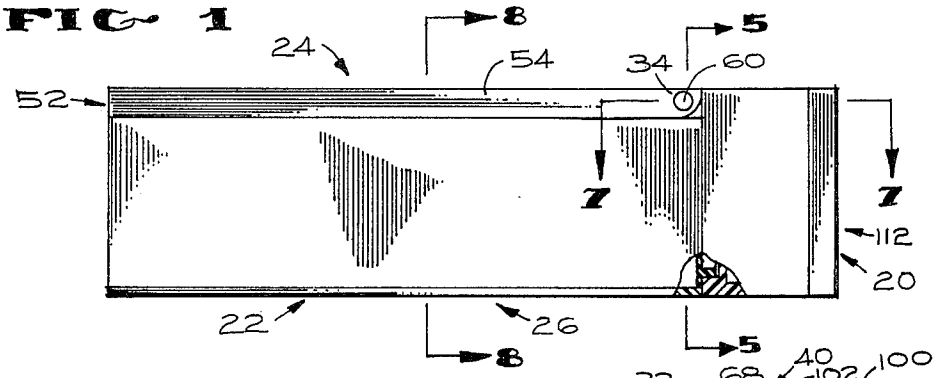
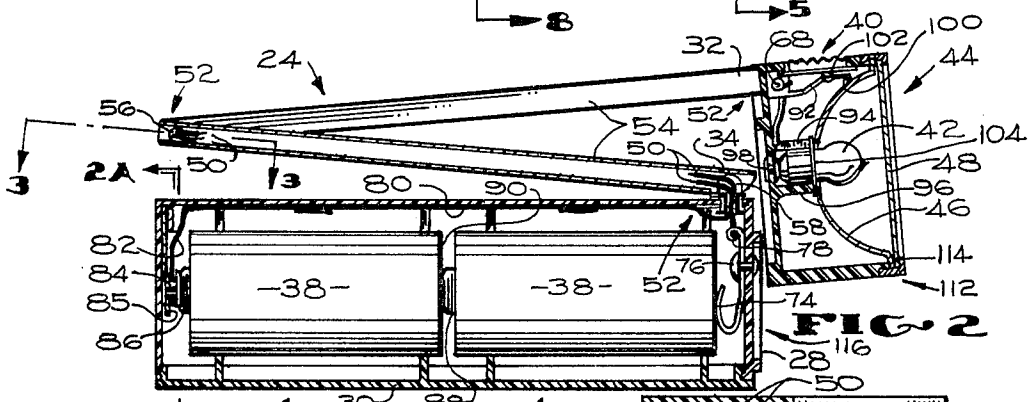
Nov. 18, 1969 F. L. DAHL 3,479,499

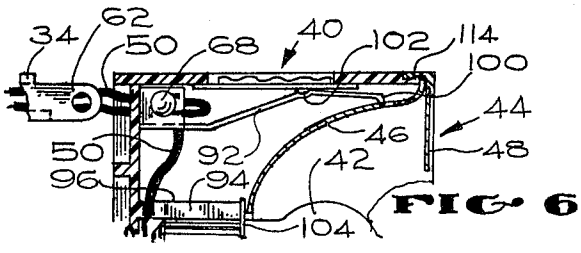
POSITIONALLY ADJUSTABLE TROUBLE LAMP MEANS

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FIG. 1







INVENTOR.
Frank L Dahl

Nov. 18, 1969 F. L. DAHL 3,479,499

POSITIONALLY ADJUSTABLE TROUBLE LAMP MEANS

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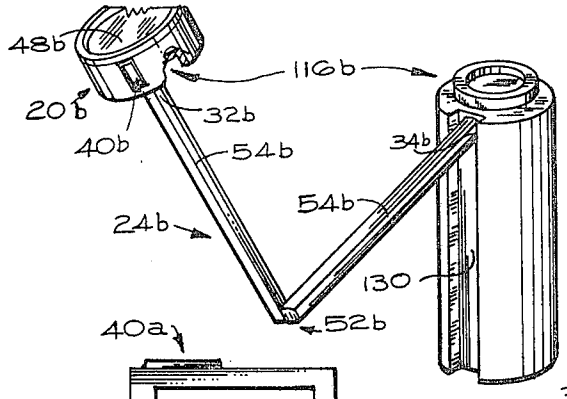


FIG. 12

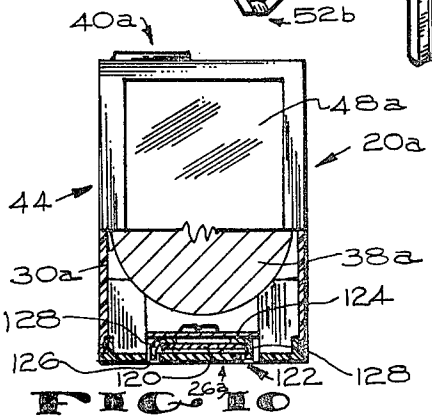


FIG. 10

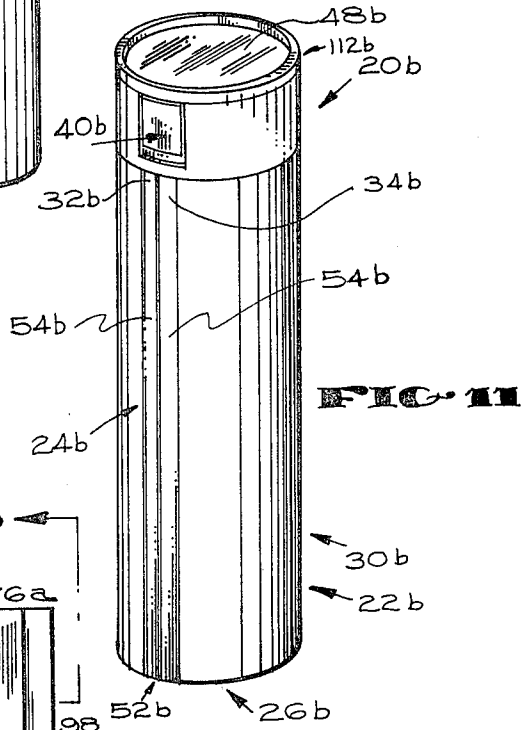


FIG. 11

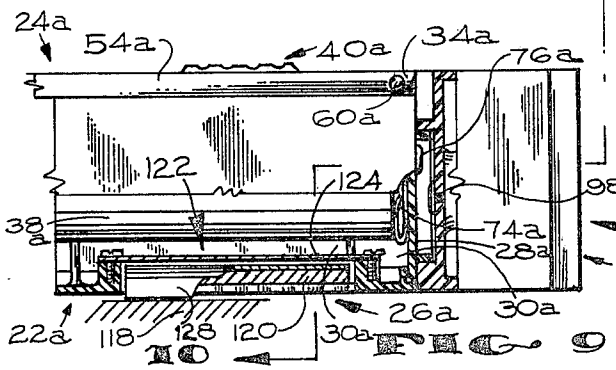


FIG. 9

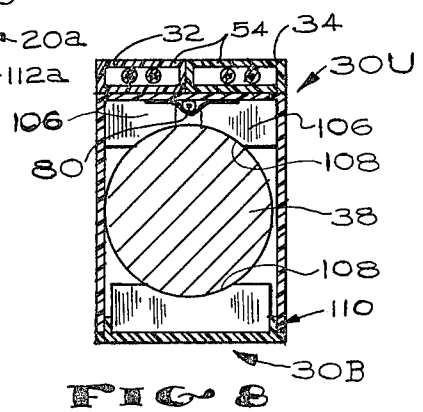


FIG. 8

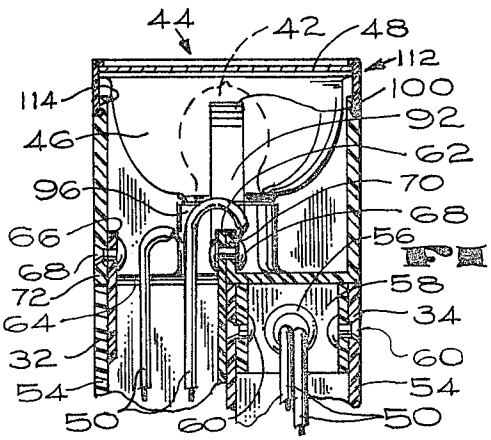


FIG. 7

INVENTOR.
Frank L Dahl

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3,479,499

POSITIONALLY ADJUSTABLE TROUBLE LAMP MEANS

Frank L. Dahl, 5248 W. 119th Place, Inglewood, Calif. 90304

Continuation-in-part of applications Ser. No. 565,823, July 18, 1966, and Ser. No. 486,048, Sept. 9, 1965. This application June 28, 1968, Ser. No. 740,998

Int. Cl. F21l 7/00, 9/00, 11/00

U.S. Cl. 240—10.6 14 Claims

ABSTRACT OF THE DISCLOSURE

An electrically energized lamp structure having a base which may be held manually or attached or mounted to a support by a magnetic attachment means. The base is provided with means for delivering electrical energy to a head which is detachably secured to the base by an adjustable interconnecting means carrying electrical conductor means and possessing sufficient rigidity to support the head in any selected position away from the base. The adjustable interconnecting means, in one preferred form, includes two or more longitudinal rigid members and a plurality of longitudinally spaced hinge means interconnecting ends of said rigid members to each other, to said base at one end of said interconnecting means, and to said head at the other end of said interconnecting means, with said hinge means being frictionally interengaged to a degree sufficient to firmly support the head in any selected extended position. In one preferred form, the rigid members of the interconnecting means are adapted, when completely collapsed, to form a portion of the outer peripheral surface of the base. Also in one preferred form, a control switch is carried by the head in a conveniently manually accessible and operable position completely independent of the base.

This application is a continuation-in-part of co-pending application Ser. No. 565,823, filed July 18, 1966, now Patent No. 3,393,312, and of co-pending application Ser. No. 486,048, filed Sept. 9, 1965, now Patent No. 3,393,-311.

Generally speaking, the present invention relates to a portable lamp means of an extremely adjustable type, as to the position of a light-emitting head portion thereof with respect to a base means or base portion thereof, which is provided with mounting or attachment means adapted for use in temporarily holding, mounting or attaching it to any suitable auxiliary supporting means such as a hand, an auxiliary mounting structure or surface, or the like, at virtually any desired location. In one preferred exemplary form of the invention, the attachment means of said base means or portion comprises a novel type of magnetic attachment means cooperable for temporary magnetic mounting attachment in virtually any selected position with respect to any suitable ferromagnetic auxiliary mounting surface.

From the above very general description of the broad nature of the present invention, it will be recognized that it is ideally suited for emergency illumination purposes and may be said to comprise an emergency or trouble lamp means, such as is extremely desirable for nighttime automotive repairs of a variety of different types, such as repairs having to do with the engine, transmission, or the like, repairs having to do with flat tires, or the like, or, indeed, virtually any type of repair or investigation conducted under conditions of poor ambient lighting and which will be facilitated through the use of the novel apparatus of the present invention for providing

full illumination directly on the region or area where the investigation or repair work is to be done.

It will be understood that since most conventional motor vehicles are very largely made of ferromagnetic materials, the form of the invention embodying a novel type of magnetic attachment means provides a very convenient arrangement for attaching the device to virtually any portion of a motor vehicle body or engine closely adjacent to the region which it is desired to illuminate and that then the light-emitting head means or portion of the novel apparatus of the present invention can be moved with respect to said magnetically attached base means or portion into virtually and desired position relative thereto within a certain predetermined distance of the point of magnetic attachment of said base means or portion to the ferromagnetic portion of the motor vehicle, which is temporarily serving as an auxiliary mounting surface or structure. This makes it possible to direct the light, in just the desired manner, into or onto a particular desired region or area for optimizing the illumination thereof while substantially completely preventing glare, or the like, from impinging directly upon the eyes of a user of the device.

It will be understood that the novel apparatus of the present invention, as broadly and generically described above, provides major advantages over pre-existing conventional prior art emergency or trouble lamps or the like, since, normally, all such prior art devices which are of a portable nature and which have magnetic attachment means are so arranged that the light-emitting portion thereof is in a fixed relationship with respect to the magnetic attachment means thereof, thus making it impossible to provide a desired positional readjustment of the light-emitting portion with respect to the magnetic attachment portion thereof when mounted in magnetically held engagement with respect to any desired ferromagnetic surface portion of a motor vehicle. Therefore, it will readily be understood that such prior art arrangements make it possible to mount the emergency or trouble lamp on the ferromagnetic body of the motor vehicle, on the engine thereof, or an adjacent ferromagnetic fender or inside hood portions or the like, but very often it will be found that it is impossible to provide the requisite degree of adjustment of the emitted light by adjusting the magnetic attachment of the complete unit with respect to the ferromagnetic portion of the motor vehicle carrying same. Thus, it will be found that only illumination in the general region desired can, in many cases, be provided by such prior art arrangements, and precisely the desired directional adjustment of the emitted light cannot be provided in such prior art arrangements.

However, as pointed out above, the above-mentioned major disadvantage of such magnetically attachable prior art emergency or trouble lamp means is completely eliminated and overcome in and through the use of the present invention, where the final positioning of the emitted light for optimum illumination purposes is not accomplished by attempting to readjust the magnetic attachment means or portion with respect to the ferromagnetic portion of the motor vehicle carrying same, but is usually accomplished substantially entirely by adjusting the light-emitting head into virtually any desired positional relationship with respect to said base means or portion and said magnetic attachment means carried thereby in one form of the invention. Thus, the apparatus of the present invention provides optimum illumination under the emergency type conditions referred to above in a manner which heretofore has been impossible to achieve with conventional prior art magnetically attachable emergency or trouble lamps or lights.

With the above points in mind, it is an object of the present invention to provide a novel adjustable emergency and/or trouble lamp means having a base means capable of being mounted or attached with respect to an auxiliary means such as a hand, an auxiliary supporting surface, or the like, in virtually any desired manner and having a light-emitting head means or portion effectively interconnected with respect to said base means or portion by positionally adjustable interconnecting means adapted to be controllably positionable into any of a plurality of different positions whereby to correspondingly position the light-emitting head means relative to said base means in a manner such that said light-emitting head means will direct light rays therefrom into a desired region in a manner such as to provide optimum illumination of said desired region and in a manner such as to minimize glare reaching the eyes of a user of the device.

It is a further object of the present invention to provide apparatus of the character referred to in the preceding object, wherein the complete adjustable emergency and trouble lamp means is of a readily portable nature and wherein the means for attaching the base means or portion thereof with respect to an auxiliary supporting surface comprises a novel type of magnetic attachment means.

It is a further object of the present invention to provide apparatus of the character referred to hereinbefore, wherein the base means is provided with a self-contained source of electrical energy comprising battery means, and wherein the entire device closely simulates a conventional flashlight when the light-emitting head means and said base means are in effectively collapsed, closely adjacent, and effectively engaged relationship, and yet wherein said light-emitting head means can be quickly and easily effectively disengaged from such closely adjacent relationship with respect to the base means or portion and can be extended and moved into virtually any position permitted by the maximum length of said positionally adjustable interconnecting means connected between said base means and said light-emitting head means, thus making it possible to cause light emitted from said light-emitting head means to be directed in an optimum illumination manner on any selected region lying within a predetermined maximum distance (corresponding to the length of said interconnecting means) of said base means or portion and its attachment with respect to said auxiliary supporting surface or structure, which usually comprises a portion of a motor vehicle.

It is a further object of the present invention to provide an arrangement such that the adjustable interconnecting means connected between the base means and the light-emitting head means takes the form of two or more longitudinal, rigid members and a plurality of forcibly deflectable hinge means interconnected therebetween and connecting the complete interconnecting means at opposite ends thereof to the base means of the device and to the head means of the device, respectively, and with said hinge means being frictionally interengaged to a degree such as to normally maintain the position of the light-emitting head means relatively to the base means in any selected extended position away from the base means until it is forcibly manually repositioned by effectively overriding the frictional interengagement of the hinge means.

It is a further object of the invention to provide an arrangement such that two or more of the longitudinal, rigid members of the interconnecting means are laterally displaced from each other and are foldable into side-by-side relationship substantially parallel to and directly along the outside of the base means in a manner effectively forming a continuous outside surface part of the base means when in fully collapsed, retracted relationship with respect to the base means. In one form of the invention, the continuous outside surface part of the base means formed by the collapsed, side-by-side exterior portions of the folded, longitudinal, rigid members of

the interconnecting means may be effectively flush with the surface of the base means and, in another form, may extend beyond the base means in a manner such as to form a part of the effective outer surface of the base means so that to the eye of the casual observer the exterior surfaces of the collapsed, folded, longitudinal, rigid members will be virtually indistinguishable from the remainder of the base means structure and will appear to be an intentional part of the over-all design of the exterior surface of the base means. In the above-mentioned form wherein the exterior surfaces of the folded, longitudinal, rigid members are adapted to lie substantially flush with the exterior surface of the base means, this is made possible by the provision of longitudinal recess means along at least one side of the base means and, in one version of this modification of the invention, along opposite sides thereof and a rear end thereof, with said recess means being adapted to receive corresponding parts of the folded, longitudinal, rigid members comprising the interconnecting means when in fully collapsed, retracted relationship with respect to the base means, thus providing in this particular modification an arrangement such that the collapsed interconnecting means will lie substantially fully within the recess means in a manner substantially exteriorly flush with laterally adjacent outer surface portions of the base means.

It is a further object of the present invention to provide apparatus of the character referred to hereinbefore wherein the means for mounting or attaching the base means, or portion, with respect to an auxiliary supporting means of a non-limiting type taking the form of a ferromagnetic auxiliary supporting surface may comprise a novel type of magnetic attachment means which is normally substantially fully retracted and out of sight from the exterior of the base means, but which is adapted to automatically extend into a position protruding from the base means for magnetically attracting attachment and engagement with respect to an auxiliary ferromagnetic supporting surface whenever it is brought close to same.

It is a further object of the present invention to provide apparatus of the character referred to hereinbefore wherein the means for attaching the base means, or portion, with respect to an auxiliary supporting surface may take a form other than magnetic attachment means or, even though it may comprise magnetic attachment means, it may effectively cooperate with a non-ferromagnetic auxiliary supporting surface in a non-magnetic manner. In other words, even in that form of the invention wherein said means comprises magnetic attachment means, under some conditions of use it may merely rest upon a supporting surface and may be of sufficient mass to function as an effective gravity-type attachment means similar to any weighted base, or the like. In certain forms of said attachment means, whether of a magnetic type or a non-magnetic type, it may be of substantial mass to facilitate engagement thereof with respect to an underlying supporting surface by reason of the action of gravity and/or in certain forms, may be of a type defining an attachment bottom or foot portion of substantial width and/or length, in some cases having substantially laterally and/or longitudinally and/or otherwise separated, supporting contact or foot portions adapted to engage or rest upon an auxiliary supporting surface at spaced points whereby to provide a very stable type of engagement therebetween adapted to effectively support the light-emitting head means even when it has been attached and moved to a very substantially offset remote location with respect to said attachment means. In other forms of said attachment means wherein it is not magnetic, it might, for example, comprise one or more suction cup means made of elastomeric or rubber material, or the like, adapted to be placed in suction-type engagement with any relatively smooth supporting surface. Indeed, various differ-

ent types of attachment means other than those specifically referred to hereinbefore (which, in some cases, may be controllably separable from the rest of the base means) may be employed in lieu thereof, and all such are intended to be included and comprehended within the scope of the present invention, and it should be understood that specific references throughout this application to the exemplary magnetic type or form of said attachment means and to the magnetic attachment or engagement thereof with respect to a ferromagnetic type of supporting surface are to be broadly construed and read in the light of the preceding statement as including and comprehending all such attachment arrangements and means as referred to above. It should also be noted that, broadly speaking, the mounting or attachment means referred to above may, in effect, merely comprise any portion of the exterior surface of the base means which is used for temporary mounting or holding of the base means in a desired position by auxiliary mounting means, whether the auxiliary mounting means is a ferromagnetic structure having a ferromagnetic surface, some other type of rigid auxiliary structure, or even the hand of a person holding the base means, and the expression "attachment means" as used herein is to be construed as broadly inclusive of all such arrangements.

It is a further object of the present invention to provide apparatus of the character referred to hereinbefore which may be employed for a great variety of different illumination purposes other than for illuminating various portions of a motor vehicle in the manner of a trouble light or emergency light, as referred to hereinbefore and hereinafter. For example, it may be employed for illuminating a fuse box at night when a fuse is to be replaced. It may be employed for reading maps at night. It may be employed for appliance repair work or for any of a great variety of other purposes where proper illumination is not conveniently available, and it should be clearly understood that whenever reference is made in this application to the device as comprising a motor vehicle trouble or emergency light and to being mounted on a ferromagnetic surface of a motor vehicle for emergency repair purposes, or the like, said reference is to be broadly construed in the light of the above statement relative to the broad application and field of usage of the present invention.

It is a further object of the present invention to provide apparatus of the character referred to hereinbefore wherein said base means simulates in appearance a conventional flashlight when the entire device is in the effectively collapsed retracted relationship referred to hereinbefore and wherein, when in said configuration, the device can be used to perform all of the normal functions of a conventional prior art flashlight and is adapted to be hand-held, in which case the previously mentioned mounting or attachment means effectively comprises the exterior surface of the base means which is manually held.

It is a further object to provide apparatus of the character referred to herein, wherein said base means and/or said light-emitting head means may be remotely electrically energized.

It is a further object of the present invention to provide, in one preferred form thereof, an arrangement wherein electric switch means is electrically connected in circuit with the light-emitting head means and a source of electrical power, such as battery means adapted to be contained within the base means, for example, or any other suitable electric power supply means adapted to be connected to the base means, with said electric switch means being physically carried by the light-emitting head means in a manner completely physically independent of the base means and in an exteriorly manually operatively accessible position on the light-emitting head means so that the light can be turned on or off at the head means and without the necessity of reaching back to the base means for energizing or de-energizing the light-emitting head means.

It is a further object of the present invention to provide apparatus of the character referred to herein, having the advantages referred to herein, and including the features referred to herein, generically and/or specifically, and individually or in combination, and which is of extremely simple, inexpensive, easy-to-use construction adapted for ready mass manufacture at very low cost whereby to be conducive to widespread use thereof.

Further objects are implicit in the detailed description which follows hereinafter (which is to be considered as exemplary of, but not specifically limiting, the present invention), and said objects will be apparent to persons skilled in the art after a careful study of the detailed description which follows hereinafter.

FIG. 1 is a side elevational view of one exemplary embodiment of the invention in fully retracted, collapsed, and folded form, with the separable light-emitting head means positioned at the right and in engaged relationship on the right end of the housing means of the base means.

FIG. 2 is a side view as seen from an aspect similar to FIG. 1, but shows the device partly in central plane vertical section and partly in elevation, and also shows the device in a partially opened-up position such as would normally occur just prior to the full and complete collapsing of the device or just after the beginning of an unfolding and extending operation has begun. In other words, the light-emitting head means and the two longitudinal, rigid members of the interconnecting means are shown slightly displaced from their fully retracted and closed positions shown in FIG. 1.

FIG. 2A is an enlarged, fragmentary, partially broken away view, taken along the plane and in the direction indicated by the arrows 2A—2A of FIG. 2.

FIG. 3 is an enlarged, fragmentary, partially broken away view, taken substantially along the plane and in the direction indicated by the arrows 3—3 of FIG. 2, and illustrates a representative one of the forcibly deflectable, normally frictionally interengaged hinge means positioned along the length of the interconnecting means comprising three such forcibly deflectable hinge means and the two intervening rigid members.

FIG. 4 is an exterior, three-dimensional, pictorial view of the complete device in the fully retracted, closed relationship shown in FIG. 1.

FIG. 5 is an enlarged, fragmentary, partially broken away, sectional view, taken substantially along the plane and in the direction indicated by the arrows 5—5 of FIG. 1, but actually shows the device in the partially opened relationship illustrated in FIG. 2 rather than in the fully closed relationship shown in FIG. 1.

FIG. 6 is an enlarged, fragmentary view of the portion of FIG. 2 where the most remote portion of the interconnecting means is joined by the last and most remote one of the forcibly deflectable or bendable hinge means to the light-emitting head means and shows the two portions of said hinge means in effectively exploded or arbitrarily separated relationship in FIG. 6 for purposes of clarity—it being understood that normally the two hinge portions will not be in the separated relationship shown in FIG. 6, but will be in the fully joined relationship shown in FIGS. 2 and 5.

FIG. 7 is an enlarged, sectional view taken substantially along the plane and in the direction indicated by the arrows 7—7 of FIG. 1 and primarily illustrates the hinged connection of the most remote end of the interconnecting means to the light-emitting head means and also shows interior details of the construction of the light-emitting head means.

FIG. 8 is an enlarged, sectional view, taken substantially along a plane and in the direction indicated by the arrows 8—8 of FIG. 1.

FIG. 9 is a fragmentary side view, partially in eleva-

tion and partially broken away into a substantially central, vertical plane, and illustrates a slight modification of the invention wherein the switch is no longer on the remote light-emitting head means but is carried by one of the rigid members of the interconnecting means and wherein magnetic attachment means of a novel type is positioned at one side of the base means (at the bottom thereof in the example illustrated) and is normally adapted to be fully retracted in the manner shown in FIG. 10, but in FIG. 9 is shown in extended, operative position brought about by the engagement thereof with respect to a ferromagnetic auxiliary surface of substantial mass and thickness.

FIG. 10 is a fragmentary, partially sectional and partially elevational view, taken substantially along the staggered-line plane and in the direction indicated by the arrows **10—10** of FIG. 9, but with the ferromagnetic auxiliary surface removed and with the magnetic attachment means retracted.

FIG. 11 is a pictorial, three-dimensional, exterior view of another modified form of the invention, generally similar to the first form of the invention but of generally cylindrical configuration so as to very closely resemble and simulate the exterior shape of a conventional flashlight. This view shows the device in fully retracted, collapsed form analogous to that of the first form of the invention as shown in FIG. 1.

FIG. 12 is a view showing the interconnecting means of the FIG. 11 form of the invention in one exemplary extended position such as to position the light-emitting head means at one particular exemplary remote position relative to the base means.

Generally speaking, the exemplary first form of the invention illustrated in FIGS. 1–8 inclusive may be said to comprise an electrically energizable light-emitting head means, such as is generally designated by the reference numeral **20**, a base means adapted to be supplied with electrical energy, one exemplary form of which is generally designated by the reference numeral **22** in the exemplary first form of the invention, with said light-emitting head means **20** and said base means **22** being effectively provided with positionally adjustable interconnecting means, such as is generally designated by the reference numeral **24**, connected therebetween in a manner such as to be controllably repositionable into any of a plurality of different positions whereby to correspondingly position the light-emitting head means **20** relative to the base means **22** in a manner such that the light-emitting head means **20** will direct light rays emitted therefrom into any desired region when electrically energized, and in a manner providing optimum illumination of said region with an absolute minimum of glare directly reaching the eyes of a user of the complete, positionally adjustable emergency trouble lamp means basically comprising said three elements **20**, **22**, and **24**.

Also, since the complete device is intended to be mounted, held or attached temporarily in a selected position with respect to some type of auxiliary mounting or holding means, it may be said in a board or generic sense that the apparatus includes means for facilitating such mounting, holding, or attaching of the complete device in such a selected position so that the light-emitting head means **20** can direct light into a desired region. Such means may be referred to as mounting or attachment means which is to be construed very broadly and which, in the exemplary first form of the invention, merely comprises the exterior of the base means **22**, which can be either placed upon an auxiliary surface or held in a hand (which, in this instance, would comprise the auxiliary mounting means) and therefore the so-called mounting or attachment means, in the first form of the invention illustrated in FIGS. 1–8 inclusive, may comprise the complete exterior surface **26** of the base means **22** or merely the bottom or rear end portion thereof, while in later forms of the invention to be described hereinafter, the mounting or attachment means is somewhat more sophisticated and takes the form of a novel type of magnetic or attachment means, one exemplary form of which is best illustrated in FIGS. 9 and 10, which will be described in detail hereinafter. However, it should be clearly understood that the type of magnetic mounting or attachment means shown in the FIG. 9 or 10 modification of the invention, other types of magnetic mounting and attachment means, and even mounting and attachment means of non-magnetic types, may all be employed within the broad scope of the invention, and it is to be clearly understood that the invention is not specifically limited to the arrangement specifically illustrated in the first form of the invention shown in FIGS. 1–8 or to the arrangement specifically illustrated in the second form of the invention illustrated in FIGS. 9 and 10, or to the arrangement specifically illustrated in the third form of the invention shown in FIGS. 11 and 12, but is intended to include and comprehend arrangements of the alternate types referred to generally hereinabove and to any substantial functional equivalents thereof.

It will be understood that the exemplary first form of the invention generically described above provides an arrangement ideally suited for use as a positionally adjustable emergency or trouble lamp means of a portable nature, which may be carried by a motorist (or any person who may have need of such a trouble lamp means) so that, in the event that his motor vehicle breaks down or he has some other sort of difficulty after dark or under conditions of poor illumination, he may stop the motor vehicle and find the source of the difficulty by electrically energizing the light-emitting head means **20** and, after locating the source of the difficulty, which might comprise a flat tire or some minor mechanical trouble under the hood of the automobile, or the like, the motorist may then appropriately either manually grasp the attachment means portion **26** of the base means **22** or may rest it upon any conveniently near-at-hand portion of the motor vehicle body, fenders, hood, inside engine compartment surface, or even a portion of the engine or adjacent accessories so that the base means **22** will be positioned in a properly mounted relationship such that the energized light-emitting head means **20** will direct light generally into the desired region to facilitate inspection and/or repair of whatever is at fault.

Once the proper location for temporarily mounting or positioning the base means **22** has been determined, whether of the hand-held type of such mounting or of the type of such mounting comprising the resting of the base means **22** or an attachment surface portion **26** thereof on any suitable auxiliary mounting surface, the motorist may then disengage the light-emitting head means **20** from the rectangular right-end cap **28** of the housing means **30** comprising parts of said base means **22** in a manner such as is shown in process in FIG. 2, and then the motorist may positionally readjust the light-emitting head means **20** into an optimum position for specifically directing light rays emitted from the light-emitting head means **20** into the desired region where the motorist intends to investigate the source of the motor vehicle's malfunction or to attempt minor repair work. This repositioning operation, or any other substantial equivalent of this repositioning operation, is made possible by the positionally adjustable interconnecting means **24** having a remote or head end **32** connected mechanically and electrically to the light-emitting head means **20** and having a base end **34** connected both mechanically and electrically to the right end of the base means **22**. Of course, it will be understood that each of said mechanical connections adjacent the head end **32** and adjacent the base end **34** is directly to the corresponding head means **20** and the corresponding end of the base means **22**, but that the corresponding electrical connections referred to above are through-passing connections which extend through said mechanical connections, in the first case through a con-

trollably operable electrical switch means, indicated generally at **40**, to an electric light bulb **42**, both carried within the light-emitting head means **20**, and in the second case through suitable hereinafter-described electrical connection means within the base means **22** to one or more battery means **38**.

It will be understood that movement of the electrical switch means **40** carried by the light-emitting head means **20** into one position will effectively disconnect the light bulb means **42** from the battery means **38** and that movement of said electrical switch means **40** in another manner will effectively connect the light bulb means **42** to the battery means **38** and cause electrical energization of the light bulb **42** and the consequent emission of light from the light-emitting head means **20**.

In the exemplary first form of the invention illustrated, the light-emitting head means **20** may additionally include light-directing and/or focusing means, such as generally designated at **44**, which may comprise a reflective mirror means **46** which, in one preferred form, may comprise a substantially parabolic mirror, although not specifically so limited, and, additionally, it may include a front focusing lens or window panel **48** which, in certain forms of the invention, may be relatively positionally adjustable with respect to the location of the electric light bulb **42** and/or with respect to the reflective mirror **46** for the purpose of modifying, in a focusing manner, the emitted light rays. However, the invention is not specifically limited to any particular type of light directing means **44** and, in some cases, it may be of a non-adjustable nature.

It will be understood that, in the exemplary first form of the invention illustrated in FIGS. 1–8 and described above, the interconnecting means **24** comprises both a physical interconnecting structural or coupling means interconnecting the light-emitting head means **20** and the base means **22**, and also comprises an electrically interconnecting electric circuit means portion electrically interconnecting the electric light bulb **42** of said light-emitting head means **20** with the base means **22** and the electric power source **38** carried thereby. As is best illustrated in FIGS. 2, 2A, and 6, the above-mentioned electrical interconnecting electric circuit means of said interconnecting means **24** comprises the two wires **50** which are made of deformable, electrically conductive material (usually suitably exteriorly electrically insulated) while the above-mentioned physical interconnecting structural means of said interconnecting means indicated generally at **24** may be said to comprise a longitudinal physical coupling member, also designated by the reference numeral **24**, incorporating therealong a plurality of effective forcibly bendable or forcibly deflectable hinge means, generally designated by the reference numeral **52**, adapted to effectively provide for relative bending or deflection of longitudinally displaced portions of the coupling member **24** with respect to each other. In the exemplary first form of the invention illustrated in FIGS. 1–8 inclusive, there are three such forcibly bendable or deflectable hinge means, each generally designated by the same reference numeral **52**, although they differ somewhat in construction and will be individually described hereinafter, and said three forcibly bendable or deflectable hinge means **52** may be said to comprise a plurality of longitudinally spaced hinge means interconnecting the longitudinal rigid members **54** which form the above-mentioned relatively displaceable portions of the coupling member **24**, with said forcibly bendable hinge means **52** each having an axis of rotation substantially transverse to the longitudinal direction of the adjacent longitudinal rigid members **54**.

It should be noted that the most remote forcibly bendable hinge means **52** is only pivotal around a horizontal axis in the exemplary first form of the invention illustrated, and that this is also true of the intermediate or middle, forcibly bendable hinge means **52**. However, the hinge means **52** at the point of attachment of the base end **34** of the coupling member **24** to the right end of the base means **22** is not limited to pivoting around only such a horizontally directed axis but can also pivot around a vertically directed axis. This mutually perpendicular pivoting feature of the lowermost one of the three hinge means **52**, together with the pivoting of each of the other two hinge means **52** around a horizontal axis, provides an arrangement such that the light-emitting head means **20** can be controllably moved into virtually any desired position by reason of the frictional interengagement of each of the bendable hinge means **52** which is provided by reason of a through-passing hollow rivet or grommet **56** in certain of the three hinges **52**, and/or by other frictionally interengaged structures associated therewith, which allow the corresponding portions of the wires **50** of the electric circuit means to pass from one side of each of the hinge means to the other side thereof while also providing a pivotal interconnection between the two hinged portions having a certain degree of frictional interengagement therebetween which will thus cause the corresponding hinge means **52** to remain in any position into which it is forcibly manually adjusted.

In the case of the lowermost or base hinge means **52**, it will be noted that a substantially U-shaped portion **58** is attached by the hollow rivet or grommet **56** to the top wall of the housing **30** of the base means **22** for rotation around a vertical axis of rotation while simultaneously allowing the two wires **50** of the electric circuit means to pass therethrough from their lowermost locations within the hollow interior of the housing **30** of the base means **22** into an upper position within the hollow lowermost rigid member **54** of the interconnecting coupling means **24**. In other words, the hollow interior of the lowermost hollow rivet or grommet **56** passes both of the wires **50** through the lowermost hinge means **52** from the interior of the base means **22** into the interior of the base end **34** of the coupling means **24**. The lowermost hinge means **52** also has a pair of horizontally aligned rivets **60** pivotally interconnecting opposite side walls of the U-shaped bracket member **58** with respect to the corresponding side walls of the lowermost rigid arm **54** and comprising a part of the complete lowermost hinge means **52**, which is thus provided with the capability of forcible frictional-hinge-interengagement-overcoming rotation around a vertical axis and around a horizontal axis as needed for repositioning the light-emitting head means **20** into any desired location.

The middle or intermediate, forcibly bendable or deflectable hinge means **52** similarly passes the two wires **50** of the electric circuit means through the hollow frictional rivet or grommet **56** from the left end of the lowermost rigid member **54** into the left end of the laterally adjacent uppermost rigid member **54**, and also provides the same type of normal frictional interengagement previously described and operable to hold said hinge means **52** in any position into which it has been forcibly manually adjusted. The uppermost hinge means **52** adjacent to the upper end **32** of the coupling means **24** includes an extension **62** of the right side wall of the upper rigid member **54** (best shown in FIG. 7) extending through a hole **64** in the rear surface of the light-emitting head means **20** into a position interior thereof and in opposition to a similar offset extension member **66** carried by the left side wall of the upper rigid member **54** and extending through said hole **64** into the interior of the light-emitting head means **20** at a laterally spaced location with respect to the first-mentioned extension **62**. Said extensions **62** and **66** are provided with a pair of laterally aligned rivets **68** which pivotally and frictionally fasten said extensions **62** and **66** to corresponding wall portions **70** and **72** of the light-emitting head means **20** in a frictionally interengaged and effectively retained manner so that the light-emitting head means **20** can be forcibly manually pivoted around a horizontal transverse axis extending through the aligned pivot pins **68** into a selected position where it will remain

by reason of the frictional interengagement of said parts of the upper hinge means **52** until it is subsequently manually forcibly again positionally readjusted. This characteristic is true of each of the three slightly different hinge means **52**.

It should be noted that the two rigid members **54** of the coupling means **24** are laterally displaced from each other (this means that they are laterally positioned alongside of each other and not actually physically spaced apart with a substantial intervening space therebetween) so that when folded into the closed relationship shown in FIGS. 1 and 4, each of said two rigid members is in side-by-side relationship substantially parallel to each other and directly along the outside of the base means **22** in a manner which may be said to form a continuous outer surface part of the base means **22**, as is perhaps best shown from a careful examination of FIGS. 1 and 4, where it is believed to be completely evident that the over-all rectangular configuration of the base means **22** is not disturbed or modified by the pair of folded, rigid members **54** of the coupling means **24**, but is complemented thereby in a manner such as to provide a complete rectangular cross-sectional configuration and shape to the fully folded and collapsed device. In other words, the device, when folded, does not have protruding and obviously design-configuration-disturbing outside-positioned rigid member which would seriously mar the over-all esthetic characteristics of the appearance of the complete device when in such folded, collapsed relationship. Indeed, the situation is quite the contrary, and the folded, collapsed rigid members complement and comprise a part of the over-all appearance of the complete device when in folded, collapsed relationship as is most apparent from a careful examination of FIG. 4.

It will be noted that, in the exemplary first form of the invention illustrated in FIGS. 1–8 inclusive, the housing means **30** is shown as being of substantially rectangular configuration having the batteries **38** positioned therein in similar, aligned, series connected relationship at their intermediate junction with each other and having the rear end of the right battery or cell **38** shown in FIG. 2 connected to an interior resilient electrical contact element **74** taking the form of an electrically conductive curved spring member, which is fastened to the right end wall **28** of the housing **30** (which is made of insulating plastic material or the like) by a rivet means **76**, with said spring **74** making electrical contact at its opposite end **78** with one of the wires **50** of the previously mentioned electric circuit means, as is clearly shown in both FIGS. 2 and 5. The other wire **50** of the electric circuit means is connected to a longitudinal electrical connector strip **80** extending along the length of the inside top wall of the housing means **30** to the opposite or left end thereof, as shown in FIG. 2, where it is connected through a downwardly extending connector portion **82** to a rivet **84** fastened to a slide-in mounting plate **85** and positioned in end abutment with the central pole or terminal **86** of the left battery **38** shown in FIG. 2. Since the right battery **38** shown in FIG. 2 also has its left terminal **88** series connected to the right end wall **90** of the left battery **38**, the arrangement just described electrically connects opposite terminals of the two series connected batteries **38** to the two electric wires **50** of the electric circuit means passing upwardly through the hollow rivet or grommet **56** of the lowermost or base one of the three hinge means **52**, as it best shown in FIGS. 2 and 5. The remote ends of the two wires **50** pass through the previously mentioned opening **64** in the rear wall of the light-emitting head means **20** where one of said wires is connected to the deflectable switch arm **92** of the previously mentioned switch means **40**, and the other of said wires **50** extends downwardly through a slot **94** in an insulated lamp bulb socket **96** carrying the lamp bulb **42** to a bottom-positioned rivet **98** which connects with the bottom central terminal of the lamp bulb **42** in a conventional manner. The switch arm **92** has a remote end portion **100** which is normally out of contact with the metallic or electrically conductive mirror **46**, but which is adapted to be deflected downwardly into electrical engagement therewith as is clearly shown in FIG. 6, when the switch actuating button **102** is moved forwardly from its normal, rearward, extreme off position. This then completes an electric circuit through the switch arm **92** and the electrically conductive portion of the mirror **46** to the exterior other terminal portion **104** of the lamp bulb **42** so that an electrical circuit will be completed from the batteries **38** through the wires **50** carried by the coupling means **24** and through the switch **40** to the filament inside of the lamp which will be energized whereby to cause the light bulb **42** to emit light. Of course, immediately upon retracting movement of the pushbutton **102**, the light bulb **42** will be de-energized.

It should be noted that the two batteries **38** are properly positioned within the rectangular interior of the housing means **30** by spacer vanes **106** which lie in vertical planes along the interior of the housing and which are provided with arcuate portion cut-outs such as shown at **108**, adapted to abuttingly engage, support, and mount the batteries **38** within the housing in properly centered, longitudinally aligned relationship.

For convenience in construction, the upper portion of the rectangular housing **30**, which is designated by the reference numeral **30U** in FIG. 8 only, may be integrally formed while the bottom portion of the housing, which is designated generally at **30B** in FIG. 8 only, may be also integrally formed but separate from the upper housing portion **30U**, with said two housing portions being arranged to be vertically snapfit together at the snapfit engagement junction indicated generally at **110** in FIG. 8. This provides an arrangement which allows the previously mentioned slide plate **85** to be slidably moved into position in the left end of the upper portion of the housing means **30** so that the rivet **84** will be properly positioned for contact with the left central pole **86** of the left battery **38**, after which the two batteries **38** can be moved into the upper portion of the housing **30** and the lower portion of the housing **30** can be snapfit into the upper portion of the housing **30** in the manner most clearly shown in FIG. 8 and described in connection therewith, although it is actually also shown rather well in FIG. 2 and to a somewhat lesser extent in FIGS. 1 and 4. While this provides a convenient method of manufacture of the two separate molded parts of the base means **22**, the invention is not specifically limited thereto and may be manufactured of various other materials and in various other ways and in various other configurations.

It should also be noted that, in the example illustrated, the light-emitting head means **20** is made of molded plastic construction and has a separable front portion **112** carrying the front lens **48**, which is adapted to be snapfit into place at the snapfit junction indicated generally at **114**, and generally similar to the previously described snapfit junction **110** shown in FIG. 8. However, various other materials and types of construction may be employed in lieu of the exemplary arrangement illustrated in the first form of the invention and just described in some detail.

It should also be noted that the light-emitting head means **20** is effectively provided with engagement means **116** adapted to allow the interconnecting means or coupling member **24** to be moved into the fully effectively retracted or collapsed relationship shown in FIGS. 1 and 4, with the light-emitting head means **20** positively engaged and positioned in a longitudinally aligned manner on the right end **28** of the base means **22** so that the complete device has flush, exterior, rectangularly arranged outside surface walls over the complete extent of the folded device, as is perhaps best shown in FIG. 4, wherein the device appears from the exterior to comprise a longitudinal rectangular structure having flush surfaces on all four side walls along the complete length of the device. This feature is particularly desirable in a modified form

of the invention such as is illustrated in FIGS. 11 and 12 wherein the shape of the housing is cylindrical, and it is desired that the entire device, when in fully retracted and folded relationship, simulate the appearance of a conventional flashlight capable of being operated substantially in the manner of a conventional flashlight for the purposes of a conventional flashlight.

FIGS. 9 and 10 illustrate fragmentarily a slight modification of the first form of the invention and are to be considered as alternates thereto only with respect to the differently located switch means and the modification of the so-called mounting or attachment means to take the form of a particular novel type of magnetic attachment means. Otherwise, the modification shown in FIGS. 9 and 10 with respect to the rest of the structure thereof (which is not shown fully in FIGS. 9 and 10) is to be considered as the same as the corresponding structure of the first form of the invention fully illustrated in detail in FIGS. 1–8 inclusive and described in detail hereinbefore.

Because FIGS. 9 and 10 do illustrate a modified form of the invention, parts which are structurally or functionally similar to or analogous to those of the first form of the invention are designated by similar reference numerals, followed by the letter *a*, however.

In the modification of FIGS. 9 and 10, the previously mentioned mounting or attachment means is generally designated by the reference numeral **26***a* and comprises a novel type of magnetic attachment means cooperable for temporary magnetic attachment in any selected position with respect to any suitable ferromagnetic auxiliary mounting surface, such as the exemplary one shown fragmentarily at **118**, for example, in FIG. 9. The magnetic attachment means **26***a* comprises a permanent magnet means **120** carried within a recess in the bottom wall of the housing means **30***a* of the base means **22***a* within the outer surface periphery thereof so as to not protrude therebeyond and further includes a movable and normally retracted magnetic circuit closing ferromagnetic coupling means, indicated generally at **122**, positioned adjacent to the permanent magnet means **120** and normally maintained relatively vertically upwardly displaced by a thin magnetic retraction member **124** fixedly mounted within the housing means **30***a* of the base means **22***a*. In other words, the magnetic retraction member **124** normally holds the ferromagnetic coupling means **122** in fully retracted relationship so that it does not protrude through the slots **126** in the lower wall of the housing means **30***a* of the base means **22***a* in the manner best shown in FIG. 10. However, as soon as a larger mass of magnetic material or a mass of magnetic material having a greater permeability is placed below the exterior of the bottom wall of the housing **30***a* of the base means **22***a*, the ferromagnetic coupling means **122** will be magnetically caused to move downwardly so as to extend the inverted U-shaped tip ends **128** thereof through the slots **126** into a protruding relationship for magnetic holding engagement with respect to the surface **118** of such a larger or thicker mass of ferromagnetic material comprising an auxiliary ferromagnetic mounting structure. In the example illustrated in FIGS. 9 and 10, it will be noted that the ferromagnetic coupling means **122** is split at the center, which facilitates its freedom of movement and its function, but the invention is not specifically so limited and may be modified within wide limits and still remain within the broad scope of the present invention, and all such modifications are intended to be included and comprehended herein. It will be understood that as soon as the auxiliary magnetic material having the surface **118** and having greater attractiveness for the ferromagnetic coupling means **122** than the magnetic retraction member **124**, is removed, said ferromagnetic coupling means **122** will immediately move upwardly toward the magnetic retraction member **124** into a fully retracted position such as is shown in FIG. 10.

FIG. 9 also illustrates, for purposes of broadening the scope of the present invention, a further slight modification which comprises the repositioning of the switch means **40***a* from the light-emitting head means **20***a* to a location in either one of the rigid members **54***a* of the coupling means **24***a*, although the preferred location thereof is adjacent to the lower end **34***a* of the lower rigid member **54***a*. Of course, the switch means **40***a* in this modification is in circuit with a corresponding one of the two electric circuit wires similar to those shown at **50** in the first form of the invention, and also in this modification the switch means **40***a* merely opens or closes said circuit and at the location within the light-emitting head means **20***a* corresponding to the location of the switch arm **92** of the first form of the invention best shown in FIG. 6, a permanent connector is provided in lieu of the switch arm **92** connected to the mirror portion similar to that shown at **46** in the first form of the invention or directly connected to the exterior light bulb terminal such as that shown at **104** in the first form of the invention so that operation of the switch **40***a* carried in the rigid arm **54***a* will effectively energize and de-energize a light bulb similar to that shown at **42** in the first form of the invention.

It should be clearly understood that the combination of two modified features in the form of the invention shown in FIGS. 9 and 10 does not comprise a limitation. In other words, either of the modified features shown in the FIGS. 9 and 10 form of the invention may be employed independently and need not be employed in combination, and the invention is not limited to the combination thereof but is intended to include and comprehend the individual use of either of the modifications shown in FIGS. 9 and 10.

FIGS. 11 and 12 illustrate a further slight modification of the invention and, therefore, parts which are structurally or functionally similar to those of previously described forms of the invention are designated by similar reference numerals, followed by the letter *b*, however. This modification of the invention may be adapted to be hand-held or mounted on its base which, in effect, may hen be said to comprise the so-called mounting or attachment means **26***b*, or it may be provided with the modified type of magnetic attachment means generally designated by the reference numeral **26***a* in the modification of the invention illustrated in FIGS. 9 and 10. Alternatively, it, or any of the other forms of the invention, may be provided with various other types of magnetic attachment means or other non-magnetic attachment means in lieu of the corresponding parts designated by the reference numeral **26**, **26***a*, and/or **26***b*, in any of the three exemplary and non-specifically limiting forms of the invention illustrated. Otherwise, this modification of the invention is substantially the same as the first form of the invention with the exception of the fact that the housing means **30***b* of the base means **22***b* is of substantially cylindrical exterior cross-sectional shape as is the light-emitting head means **20***a* so that when fully collapsed in the manner best shown in FIG. 11 the entire device closely simulates the appearance of a conventional flashlight. Also, it should be noted that, in this particular form of the invention, the arrangement of the two rigid members **54***b* of the coupling means **24***b* so as to effectively form a continuous outside surface part of the base means **22***b* when in fully collapsed retracted relationship as shown in FIG. 11, is provided in a slightly different manner than in the first and second forms of the invention. In the FIGS. 11 and 12 modification, this is provided by having the base means **22***b* provided with longitudinal recess means **130** (best shown in FIG. 12) along at least one side of the length of the housing means **30***b* of the base means **22***b* and adapted to receive the two corresponding rigid members **54***b* in laterally adjacent, folded relationship when the coupling means **24***b* is fully col-

lapsed, and with the exterior surfaces of said rigid members **54***b* lying in a predetermined, substantially flush exterior surface-forming relationship with respect to laterally adjacent outer surface portions of the housing means **30***b* of the base means **22***b*.

Also in this modification of the invention, the end engagement means **116***b* is substantially circular in shape rather than rectangular as in the first form of the invention.

It should be noted that the switch means in the various forms of the invention, such as the exemplary one shown at **40** in the first form of the invention and best illustrated in FIG. 1 thereof, has been shown as an on-off type of switch and has not shown the inclusion therein of a momentary closure type of push-button switch, or the like, which is advantageous in connection with flashlights and has been conventionally used in connection therewith in the past. It should be understood that the detailed structure of such a momentary closure type of switch structure is not shown in the drawings of this application for reasons of drawing simplicity and clarity, and since such momentary closure type of switches are well-known in the art and do not touch upon the inventive aspects of the present invention. However, it should be clearly understood that the present invention contemplates the use of such momentary closure type of switch means in various forms of the present invention and no exclusion thereof is intended. Also, it should be noted that while the base means has been shown in various forms of the present invention as being made of plastic, it is not specifically so limited and the construction may be altered to be made of insulated metal or various other suitable materials. This may be true with respect to the entire device or with respect to certain portions thereof only, and all such variations are intended to be included and comprehended within the broad scope of the present invention.

It should be understood that the figures and the specific description thereof set forth in this application are for the purpose of illustrating the present invention and are not to be construed as limiting the present invention to the precise and detailed specific structure shown in the figures and specifically described hereinbefore. Rather, the real invention is intended to include substantially equivalent constructions embodying the basic teachings and inventive concept of the present invention.

I claim:

1. A positionally adjustable trouble lamp means, comprising: electrically energizable light-emitting head means; a base means adapted to be supplied with electrical energy; positionally adjustable interconnecting means having a base end connected to said base means and having a remote head end connected to said electrically energizable head means and adapted to be controllably repositionable into any of a plurality of different positions whereby to correspondingly position said head means relative to said base means and in a manner such that said head means will direct light rays emitted therefrom into a desired region when electrically energized, said interconnecting means comprising a physically positionally adjustable physically interconnecting structural means portion interconnecting said head means and said base means and electric circuit means electrically interconnecting said head means and said base means for transmitting said electrical energy adapted to be supplied to said base means, therefrom to said head means for controllably electrically energizing said head means; said head means taking the form of a remote projection lamp means physically adjustably carried at said remote head end of said interconnecting means and being movable into a collapsed retracted position with respect to said head means substantially aligned with and engaged with one end of said base means whereby to effectively become unitary therewith; and engagement means for effectively causing positive engagement of said head means with respect to said end of said base means when said interconnecting means is in said collapsed retracted position; controllably operable electric switch means effectively in circuit with said light-emitting head means and said electric circuit means electrically connecting same relative to said base means for controlling the electrical energization of said light-emitting head means; said structural means portion of said interconnecting means providing said physical interconnection of said head means with respect to said base means comprising a longitudinal physical coupling member incorporating therealong effective forcibly bendable hinge means adapted to effectively provide for relative bending of longitudinally disposed portions of said longitudinal physical coupling member with respect to each other.

2. A device as defined in claim **1**, wherein said bendable hinge means comprises a plurality of longitudinally spaced hinge means and interconnecting longitudinal rigid members, with said hinge means each having an axis of rotation substantially transverse to the longitudinal direction of the adjacent longitudinal rigid members.

3. A device as defined in claim **1**, wherein said electric circuit means comprises a pair of wires interiorly carried by said longitudinally displaced portions of said longitudinal physical coupling member and passing interiorly through said hinge means spaced therealong.

4. A device as defined in claim **2**, wherein said electric circuit means comprises a pair of wires interiorly carried by said longitudinal rigid members and passing interiorly through said hinge means spaced therealong.

5. A device as defined in claim **3**, wherein said light-emitting head means, electric switch means in circuit with said light-emitting head means, and said electric circuit means electrically connecting same relative to said base means is physically carried by said light-emitting head means in an exteriorly manually operatively accessible position.

6. A device as defined in claim **4** wheerin said light-emitting head means, electric switch means in circuit with said light-emitting head means, and said electric circuit means electrically connecting same relative to said base means is physically carried by said light-emitting head means in an exteriorly manually operatively accessible position.

7. A device as defined in claim **2**, wherein at least two of said longitidinal rigid members are laterally displaced from each other along one of the transverse hinge axes of rotation and are foldable into side-by-side relationship substantially parallel to and directly along the outside of said base means in a manner effectively forming a continuous outside surface part of said base means when in fully collapsed retracted relationship with respect to said base means.

8. A device as defined in claim **7**, wherein said base means comprises a longitudinal outer housing means having longitiudinal recess means along at least one side thereof adapted to receive corresponding ones of said laterally displaced, interconnecting longitiudinal rigid members of said interconnecting means when in said fully collapsed retracted position with respect to said base means and adapted to lie in a predetermined exterior surface forming relationship with respect to laterally adjacent outer surface portions of said housing means of said base means.

9. A device as defined in claim **7**, wherein said base means comprises a longitudinal outer housing means of substantially cylindrical form having longitudinal recess means along at least one side thereof adapted to receive corresponding ones of said laterally displaced, interconnecting longitudinal rigid members of said interconnecting means when in said fully collapsed retracted position with respect to said base means and adapted to lie in a predetermined substantially flush exterior surface

forming relationship with respect to laterally adjacent outer surface portions of said housing means of said base means.

10. A device as defined in claim **1**, wherein said base means is provided with attachment means cooperable for temporary mounting and holding attachment in any selected position with respect to any suitable auxiliary mounting means.

11. A device as defined in claim **10**, wherein said attachment means is physically carried by said base means and comprises magnetic attachment means cooperable for temporary magnetic attachment in any selected position with respect to any suitable ferromagnetic auxiliary mounting surface.

12. A device as defined in claim **11**, wherein said magnetic attachment means comprises permanent magnet means carried by said base means in a manner within the outer surface periphery of said base means so as to not protrude therebeyond and further includes a movable and normally retracted magnetic circuit closing ferromagnetic coupling means positioned adjacent to said permanent magnet means and a magnetic retraction member carried by said base means adjacent to said permanent magnet means and said movable and normally retracted magnetic circuit closing ferromagnetic coupling means and normally so positioned with respect thereto as to cause the full retraction of said coupling means in a magnetic circuit closing manner between said permanent magnet means and said magnetic retraction member whereby to maintain said coupling means in fully retracted relationship within the exterior peripheral surface of said base means until a larger body of ferromagnetic material comprising a ferromagnetic auxiliary mounting surface is positioned on the exterior of said base means on the opposite side of said permanent magnet means and said coupling means from said magnetic retraction member and effectively causes a greater magnetic attractive force to be exerted between said coupling means and such a ferromagnetic auxiliary mounting surface than between said coupling means and said retraction member whereby to cause the full extension of said ferromagnetic coupling means from the outer peripheral surface of said base means and into magnetically engaged, retained, and held relationship between said permanent magnet means and such an exterior ferromagnetic auxiliary mounting surface.

13. A device as defined in claim **7**, wherein said base means is provided with magnetic attachment means physically carried by said base means and cooperable for temporary magnetic attachment in any selected position with respect to any suitable ferromagnetic auxiliary mounting surface.

14. A device as defined in claim **13**, wherein said magnetic attachment means comprises permanent magnet means carried by said base means in a manner within the outer surface periphery of said base means in a manner within the outer surface periphery of said base means so as to not protrude therebeyond and further includes a movable and normally retracted magnetic circuit closing ferromagnetic coupling means positioned adjacent to said permanent magnet means and a magnetic retraction member carried by said base means adjacent to said permanent magnet means and said movable and normally retracted magnetic circuit closing ferromagnetic coupling means and normally so positioned with respect thereto as to cause the full retraction of said coupling means in a magnetic circuit closing manner between said permanent magnet means and said magetic retraction member whereby to maintain said coupling means in fully retracted relationship within the exterior peripheral surface of said base means until a larger body of ferromagnetic material comprising a ferromagnetic auxiliary mounting surface is positioned on the exterior of said base means on the opposite side of said permanent magnet means and said coupling means from said magnetic retraction member and effectively causes a greater magnetic attractive force to be exerted between said coupling means and such a ferromagnetic auxiliary mounting surface than between said coupling means and said retraction member whereby to cause the full extension of said ferromagnetic coupling means from the outer peripheral surface of said base means and into magnetically engaged, retained, and held relationship between said permanent magnet means and such an exterior ferromagnetic auxiliary mounting surface.

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NORTON ANSHER, Primary Examiner

WAYNE A. SIVERTSON, Assistant Examiner

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