

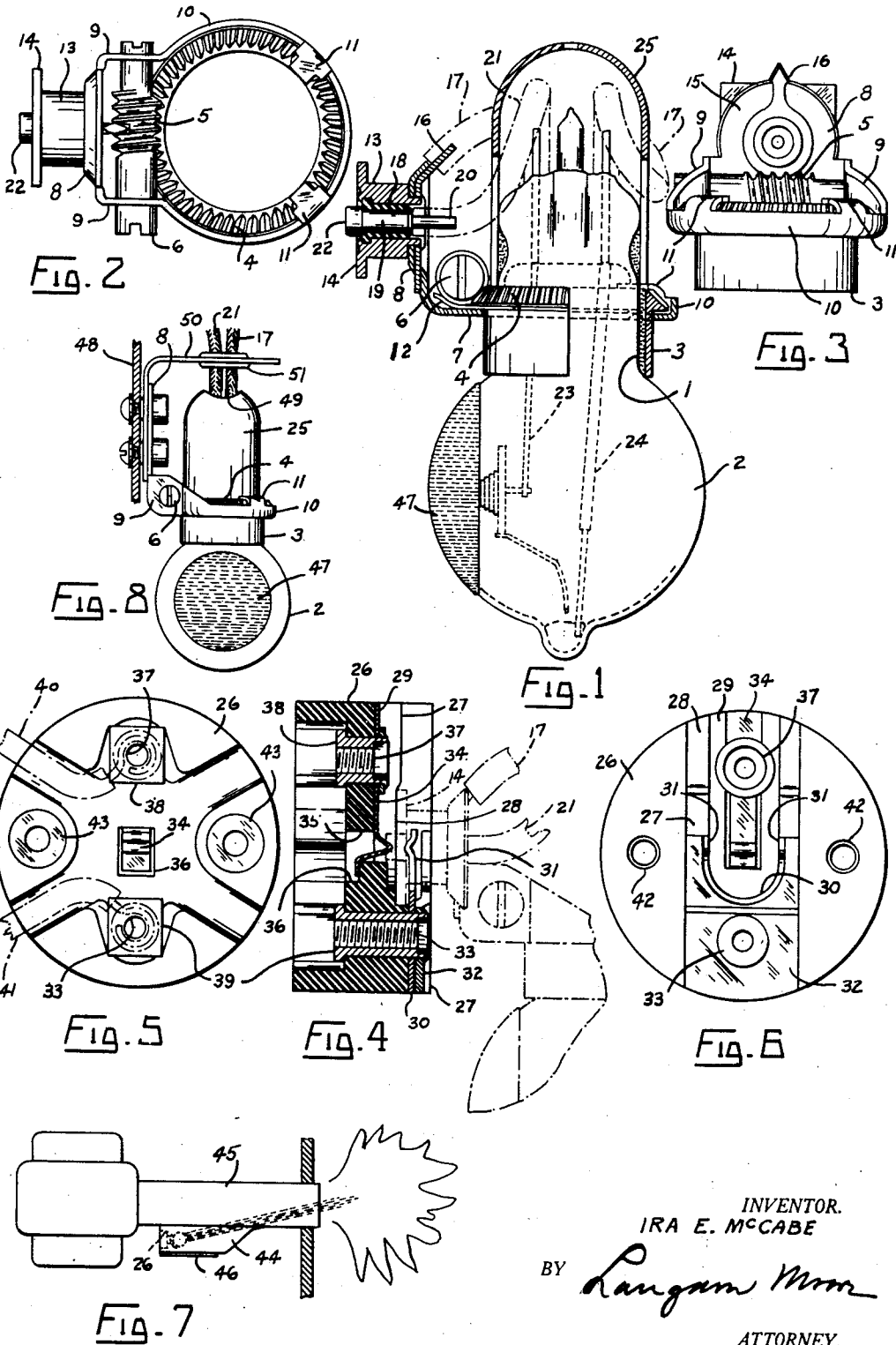
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ADJUSTABLE MOUNTING MEANS

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## ADJUSTABLE MOUNTING MEANS

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13 Claims. (Cl. 200—168)

This invention relates to improvements in adjustable mounting means and more particularly to a mounting designed to adjustably and removably support an electric bulb.

While it is an object of this invention to provide a device of the character described for mounting an electric bulb containing a light responsive switch such as disclosed in this applicant's prior co-pending application, Serial No. 124,982, filed February 10, 1937, yet it may be employed with any other kind of an electric bulb for whatever purpose the bulb may be used should an adjustable mounting therefore be desirable and advantageous.

One of the applications of this mounting is of particular advantage in locating and adjusting the electric bulb containing the light responsive switch, above referred to, in a housing at one side of the draft pipe of an oil burner whereby the light from the flame of the ignited fuel will so open the light responsive switch. In such applications it is necessary to properly adjust the switch within the bulb so that the rays of the light emanating from the flame will properly be received by it. In such an installation it is also desirable to be able to insert and remove the electric bulb from either the top side or bottom of the housing which supports it.

With these and other objects in view, reference is made to the accompanying sheet of drawings which illustrates a preferred form of this invention with the understanding that detailed changes may be made without departing from the scope thereof.

In the drawing:

Figure 1 is a view partly in side elevation and partly in section illustrating an electric bulb secured in place upon a preferred form of this adjustable mounting, omitting the mounting block therefor.

Figure 2 is a top plan view of Figure 1, omitting the electric bulb and electrical wires connected thereto.

Figure 3 is a view in elevation of Figure 2 looking from the right thereon.

Figure 4 is a view in central vertical section taken through the mounting block, illustrating in dot and dash lines, the attachment of the adjustable mounting, as shown in Figure 1, thereto.

Figure 5 is a view in rear elevation of Figure 4.

Figure 6 is a view in front elevation of Figure 4.

Figure 7 is a schematic top plan view of a conventional oil burner attached to a furnace illus-

trating the location of the detachable adjustable mounting means for supporting a light responsive switch in the housing of the draft pipe adjusted to receive the rays of light emanating from the burner flame.

Figure 8 is a view in elevation of a modified form for supporting this improved adjustable mounting.

In the embodiment, illustrated in Figure 1, the neck or closed end 1 of the electric bulb 2 is inserted through a sleeve 3 and preferably secured thereto by cement. The upper end of the sleeve 3 terminates in a bevel gear 4 adapted to mesh with a worm 5 upon a shaft 6. The sleeve 3 is mounted to rotate within a horizontal portion 7 of a supporting bracket with the under side of the bevel gear engaging the upper surface of the bracket. This portion of the bracket is provided with an upstanding annular flange surrounding a portion of the bevel gear and then extended upward to join a vertical portion 8 of the bracket. The upwardly extended integral flanges 9 are provided with bearings in which the shaft 6 is mounted. The exterior ends of the shaft are each provided with a slot for the engagement of a screw driver or other tool to rotate the shaft to impart a rotative movement through the worm and meshing bevel gear to the sleeve 3 and bulb supported thereby. The upper edge of the annular flange 10 is preferably provided with two or more lugs 11 which extend over the bevel gear 4 to maintain the sleeve 3 in rotatable relationship upon the portion 7 of the bracket and in mesh with the worm 5. It is also preferable to provide a spring 12 upon the portion 7 of the bracket adjacent the annular flange 10 extending from below the bevel gear 4 with the free end exerting sufficient tension upon the underside of the shaft 6 on each side of the worm 5 to act as a friction clutch to hold the shaft in adjusted position.

The vertical portion 8 of the bracket mounts a cylindrical metallic contact carrying block 13, the axis of which cuts the vertical axis of the sleeve 3 with the outer end of the block 13 provided with a square flange 14 extending at right angles from the circumference of the block with the lower edge of the square flange arranged parallel to the horizontal portion 7 of the bracket. As shown in Figure 1, the end of the block 13 opposite the square flange is shouldered and the smaller portion extended through a circular opening in the horizontal portion 8 of the bracket and through an opening in a circular contact member 15 and then the free edge is

spun over or otherwise secured with the shoulder against the bracket and the inner end in engagement with the contact member 15. The contact member 15 is provided with a vertical extension 16 for attachment to an electric lead wire, shown in dot and dash lines 17 in Figure 1.

The contact carrying block 13 is provided with an axial bore for receiving an insulating bushing 18 for mounting a contact member 19 having an extension 20 passing through and extending beyond the horizontal portion 8 of the bracket adapted to be connected to a lead wire, shown by dot and dash lines 21. The opposite end of the contact 19 is provided with an enlarged circular extremity 22.

The electric bulb 2 mounts a light responsive switch such as disclosed in Figure 8 of the applicant's said prior co-pending application, Serial No. 124,982, filed February 10, 1937, which includes two electrodes 23 and 24 passing through the upper sealed end of the bulb 2. Electrode 24 is adapted to be connected through lead wire 17 to contact member 16 of the mounting and electrode 23 is adapted to be connected by lead wire 21 to contact member 20 of the mounting. It is preferable, in this form, to provide a casing 25 to surround and protect the upper sealed end of the bulb 2 which casing is preferably secured to the reduced neck of the bulb 2 by cement, as shown in Figure 1, through which the wires 17 and 21 pass.

A mounting block 26, preferably of cylindrical form of suitable electrical insulating material, as illustrated in Figures 4, 5 and 6, is provided for supporting the adjustable mounting above described and illustrated in Figures 1, 2 and 3. The front of the mounting block 26 is provided with an offset recess 27 below the center thereof joining a deeper recess 28 extending below the center of the block and terminating therebelow in a semi-circular bottom. The front of the block 26 is provided with a still deeper recess 29 extending below the recess 28 and below the center of the block. The side walls of the three recesses are parallel to each other and parallel to a diameter of the block. The recess 27 mounts in the upper offset thereof a contact metallic plate 30 having contact arms 31 extending upwardly therefrom on each side of the curved bottom of the recess 28 to above the center of the block 26 forming contact fingers which are each offset adjacent the free ends, for a purpose hereinafter described. The contact plate 30 is preferably held in place by an offset metallic plate 32 upon the outer side thereof to which is secured one end of the metallic bushing 33. The plate 32 limits the outward movement of the contact fingers so as to prevent permanent distortion of them upon assembly of the switch mounting. The recess portion 29 receives the inset metallic strip 34. The block 26 is provided with an axial bore 35 which is enlarged upon the rear underside to form a rectangular depending shoulder 36. The lower end of the contact strip 34 is offset to form a contact finger in front of the bore by being first bent outwardly and then inwardly with the lower extremity in engagement with the shouldered portion 36. The contact strip is held in engagement with the mounting block by a metallic bushing 37 secured to an insulating washer bearing upon the upper portion of the contact strip.

The rear of the contact block is recessed, as shown in Figure 5, to be engaged by rectangular flanges 38 and 39 upon the inner ends of the metallic bushings 37 and 33 in engagement with the

contact strip 34 and contact plate 30. These bushings are screw threaded for receiving binding posts to connect the wires 40 and 41, shown in dot and dash lines, of the circuit to be controlled by the operation of the light responsive switch mechanism within the bulb 2. The switch block 26 is also preferably provided with circular apertures 42 for receiving screw threaded bushings 43 equally spaced apart from the bushings 33 and 37 for receiving screws for supporting and attaching the block as may be desired.

When the adjustable mounting, illustrated in Figure 1, is assembled upon the mounting block 26 it assumes a position, shown in dot and dash lines in Figure 4. From this illustration it is seen that the square flange 14 is inserted within the side walls of the recess 28 until the bottom of this recess brings the enlarged head 22 of the contact member 19 in engagement with the contact finger portion of the contact strip 34 and at the same time the contact fingers 31 of the contact plate 30 engage the opposite sides of the square flange 14. The flange 14 first enters the block by way of the recess 27 where, upon contacting the fingers 31 of the contact plate 30, the fingers are raised and placed under tension so that the flange upon fully entering the deeper recession 28 is snapped into place where it is held until forcibly removed against the tension of the plate 30. It is therefore seen that when the mounting block 26 is secured upon the back of a housing 44 extending from the side of a draft pipe 45 of an oil burner, as shown in Figure 7, with the wires 40 and 41 of the circuit to be controlled in connection with the binding posts of bushings 37 and 33 and it is desired to insert the adjustable mounting, shown in Figure 1, through a covered opening 46 in the side of the housing 44, the axis of the mounting block passing through the bushings 33 and 37 should be arranged at right angles to the cover 46 of said opening. To insert the adjustable mounting the cover is opened and the square flange 14 is inserted in the recess 28 with the axis of the bulb 2 in vertical position and the electrical connections between contact plate 34 and contact member 19 and contact fingers 31 and square flange 14 established.

Inasmuch as the light responsive switch mechanism heretofore referred to as being contained within the bulb 2 includes a silvered reflector 47 adapted to reflect the rays from the flame of the burning fuel upon the operating member of the switch mechanism it may be desirable to change the axial position of this reflector to align it with the rays passing through the draft pipe and housing 44. This may be done after the electrical contacts to the bulb have been made through the mounting member and mounting block by inserting a proper tool through the opening 46 to engage the shaft 6 and by rotating the shaft the proper adjustment of the reflector 47 may be made through the worm on the shaft and bevel gear upon the supporting sleeve 3.

The modified form of this adjustable mounting means, illustrated in Figure 8, is an adaptation of this mounting where the detachable electric connection to the bulb 2 is not necessary. In such a case, the vertical portion 8 of the supporting bracket is secured in any desired manner and position upon a desired base or support 48 and the electric lead wires 17 and 21 from the bulb 2 will pass through an opening 49 provided therefor in the top of the casing 25 to allow the free ends to be attached to a ter-

minal block to complete the circuit therethrough. In this form it is desirable to provide a guide for the lead wires to prevent angular tension being exerted upon the upper portion of the casing 25. One form of guide is shown in Figure 8 as including a right angular bracket 50 having one arm secured between portion 8 of the mounting and the base 48 and the other having a circular opening mounting an annular insulating member 51 in axial alignment with the casing 25 with the lead wires passing through the insulating member 51. The portion of the sleeve 3 supporting or mounting the bulb 2 may be adjusted in this form of fixed bracket by the shaft 6 in the same manner as hereinbefore described.

When the electrical connection to the bulb is made, as shown in Figure 8, the mounting block 26 may still be desired for the advantages afforded thereby, when removal and replacement of the switch is necessitated, in which case the block can of course be constructed without the electrical connecting means therein. The square flange 14 may also be changed to a flange of many sides of equal length whereby the number of various positions the bulb may assume when connected to the block is increased.

What I claim is:

1. An adjustable mounting means including an electric bulb, a sleeve adapted to receive and support the base of the bulb, a bracket for rotatably mounting the sleeve, means carried on the bracket for adjusting the relation of the sleeve to the bracket, means upon the bracket for engaging a support, and means supported upon the bracket to prevent the adjustment of the bulb from breaking the electrical connections to the bulb, and wherein the said adjusting means includes an annular flange upon one end of the sleeve having a bevel gear meshing with a worm gear upon a shaft rotatably mounted upon the bracket.

2. An adjustable mounting means including an electric bulb, a sleeve adapted to receive and support the base of the bulb, a bracket for rotatably mounting the sleeve, means carried on the bracket for adjusting the relation of the sleeve to the bracket, means upon the bracket for engaging a support, in combination with a mounting block for said bracket engaging means, and means to establish an electric connection between the block and bulb when the said bracket is in engagement therewith to establish an electric circuit to the bulb.

3. The structure of claim 2, wherein said bracket engaging means includes a rectangular member, and said mounting block includes a recessed groove to receive said rectangular member with one of the electric terminals upon the block acting to secure the bracket thereon.

4. The structure of claim 2, wherein said bracket engaging means includes a rectangular member, and said mounting block includes a recessed groove to receive said rectangular member with one of the electric terminals upon the block acting to secure the bracket thereon, and wherein the rectangular member forms a terminal connected to one lead wire of the bulb and mounts an insulated terminal connected to the other lead wire to the bulb.

5. The structure of claim 2, wherein said bracket engaging means includes a rectangular member, and said mounting block includes a recessed groove to receive said rectangular member with one of the electric terminals upon the

block acting to secure the bracket thereon, and wherein the rectangular member forms a terminal connected to one lead wire of the bulb and mounts an insulated terminal connected to the other lead wire to the bulb, and wherein the mounting block mounts resilient terminals arranged to be electrically engaged by the rectangular member and the insulating terminal carried thereby.

6. The structure of claim 2, wherein said bracket engaging means includes a rectangular member, and said mounting block includes a recessed groove to receive said rectangular member with one of the electric terminals upon the block acting to secure the bracket thereon, and wherein the rectangular member forms a terminal connected to one lead wire of the bulb and mounts an insulated terminal connected to the other lead wire to the bulb, and wherein the rectangular member is in the form of a square and the insulated terminal carried thereon arranged in the center of the square, whereby the bracket may be engaged in the mounting block to support the bulb at right angular positions.

7. An adjustable mounting means for an electric bulb having a reflector on one side thereof including a sleeve to receive and support the base of the bulb, a bracket for rotatably mounting the sleeve, an annular flange on one end of the sleeve in engagement with the bracket, a bevel gear upon the flange, an adjusting shaft mounting a worm gear, means for mounting the shaft for rotation upon the bracket with the worm gear meshing with the bevel gear, an electric terminal member, a flexible lead connecting the terminal member to one terminal of the bulb, a portion of the bracket formed parallel to the vertical axis of the bulb supporting said terminal member, a second terminal member, a flexible lead connecting the second terminal member to the second terminal of the bulb, means for mounting the second terminal member to pass through the first terminal member and be insulated therefrom, said first terminal member formed to provide means to mount the bracket upon an electric terminal carrying block with the terminal member of the bracket in electric connection with the terminals thereon to establish a circuit to said bulb, whereby the position of the reflector on the bulb may be adjusted without disturbing the electrical connections thereto.

8. The structure of claim 7 wherein the first terminal member includes a square flange with the second terminal member passing through the center thereof, and wherein the terminal carrying block is provided with a rectangular recess to receive the square flange of the first terminal member with one terminal on the block having spring pressed fingers to engage and maintain the first terminal member of the bracket in the grooved recess in the block and with the second terminal on the block having a resilient finger in engagement with the second terminal member of the bracket, whereby the bracket may be mounted upon the block in four different positions, each at right angles to the other with an electric circuit established to the bulb in each position.

9. A rotatable socket for an electric bulb, a retaining support for said socket including means for rotating and holding said socket in its rotated position, a mounting block for said support, means upon said support adapted to be received by said mounting block and resilient means upon said block to hold said support when engaged therewith.

10. The structure of claim 9 wherein said means upon said support is formed to be received by said block, with the block in various positions, without changing the vertical position of the bulb.
- 5 11. The structure of claim 9 wherein said means upon the socket support consists of a flanged shoulder adapted to be received within a recession in the mounting block, said flange having four or more sides of equal length to permit assembly of said support with said block, with 10 the block in various positions, without changing the vertical position of said bulb.
12. A rotatable socket for an electric switch of the bulb type, a retaining support for said socket including means for rotating and holding said 15 socket in its rotated position, a mounting block for said support, means upon said support adapted to be received by said mounting block and resilient means upon said block to hold said support and establish an electric connection between the block and bulb when said support is in engagement therewith to establish an electric circuit to the bulb.
13. A rotatable socket for an electric switch of the bulb type, a retaining support for said socket including means for rotating and holding said socket in its rotated position, contacts carried by said support insulated from each other, flexible electrical connections from said switch to said 10 contacts, a mounting block for said support, means upon said support forming an electrical connection to one of said contacts and adapted to be received by said mounting block, and resilient means upon said block to hold said support 15 when engaged therewith, said means forming an electrical connection between said support contacts and a source of electricity.

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