United States Patent [19]

Duddy

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[11] **3,917,940**

[45] **Nov. 4, 1975**

[54] **MAGNETIC BASE UTILITY LAMP**

[76] Inventor: **James J. Duddy,** 514 N. Metcalf St., Lima, Ohio 45801

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[21] Appl. No.: **470,177**

[52] **U.S. Cl.** **240/52.15**

[51] **Int. Cl.²** **F21L 15/18**

[58] **Field of Search** ..... 240/52.1, 52.15, 81 BS, 240/81 BA, 81 BC

[56] **References Cited**

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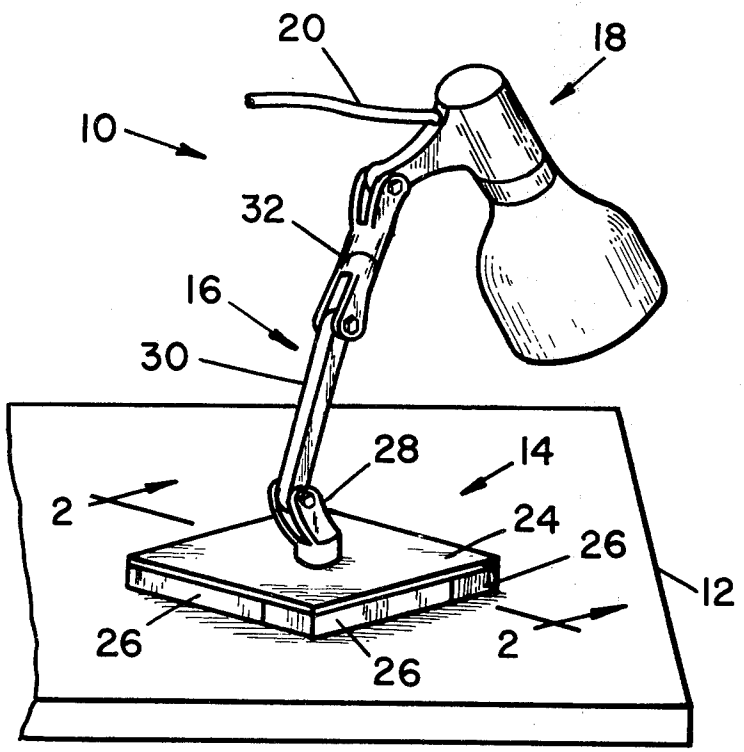
Primary Examiner—Fred L. Braun

Attorney, Agent, or Firm—C. Hercus Just; Samuel M. Learned, Jr.

[57] **ABSTRACT**

A utility lamp having as integral features thereof a flat, broad base comprised of a plurality of geometrically arranged elastomeric magnet members containing a dispersion therein of permanently magnetized ferrous particles and cementitiously secured to a base plate, such that the total weight of the base member is optimum for supporting the lamp in any configuration of adjustment when placed flatly upon some nonferrous surface, yet sufficiently light to enable portability for ease and convenience of movement and magnetic adherence in any position of placement upon a ferromagnetic surface. The lamp includes as additional features a multiplicity of frictionally set pivotal and swivel members which enables a user to conveniently position and point the beam of illumination from the lamp in any direction regardless of the position of mounting or placement of the base upon a supporting or magnetically adhering surface, low-abrasive characteristics of the contact surface of the base so as to preclude scratching or marring of a supporting surface when the lamp is attached thereto, and a power conduit of sufficient length to enable a broad latitude in ease of movement and placement of the lamp.

5 Claims, 7 Drawing Figures



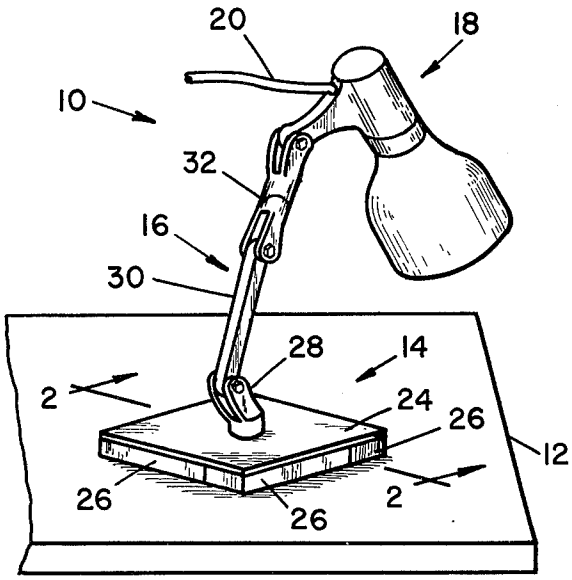


FIG. 1

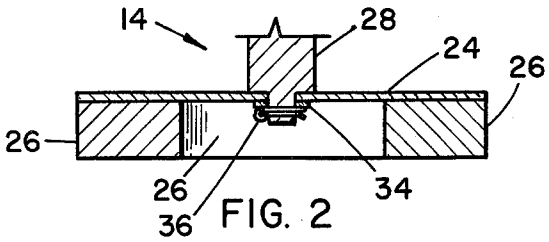


FIG. 2

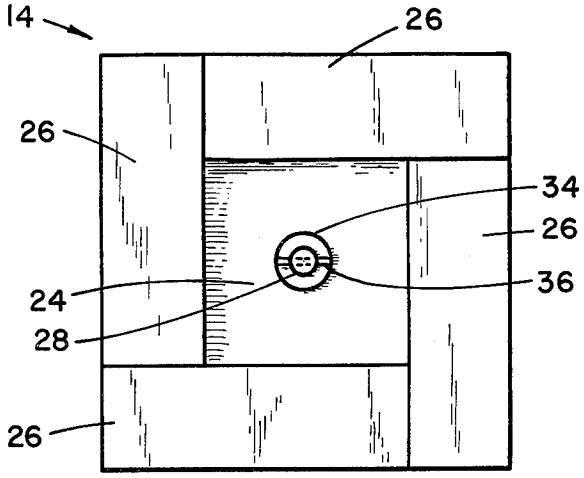


FIG. 3

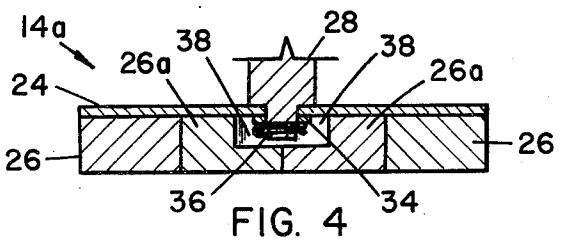


FIG. 4

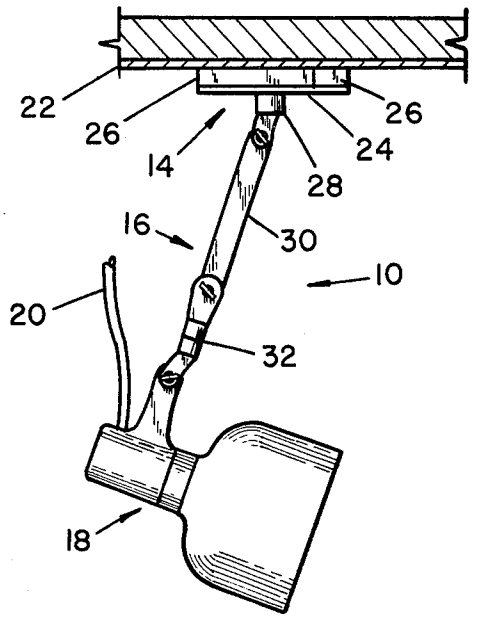


FIG. 6

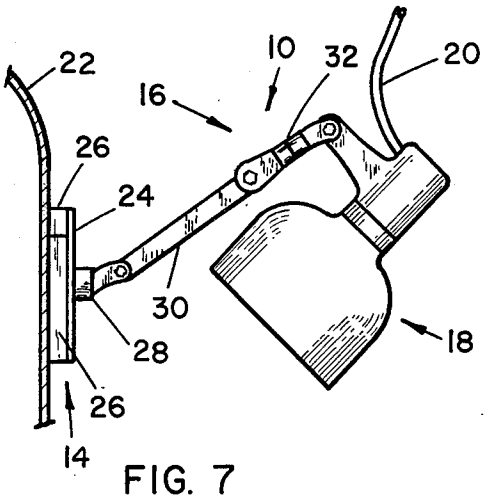


FIG. 7

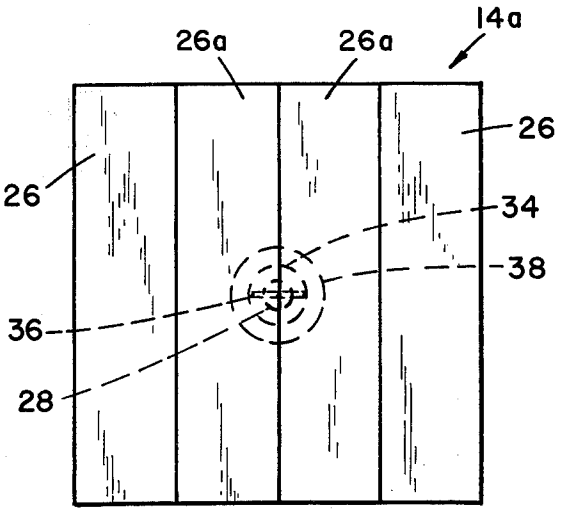


FIG. 5

MAGNETIC BASE UTILITY LAMP

BACKGROUND OF THE INVENTION

Utility lamps of various types, for various illumination purposes, have long been known and in many circumstances designed for a specific application, such as the familiar "miner's lamp" or the "dentist's lamp". Another such category of utility lamp classification is the so called "mechanic's light", exemplified by the disclosure in U.S. Pat. No. **3,479,500** to Duddy, the instant applicant, dated Nov. **18, 1969.** In this previous patent the lamp disclosed was designed to be attachable to supporting surfaces susceptible of receiving a hook or a clamp device. However, although the clamp attachment means incorporated both pivot and swivel adjustments to better enable controlling and directing the illumination beam, which was an improvement over other lamps of a similar type not providing such adjustments, the latitude of adjustment possible to enable illumination of the desired surface remained somewhat limited by the mounting means.

Another disclosure by Duddy for a mechanic's light disclosed in U.S. Pat. No. **3,696,239** dated Oct. **3, 1972,** incorporated improved pivot and swivel adjustment means for controlling and directing the beam of illumination to and upon the desired surface; however, the means of attachment was likewise limited, it being restricted to a hook device. Never-the-less, this later patent discloses improvements over the previous art regardless of the fact that it contained certain of other limitations thereby not enabling one to fully have a capability for directing the lamp beam exactly upon a surface to be illuminated when said lamp was employed in the use envisioned. Further, applicant's inventions referred to above did not provide an illumination source susceptible of attachment upon ferromagnetic surfaces not providing a hooking or clamping location, such as upon a horizontal, vertical, or inclined flat surface, which would include but not necessarily be restricted to benches, tables, power tools, cabinets, vehicle bodies and the like.

A standard method by which an illumination source has been enabled to be positioned and supported upon a flat surface is by providing a broad heavy supporting base member, such as shown in applicant's prior U.S. Pat. No. **3,066,219** dated Nov. **27, 1962,** wherein gravity supplies the stabilizing force to maintain the support, position, and placement of the illumination device. Although this earlier of applicant's utility lamp inventions offered many advantages over lamps previously used, especially as mechanic's lights, the weight of the heavy base member was cumbersome from the standpoints of ease of portability and movement during use, as well as not being desirable from a shipping cost standpoint. Additionally, broad heavy base members of metal and other hard materials have a tendency to cause scratching and marring of supporting surfaces, such as finishes upon floors, table and bench tops, vehicle bodies, cabinets and the like. Further, lamps having a broad heavy base member do not solve the problem of supporting an illumination device on a non- horizontal surface such as the side of a vehicle body or a metal wall or door, the side of a large household appliance such as an electric stove, washing machine, clothes dryer and the like, nor an overhead flat metal surface.

The use of magnets and magnetic base members to attach, support, and position lights of various kinds is also well known, perhaps the most familiar of which today known being the example of simple magnetic attachment means employed on certain flashlights. In U.S. Pat. No. **2,747,077** to Salm, dated May **22, 1956,** as well as U.S. Pat. No. **1,405,221** to Jenkins, dated Jan. **31, 1922,** there is revealed the incorporation of a so called "horseshoe magnet" within the base structure of said lamps disclosed therein, enabling the placement and mounting of said lamps in various non-horizontal positions upon ferromagnetic surfaces. The U.S. Pat. No. **1,268,154** to Root, dated June **4, 1918,** disclosed the incorporation of an electromagnet within the base structure of said lamp wherein a certain amount of the current supplied to provide illuminating power for the bulb is circuited to create a magnetic field within a coil comprising part of the base structure thereof.

In both the Salm and Jenkins disclosures the horseshoe magnets shown therein have an unprotected magnetic contact surface as means of attachment thereof to a ferromagnetic surface, there being no provision to prevent scratching or marring of the surface to which attachment is to be made. Further, in both of these cited patents the nature of configuration of the horseshoe magnet is such that each ferromagnetic contact surface is minimal, as compared to the present invention, in addition to there being no provision enabling the magnetic base elements thereof of the previous inventions to serve as a support means when said lamps are independently placed upon a non-ferromagnetic surface.

As regards the aforementioned Root patent disclosure, the illumination source thereof is powered by a divided current which not only lights the lamp bulb, but also provides the current to create a magnetic field within a coil encased within the base structure thereof, thereby expending electrical current to power a magnetic coil whether the lamp device is positioned upon a ferromagnetic surface or not. In Australian Pat. No. **132, 145,** dated May **22, 1956,** there is disclosed a magnetic based lamp with multiple adjustment means, but however, the design and construction of the lamp and use set forth within the disclosure and claims are specifically limited to employment of said lamp in the specialized application of providing a source of underwater illumination for divers to inspect and repair steel ship hulls damaged below the water line.

The present invention is distinguishable from said earlier inventions in one or more ways in that the present invention has utility features and new and useful advantages and improvements not heretofore disclosed, as set forth below.

SUMMARY OF THE INVENTION

It is the principal object of the present invention to provide a magnetic base utility lamp, which has on a broad base structure one or more geometrically shaped and positioned permanent magnet elements which have as a composition thereof a discrete dispersion of permanently magnetized ferrous particles within an elastomeric medium, which magnet elements are firmly secured to a base plate, such as by cement, and the total weight of the base member supports said utility lamp in any configuration of adjustment when placed upon a horizontal nonmagnetic bearing surface, yet said lamp assembly is sufficiently light in weight to be easily moved and positioned when in use, in addition to firmly adhering to a generally flat ferromagnetic surface in

any position of magnetic attachment and lamp adjustment.

It is another object to provide a magnetic base utility lamp which has a placement or attachment contact surface which is sufficiently non-abrasive so as to preclude the danger of either marring or scratching the finish of a supporting surface upon which said lamp may be placed, or the finish of a ferromagnetic attachment surface to which said lamp may be magnetically adhered.

It is a further object to provide a magnetic base utility lamp with adjustment means comprised of a multiplicity of frictionally secured pivotal and swivel members pivotally and swivelly connected by linkage members such that the beam of illumination from said lamp may be easily and conveniently directed exactly as desired upon a surface to be illuminated regardless of the position of placement or attachment of the lamp base upon a nonmagnetic support surface or magnetically adhering surface.

Another advantage of the present invention is that the special magnetic base elements which comprise the contact surface of the base structure provide a broadly dispersed maximum uniform magnetic area of high magnetic holding force for the weight and size of said magnetic elements extending to the perimeter of the base, thereby permitting the design of an optimum weight and size base structure capable of both nonmagnetically supporting or magnetically adhering the utility lamp assembly attached thereto to a supporting surface throughout an extensive range of possible adjustments of said lamp relative to said base.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective elevation of a magnetic base utility lamp embodying the principles of the present invention, shown in an exemplary position upon a horizontal nonmagnetic supporting surface.

FIG. 2 is an enlarged cross sectional view revealing details of the embodiment of base member assembly shown in FIG. 1, as seen on the line 2—2 thereof.

FIG. 3 is a bottom view of the enlarged cross sectional base member assembly shown in FIG. 2.

FIG. 4 is an enlarged vertical sectional view revealing details of another embodiment of base member assembly from that shown in FIGS. 1–3, as seen on the line 2—2 of FIG. 1.

FIG. 5 is a bottom view of the embodiment of base member assembly shown in FIG. 4.

FIG. 6 is an exemplary side elevation of a magnetic base utility lamp similar to FIG. 1, but showing said lamp in an alternate adjustment position and magnetically attached to an inverted horizontal ferromagnetic attachment surface.

FIG. 7 is a side elevation of a magnetic base utility lamp similar to FIG. 1, but showing said lamp in yet another alternate adjustment position and magnetically attached to a vertical ferromagnetic adhering surface.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, a magnetic base utility lamp **10** is shown placed upon a horizontal supporting surface **12**, which may be either magnetic or non-magnetic, said lamp being generally comprised of a base member **14**, a frictionally set universal type adjustable swivel-pivotal-linkage assembly **16**, a lamp housing and reflector assembly **18**, and a power conduit **20**.

Referring again to FIG. 1, to explain in more detail the construction of this invention, as well as the details of adjustment, which contemplates providing a relatively light weight illumination source attached to and supported by a relatively broad base member **14**. Said base member **14**, for illustrative purposes, is shown as being square in shape, the dimensions of which are on the order of 3 to 4 inches along a side. However, said base member **14** could have the configuration of any convenient geometric shape such as a circle, hexagon, or the like, which would also, however, have a surface area of contact for support approximating that of said base member **14** as illustrated and described, at least of the size stated above.

Said base member **14** is comprised of a base plate **24** and a plurality of geometrically shaped elastomeric magnet members **26** which are cementitiously secured to said base plate **24**, which base plate **24** also provides the attachment surface for connection of base member **14** to the frictionally set adjustable swivel-pivotal-linkage assembly **16**, to which, in turn, the lamp housing and reflector assembly **18** is attached. Through the use of elastomeric magnet members **26**, the weight of said base member **14** is enabled to be considerably lighter than it otherwise would be if solid metal permanent magnets were used, thereby also enabling the design of a base member **14** assembly which provides adequate support for said utility lamp **10** in any position of adjustment when placed upon a substantially horizontal non-magnetic supporting surface **12** as shown, or magnetically attached to a ferromagnetic surface in any inclined, inverted or vertical position. Also, through the employment of elastomeric magnet members **26**, composed as they are of a dispersion of permanently magnetized particles within an elastomeric medium, such as a resin or rubber compound, there is no substantial danger of scratching or marring the finish of said nonmagnetic supporting surfaces upon which said utility lamp **10** may be placed, or the finish on a ferromagnetic surface to which said utility lamp **10** may be magnetically adhered.

Additionally, when said utility lamp **10** is magnetically adhered to a ferromagnetic surface, elastomeric magnet members **26** provide a high density, light weight magnetic holding force of considerable and uniform area, thereby also providing a more substantial and secure magnetic adhering means than would otherwise be obtainable through the use of a horseshoe type magnet having a smaller magnetic contact surface, such as those referred to above in certain prior patents. Said base plate **24** to which said elastomeric magnet members **26** are cementitiously attached may be formed of a non-metallic material such as plastic or wood, or a light weight non-magnetic metallic material such as aluminum. However, it is advantageous to construct said base plate **24** of some magnetic metallic material in that the inherent magnetic force of said elastomeric magnet members **26** thereby augments the cohesive bond of the cementitious material by which said elastomeric magnet members **26** preferably are otherwise attached to said base plate **24**. Additionally, swivelly connected to said base plate **24**, by means of a pivotal clevis **28**, is the frictionally set adjustable swivel-pivotal-linkage assembly **16**.

Said assembly **16** which affects adjustment provides means by which the lamp beam is directed and maintained upon an object or surface to be illuminated, and

is further comprised of an adjustment arm **30** pivotally connected at one end to said pivotal clevis **28** adjacent the base member **14** end and the other end thereof is pivotally connected to a swivelly joined double clevis member **32**, which in turn, has the other end thereof connected to said lamp housing and reflector assembly, which also contains a suitable electric lamp socket. The frictional connection of the elements comprising said adjustment assembly **16** enables said utility lamp **10** to be manually adjusted with ease and facility, yet is sufficient to hold the beam of illumination in whatever adjusted position may be required. Said adjustment assembly **16** may be constructed of metal, or plastic, or a combination thereof, or any other suitable material.

The view seen in FIG. **2** is an enlarged vertical cross section taken along the line **2—2** of FIG. **1**, and showing in greater detail the structure of the base member **14** assembly and the attachment of elastomeric magnet members **26** to said base plate **24**, such as by use of suitable cement. Shown also is the manner in which pivotal clevis **28** is swivelly connected to said base plate **24** by means on inserting a reduced diameter extension of said pivotal clevis **28** through a hole in said base plate **24**, assembling a washer **34** over said pivotal clevis **28** extension, and inserting through a hole in said extension a cotter pin **36**. In FIG. **3** there is shown a bottom view of base member **14** such as shown in FIG. **2**. More clearly seen, however, is the geometric configuration of the elastomeric magnet members **26** attached to the base plate **24**.

The view seen in FIG. **4** is similar to the enlarged cross sectional view seen in FIG. **2**, but however, showing another embodiment of base member **14*a*** wherein the elastomeric magnet members **26** are assembled to the base plate **24** in a side-by-side configuration. In this modified base member assembly **14*a***, it is necessary that a semicircular recess **38** be provided in each of the two center elastomeric magnet members **26*a*** in order to accommodate the extension of pivotal clevis **28**, washer **34**, and cotter pin **36** which are on the underside of the base plate **24**. In FIG. **5** there is shown a bottom view of the modified base member **14*a*** as illustrated in FIG. **4**, and also showing the geometric configuration of attachment of elastomeric magnet members **26** and **26*a*** to the base plate **24**, whereby, in all of the embodiments of magnetic arrangements the magnetic force is widely distributed, especially to the perimeter of the base and thus provide a broad area and perimeter arrangement of magnets to furnish magnetic attachment of the base to a supporting surface with attending stabilizing of the base thereon.

The view seen in FIG. **6** shows a magnetic base utility lamp **10** disposed in a modified configuration of adjustment and magnetically adhered, in an exemplary inverted position, to a ferromagnetic surface **22**. The application thus shown is to illustrate the versatile manner in which said utility lamp **10** may be employed, such as for instance, to provide an illumination source for a repairman when working on the inside or underside of a large ferromagnetic structure such a storage tank, beneath a motor vehicle, or the like.

In FIG. **7** still another application for the magnetic base utility lamp **10** is shown, wherein said utility lamp **10** is seen in yet another configuration of adjustment magnetically adhered to a vertical ferromagnetic surface **22**, such as the side of an automobile or truck for the purpose of providing a source of illumination for a vehicle mechanic. A similar illustrative application would be in providing a source of illumination for an appliance repairman, wherein said utility lamp **10** would be magnetically adhered to the side of a stove, refrigerator, washing machine, or the like, with the lamp beam directed at the exact object or area to be illuminated during repair.

While the invention has been described and illustrated in its several preferred embodiments, it should be understood that the invention is not to be limited to the precise details herein illustrated and described since the same may be carried out in other ways falling within the scope of the invention as illustrated and described.

I claim:

1. A magnetically attachable light adapted to be removably supported upon steel or iron-containing objects by firm magnetic connection or upon non-magnetic surfaces, said light comprising in combination, a base plate of flat geometric configuration of substantial area, light support means having one end extending through said plate and projecting thereabove substantially from the center of one surface of said plate, an electric light socket supported by said light support means in a position above said one surface of said plate, an electric cord connected to said socket and connectable to a source of current, and a plurality of similar elongated flat permanent magnets connected fixedly to the opposite surface of said base plate adjacent at least substantially all peripheral edges thereof to provide a space to accommodate a portion of said light support means adjacent said one surface of said plate and also provide a perimetric arrangement of magnets on said base plate to provide an effective widely spaced area of magnetic force upon said base plate to support the same effectively against tilting and accidental removal of the base of said lamp from a steel or iron-containing supporting surface when attached thereto or when otherwise set upon a horizontal non-magnetic supporting surface.

2. The light according to claim **1** in which said magnets comprise discreet magnetic iron particles dispersed in a body of elastomeric material of a non-scratching nature, whereby the surfaces of said magnets which engage a supporting surface will not scratch the same and the weight thereof is much less than conventional iron magnets of similar size.

3. The light according to claim **1** in which said magnets comprise elongated bars having greater length than width and said plurality thereof are positioned respectively along all peripheral edges of said flat base plate.

4. The light according to claim **1** in which said magnets comprise elongated bars arranged side-by-side across substantially the entire area of said opposite surface of said base plate and said magnets adjacent said one end of said light support means on said base plate being provided with a recess adequate to receive said one end of said light support means.

5. The light according to claim **1** in which said light support means comprises a swivel pin extending substantially perpendicularly from the center of said one surface of said plate and having one end extending therethrough, and further including a clevis connected to said swivel pin and having spaced ears extending away from said pin, a link having one end extending between and pivotally connected to said ears, and said electric light socket being pivotally and swivelly connected to the other end of said link.

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