June 5, 1962 J. L. BONANNO 3,038,139

MAGNETIC SOCKET DEVICE

Filed June 13, 1958

Fig. 1.

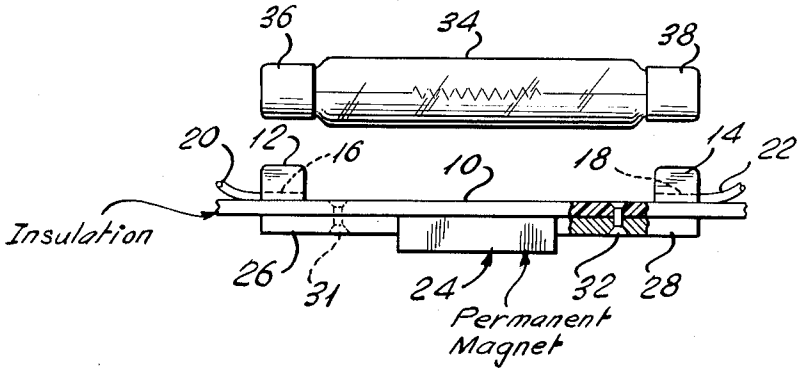


Fig. 2.

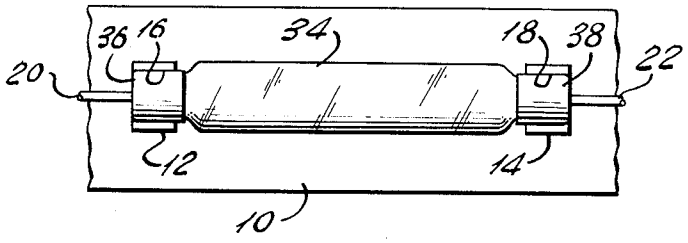
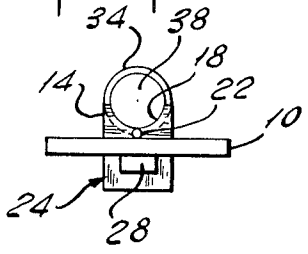


Fig. 3.



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MAGNETIC SOCKET DEVICE

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This invention relates in general to an electrical contact socket and particularly to a new and useful electrical socket for apparatus having magnetizable terminals requiring electrical actuation, in which the apparatus is held in the socket by magnetism and without any mechanical clamping means.

The present invention finds particular application in the mounting of small lamps for electrical connections in devices such as toys. In accordance with the invention, there is provided two spaced magnetized electrical contact sockets to each of which is connected a separate electrical terminal for the electrical actuation of a part including the terminals placed across such contacts.

Accordingly, it is an object of this invention to provide a magnetic-clamping electrical socket.

A further object of this invention is to provide an electrical socket which is simple in design, rugged in construction and economical to manufacture.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated and described a preferred embodiment of the invention.

In the drawings:

FIG. 1 is a transverse section of an electrical lamp socket constructed in accordance with the invention and indicating a cylindrical type lamp thereabove;

FIG. 2 is a top plan of the socket shown in FIG. 1 and with the cylindrical lamp positioned within the magnetic socket terminals; and

FIG. 3 is an end view of the lamp and socket.

Referring to the drawings in particular, the invention as embodied therein includes an insulation mounting plate **10** upon which is secured, as with adhesive, a pair of spaced socket shells **12** and **14**. The socket shells **12** and **14** are provided with semi-cylindrical recesses **16** and **18**, respectively, and they form terminals in an electrical circuit connected by wires **20** and **22**, respectively.

In accordance with the invention a permanent magnet **24** is secured to the insulation plate **10** in a location bringing pole pieces **26** and **28** beneath shells **12** and **14**, respectively. The pole pieces are held to the insulation plate as by rivets **31** and **32**.

A device which is to be actuated electrically is then connected into the electrical circuit by placing one terminal in the shell **12** and the other terminal in the shell **14**. In the present instance, the cylindrical lamp **34**, having end terminals **36** and **38** made of a magnetizable material, is connected in the electrical circuit by placing the terminals **36** and **38** in the recesses **16** and **18**, respectively. When the lamp **34** is thus positioned, no other clamping means is required to retain the lamp in the socket recesses since the attractive force of the magnetic pole pieces **26** and **28** maintain the lamp thus positioned. In this respect, it will be noted that the recesses **16**, **18** form surfaces for freely receiving the lamp terminals **36**, **38**, and upon which the lamp terminals **36**, **38** are magnetically retained as opposed to the usual clamping retention of electric element terminals. The upwardly extending legs of the semi-cylindrical recesses **16**, **18** are utilized to restrain lateral displacement of the lamp **34**.

The present invention has particular application for small devices where the assembly of the parts of a lamp or other electrical apparatus must be made as rapidly as possible in order to minimize the cost. By eliminating clamping members and securing bolts and screws and substituting a permanent magnet it is possible to make a much less expensive electrical socket.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the invention principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. An electrical socket for an electrical element having spaced electrically conductive and magnetizable terminals, said socket comprising an insulated mounting plate, two spaced-apart and electrically conductive socket shells mounted on one side of said plate, said socket shells being formed for freely receiving the terminals of the electrical element and including portions for extending adjacent either side of the terminals for preventing lateral displacement thereof, each of said shells being electrically connected in a circuit, and a permanent magnet secured to said plate on the other side thereof and underlying said socket shells whereby to attract the terminals of the electrical element for retention on said shells for closing the circuit.

2. A socket according to claim 1, wherein said shells comprise semi-cylindrical recesses.

3. The combination of an electric lamp and socket therefor and comprising a substantially cylindrical lamp having substantially cylindrical magnetizable terminals at each end, an insulated mounting plate, a set of electrically conductive socket shells mounted on one side of said plate and spaced sufficiently apart to receive said lamp terminals thereon, said socket shells being formed for freely receiving the terminals of the electrical element and including portions for extending adjacent either side of the terminals for preventing lateral displacement thereof, each of said socket shells being electrically connected in a circuit, and a permanent magnet mounted on said plate on the other side thereof and underlying said socket shells to attract the terminals of said lamp and maintain said lamp in said socket shells.

4. An electrical socket for an electrical element having spaced electrically conductive and magnetizable terminals, said socket comprising two spaced open top socket members spaced and formed for freely receiving the terminals of the electrical element means for electrically energizing said socket members, and magnetic means on the opposite side of said socket members from the open top portion arranged to attract the terminals of the electrical element and maintain it in position thereon for electrical connection.

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