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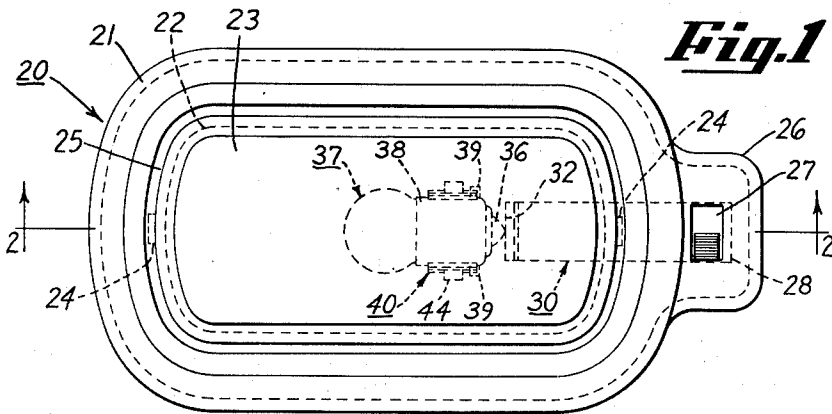
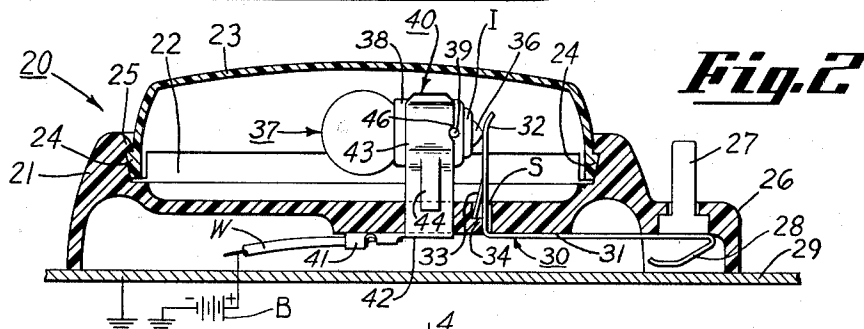
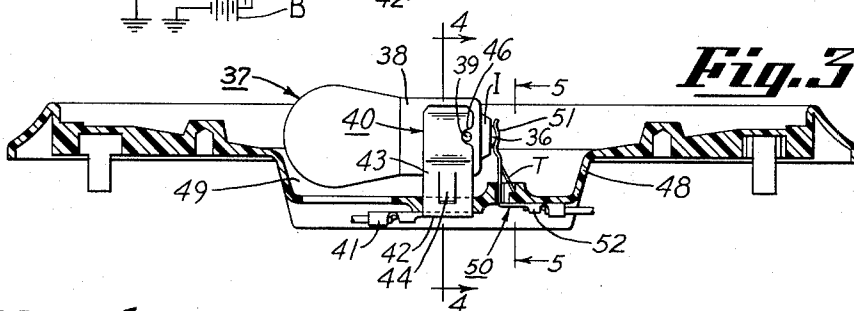
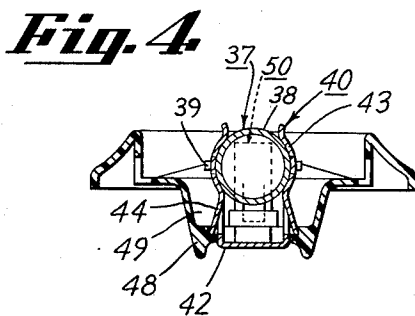
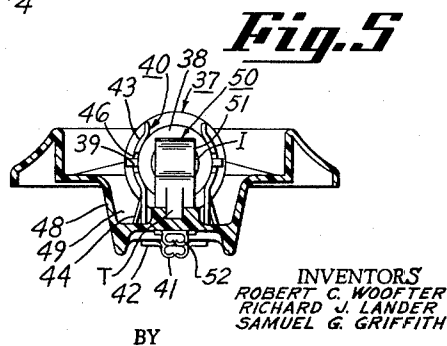
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3,210,532

ILLUMINATION AND MOUNTING MEANS

Original Filed June 12, 1961

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 6

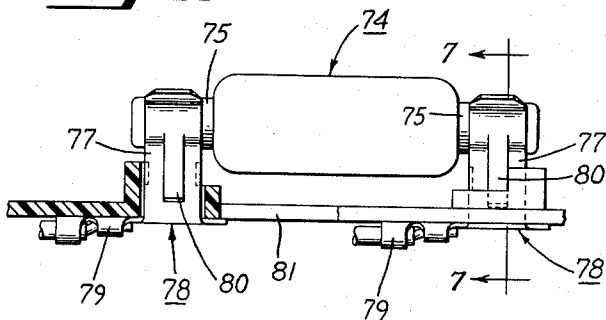


Fig. 7

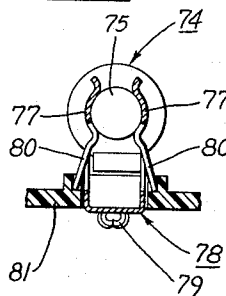


Fig. 8

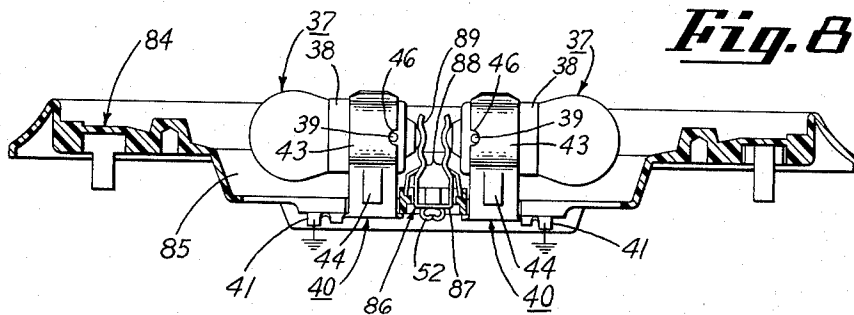
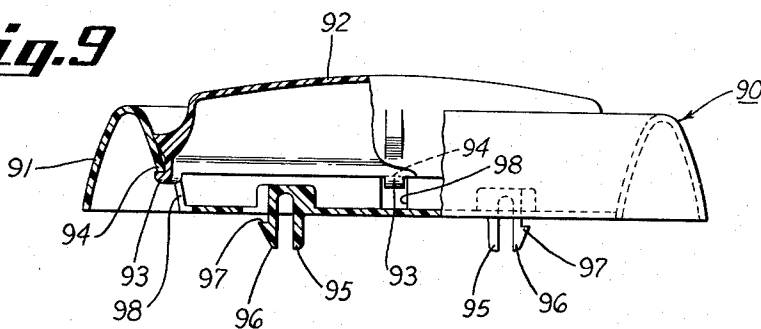


Fig. 9



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3,210,532

ILLUMINATION AND MOUNTING MEANS

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Original application June 12, 1961, Ser. No. 116,601, now Patent No. 3,125,299, dated Mar. 17, 1964. Divided and this application June 17, 1963, Ser. No. 288,406
8 Claims. (Cl. 240-7.1)

This is a divisional application of copending application Serial No. 116,601—Woofter et al. filed June 12, 1961, now U.S. Patent 3,125,299—Woofter et al. issued March 17, 1964 belonging to the assignee of the present invention. This invention relates to illumination and mounting means for use on motor vehicles and the like.

An object of this invention is to provide a new and improved illumination and mounting means economical to produce and easy to assemble and disassemble with a minimum of parts and effort.

Another object of this invention is to provide a lamp mounting assembly including a base portion and lens portion both of insulating material with the lens portion adapted to be separable from the base portion by locking barbs on the lens portion that can be displaced by flexing for snap on-off engagement as well as twisting and the like for access to a lightbulb electrically engageable with at least one combination clip and terminal means both for mounting and electrical engagement of the bulb while a conductor is attached directly to a side of the clip and terminal means separated from the bulb by the base portion of the assembly.

Another object of this invention is to provide illumination and mounting means having a base portion of insulating material with an elongated cavity to be covered by a snap on-off lens of translucent flexible material and longitudinally adjacent to an on-off switch portion integral with the base portion having slots therein to receive a U-shaped combination clip and terminal means each having a pair of resilient clips of the U-shaped portion notched to provide an interlock for a pair of diametrically opposite bayonet-like lugs that project from a lampbulb having a central contact engageable electrically by a projection on a contact member having an extension arm with a hook end displaceable for ground connection by a button means movable in the switch portion while the projection urges the bulb and lugs thereof into interlock fit of the notched combination clip and terminal means.

Still a further object of this invention is to provide illumination and mounting means having a base portion of insulating material provided with multiple terminal means having at least one thereof provided with a U-shaped portion of combination clip and terminal means having a conductor crimp portion, a base of which is common to crimp and U-shaped portions with the latter including a pair of resilient integral legs each having a notch-like recess along one edge against which bayonet lugs of a lampbulb base can be urged into a locking position maintained by further terminal means to include a crimp portion angularly integral with at least one generally wavy end portion to abut axially against the lampbulb base both for electrical energization and resilient urging of the base lugs into each of the notch-like recesses.

Another object of this invention is to provide lamp-mounting terminal means including a wire crimp portion integral laterally with a base of a U-shaped portion including legs each having a semi-annular portion substantially parallel to the other and provided with notch-like axial edge recesses to complement diametrically opposite lug-like projections of a bayonet-type lampbulb base re-

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silently urged longitudinally thereof to assure locking engagement of the lugs in the edge recesses.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein preferred embodiments of the present invention are clearly shown.

In the drawings:

FIGURE 1 is a plan view of one lamp mounting assembly in accordance with the present invention.

FIGURE 2 is a cross-sectional elevational view taken along line 2—2 in FIGURE 1.

FIGURE 3 is a cross-sectional view of a lamp mounting and terminal assembly similar to that of FIGURE 2.

FIGURES 4 and 5 illustrate end views in the direction of arrows 4 and 5, respectively, in FIGURE 3.

FIGURE 6 is a fragmentary side view of a lampbulb and terminal assembly similar to that of FIGURE 7 of U.S. Patent 3,125,299—Woofter et al. issued March 17, 1964 and belonging to the assignee of the present invention.

FIGURE 7 is a fragmentary end view taken along line 7—7 of the assembly in FIGURE 6.

FIGURE 8 is a cross-sectioned elevational view of a lamp-mounting terminal assembly similar to that of FIGURE 3.

FIGURE 9 is an elevational view of another lamp mounting assembly particularly sectioned to show another lens fastening structure.

A need exists in the automotive industry for newly simplified and improved illumination and mounting means for use on motor vehicles including structures such as dome lamps, parking lamps, truck lamps, back-up lamps, marker lamps and other applications where lighting might be desired. In some instances, an illumination and lamp-mounting assembly can include integral switching means and views of FIGURES 1 and 2 illustrate improvements in such an assembly. FIGURES 1 and 2 include a showing of a lamp-mounting and switch assembly generally indicated by numeral 20 having an elongated base portion 21 of insulating material with a substantially rectangular elongated cavity 22 to be covered by a snap on-off lens 23 of translucent and flexible plastic material. The lens 23 includes at least a pair of opposite barb-like projections 24 integral therewith and adapted to engage an undercut bezel-like flange portion 25 integral with the base portion 21 and substantially surrounding the cavity 22. Integral adjacent to one end of the base portion 21 there is an extension 26 slotted or apertured to receive a switch button or cam-like actuator 27 engaged by a resilient end or hook-like contact portion 28 displaceable by the button or actuator 27 to be in and out of engagement with a sheet metal mounting member or panel 29 of a motor vehicle. This panel or mounting member 29 can be grounded electrically relative to a battery B which is provided to energize a lampbulb or illumination means as will be described in further detail in the following paragraphs.

The end 28 which is resiliently displaceable for establishing electrical energization relative to the battery B can be an integral part or extension of a terminal means generally indicated by numeral 30 in FIGURE 2 and including a longitudinally extending floor portion which interconnects the end 28 to a lampbulb engaging contact portion 32 extending angularly to one side thereof so as to form a substantially L-shaped configuration. The contact engaging end portion 32 projects through a slot S in the base portion 21 and extends transversely with respect to the elongated cavity 22. A laterally bent tang 33 integral at one end with the contact portion 32 and having a free end abutting against a shoulder 34 can lock the terminal means 30 against inadvertent removal from the base portion 21. Flexibility of the end 28 is enhanced by length of the floor portion 31 of the termi-

nal means 30 and fitting of the contact portion 32 to project through the slot S permits the contact portion 32 of the terminal means 30 to abut resiliently against a contact 36 extending axially from a lampbulb generally indicated by numeral 37 and including a cylindrical or substantially annular metal base portion 38 having substantially diametrically opposite lug-like bayonet projections 39 provided laterally therewith. Suitable insulation I can separate contact 36 from the metal sleeve 38 such that opposite ends of a filament (not shown) inside the lampbulb 37 can be electrically attached for energization between the contact 36 and metal sleeve 38. The contact portion 32 of terminal means 30 can provide both electrical engagement for energization as determined by button or actuator movement as well as axial biasing of the lampbulb 37 to have the bulb urged into interlocking engagement with a further terminal means generally indicated by numeral 40 in FIGURE 2.

This terminal means 40 includes a wire crimping portion 41 adapted for direct attachment to a conductor or wire W energized from battery B with the wire W coming directly from an electrical wiring harness and the like to avoid necessity for additional terminal blocks, studs, terminals, blades and other attachments. The crimp portion 41 is integral with a base 42 of a U-shaped portion including a pair of integral contact legs 43 which are adapted to embrace the sleeve-like metal base 38 of the lampbulb 37. Laterally outwardly extending tang means 44 are provided integrally with each of the legs 43 and these tangs 44 are adapted to abut and engage one side of the base portion 21 in locations adjacent to substantially parallel cutouts through which the legs 43 project. The floor-like base 42 integral with both the crimp portion 41 and legs 43 can engage an opposite side of the base portion 21.

The lug-like projections 39 of the bayonet-type lampbulb 37 can engage one of a pair of diametrically oppositely located notch-like recesses 46 under resilient urging of the contact portion 32 of the other terminal means 30 thus establishing electrical interconnection as well as interlocking of the lampbulb and terminal means 40.

FIGURES 3, 4 and 5 of the drawings illustrate in further detail illumination and terminal mounting means similar in structure to that of FIGURES 1 and 2. In place of terminal means 30 for use in conjunction with a switch portion immediately adjacent to and integral with the lamp-mounting base portion there is provided a modified base portion 48 of insulating material having an elongated cavity 49 therewith and adapted for mounting of a terminal means generally indicated by numeral 50. The terminal means 50 includes a wavy-contact end portion 51 axially and resiliently engageable with a lampbulb means such as 37. Also the terminal means 50 includes a crimp portion 52 angularly disposed with respect to the wavy contact portion 51 and integral therewith. The crimp portion 52 engages one side of the mounting base portion 48 and laterally grooved slots similar to the slot S in base portion 21 can be provided to accommodate the terminal means 50 as well as combination clip and terminal means 40 which are alike for the embodiments of FIGURES 2 and 3.

FIGURE 4 represents an end view taken in the direction of arrow 4 in FIGURE 3 to show more clearly how the terminal means 40 provided with legs 43 having notch-like recesses 46 can assure polarized mounting and interlock of the lampbulb means 37 thereto. There is a polarized positioning of the lampbulb 37 having the laterally outwardly projecting lugs 39 engageable in the cutout recesses or notches 46 and the contact portion of the secondary terminal means such as represented by numerals 30 and 50 can effect resilient biasing and electrical engagement of the lampbulb means in such polarized positioning.

FIGURE 5 illustrates an end view of structure in the direction of arrow 5 in FIGURE 3. It is to be noted

that a tang T assures locking of terminal means 50 relative to the base portion 48 and this tang T can be seen extending integrally from the contact portion 51 in FIGURES 3 and 5. It is to be noted that the interlock and interconnection electrically of the terminal and bayonet-type lampbulb means as resiliently maintained by axial pressure of resilient contact portions can permit horizontal as well as vertical mounting of the lampbulb means depending upon angular positioning of base portions such as 21 and 48.

FIGURES 6 and 7 illustrate side and end views, respectively, of a cartridge-like lamp and terminal mounting means similar to that shown in FIGURES 6, 7 and 8 of U.S. Patent 3,125,299—Woofter et al. issued March 17, 1964. A lampbulb means generally indicated by numeral 74 includes a central cylindrical glass envelope as well as a pair of opposite metal sleeve-like end portions 75 adapted to fit between arcuate legs 77 of combination clip and terminal means generally indicated by numeral 78. Each of these combination clip and terminal means 78 can have a crimp portion 79 integral therewith as well as laterally outwardly projecting tangs 80 adapted to abut against a mounting panel or base portion 81 having suitable passages or slots therein through which the arcuate legs 77 can be fitted. It is to be noted that the terminal means 78 is different than the terminal means 60 which includes the limit projections 63 as well as the stabilizing projection P visible in FIGURES 10 and 11 of U.S. Patent 3,125,299—Woofter et al. issued March 17, 1964.

FIGURE 8 illustrates a base portion generally indicated by numeral 84 providing a cavity 85 extending longitudinally thereof and including provision for mounting two lampbulb means such as generally indicated by numeral 37 as noted for the structure of FIGURE 2. The base portion 84 is made of moldable insulating material and terminal means generally indicated by numeral 40 can be fitted thereto as previously described. Each of the legs or arms 43 of terminal means 40 can be provided with a cutout or notch-like recess 46 in which a bayonet lug or lateral projection 39 of the bulb can be fitted for polarizing engagement therewith. A pair of combination clip and terminal means 40 having such notches can be provided and only a single common ground connection can be provided by use of a terminal means generally indicated by numeral 86 having a generally U-shaped configuration including a midportion 87 which can be provided with an integral crimping or wire attaching portion as well as a pair of resilient legs 88 each provided with wavy end portions 89 which can bias the two lampbulb means 37 in opposite directions axially away from each other though assuring interlocking of the bayonet lugs 39 relative to the notch-like recesses 46 for polarization relative to the terminal means 40. Suitable tangs can be provided on opposite sides and extending integrally from the legs 88 for holding the terminal means 36 in position relative to the base portion 84. It is to be understood that a suitable lens of translucent plastic or glasslike material can be fitted to the base portion 84.

FIGURE 9 provides a side view of a further lamp mounting assembly generally indicated by numeral 90 and including a base portion 91 as well as a lens 92 having integral hook-like projections 93 adapted to snap fit along an underside of a flange 94 of the base portion 91. The base portion 91 can be provided further with a pair of projections 95 and 96 adapted to fit in a mounting panel aperture on a motor vehicle such that a barb or lateral projection 97 integral with the projection or member 96 can establish locked engagement with the aperture having a peripheral edge adapted to be engaged by this barb 97. The lens 92 can be removed from the base portion by rotating the lens in either direction. The lens locking barbs or projections 93 cooperate with ramps 98 adjacent to the flange portion 94. Three or more lens locking barbs or projections 93 can be provided on an

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annular lens, for example, such that three slots or openings adjacent to ramps 98 can be provided in the plastic base portion 91. Thus, when the lens is rotated in either direction the angle of the ramps 98 which in effect are edges defining openings adjacent thereto permit the lens locking barbs or projections 93 to conduct the ramps. Continued rotation of the lens causes the lens locking barbs to move inwardly and once the barbs or projections 93 have cleared the opening the lens is released to be removable from the base portion 91. The lens can be easily reassembled to the base portion by aligning the lens locking barbs with the openings or slots provided adjacent to the ramps 98 and the lens can be resiliently snapped into place for locking engagement with the base portion 91.

It is to be understood that base portions such as 21 and 48 can be provided with screw holes for mounting or with integrally molded on springing nibs or projections such as 95-96-97 shown in FIGURE 9. It is to be noted that the illumination and terminal mounting means in accordance with the present invention can be made chiefly of insulating materials including moldable plastic and the like which can be precolored to blend or contrast with interior decorations and upholstery of a motor vehicle. Differing terminal means connected directly to wiring can permit a saving in additional connections and assembly time can be appreciably reduced with a minimum of parts and effort. In view of polarized fit of bayonet projections on a lampbulb means relative to notches with respect to terminal means 40 it is believed that such illumination and mounting means in accordance with the present invention can provide more advantageous and economical assembly and disassembly of components on a motor vehicle.

While the embodiments of the present invention as herein disclosed constitute preferred forms, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. Illumination and terminal mounting means, comprising, a base portion of insulating material having slots therein, first terminal means having a generally L-shape including a contact portion projecting through one of the slots and an integral crimp portion adjacent to said base, a second terminal means including combination crimp and U-shaped clip portions integral with each other, said U-shaped clip portion including a pair of arcuate legs which project through a pair of slots in said base portion and each having a notch-like recess along one edge thereof, and bayonet-type lampbulb means having a metal base with a pair of laterally outwardly projecting lugs which interlock with said notch-like recess of each leg.

2. The illumination and terminal mounting means of claim 1 wherein said contact portion of said first terminal means is positioned substantially transversely to said legs of said second terminal means in a location adjacent to each of said notch-like recesses thereof, said contact portion having resilience to urge said bulb means axially to maintain polarizing interlock of said lugs in said recesses.

3. Illumination and terminal mounting means, comprising, a base portion of insulating material having slots therein and an elongated cavity therewith, an extension integral with said base portion and having an aperture therethrough, first terminal means having a generally L-shape including a contact portion projecting through one of the slots and a deflectable end extending to said extension having the aperture, on-off actuator means carried by the extension and projecting in part through the aperture, said actuator means in deflection of said end of said first terminal means serving for on-off switching of electrical energization to said first terminal means, a second terminal means including combination crimp and U-shaped clip portions integral with each other, said U-shaped clip portion including a pair of arcuate legs which project through a pair of slots in said base portion and each having a notch-like recess along one edge thereof,

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and a bayonet-type lampbulb means having a metal base with a pair of laterally outwardly projecting lugs which interlock with said notch-like recess of each leg.

4. The illumination and terminal mounting means of claim 3 wherein said contact portion of said first terminal means is positioned substantially transversely to said legs of said second terminal means in a location adjacent to each of said notch-like recesses thereof, said contact portion having resilience to urge said bulb means axially to maintain polarizing interlock of said lugs in said recesses.

5. A lamp mounting assembly, comprising, a mounting base portion having undercut bezel-like flanging as well as a lens portion both of insulating material complementary to each other, said lens portion being engageable with though separable from the base portion by individually spaced locking barbs projecting integrally from said lens portion, said individually spaced barbs per se being displaceable by flexing for snap on-off engagement as well as twisting during separation thereof with said lens portion away from said base portion having replaceable lightbulb means including outwardly projecting lug means thereon, at least one combination clip and terminal means fitted into mounting assembly with said base portion as well as in electrical engagement with bulb means while a conductor is attached directly to a side of the clip and terminal means separated from the bulb means by said base portion of the assembly, and an additional base-portion-mounted terminal having a contact portion located transversely adjacent to one side of said combination clip and terminal means with the latter including notch-like recess-forming means to complement said outwardly projecting lug means in mechanical interlock during electrical interconnection of the bulb means and said combination clip and terminal means carried by said base portion, said barbs being provided at least in pairs engageable and displaceable in predetermined locations only at said undercut bezel-like flanging of said base portion.

6. The assembly of claim 5 wherein said additional terminal has a pair of contact portions each with wavy ends adapted resiliently to urge dual lampbulb means in opposite directions, each of said lampbulb means having projecting lug means to complement notch-like recess-forming means of a pair of combination clip and terminal means longitudinally separated from each other as mounted on said base portion.

7. The assembly of claim 5 wherein said base portion in locations adjacent to said undercut bezel-like flanging has pairs of ramps engaged by said barbs only during rotation of said lens portion in either of opposite directions, said ramps each extending radially inwardly as engaged by said barbs that move corresponding inwardly until unlocked from engagement with said flanging of said base portion subject to reassembly of said lens portion during resilient snap fit of said barbs back into locking engagement with flanging of said base portion in locations between said ramps.

8. In a lamp mounting assembly having a mounting base portion with undercut bezel-like flanging as well as a lens portion both of insulating material complementary to each other and having base supported terminal means electrically energizable in engagement with lampbulb means spaced between the base and lens portions, the improvement which comprises individually spaced barbs per se integrally carried by the lens portion and normally interlocked complementary to flanging of the base portion in locations coincident with slots in the base portion, and a pair of ramps extending inwardly from the flanging at each slot as edges thereof contacted by said barbs upon rotation of the lens portion in a plane of movement coinciding with the flanging, said barbs during such rotation being moved inwardly to clear the flanging at each of the slots in axial release of the lens portion in response to said rotation as to the base portion, said barbs on the lens portion having a resilient snap fit during reassembly

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to the base portion flanging in alignment with the slots defining said ramps for subsequent release of said barbs from interlock as defined.

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