

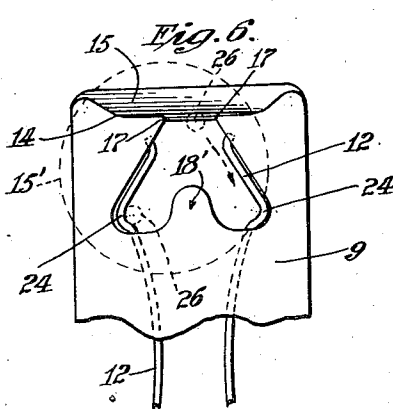
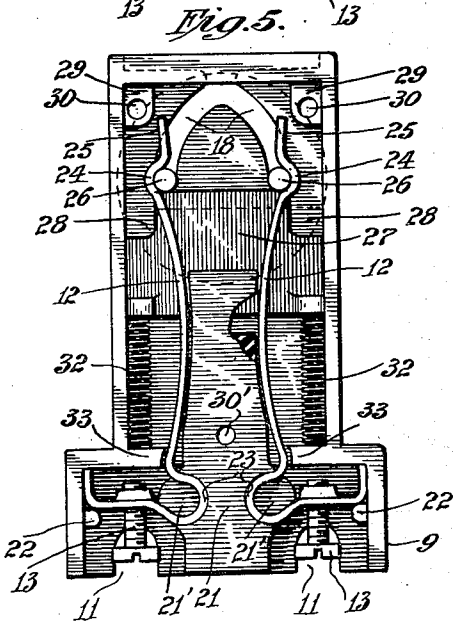
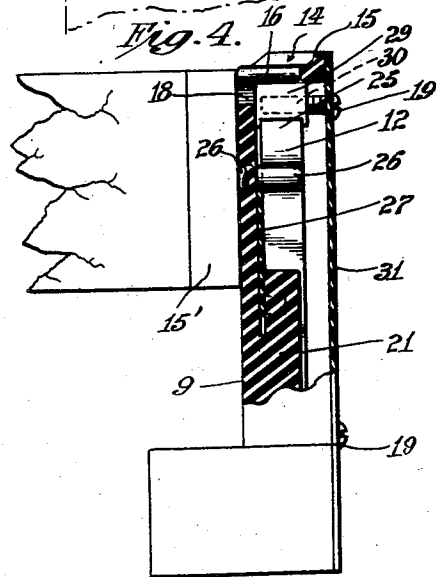
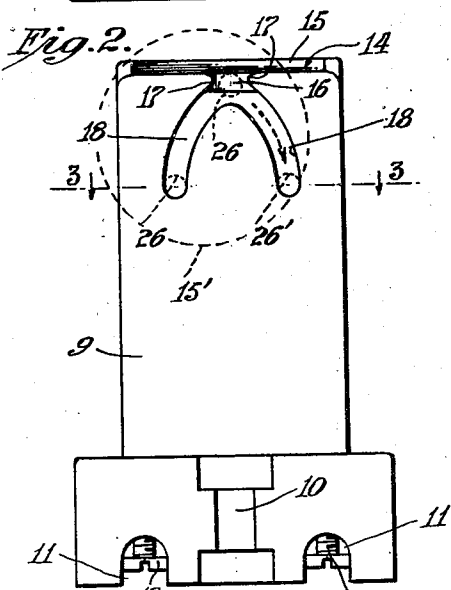
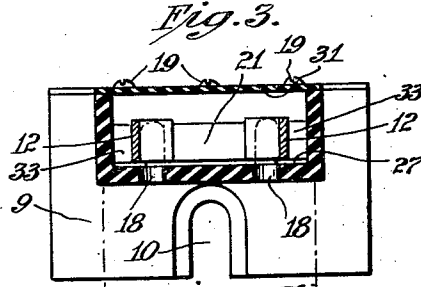
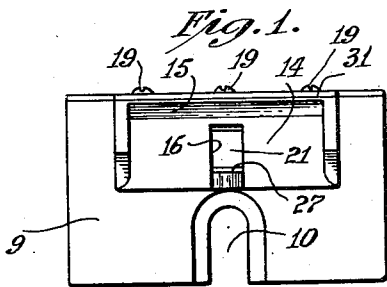
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SOCKET

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SOCKET

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3 Claims. (Cl. 173—328)

This invention pertains to sockets of the type which are adapted to receive a lamp or tube base equipped with a plurality of pins, such as the base commonly employed upon each end of a lamp of the fluorescent type.

One object of my invention is to provide a socket of the type described which shall be simple and inexpensive to manufacture.

Another object is to provide a socket which is rugged and unlikely to be damaged in use.

Another object is to guard the terminals from accidental contact.

Another purpose is to provide such a socket in which a substantially transitional movement of the lamp upon entry will fully seat one prong into firm contact with one terminal of the socket, and then a partial rotary movement will engage the other prong or pin with the remaining contact, so that the chances of making imperfect contacts, which might be harmful to the lamp, are greatly reduced in comparison with types of sockets in which both terminals are supposed to be simultaneously engaged by some movement of lamp insertion other than a simple rotation of the lamp.

Other objects and advantages of my invention will be apparent to those skilled in the art by reference to the specification following, and to the drawing hereunto attached, where:

Fig. 1 is an end view of my lamp socket.

Fig. 2 is a front elevation of the same, showing various positions assumed by the pins of a tube entering the socket.

Fig. 3 is a section upon the lines 3—3 of Fig. 2.

Fig. 4 is a side elevation and partial section.

Fig. 5 is a rear elevation of the socket with the tube pins shown in place and making contact.

Fig. 6 is a front elevation of a portion of a modified form of socket with a tube base partly inserted.

A body 9 of any suitable insulating material such as a molded plastic, is provided with a recess 10 for fastening the same to a support, as by the use of a screw or other means (not shown). Grooved openings 11 are also provided for the passage therethrough of conductors attached to the contact members 12 of the socket by means of suitable terminal screws 13, and carrying electrical energy from any suitable source.

The upright portion of the socket body is provided with a recess 14 upon the upper edge thereof. The rear wall 15 of this recess is preferably sloped inwardly as the recess descends, so that the pins 26, 26 of an entrant lamp base 15' will

be guided slightly away from the rear of the socket body. At the center of the bottom of the recess is provided an entrance slot 16 which descends a relatively short distance vertically and is provided with rounded corners 17, so that a lamp base pin will tend to slip off when the lamp or tube is rotated. This prevents pressure being brought to bear on the walls of the slot, which might cause undue strains to be set up in both the socket and the tube base.

Slot 16 then branches out into two arms 18, 18 which are formed in a curving fashion as shown in Figs. 2 and 5 of the drawing, somewhat resembling the conventional representation of a wish bone. The exact shape of these slots may, however, be modified in accordance with the spacing of the lamp pins and the design of the internal contacts of the socket, hereinafter to be described.

Referring now especially to Fig. 5, it will be seen that I have provided contact springs 12, which may be formed of any suitable resilient conductive material, such as phosphor bronze or the like. Within the hollow body of the socket is, at the base, a spacer block 21, which has the additional function of allowing each contact spring to be wedged between this block and a projection 22 provided upon the body of the socket, by the provision of an in-bent portion 23 in each contact, which in-bent portion will fit into a correspondingly shaped portion of the spacer block 21, and will seat against bosses 21' which maintain the contacts free from undesired frictional contact with the surface of the socket. The upper portion is recessed as shown at 24, and again is slightly bowed out at the extremity 25 thereof. The tube pins 26 lie in the respective contact recesses 24, after each pin has passed downward through one branch 18 of the pin entrance groove, and after the pins have first made contact with the extremities 25 of the contact springs so as to separate these springs somewhat from one another.

It is desirable when no lamp or tube is in the socket, that there be no exposed contacts, which might be alive through failure of the operator of the lamp to disconnect the socket from the source of electrical energy, as by switching off the current. Therefore I may provide a shutter member which will close off access to the contacts through the grooves, when no lamp is in the socket. In Fig. 5 I have shown such a shutter at 27. This may be formed by a thin sheet of suitable insulating material which is arranged to slide within the body of the socket. The upper

edge of this shutter may be cut away as shown at 20, to permit the shutter to reach to the very top of the body, since these cut away portions will fit over the screw seat posts 20, provided at the corners of the body and having therein, optionally, holes 30, for the passage of screws 19 or the like, to aid in fastening the back plate 31 of the socket. Hole 30' may also be provided towards the bottom of the socket for this same purpose. Compression springs 32, 32 are provided to ensure that the shutter move to the entrance end of the socket body when no lamp is in position. The inner portion of block 21 may be spaced slightly from the front of the socket, so as to allow this shutter to pass before the inner portion of the block. The springs may react upon supporting projections 33, preferably molded integrally with the body of the socket.

During insertion of a lamp or tube into the socket of this invention, one pin will first pass into entrance slot 18 and then into either one of the branch arms 18 proceeding therefrom, for example into the left branch, as indicated in Fig. 2. When the other pin reaches the point where slot 18 forks into the two branches 18, the pin will enter the other branch from that taken by the first pin, for example the right branch as indicated by the arrows and the position marked 28' in Fig. 2, so that there will be one pin in each branch, and therefore one pin lying against each contact of the socket. The first movement of the lamp during insertion will be mainly a transitional movement, although the branching out of whichever arm 18 the base pin enters into, will of necessity give rise to a slight rotational movement of the lamp. This last mentioned rotation is so slight that the person inserting the lamp will make it with the greatest of ease, due to the guiding action of the slot. After this first pin is seated at the bottom 19 of the slot, the entire lamp movement becomes one of rotation, and it is to be noted that this rotation will be in the opposite direction from the slight rotational movement above described as accompanying the first step of insertion, so that such second rotation will be a natural movement for the hand of the person inserting the lamp to make, since it will tend to counteract the first rotational movement, and will not compel the hand to execute a great degree of rotation, which may often be awkward, especially when the lamp is inserted into a socket located at a point remote and hard to reach.

It will be noted that engagement is made with the two contacts separately and that the recess portions 24 tend to hold the tube pins or prongs resiliently in place.

When the guard or shield 27 is used it affords resistance to the insertion of the first tube prong to be inserted and then the shield exerts pressure on both prongs as soon as the tube is rotated into its final position, so that the shield tends to hold the tube prongs in place against accidental detachment.

In the modified form shown in Fig. 6, the mass of insulating material lying between the two branches 18 of the slot has been removed so that the prongs are guided by the outer edges of the substantially triangular opening thus left. It may be desirable to have a portion of insulating

material such as 18', to reduce the chance of entry of foreign bodies which might touch the socket contacts.

In this case one tube prong will seat in a recess 24 in one contact and then the tube may pivot about this point, that is in effect about one corner of the opening so as to seat the other pin in the corresponding recess or depression upon the other side of the socket.

I claim:

1. A tube socket comprising an insulating body containing two spaced spring contacts at least one of them being movable toward and from the other, said body having an opening in its face with an entrance at one end for introducing the prongs of a tube to engage the contacts, and a spring pressed guard plate mounted in the body and movable to cover said opening and guard the contacts, said guard plate being retractable at right angles to the direction of movement of a tube prong to admit the side-wise insertion of the prongs, whereby said guard plate will press against said tube prongs in a direction coincident with the movement of said prongs, so as to aid in the ejection of said prongs from the socket.

2. A socket for tube pins comprising an insulating housing having a chamber containing two oppositely disposed spring contact arms, each arm being anchored at one end and having a pin-receiving notch near its movable other end, the spring arms being biased so that the movable ends tend to move toward each other, said housing having an entrance slot in the end adjacent the movable ends of the arms and inclined slots connected at their adjacent ends to said entrance slot and a spring pressed slide in said chamber engaging the pins of a tube when they are inserted in said inclined slots and are seated in said notches, said slide being biased to press against the inserted pins and by pressing against one pin to eject the other pin from the entrance slot when said first pin is retracted a short distance from the notch in which it was seated.

3. A socket for the spaced pins of a tube, comprising an insulating housing having an elongated chamber with a terminal base at one end and having in the face thereof an opening with two oppositely inclined outer walls and a central entrance slot for said opening, the end of the housing in which is said entrance slot having a guide wall sloping downwardly from the rear toward the face of the housing so as to guide a tube pin towards said entrance slot and said entrance slot also having shoulders extending laterally away from the central slot at least as far on each side as the maximum distance between said opposite walls of the opening so that when one pin of a tube is inserted sidewise into the central slot the other pin cannot be swung over the adjacent shoulder of the end when the tube is rotated and contact springs each having one end anchored in the base of the housing and the other end extending alongside of one of the inclined outer walls of said opening and adjacent the central entrance slot for receiving the inserted tube pins.

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