed beam unit 23, as best seen in Figure 2.

The conductor element or stamping 50 is disposed on the rear side of the partition member 16, within and spaced from the stamping 49, as seen in Figure 5, and has laterally spaced furcations 58 at its upper end which engage over the upper edge of the bulkhead section 16 and yieldably against portions of the front side thereof and which straddle the groove 32. A tongue 59 forms an extension of a portion of the lower end of the stamping 50 and extends forwardly through another opening 55 of the bulkhead section 16 and is bent upwardly on the forward side thereof to cooperate with the resilient furcations 58 to immovably anchor the conductor element or stamping 50 to said bulkhead section 16. It will be apparent that when the casing sections 12 and 13 are assembled that the conductor elements 37 and 38 will be maintained out of electrical engagement with the conductor element 49 by the fact that the portions 39 are recessed in the upper bulkhead section 17 by the notches 40 and the portions 51 and 52 are similarly recessed in the lower bulkhead section 16 by the notches 53. However, the conductor element 38 is electrically connected to the conductor element 50 by the portion 41 thereof which directly contacts one of the furcations 58, as seen in Figures 4 and 5. The bulkhead sections 16 and 17 are formed of electrical insulating material so that the conductor elements 37 and 38 are electrically insulated from one another as are also the conductor elements 49 and 50.

The battery 20 has two spring contacts, center positive contact 60 and corner negative contact 61, extending from its forward end. The contact 60 yieldably bears against a part of the conductor element 50 and the contact 61 yieldably bears against a part of the conductor element 49, as seen in Figures 2 and 4. When the toggle switch 28 is moved to a circuit closing position, current flows from the battery through the negative contact 61 thereof to the conductor element 49, through the conductor portions 51, 56 and 57 to the contact 26 of the sealed beam unit 23, through the filament of the light source of said unit, not shown, to the other contact 27, through the conductor portions 45, 44, 37 and 46 to and across the switch part 48, through arm 47 to conductor element 38, through the portion 41 thereof to conductor element 50, which portion 41 engages, and back to the battery through the positive contact 60. It will be apparent that the circuit is broken when the toggle switch 28 is manually moved to a circuit interrupting position.

As previously stated, the bulkhead sections 16 and 17 are formed of electrical insulating material, said sections and the remainder of the casing 11 are preferably formed of a substantially nonbreakable plastic material. The

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casing 11 in addition to having a flat underside or bottom 34 for engaging a supporting surface to mount the casing in substantially a horizontal position, has a flat rear end 15 which can engage a supporting surface to mount the light 10 in an upright or vertical position.

The upper casing section 13 has a top wall portion 62 covering the rear chamber 18 and the forward part of which is provided with longitudinally spaced inwardly extending hollow bosses 63 and 64, in each of which a nut 65 is anchored. Said bosses 63 and 64 are formed in an upwardly offset forward portion 66 of said top wall portion 62, which portion 66 is provided with a transverse substantially semicircular groove 67 which is disposed between the bosses 63 and 64 and which is disposed crosswise of the casing 11. An elongated carrying handle 68 is disposed above and longitudinally of said top portion 62 and has a downwardly extending shank 69 at its forward end which bears on the upper side of said upwardly offset top portion 66. Screws 70 and 71 extend downwardly through portions of the shank 69 which rests upon the top portion 66. The screw 70 extends downwardly through the boss 63 and threadedly engages the nut 65 thereof and the screw 71 extends downwardly through the boss 64 and threadedly engages the other nut 65 for detachably securing the handle 68 to the casing section 13. The shank 69 is provided with a substantially semicircular groove 72 which extends transversely of the handle 68 and which is disposed directly above the groove 67, when the handle 68 is secured to the upper casing section 13, so that the grooves 67 and 72 combine to form a transverse substantially circular bore. The shank 69 is preferably provided with ribs 73, as seen in Figure 2, which project into the groove 72 thereof and which extend longitudinally and parallel of the bore 67, 72. The ends of the ribs 73 are spaced from the ends of the grooves 72. The rear free end of the handle 68 preferably extends to approximately the plane of the rear end 15 of the casing 11 but does not extend therebeyond so that the handle will not prevent the light 10 being supported stably upon its rear end 15. The handle 68 is provided with a flat top surface 74 and with two openings 75 and 76, which extend through said top surface. The light 10 may be inverted from its position of Figures 1 and 2 and the flat handle surface 74 may be placed against a supporting surface and secured thereto by suitable fastenings, not shown, inserted through the handle openings 75 and 76, for permanently mounting the light on any desired support. In addition, the opening 75 is disposed to receive a screw driver, not shown, for applying or removing the screw 71. The screw 70 is exposed so that it can be readily applied or removed with a screw driver.

In manually carrying the light 10 the index finger is inserted through the bore 67, 72 and the other fingers engage around the handle 68. The thumb of the hand employed to support the light 10 is free to operate the toggle switch 28. The handle 68 can also be removed and re-applied around a circular object such as a handle bar or small tree limb which is gripped in the bore 67, 72 for supporting the light 10. The ribs 73 are sufficiently yieldable for gripping engagement with an object which may be slightly tapered or which is slightly smaller than the bore 67, 72, to resist turning of the light when applied to such objects and to maintain the light with its axis disposed substantially crosswise of a tapered object.

It will be readily apparent that it is only necessary to remove the screw 30 to completely dismantle the light 10. As the upper casing section 13 is removed from the lower casing section 12 the resilient strip portion 45 will slide out of engagement with the contact 27, after which the battery 20, the sealed beam unit 23 or the switch 28 may be removed and replaced. In reassembling the casing sections the resilient contact portion 45 will slide back into engagement with the contact 27 as the casing section is applied to the casing section 12. The light 10 is secured

assembled by merely re-applying the single screw 30. Thus it will be apparent that no wires are included in the electric circuit and there are no fastenings in connection with the electric circuit to be connected or disconnected in assembling or dismantling the light 10. Further, the spring strips 44 and 56 by their yieldable contact with the contacts 26 and 27 function as springs to hold the sealed beam unit 23 against any movement or vibration relative to the casing 11 and thereby eliminate the need of separate springs for this purpose. The casing 11 and handle 68, being of plastic, may be of various colors and may be of various contrasting colors if desired.

A suction cup 77, as seen in Figure 9, has an internally threaded sleeve 78 extending through the center thereof and projecting from its convex side. The exposed upper end of the sleeve 78 is adapted to fit loosely in the socket 36 and said sleeve 38 is adapted to threadedly engage the end of the bolt 30 which protrudes from the nut 35 for detachably securing the suction cup 77 to the bottom 34 of the casing 11. When applied, the suction cup 77 can be utilized for detachably mounting the light 10 on a smooth surface such as a vehicle fender or other part of a vehicle, boat or other device.

The joint 14 and the other openings of the casing 11 may be provided with suitable sealing gaskets so that the casing will be watertight when assembled.

Various modifications and changes are contemplated and may be resorted to, without departing from the function or scope of the invention as hereinafter defined by the appended claims.

I claim as my invention:

1. A portable light including an elongated casing composed of a top section and a bottom section, a single fastening detachably securing said sections together, a transverse bulkhead forming a part of the casing and separating the casing into a rear compartment and a front compartment, said bulkhead comprising sections forming parts of the casing sections, a self-contained current source detachably mounted in the rear casing compartment including spaced electrical contacts disposed adjacent the bulkhead, said casing having an open forward end provided with an annular internal channel, a light source having a rim portion seating in said channel and closing the forward end of the casing and having a portion in-

cluding spaced electrical contacts extending into said forward compartment, said bulkhead sections being formed of electrical insulating material, and conductor elements connected to and supported by said bulkhead sections in engagement with the contacts of the light source and current source and forming an electric circuit between the current source and light source, a manually operable switch extending through and supported by the upper casing section, certain of said conductor elements being supported by the bulkhead section of the lower casing section and other of said conductor elements, supported by the bulkhead section of the upper casing section, being detachably connected to said switch for interposing the switch in the electric circuit.

2. A portable light as in claim 1, said first mentioned conductor elements having parts disposed on the rear side of the bulkhead and engaging the contacts of the current source, and certain of said first mentioned and last mentioned conductor elements having parts disposed on the forward side of the bulkhead and yieldably engaging the contacts of the light source.

3. A portable light as in claim 1, a handle disposed longitudinally of the casing, means detachably securing the handle to the upper casing section, portions of the handle and upper casing section combining to form a bore disposed crosswise of the casing in which a supporting element is adapted to be clamped for mounting the portable light thereon, said handle including a grip portion spaced from the casing and having a flat outer side adapted to bear against a supporting surface, said grip portion being provided with fastening receiving openings adapted to receive fastenings for securing the grip portion against the supporting surface.

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