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W. B. CHURCHER.

MEANS FOR SUPPORTING ELECTRICAL LAMPS.

APPLICATION FILED DEC. 26, 1899.

NO MODEL.

Fig. 1.

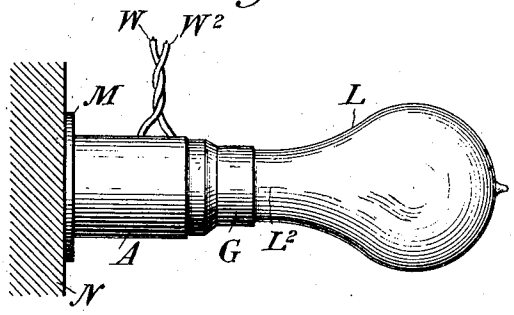



Fig. 2.

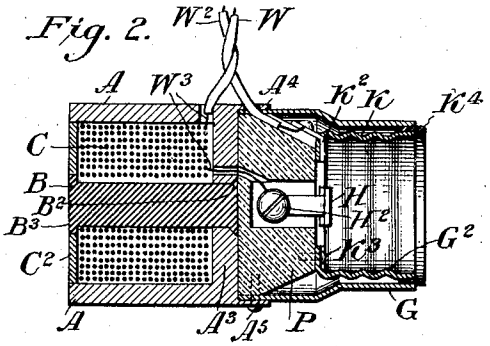



Fig. 3.

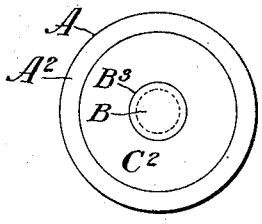
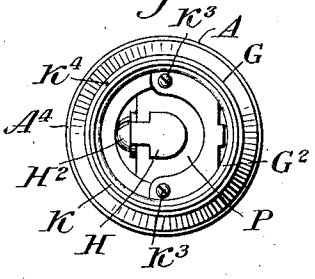



Fig. 4.




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# UNITED STATES PATENT OFFICE.

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## MEANS FOR SUPPORTING ELECTRICAL LAMPS.

SPECIFICATION forming part of Letters Patent No. 769,303, dated September 6, 1904.

Application filed December 26, 1899. Serial No. 741,523. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM B. CHURCHER, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Means for Supporting Electrical Lamps, of which the following is a specification.

The kinds of lamps which my invention is primarily designed to support are the kinds included under the term "incandescent" lamps.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings, making a part of this specification, Figure 1 represents a side elevation of my embodied invention in use. Fig. 2 represents a vertical longitudinal central section of this embodied invention on an enlarged scale. Fig. 3 is on the same scale as Fig. 2 and is an elevation of that end of the device constructed according to my invention which faces toward the left in Fig. 2. Fig. 4, on the same scale as Fig. 2, is an elevation of that end of the same device which faces toward the right in Fig. 2, it being understood that the bulb of the incandescent light has previously been removed.

I will now proceed to describe my invention in detail.

A indicates a cup-shaped iron or steel device, consisting of a sleeve $A^2$ and an end $A^3$. These may be formed in separate pieces and riveted or otherwise fastened together, but are preferably formed of one piece.

B indicates a steel core centrally located in relation to the sleeve $A^2$ and end $A^3$ and suitably connected thereto, preferably as shown, by being securely seated at $B^2$ in the end $A^3$. Around this core B is coiled an insulated wire, forming a coil C. The winding of such coils is well understood. An annular disk $C^2$ is located around the core and against the outer end of coil or spool. The function of this disk is to protect and hold the outer end of the coil. This disk is itself secured in place, and an advantageous means for this purpose consists of the rim or flange $B^3$ on the outer end of the core B.

G indicates a lamp-socket composed of brass or like suitable material. The socket is duly connected to the end of the sleeve. Means for this purpose consist of the flange $A^4$ of the end $A^3$. The adjacent end of this socket engages this flange substantially as shown and when it slides within this flange abuts against the end $A^3$, as shown. A set-screw $A^5$ affords a convenient means for holding the socket in place within the flange $A^4$. The rear portion of the socket carries a piece of non-conducting material, usually porcelain, P, which effectually separates the incandescent lamp from the magnet A B. This non-conducting piece P is usually held in place by the set-screw $A^5$. Thus the latter performs a double function. The front portion of the socket is adapted to receive the base of an incandescent lamp and is provided with means for securing it in place. As the peripheral portion of the base of many of the incandescent lamps now in use is provided with a screw-thread, I have shown the socket provided with an interior screw-thread $G^2$ to engage this screw-thread of the lamp. The screw-threaded part is duly secured to the rest of the socket. Thus the screw $K^3$, as shown, secures it to the porcelain P, the latter serving as a base.

Contacts for the electric terminals of the lamp are provided, so as to put the lamp in connection with the electric circuit. One of the most common kinds of lamps now sold as an article of manufacture is the "Edison." L indicates such a lamp, and $L^2$ the base thereof, only a portion of the latter being shown, the rest being located in the socket. To accommodate such standard make of lamps, I locate one contact, H, in the center of the socket and provide it with set-screw $H^2$. One of the circuit-wires, $W^3$, from the coil is separably connected to the contact H by means of this set-screw $H^2$. A wire W of the main circuit is connected to the other contact, K. The circuit-wire $W^2$ is connected to the coil C. When the lamp is connected to the socket G, one of its terminals rests on the contact H and the

other on the contact K. Thus the lamp is put into circuit.

The principal feature of my invention relates to the combination of a socket for holding an incandescent lamp and a permanent magnet. To this end the core-piece B and the sleeve $A^2$ with end $A^3$ are and constitute a permanent magnet. These parts are rendered permanently magnetic. At each of the places on the tables and walls and the like where it is desired to locate the lamp an iron or steel plate or disk M is provided. In case the wall or structure that is to support the lamp is of iron or steel then a special metal disk or piece M may be omitted. In Fig. 1 is shown a support N, representing the wall, ceiling, or other structure to which the iron or steel piece M is connected in any suitable manner. Inasmuch as the steel core B and the sleeve $A^2$ and end $A^3$ constitute a permanent magnet, no coil C is necessary for its successful operation. The lamp, with socket, is lifted, and its bottom end (where the core and end of the sleeve are represented) is located against the metal support M. Thereupon it will attach itself to the support by virtue of the magnetic attraction between the steel magnet of the socket and the iron or steel support, and it will do this when the electrical current is shut off from the conductors W and $W^2$ or when it is not passing through the lamp, as it does not depend upon the flow of electricity to render the socket magnetic. Hence my invention possesses obvious advantages over a structure (lamp and lamp-socket) which is magnetic only when the electrical current is active, because the latter as soon as the current is shut off no longer adheres to its metal base M and if suspended from a roof or ceiling or the side of a vertical support will tumble down and break itself or the lamp, or both, unless it has the presence of a special guard to catch it as it falls. My invention needs no such care and will not leave the support unless directly removed by human agency.

It is not necessary that both the cylinder and the core be of steel, as if either one is magnetized it will hold the socket in position; but preferably both the cylinder and core are of steel.

The steel core and sleeve being once thoroughly magnetized will remain so for a long time; but after lengthy periods the magnetic force due to the residual magnetism in the steel will sometimes lessen. This will especially occur where the magnetic socket is jerked off and moved around and frictionized a great many times. In such instances the action of the electrical current through the coil will serve to make up the slight diminution of magnetism in the magnet and keep the magnet always of full strength; but the coil can be dispensed with and its omission will not interfere with the successful operation of my invention. When the coil is omitted, the wire $W^2$ will then connect directly with the contact H of the socket.

Where the portion K is a part of the circuit, as in the present illustrative construction, it will be insulated from the outer shell G by a proper insulation, as $K^4$. It is to be observed that I employ a flange $K^2$ to connect portion K to the socket. This flange rests upon the porcelain base P and is secured thereto by set-screw $K^3$.

The advantage of using a magnet of this particular form is that when I employ the electric current to renew the magnetic force the coil wound about the stem has a magnetic influence on the iron sleeve. In comparison with magnets of other shapes this therefore requires the least amount of wire to produce the greatest amount of magnetism. The using of a large amount of wire on the core reduces the power of the lamp. In other electric magnets which have two cores with two coils of wire the resistance is such that the candle-power of the lamp is reduced. This is true when the current is on. I attain with my sleeve A and a small amount of wire what the other magnets only attain after using two cores and a quantity of wire wound thereon.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination of an incandescent lamp, a socket and a permanent magnet attached thereto, the electrical coil as a part of the said magnet being connected in series with the lamp, the magnet constructed substantially as specified to attract independently of the electric circuit, substantially as and for the purposes specified.

2. The combination of an incandescent lamp, and a socket being permanently magnetic, the socket inclosing a central space, a core within this space, said core being out of contact with the side of the socket, and in contact with one end of the socket, the other end of the socket and of the core being in a common plane, an electric coil, a support for the electric coil through which an electric circuit may be run at will, for lighting the lamp, as desired, substantially as and for the purposes specified.

3. The combination of a magnet consisting of the hollow cylinder having the discal end $A^3$, in one with the cylinder, and the solid core B, connected directly to said discal end, the bottom of the latter being in the same plane with the bottom of the cylinder, the cylinder and core being a double horseshoe from whatever side elevation viewed, the core carrying a coil C, capable of being put into an electric circuit, the cylinder carrying at its top or outer end means for connecting an incandescent electric lamp, and means for insulating

the same from the cylinder and core, the device being permanently magnetized and adapted, substantially as specified, to thereby adhere to suitable support, substantially as and for the purposes specified.

4. The combination of an electric lamp, and a magnet, the said magnet consisting of a hollow cylinder, having the discal end $A^3$ connected directly to the cylinder, and a central solid core, connected directly to the end $A^3$, the bottom of the core and of the cylinder being in a plane common to both, the same being permanently magnetized, all for attraction to a metal support in the ceiling, or wall or the like, substantially as and for the purposes specified.

5. The combination of the cylinder having the end $A^3$, and the core, the bottom end of the core and the bottom end of the cylinder being in a common plane, and the upper end of the cylinder being extended beyond the end $A^3$ and forming an annular flange, and a non-conducting piece P received therein, and a shell G connected to this annular flange, and adapted to receive the neck of the lamp, the piece P being the holder of the contacts for the lamp, substantially as and for the purposes specified.

6. A permanent magnet and an electric lamp, the latter carried by the magnet, a hollow cylinder and a central core, or stud being present in the construction, the magnet with lamp being adapted to be affixed to any metal support adapted to receive the impingement of the magnet and constitute the opposite or complementary attraction to the magnet, substantially as and for the purposes specified.

7. A permanent magnet, and an electric lamp, the latter carried by the magnet, there being present in its construction the hollow cylinder and central core and wire thereabout having electrical connections for reinstating the diminution of magnetism in the magnet, when necessity requires; the magnet adapted to impinge against a metal support of complementary magnetism, and to support itself and the lamp, and its connections, substantially as and for the purposes specified.

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Attest:

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