

SPECIFICATION

Mounting posts for holding a light source in a lighted electrical pushbutton switch

5 A mounting post for supporting a light emitting diode (LED) or other lighting device in a lighted electrical pushbutton switch makes the handling of the LED much more convenient, when it is desired to
 10 insert or remove the LED from the switch. These posts are conventionally constructed with a generally cylindrical base having a pair of parallel passageways that run all the way through them from their top to their bottom surfaces for receiving the leads of
 15 the LED. In the past, in order to secure the LED to such a post, several different methods were employed; but none of these proved to be entirely satisfactory.

For example, the leads were twisted after they
 20 emerged from the bottom of the post; but this was an awkward procedure; and at times it was difficult to keep the terminal ends of the leads in parallel position for insertion into printed circuit boards. Another method of securing the leads was to glue
 25 them in; however, this procedure required additional equipment and materials and required curing time for the adhesive. A third method for securing the leads in the support post was merely to employ friction. However, this method had the disadvantage
 30 of requiring tighter tolerances in order to ensure that the leads would not fall out of the post too easily due merely to gravitational force.

The present invention provides a mounting post for an LED, or other lighting device, which securely
 35 holds the LED on the mounting post in a manner which requires no adhesive, and which does not require the closer tolerances needed to obtain friction holding, and which ensures that the leads will be substantially parallel after they emerge from
 40 the passageways of the post.

According to the present invention, a mounting post has a generally cylindrical base for supporting a light source, for a lighted electrical pushbutton switch, that has a pair of leads; and the leads of the
 45 light source pass through parallel passageways that run through said base from a top surface to a bottom surface of said base, and there is a pair of diametrically opposed cut-out sections, each of which receives one of said leads so as to expose a portion of
 50 said received lead in said section; said sections being located intermediate the ends of said base and each comprising a rear wall which is recessed from the outer periphery of said base, and upper and lower walls which divide said passageways into
 55 upper and lower segments on opposite sides of said cut-out sections, and said sections allowing said exposed portion of each of said leads to be inwardly crimped towards said rear wall of its respective cut-out section, so that said leads are each securely
 60 locked into place in said respective cut-out section between said upper and lower walls.

The accompanying drawings show one example of a switch embodying the present invention. In these drawings:-

65 *Figure 1* is a perspective, partially broken-away

view that shows the lighted pushbutton cap, a portion of the housing of the lighted pushbutton switch, an LED, and the LED mounting post; and

Figure 2 is a partial cross-sectional view, omitting the housing and cap, in which a portion of the post of *Figure 1* is cross-sectioned to show how the leads of the LED are secured in the mounting post.

An electrical pushbutton switch is shown in *Figure 1* in which a transparent or translucent pushbutton cap 10 is located for movement in a housing 12. The remainder of the actuating mechanism of the pushbutton switch is not shown, since the present invention may be utilized with any electrical pushbutton switch in which a light source and its
 75 mounting post are retained so that light projects from the LED or other light source, through the pushbutton cap 10. A light emitting diode mounting post 14 has a cylindrical base 15 and a pair of parallel, lead-receiving passageways, one for each of the leads of the LED, each of which passageways is split into two segments, an upper segment 18 and a lower segment 20, by cut-out sections 26 diametrically opposed on opposite sides of the base 15.

The upper segment 18 of the passageway extends
 80 from a top surface 22 of the base to an upper wall 24 of one of the sections 26. The lower segment 20 extends from a lower wall 28 of the section 26 to a bottom surface 30 of the post 14. An LED 32 is inserted into the mounting post so that its leads 34, 36, which are initially straight, extend through the passageways, thus leaving intermediate portions 38 of the leads exposed in the cut-out sections 26. These intermediate portions 38 are crimped by a pliers, or other suitable tool, into the sections 26, so
 90 that they engage rear walls 40 of the sections 26, which are recessed from an outer periphery 27 of the base 15. This crimping serves to lock the leads 34, 36 between the upper wall 24 and the lower wall 28 of each of the sections 26, due to bends 42, 44 that are accordingly formed in the leads. In this manner, the LED 32 is securely locked into place in the mounting post 14.

The mounting post is then locked into the housing 12 of the switch by locking blocks 46, 48 which, respectively, engage upper and lower surfaces of a locking ring 50 that is formed on the housing 12. The LED may thus be locked into place, and is supported on the mounting post, in a manner which keeps the leads parallel after they emerge from the bottom surface of the mounting post, without requiring adhesive or a friction fitting, and without the necessity of twisting the leads.

CLAIMS

120 1. A mounting post having a generally cylindrical base for supporting a light source, for a lighted electrical pushbutton switch, that has a pair of leads; wherein the leads of the light source pass through parallel passageways that run through said base from a top surface to a bottom surface of said base, and there is a pair of diametrically opposed cut-out sections, each of which receives one of said leads so as to expose a portion of said received lead in said
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For example, the leads were twisted after they emerged from the bottom of the post; but this was an awkward procedure; and at times it was difficult to keep the terminal ends of the leads in parallel position for insertion into printed circuit boards. Another method of securing the leads was to glue them in; however, this procedure required additional equipment and materials and required curing time for the adhesive. A third method for securing the leads in the support post was merely to employ friction. However, this method had the disadvantage of requiring tighter tolerances in order to ensure that the leads would not fall out of the post too easily due merely to gravitational force.

The present invention provides a mounting post for an LED, or other lighting device, which securely holds the LED on the mounting post in a manner which requires no adhesive, and which does not require the closer tolerances needed to obtain friction holding, and which ensures that the leads will be substantially parallel after they emerge from the passageways of the post.

According to the present invention, a mounting post has a generally cylindrical base for supporting a light source, for a lighted electrical pushbutton switch, that has a pair of leads; and the leads of the light source pass through parallel passageways that run through said base from a top surface to a bottom surface of said base, and there is a pair of diametrically opposed cut-out sections, each of which receives one of said leads so as to expose a portion of said received lead in said section; said sections being located intermediate the ends of said base and each comprising a rear wall which is recessed from the outer periphery of said base, and upper and lower walls which divide said passageways into upper and lower segments on opposite sides of said cut-out sections, and said sections allowing said exposed portion of each of said leads to be inwardly crimped towards said rear wall of its respective cut-out section, so that said leads are each securely locked into place in said respective cut-out section between said upper and lower walls.

The accompanying drawings show one example of a switch embodying the present invention. In these drawings:-

Figure 1 is a perspective, partially broken-away

view that shows the lighted pushbutton cap, a portion of the housing of the lighted pushbutton switch, an LED, and the LED mounting post; and

Figure 2 is a partial cross-sectional view, omitting the housing and cap, in which a portion of the post of *Figure 1* is cross-sectioned to show how the leads of the LED are secured in the mounting post.

An electrical pushbutton switch is shown in *Figure 1* in which a transparent or translucent pushbutton cap 10 is located for movement in a housing 12. The remainder of the actuating mechanism of the pushbutton switch is not shown, since the present invention may be utilized with any electrical pushbutton switch in which a light source and its mounting post are retained so that light projects from the LED or other light source, through the pushbutton cap 10. A light emitting diode mounting post 14 has a cylindrical base 15 and a pair of parallel, lead-receiving passageways, one for each of the leads of the LED, each of which passageways is split into two segments, an upper segment 18 and a lower segment 20, by cut-out sections 26 diametrically opposed on opposite sides of the base 15.

The upper segment 18 of the passageway extends from a top surface 22 of the base to an upper wall 24 of one of the sections 26. The lower segment 20 extends from a lower wall 28 of the section 26 to a bottom surface 30 of the post 14. An LED 32 is inserted into the mounting post so that its leads 34, 36, which are initially straight, extend through the passageways, thus leaving intermediate portions 38 of the leads exposed in the cut-out sections 26. These intermediate portions 38 are crimped by a pliers, or other suitable tool, into the sections 26, so that they engage rear walls 40 of the sections 26, which are recessed from an outer periphery 27 of the base 15. This crimping serves to lock the leads 34, 36 between the upper wall 24 and the lower wall 28 of each of the sections 26, due to bends 42, 44 that are accordingly formed in the leads. In this manner, the LED 32 is securely locked into place in the mounting post 14.

The mounting post is then locked into the housing 12 of the switch by locking blocks 46, 48 which, respectively, engage upper and lower surfaces of a locking ring 50 that is formed on the housing 12. The LED may thus be locked into place, and is supported on the mounting post, in a manner which keeps the leads parallel after they emerge from the bottom surface of the mounting post, without requiring adhesive or a friction fitting, and without the necessity of twisting the leads.

CLAIMS

1. A mounting post having a generally cylindrical base for supporting a light source, for a lighted electrical pushbutton switch, that has a pair of leads; wherein the leads of the light source pass through parallel passageways that run through said base from a top surface to a bottom surface of said base, and there is a pair of diametrically opposed cut-out sections, each of which receives one of said leads so as to expose a portion of said received lead in said section; said sections being located intermediate the



ends of said base and each comprising a rear wall which is recessed from the outer periphery of said base, and upper and lower walls which divide said passageways into upper and lower segments on opposite sides of said cut-out sections, and said sections allowing said exposed portion of each of said leads to be inwardly crimped towards said rear wall of its respective cut-out section, so that said leads are each securely locked into place in said respective cut-out section between said upper and lower walls.

2. A mounting post according to claim 1, substantially as described with reference to the accompanying drawings.

15 3. A lighted electrical pushbutton switch including a housing, and a light source locked into a mounting post according to claim 1 or claim 2, the mounting post being locked into said housing.

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