July 25, 1967 F. J. ROSENBLATT 3,333,224

RESISTANCE ATTACHMENT FOR INCANDESCENT LIGHT BULBS

Filed July 20, 1964

FIG. 1

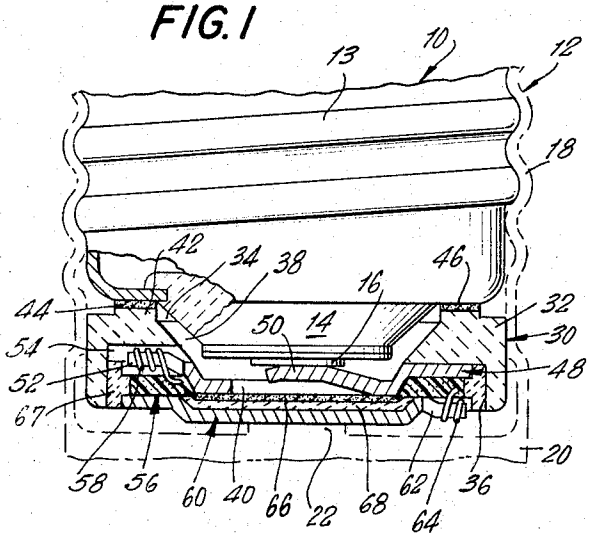


FIG. 7

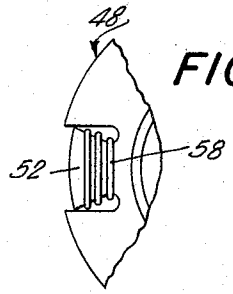


FIG. 6

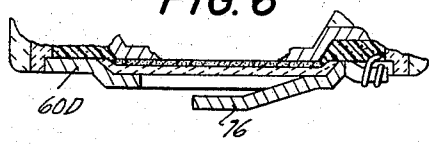


FIG. 5

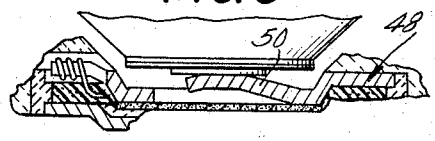


FIG. 2

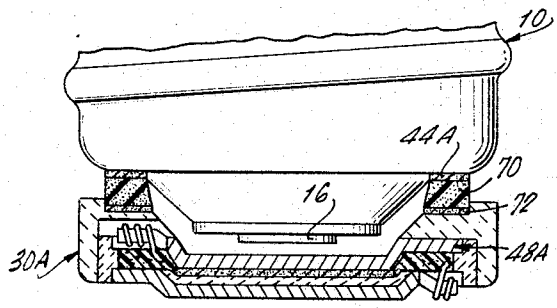


FIG. 4

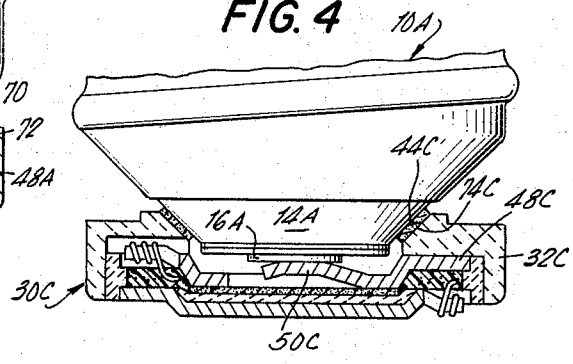


FIG. 3

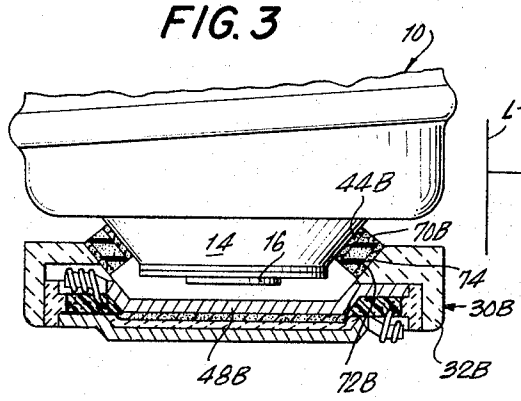
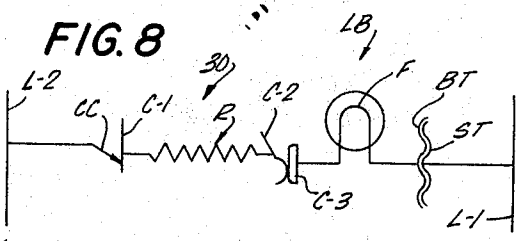


FIG. 8



INVENTOR.
FRANK J. ROSENBLATT
BY Amster & Rothstein
ATTORNEYS

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RESISTANCE ATTACHMENT FOR INCANDESCENT LIGHT BULBS

Frank J. Rosenblatt, 1945 Vyse Ave., Bronx, N.Y. 10460

Filed July 20, 1964, Ser. No. 383,745
7 Claims. (Cl. 338—219)

The present invention relates generally to incandescent light bulbs and in particular to an attachment for use with standard incandescent bulbs in order to materially extend their operating life.

The conventional incandescent light bulb places a given voltage, for example, the standard 115 volts of a normal alternating current house power line, across a tungsten filament which is encased within an air tight glass bulb. The filament, under the influence of the current flowing therethrough resulting from the 115 volt potential drop across it, glows to a white hot state and gives off light.

It has been found that a reduction of the voltage impressed across the filament of a standard electric light bulb materially increases its operating life; specifically, a voltage reduction of approximately ten percent (10%) produces an increased life of approximately fourfold. Such a voltage reduction may be easily obtained simply by placing a resistance element in series with the filament of the incandescent lamp. The present invention concerns itself with the provision of an easily and conveniently used attachment to provide this general purpose.

It has also been found that the operating life of standard incandescent light bulbs may be significantly increased by limiting the initial voltage impressed across the filament and thereafter gradually increasing that voltage to the desired operating level. Such a procedure allows the tungsten filament to reach its operating temperature at a gradual rate, thereby avoiding the deleterious effect of the severe thermal shock which is normally associated with the instantaneous "turning on" of a light. The present invention is also concerned with the provision of a simple and convenient attachment for use with conventional incandescent light bulbs which will provide the advantageous features of such a controlled low voltage initial operating period.

In the manufacture of a device which will provide the electrical components necessary to achieve the advantages described above, it is necessary to provide means which will reasonably accurately locate the attachment device on the base of an incandescent light bulb such that the various contacts are aligned correctly and such that the device will be received in proper orientation within the standard light bulb socket. Furthermore, it is desirable and necessary to have means on the attachment to easily secure the device to the base of the light bulb such that the attachment will be removed from a light bulb socket at the same time as the light bulb is removed therefrom. Specifically, in instances where the female light bulb socket is upwardly facing, it would be dangerous to require the user to reach into the open socket to remove the attachment due to the substantial danger of electrical shock. Of course, this problem is completely eliminated if the attachment is releasably secured to the light bulb base rather than simply resting in the socket. To this end, the constructions in accordance with the present invention provide pressure-sensitive adhesive means on the attachment for firm but releasable securement of the attachment to the base of a light bulb.

In my copending application, Ser. No. 298,767, now Patent No. 3,142,031, entitled, "Resistance Element for Incandescent Lamps," which was filed on July 30, 1963, and in my copending application, Ser. No. 383,779, entitled, "Resistance Attachment for Use With Incandescent Light Bulbs," which was filed on July 20, 1964, there were proposed a number of general constructions for a light bulb attachment of this type. In accordance with the present invention, there are provided specific constructions which are particularly well suited for the intended purpose, are relatively low priced from the point of view of manufacturing cost, are extremely easy to use in a proper manner and which provide a high degree of reliability in operation.

Generally, it is an object of the present invention to provide an improved resistance attachment for use in connection with incandescent light bulbs which will increase their operating life. Specifically, it is an object of the present invention to provide an improved light bulb attachment for use in conjunction with incandescent bulbs which provides a resistance in series with the filament of an incandescent bulb to make the same operate at less than its rated voltage, thereby to increase its life.

It is further an object of the present invention to provide such a resistance attachment with releasable securement means such that it may be releasably attached to a standard incandescent light bulb. Such a construction enables the attachment to be releasably secured to a standard light bulb which then may be inserted into the standard light bulb socket by the normal action of screwing the light bulb into the socket. When the light bulb wears out, the attachment may be removed from the socket simply by unscrewing the light bulb and the attachment may then be removed therefrom to be secured to a new light bulb for replacement in the socket.

It is further within the contemplation of the present invention to provide such a device which uses low-cost components, which is inexpensive to manufacture, which operates efficiently and reliably and which is easy for the consumer to use.

In accordance with one illustrative embodiment of the present invention, there is provided an attachment for operating an incandescent light bulb at less than its rated voltage comprising a preformed body constructed of electrically insulative material which is generally disc-like in external configuration and has an outer diameter less than the minor diameter of the threads of a standard light bulb socket. The body is provided with a lower opening which forms a component-receiving cavity and an upper opening which forms a clearance cavity for the projecting insulator of the base of a standard light bulb with the two cavities being in communication at the center of the body. Pressure-sensitive adhesive means are mounted on the upper portion of the body and are engageable with a portion of the base of a light bulb for securing the attachment to the light bulb. Housed within the body of the attachment is a light bulb base-engaging contact of sheet metal which is accessible through the clearance cavity for contact with the central metallic contact of the base of the light bulb. A resistance element is mounted within the component-receiving cavity and is electrically interconnected with the base-engaging contact by means of a first conductor. A light bulb socket-engaging contact is also provided within the component-receiving cavity of the body and is also electrically interconnected with the resistance element, in this case by means of a second conductor. Insulating means are positioned between the respective socket-engaging contacts and the base-engaging contact and appropriate insulated bonding means are provided in the component-receiving cavity to secure the respective base-engaging contact, resistance element and the socket-engaging contact therein in rigid mechanical relationship such that the attachment may be secured by the provided pressure-sensitive adhesive to the base of a light bulb with the various electrical elements arranged in a patterned physical relationship to provide simple mechanical attachment between the central contact of a standard light bulb

socket and the central contact of a light bulb, thereby to provide a series circuit between the resistance element and the filament of the incandescent light bulb.

The above brief description, as well as further objects, features and advantages of the present invention, will be best understood by reference to the following detailed description of several presently preferred embodiments of the invention when taken in conjunction with the accompanying drawings wherein:

FIG. 1 is a central sectional view of an attachment device in accordance with the present invention shown in engagement within a light bulb socket, shown in phantom, and with the base of a standard light bulb illustrated in full line elevation;

FIG. 2 is a sectional view similar to that of FIG. 1 omitting the phantom showing of the light bulb socket and illustrating a somewhat different embodiment of the present invention;

FIG. 3 is a further sectional view similar to FIG. 2 illustrating a still further embodiment of the present invention;

FIG. 4 is a sectional view similar to that of FIG. 2 illustrating a further variation of the present invention;

FIG. 5 is a partial sectional view showing a portion of an attachment in accordance with the present invention and a portion of a base of a standard incandescent bulb showing a variation of the base-engaging contact which may be utilized in the embodiments of the invention shown in FIGS. 2 and 3;

FIG. 6 is a partial sectional view showing a portion of a device in accordance with the present invention illustrating the details of a resilient socket-engaging contact which may be employed in the embodiments of the invention shown in FIGS. 1 through 4;

FIG. 7 is a partial plan view of one element employed in the attachments illustrated herein showing the specific construction of a wire terminal lug formed thereon; and

FIG. 8 is a schematic view of an attachment in accordance with the present invention in series connection with an incandescent light bulb.

Referring to the drawings, and specifically to the schematic illustration of FIG. 8, there is depicted a resistance attachment in accordance with the present invention, generally designated by the numeral **30**, which includes a resistance element R which has a first contact C–**1** at one end and a second contact C–**2** at its other end. The resistance attachment **30** is connected in series to the filament F of an incandescent light bulb LB by means of electrical engagement of the contact C–**2** with the central contact C–**3** of the light bulb LB. It will be appreciated that a resilient engagement is provided between the contacts C–**2** and C–**3** for ease of assembly and reliability of operation. The other contact of the light bulb LB is schematically illustrated by the electrical contact between the light bulb base threads BT and the light bulb socket threads ST. In the normal fashion the light bulb socket ST is connected to one leg L–**1** of a power line and the central contact CC of the light bulb socket, shown in engagement with the contact C–**1** of the resistance attachment **30**, is connected to the second leg L–**2** of the power line. It will be appreciated that the arrangements schematically illustrated in FIG. 8 provide a voltage drop across the resistance R, thereby decreasing the voltage drop across the filament F which would exist absent the resistance attachment **30**.

Referring now to the specific constructions shown in the drawings, there is illustrated in the sectional view of FIG. 1 the base **10** of a standard incandescent light bulb which is secured within a standard light bulb socket **12**. Specifically, the base **10** is of the kind generally manufactured and distributed by Westinghouse Electric Company. In FIG. 4 there is shown a base **10A** in the form generally manufactured and distributed by the General Electric Company. The base **10** includes standard threads **13** and a frusto-conical protruding axial insulator **14** which terminates at a metal central contact **16**. As is well known, the threaded portion **13** is part of a metallic cup which forms one contact while the central contact **16** forms the other electrical contact of the light bulb. The socket **12** which is shown in phantom in FIG. 1 (and omitted in the other figures) consists of a metallic threaded cup **18**, complementary to the cup of the base **10**, which terminates at its lower end in a body portion **20** which has axially a central contact **22**. Normally, the contact **16** of the light bulb base **10** engages the socket contact **22**. In accordance with the present invention, an attachment, generally designated by the numeral **30**, is provided for insertion between the base **10** and the bottom of the socket **12**. The attachment includes contacts for respective engagement with the base contact **16** and the light bulb socket contact **22** and provides a resistance element annularly contained therebetween.

The resistance attachment **30** includes a preformed body **32** of a non-conductive material, preferably a ceramic or plastic material having good heat resistant characteristics such that its shape and mechanical properties are maintained at elevated temperatures. The body **32** is generally disc-shaped in configuration having an outer diameter which is slightly smaller than the minor diameter of the threads of the socket **12**, thus providing a sufficient clearance for the insertion of the attachment **30** into the socket. The body **32** is formed with an upper opening **34** and a lower opening **36**. The upper opening **34** forms an internal frusto-conical clearance cavity **38** adapted to receive the frusto-conical protruding insulator **14** of the light bulb base **10**. The lower opening **36** defines a generally circular component-receiving cavity **40** which at its central area is in communication with the clearance cavity **38**. An annular ledge **42** is formed in the body **32** immediately about the upper opening **34** and is provided with a layer of heat resistant, pressure-sensitive adhesive **44**. The annular ledge **42** and the layer **44** of pressure-sensitive adhesive are of a size and shape to conform to the flat annular portion **46** at the bottom of the light bulb base **10** immediately surrounding the frusto-conical insulating portion **14**. It will thus be appreciated that when the body **32** of the attachment **30** is moved into engagement with the lamp base **10**, and when pressure is applied thereto, the body **32** will be securely, but releasably, attached to the light bulb base **10**.

Mounted within the component-receiving cavity **40** of the body **32** are the functional elements which provide the electrical contacts and the electrical resistivity in accordance with the present invention. Specifically, a generally disc-shaped light bulb base-engaging contact **48** is positioned at the uppermost portion of the component-receiving cavity **40**. The base-engaging contact **48** has a resilient contact member **50** formed at the center which is struck from the component metal of the base-engaging contact **48**. In addition, and as may be seen in FIG. 7, a terminal lug **52** is struck from a portion of the periphery of the base-engaging contact **48** and forms a convenient terminal for the electrical attachment to the base-engaging contact **48** of the resistance element incorporated within the attachment **30**. A lug clearance cavity **54** is provided in the preformed body **32** along the upper portion of the cavity **40**, providing an appropriate seat for the terminal lug **52**.

Positioned as the next layer adjacent the base-engaging contact **48** and located annularly about the central portion thereof is the resistance element, generally designated herein by the numeral **56**. The resistance element **56** as incorporated within the attachment **30** may be formed of either a conventional wire wound resistance or a composition material. Furthermore, whatever form the resistance takes, it may be advantageously of the negative temperature coefficient type. Specifically, the electrical resistivity of the element may decrease with increasing temperatures

such that when the device is cool, as when no current is flowing therethrough, the resistance would be relatively high, thus producing a large voltage drop across the same and a corresponding greatly reduced voltage drop across filament of the light bulb; however, when the resistance element heats up under the influence of current flow, the resistance decreases, thus decreasing the voltage drop thereacross and thereby increasing the voltage drop across the filament of the light bulb. Accordingly, if the resistance element **56** is formed of a negative temperature coefficient material, the attachment **30** will provide an initially low operating voltage for the light bulb, which voltage will gradually increase after the initial surge of current through the device. It is known that the operating life of an incandescent light bulb will be materially enhanced by providing such operating characteristics. Furthermore, it is known that operating virtually any light bulb at a voltage rating less than its rated voltage will materially increase its life. Accordingly, although it is desirable to provide a resistance element of the negative temperature coefficient type, any resistance element is sufficient to provide a significant portion of the advantages of devices constructed in accordance with the present invention. As clearly shown in FIGS. 1 and 7, the resistance element **56** is secured at one of its ends to the terminal lug **52** of the base-engaging contact **48** by means of a first wire conductor **58**. The first conductor **58** is secured at one of its ends to one end of the resistance element **56** and, at its other end, is crimped about the terminal lug **52**.

Located below the resistance element **56** is a disc-shaped metal socket-engaging contact, generally designated herein by the numeral **60** which is similar to the base-engaging contact **48** in that it is formed from a piece of sheet metal and is generally disc-like in configuration. The particular socket-engaging contact **60** illustrated in FIG. 1 is not formed with a resilient central portion, as the resilient portion **50** of the base-engaging contact **48**, although it might be (see FIG. 6). The contact **60** is formed with a terminal lug **62** which is identical to the terminal lug **52** on the base-engaging contact **48**. A second wire conductor **64** is interconnected between the resistance element **56** and the socket-engaging contact **60**, and specifically one end of the second wire conductor **64** is connected to the resistance element **56** at a point opposite its connection to the first conductor **58** and, at its other end, the second conductor is crimped about the terminal lug **64**. The base-engaging contact **48**, the socket-engaging contact **60** and the resistance element **56** are secured to each other by means of a layer of bonding material **66**. These elements are also held within the component-receiving cavity **40** by means of an appropriate electrically non-conductive adhesive bonding agent or cement filler **67** which may be best seen in FIG. 1 forming an annular ring about the named elements. In addition, electrical separation of the respective contacts **48**, **60** is maintained by the provision of a layer of varnish or other insulator **68** which may be conveniently applied to the internal surface of the socket-engaging contact **60** during initial fabrication.

In FIG. 2 there is illustrated an attachment in accordance with the present invention generally designated by the numeral **30A** which is basically similar to the attachment **30** but which varies in two respects. Rather than relying upon the resilient character of the struck-out portion **50** of the base-engaging contact **48**, there is provided an annular resilient member **70** approximately in the location of the annular ridge **42** on the member **30**. The resilient material **70** may be of a plastic foam such as silicone foam or any one of a number of large varieties of resilient materials. A layer of heat resistant pressure-sensitive adhesive **44A**, identical to that shown in the illustration of FIG. 1, is applied to the upper surface of the resilient element **70** and the resilient element **70** is bonded to the body **32A** of the attachment **30A** by a layer of adhesive **72**. The base-engaging contact **48A** of the attachment **30A** is basically identical to the base-engaging contact **48** described above. However, the central portion is simply a flat, uninterrupted extent of sheet metal which does not have the struck-up resilient portion **50** as described above. Such a struck-out portion is not required in the attachment **30A** because of the resilient qualities of the band **70**. Specifically, when the attachment **30A** is secured to the base **10** of a light bulb, the material **70** is compressed to resiliently move the lamp contact **16** into engagement with the flat central portion of the base-engaging contact **48A**.

The remaining portions of the attachment **30A** are identical to the corresponding portions of the attachment **30** described above and illustrated in FIG. 1 and therefore that description is not repeated here nor are the numbers of the various other elements applied to FIG. 2 of the drawings. However, the description of those various elements is repeated herein by reference for purposes of completeness.

A still further embodiment of the present invention, the resistance attachment generally designated by the numeral **30B**, is illustrated in FIG. 3 and is also generally similar to the resistance attachments **30** and **30A** described above. Specifically, the attachment **30B** is virtually identical with the attachment **30A**, except for the location and orientation of the annular resilient ring **70B** both with respect to the body **32B** of the attachment and the base **10** of the light bulb. Specifically, the attachment **30B** is designed to be secured to the base **10** along the frusto-conical insulating portion **14**. Accordingly, rather than the formation of the annular ledge **42** on the attachment device **30** or the flat area adjacent the adhesive ring **72** of the attachment **30A**, there is provided a frusto-conical surface **74** which is coated with an adhesive layer **72B** which mounts the resilient member **70B**. The heat resistant, pressure sensitive adhesive layer **44B** is formed in a frusto-conical configuration and is of a size to accurately mate with the frusto-conical projecting insulating member **14** of the base **10**. In a manner identical with the operations of the attachment device **30A**, the attachment **30B** provides its resilient characteristics through the annular ring **70B**, thereby to bring the light bulb base contact **16** into electrical engagement with the base-engaging contact **48B** of the attachment **30B**.

The remaining elements of the attachment **30B** are identical with those described above and therefore a further description and the specific notation of the respective numerals in the drawings are omitted. However, for purposes of completeness, the description given above and the numerology employed in FIG. 1 are incorporated herein by reference.

In FIG. 4 there is illustrated the light bulb as supplied by the General Electric Company which differs from the base of the Westinghouse bulb **10** as may be seen by comparing FIGS. 4 and 1. The principal difference between the two light bulb bases **10** and **10A** is that the threaded portion **13** of the base **10A** terminates in a frusto-conical shape rather than the flat annular portion **46** of the base **10** designated in FIG. 1. Although there is this difference in shape, each of the embodiments shown herein may be used with either a General Electric bulb or a Westinghouse bulb. The attachment **30C** is basically similar to the attachment **30B** illustrated in FIG. 3 and described above, except that the adhesive securement to the base **10A** is a non-resilient securement with the resilient element being provided by a struck-out resilient member **50C** which is a portion of the base-engaging contact **48C**. Specifically, the body **32C** of the attachment **30C** is formed with a frusto-conical portion **74C** which is provided with a layer **44C** of heat resistant, pressure-sensitive adhesive which is of a size and configuration to exactly mate with the frusto-conical insulating portion **14A** of the base **10A** of the light bulb. The resilient portion **50C** of the base-engaging contact **48C** is positioned to

be slightly deformed by the contact 16A of the base 10A and to be held tightly in engagement therewith by the bias forces of the metal forming the resilient element 50C. It will be appreciated that when the attachment device 30 is brought into contact with a standard light bulb base, the frusto-conical pressure-sensitive adhesive layer 44C engages the complementary frusto-conical insulating portion (in this case the portion 14A) and forms a releasable bond therewith. The metal contact 16A of the lamp base engages the resilient element 50C of the base-engaging contact 48C, thereby to provide electrical connection between the light bulb and the attachment device 30C. The remaining elements which form a part of the attachment 30C are identical with those described above and therefore a description of those elements and repetition of the various part numbers in the drawings will not be repeated; however, the description is incorporated at this point by reference.

In FIGS. 5 and 6 there are illustrated the specific details of variations of the base-engaging contacts and socket-engaging contacts respectively which may be incorporated in any one of the illustrated attachments in accordance with the present invention. Specifically, in FIG. 5 there is shown the inter-engagement of the resilient contact 50 of the base-engaging contact 48 as shown in FIG. 1 which may also be used in the embodiments of FIGS. 2 and 3. In FIG. 6 there is shown a variation of the base-engaging contact 60, designated herein by the numeral 60D, which has a struck-out central portion 76 which is integrally formed with the sheet metal of the base-engaging contact 60D and which provides a resilient contact between an attachment device in accordance with the present invention and the central contact 22 of a standard lamp base 12.

It will be appreciated that the several constructions described above provide a lamp attachment which may be conveniently and easily used in combination with a standard incandescent light bulb and a standard light bulb socket wherein the user may simply and reliably, without any special knowledge or understanding of the operation of the device, secure the same to the base of a light bulb and incorporate the resistance attachment as a functional part of the operating combination. Furthermore, because of the constructions employed herein, the resistance attachment may be easily removed from the socket, simply by the standard procedure of unscrewing the light bulb from the socket, and the attachment may then be detached from the light bulb to be used on a further light bulb. Furthermore, the specific constructions described provide an extremely advantageous form of the general concept of the invention insofar as ease of manufacture and economy of cost of materials is concerned while at the same time providing a structure of a high degree of reliability.

The descriptions given above and the drawings presented herewith do not present all conceivable specific designs and variations which may be incorporated in the resistance attachment in accordance with the present invention, it being clear that design election can be made without departing from the basic concepts of the invention. Accordingly, the appended claims should be construed broadly and in a manner consistent with the spirit and scope of the invention.

What I claim is:

1. An attachment for operating a light bulb at less than its rated voltage comprising a body formed of electrically insulative material, said body being generally disc-like in external configuration and having an outer diameter less than the minor diameter of the threads of a standard light bulb socket, said body having a lower opening forming a component-receiving cavity and an upper opening forming a clearance cavity for the protruding insulator of the base of a light bulb, pressure-sensitive adhesive mounting means on said body and engageable with the base of a light bulb for securing said attachment to said light bulb, a light bulb base-engaging metal contact secured within said component-receiving cavity and in communication with said clearance cavity for contact with the central contact of the base of a light bulb, an annularly positioned resistance element contained about a central portion of said base-engaging contact within said component-receiving cavity, a first conductor electrically connecting said base-engaging contact and said resistance element, a light bulb socket-engaging metal contact secured across said lower opening, a second conductor electrically connecting said socket-engaging contact and said resistance element, insulative bonding means securing said socket-engaging contact and said base-engaging contact into a sandwich assembly at their central portions, said resistance element being contained annularly about said secured central portions, insulative means positioned between said socket-engaging contact and said base-engaging contact, said clearance cavity having side walls shaped to provide clearance for the protruding insulator of the base of a light bulb, said pressure-sensitive adhesive mounting means being located in an annular layer coaxial with the central axis of said attachment and being complementary in size and shape to a surface of the base of a light bulb, said attachment providing an electrical interconnection through said resistance element between the central contact of a light bulb socket and the central contact of a light bulb.

2. An attachment for operating a light bulb at less than its rated voltage comprising a body formed of electrically insulative material, said body being generally disc-like in external configuration and having an outer diameter less than the minor diameter of the threads of a standard light bulb socket, said body having a lower opening forming a component-receiving cavity and an upper opening forming a clearance cavity for the protruding insulator of the base of a light bulb, pressure-sensitive adhesive mounting means resiliently attached to said body and engageable with the base of a light bulb for securing said attachment to said light bulb, a light bulb base-engaging metal contact secured within said component-receiving cavity and in communication with said clearance cavity for contact with the central contact of the base of a light bulb, an annularly positioned resistance element contained about a central portion of said base-engaging contact within said component-receiving cavity, a first conductor electrically connecting said base-engaging contact and said resistance element, a light bulb socket-engaging metal contact secured across said lower opening, a second conductor electrically connecting said socket-engaging contact and said resistance element, insulative bonding means securing said socket-engaging contact and said base-engaging contact into a sandwich assembly at their central portions, said resistance element being contained annularly about said secured central portions, insulative means positioned between said socket-engaging contact and said base-engaging contact, said clearance cavity having side walls shaped to provide clearance for the protruding insulator of the base of a light bulb, an annular resilient mounting member secured to said body coaxially with the central axis of said attachment and being complementary in size and shape to a surface of the base of a light bulb, said pressure-sensitive adhesive mounting means forming an adhesive layer on said resilient mounting member, said attachment providing an electrical interconnection through said resistance element between the central contact of a light bulb socket and the central contact of a light bulb.

3. An attachment for operating a light bulb at less than its rated voltage comprising a body formed of electrically insulative material, said body being generally disc-like in external configuration and having an outer diameter less than the minor diameter of the threads of a standard light bulb socket, said body having a lower opening forming a component-receiving cavity and an upper opening

forming a clearance cavity for the protruding insulator of the base of a light bulb, pressure-sensitive adhesive mounting means on said body and engageable with the base of a light bulb for securing said attachment to said light bulb, a light bulb base-engaging metal contact secured within said component-receiving cavity, a resilient metal contact member formed integrally with said base-engaging contact at the central portion thereof and extending into said clearance cavity for contact with the central contact of the base of a light bulb, an annularly positioned resistance element contained about a central portion of said base-engaging contact within said component-receiving cavity, a first conductor electrically connecting said base-engaging contact and said resistance element, a light bulb socket-engaging metal contact secured across said lower opening, a second conductor electrically connecting said socket-engaging contact and said resistance element, insulative bonding means securing said socket-engaging contact and said base-engaging contact at their central portions into a sandwich assembly, insulative means positioned between said socket-engaging contact and said base-engaging contact, said clearance cavity having side walls shaped to provide clearance for the protruding insulator of the base of a light bulb, said pressure-sensitive adhesive mounting means being located in an anular layer coaxial with the central axis of said attachment and being complementary in size and shape to a surface of the base of a light bulb, said attachment providing an electrical interconnection through said resistance element between the central contact of a light bulb socket and the central contact of a light bulb.

4. An attachment in accordance with claim **2** wherein said annular resilient member and said adhesive layer are sized and shaped to mate with the frusto-conical surfaces of the protruding insulator of a light bulb with the central contact of the light bulb engaged with said base-engaging contact.

5. An attachment in accordance with claim **2** wherein said annular resilient member and said adhesive layer are sized and positioned to mate with the surface of the metal cup of the base of the light bulb with the central contact of the light bulb engaged with said base-engaging contact.

6. An attachment in accordance with claim **3** wherein said body is formed with an annular adhesive receiving surface of a size and shape complementary to the frusto-conical walls of the protruding insulator of a light bulb such that said layer of pressure-sensitive adhesive retains said attachment on the base of a light bulb with the central contact of the light bulb engaged with said base-engaging contact.

7. An attachment in accordance with claim **3** wherein said body is formed with an annular adhesive-receiving surface of a size and shape complementary to a surface of the metal cup of the base of a light bulb such that said layer of pressure-sensitive adhesive retains said attachment on the base of a light bulb with the central contact of the light bulb engaged with said base-engaging contact.

References Cited

UNITED STATES PATENTS

2,675,452	4/1954	McMahan	338—219 X
3,142,031	7/1964	Rosenblatt	338—219

FOREIGN PATENTS

575,213	4/1933	Germany.
423,078	1/1935	Great Britain.

RICHARD M. WOOD, *Primary Examiner.*

J. G. SMITH, *Assistant Examiner.*