Oct. 11, 1927. 1,645,240

W. ILE

THREE-WAY CAP PIN TYPE SOCKET

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Fig. 1.

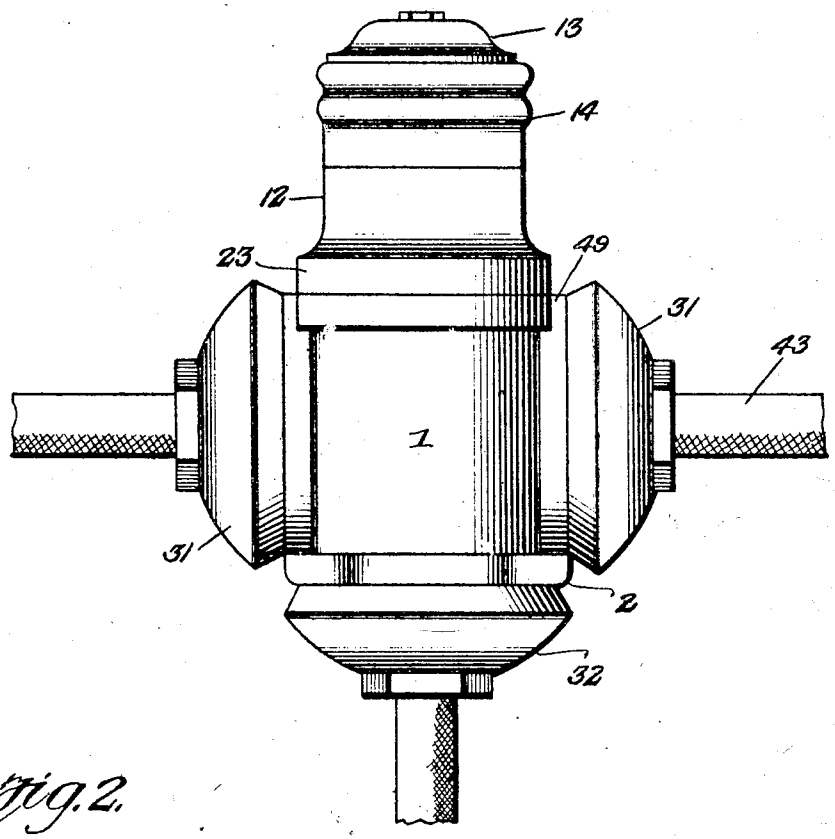
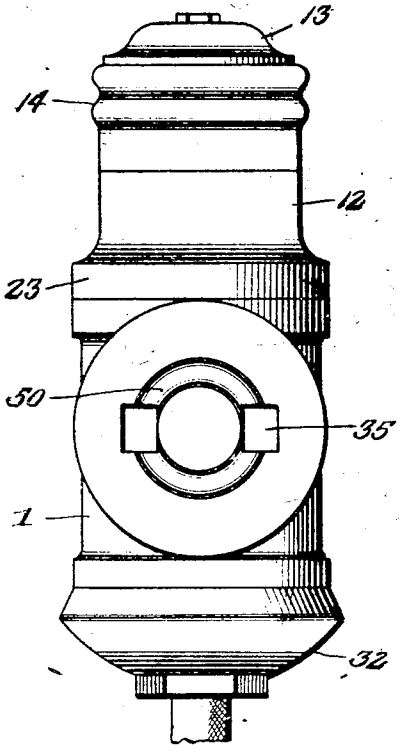


Fig. 2.



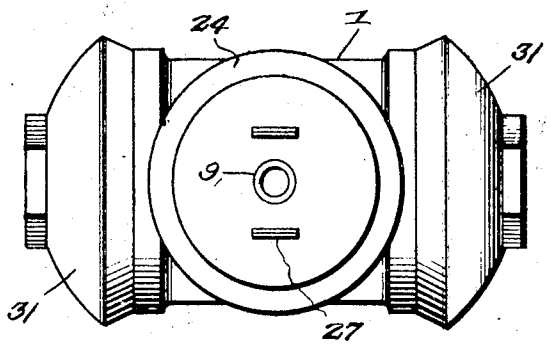


Fig. 3.

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Attorney

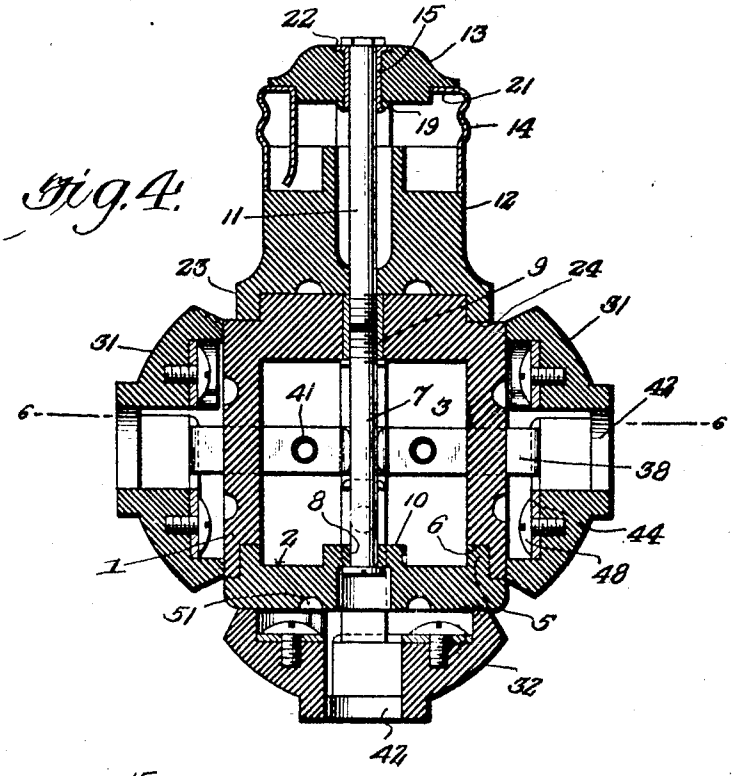
Oct. 11, 1927. 1,645,240

W. ILE

THREE-WAY CAP PIN TYPE SOCKET

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Fig. 4.



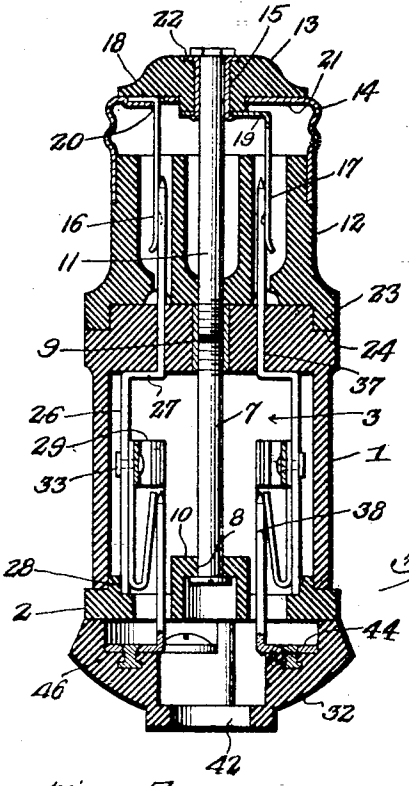
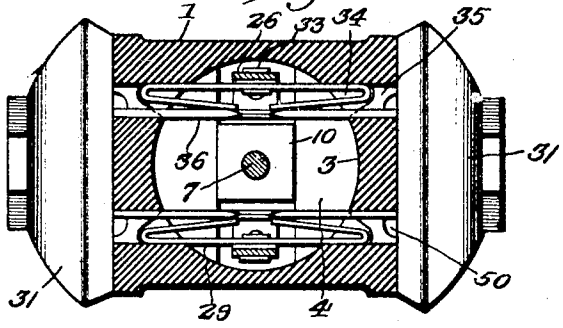


Fig. 5.

Fig. 6.



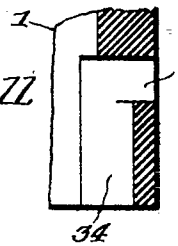


Fig. 11.

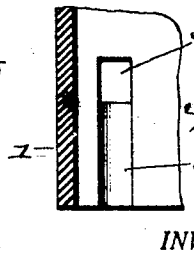


Fig. 12.

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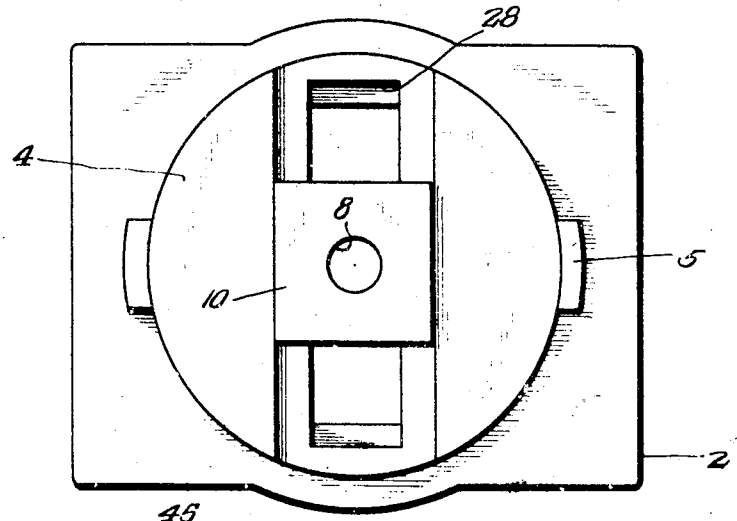
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W. ILE

THREE-WAY CAP PIN TYPE SOCKET

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Fig. 7.



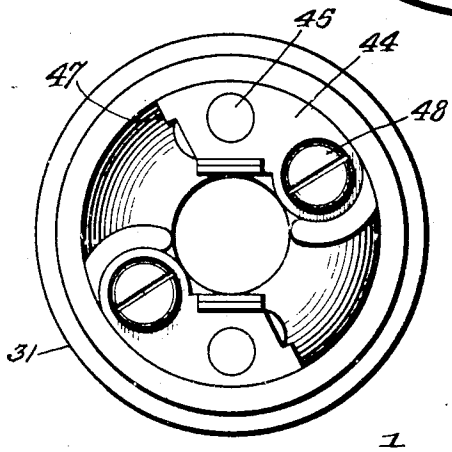
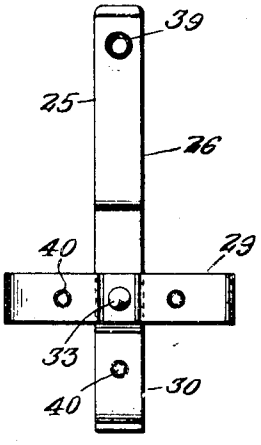


Fig. 8.

Fig. 10.



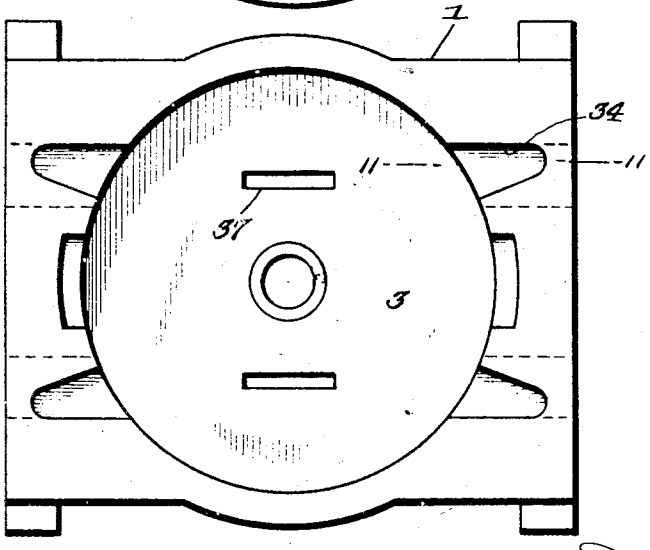


Fig. 9.

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Patented Oct. 11, 1927. 1,645,240

UNITED STATES PATENT OFFICE.

WILLIAM ILE, OF JACKSON, MICHIGAN, ASSIGNOR TO REYNOLDS SPRING COMPANY, OF JACKSON, MICHIGAN, A CORPORATION OF DELAWARE.

THREE-WAY CAP PIN-TYPE SOCKET.

Application filed August 18, 1925. Serial No. 50,923.

The invention relates to a three way cap pin type socket.

The object of the invention is to provide a simple, practical and efficient three way cap pin type socket of exceedingly light, strong, durable and inexpensive construction equipped with a body portion of two pieces of molded bakelite or other insulating material and adapted to receive a removable universal screw plug adapted to engage the ordinary screw socket and detachable to permit the body to be attached to a pin type socket.

A further object of the invention is to provide a three way cap pin type socket of this character having a spring contact and knife blade or pin contact assembled of exceedingly similar construction adapted to distribute the current equally to three spring contacts and capable of being readily assembled in the body or casing and of being firmly held in position therein when the parts are assembled.

With these and other objects in view, the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Figure 1 is a front elevation of a three way cap pin type socket constructed in accordance with this invention.

Fig. 2 is a side elevation of the same.

Fig. 3 is a plan view of the three way cap pin type socket, the screw plug being removed.

Fig. 4 is a central vertical longitudinal sectional view of the device.

Fig. 5 is a central transverse sectional view of the same.

Fig. 6 is a horizontal sectional view taken substantially on the line 6—6 of Fig. 4.

Fig. 7 is a plan view of a removable bottom plate or section of the body.

Fig. 8 is a plan view of one of the removable pin caps showing the inner face of the same.

Fig. 9 is a reverse plan view of the body the bottom plate or section being removed.

Fig. 10 is a detail view of one of the contact assemblies.

Fig. 11 is a detail sectional view taken substantially on the line 11—11 of Fig. 9.

Fig. 12 is a detail view of a portion of one of the walls of the body or casing showing the vertical groove and horizontal slot in Fig. 11.

In the accompanying drawings in which is illustrated the preferred embodiment of the invention, the three way cap pin type socket comprises in its construction a body 1 consisting of a shell or hollow casing of molded Bakelite or other suitable insulating material of approximately cylindrical form open at the bottom and provided thereat with a removable bottom plate or section 2 and having a substantially cylindrical compartment 3. The bottom plate or section 2 is substantially rectangular as clearly illustrated in Fig. 7 of the drawings and it is provided with opposite segmental compartments 4 having parallel inner straight edges and having outer curved edges forming portions of a circle of the same diameter as the cylindrical chamber 3 and fitting within the same and forming a firm connection with the open lower end of the hollow body or casing and interlocking the parts against relative lateral or horizontal movement. The parts are interlocked together against relative rotary movement by means of lugs located at and projecting upwardly from the central portions of the curved edges of the enlargements 5 and fitting in lower recesses 6 formed in two of the opposite walls of the body at the inner faces of the same as clearly shown in Fig. 4 of the drawings. The removable bottom plate is securely fastened to the body by means of a vertical screw 7 passing through an opening 8 in the center of the bottom plate and engaging the lower portion of an interiorly threaded metallic bushing 9 molded in the top wall of the body. The bottom plate is provided with a central rectangular boss 10 forming an enlargement at the central portion of the said plate and thickening the said central portion and providing sufficient thickness to permit the central opening 8 to be enlarged at the lower portion to receive the head of the screw 7. The bushing is molded in the top wall of the body and the upper end of the screw is threaded to engage the bushing. The upper

portion of the bushing receives the lower threaded end of an upper vertical screw 11 which detachably secures a universal screw plug upon the top of the body for engaging a screw socket.

The screw plug consists of a base 12 of insulating material, an outer disk 13 of the same material and a metallic screw shell 14 constructed of suitable conducting material. The base 12 and disk 13 of the screw plug are designed to be molded of bakelite or other suitable material and the disk 13 is provided with a smooth metallic bushing 15 molded in the disk 13 and forming a passage for the screw 11 and engaged by the head thereof. The lower end of the screw 11 is spaced from the upper end of the screw 7 and it is adapted to hold the parts of the screw plug in assembled relation and secure the screw plug to the body 1. The screw plug is provided with contacts 16 and 17 constructed of suitable conducting material and having their upper portions bent at right angles to form arms 18 and 19. The arm 18 extends through the slot 20 in the top flange or portion 21 of the metallic shell 14 and is held between the flange or portion 21 and the disk 13 in a depression of the said flange 21. The arm 19 of the other contact of the plug is secured to the inner end of the metallic bushing 15 by heading the lower end of the bushing. The bushing is adapted to be spun outwardly to engage the arm 19 of the contact 17 but it may be headed or riveted in any other desired manner. The bushing 15 is provided at its outer end with an outturned flange 22 for engaging the disk 13 and it may be molded in the disk or applied thereto in any other desired manner as will be readily understood. The base 12 of the screw plug is provided with a depending annular flange 23 which fits in a circumferential groove 24 in the top wall of the body.

The contacts 16 and 17 which are resilient and which have diverging lower terminals are engaged by upper knife blade portions or terminals 25 of vertical conductor bars 26 constructed of brass or other suitable conducting material and each having its lower portion outwardly offset from the vertical plane of the upper portion by means of a horizontal intermediate portion 27. The conductor bar is angularly bent at right angles in opposite directions to form the intermediate portion 27 which fits against the lower face of the top wall of the body when the parts are assembled as clearly illustrated in Fig. 5 of the drawings and the lower ends of the conductor bars fit in recesses 28 in the upper face of the bottom plate 2 of the body at opposite ends of the space between the segmental enlargements 5 thereof. The recesses 28 form seats for the lower ends of the conductor bars and when the parts are assembled the conductor bars are firmly held between the top wall and the bottom plate and the recesses also prevent any lateral movement of the lower ends of the conductor bars so that there will be no liability of dislodging the conductor bars and horizontal and vertical contact springs 29 and 30 thereof when contacts are made and broken between contacts of side and bottom pin type caps 31 and 32. The contact springs 29 and 30 are constructed of phosphor bronze or other suitable conducting material and the said horizontal springs consist each of a single strip of metal bent inwardly at points equidistant from the center of the strip to form approximately U-shaped spring contact portions as clearly shown in Fig. 6 of the drawings. The vertical spring 30 consists of a single strip of metal bent into U-shape and having one of its sides extended and crossing the central portion of the adjacent horizontal spring contacts and secured to the same and to the adjacent vertical conductor bar 26 by means of a rivet 33 or other suitable fastening means. The inner side of the vertical contact spring 30 fits against the lower portion of the conductor bar to which it is attached and it is interposed between the same and the central portion of the horizontal spring contacts 29 carried by the said conductor bar. The body 1 is provided at opposite sides of the cylindrical chamber or compartment 3 with vertical grooves 34 extending upwardly from the lower edges of the body 1 to horizontal slots 35 through which knife contacts 36 of the side caps 31 extend to engage the horizontal spring contacts. The bottom plate is provided with slots 37 through which pass knife contacts 38 of the bottom pin cap 32. The upper portions 25 of the conductor bars 26 extend above the top wall of the body and are adapted to fit in a pin socket or other receptacle or fixture when the screw plug is removed and they are provided adjacent their upper beveled ends with countersunk openings 39 adapted to receive protuberances of contacts of such receptacles or fixtures. The horizontal and vertical spring contacts are provided at their outer sides with protuberances 40 formed by indenting the metal from the inner face of the same and adapted to engage with the contacts of the pin caps 31 and 32, which are also provided with countersunk perforations 41 to receive the protuberances 40 and thereby form an interlocking connection between the contacts. Each of the pin caps are provided with a pair of spaced contacts located at opposite sides of a central opening 42 forming a passage for the wires 43 as clearly indicated in Fig. 1 of the drawings. Each of the contacts of the pin caps is constructed of brass or other suitable conducting material and is oppositely beveled at the outer

end and the other end is formed integral with a curved attaching plate 44 secured by a rivet 45 or other suitable fastening means to the inner face of the cap to which it is applied and fitted in a recess 46 in the same and provided with a terminal lug 47 which is interlocked with the pin cap. The attaching plate 44 is also provided with a binding screw 48 for the attaching of the end of the wire to the attachment plate in the usual manner. The contacts 36 and 38 engage with the three sides of the horizontal and vertical contact springs and the pin caps are adapted to be removed and replaced without displacing the contact springs or the conductor bars. The contact springs 29 and 30 and the conductor bars form a simple and compact assembly and are adapted to be readily inserted in the hollow body through the grooves 34 and they are firmly held in position when the parts are assembled.

The body is provided with circular enlargements 49 to receive the side pin caps and the enlargements and the bottom plate are provided between their slots with curved connecting grooves 50 and 51 for guiding the contacts of the removable caps into the slots.

What is claimed:

1. A cap pin type socket including a hollow body open at the bottom and provided at the top and sides with spaced slots, a double interiorly threaded bushing extending through the top wall of the body, a screw plug mounted upon the top of the body and composed of separable parts and provided with a screw connecting the parts of the screw plug and engaging the upper portion of the bushing and securing the screw plug to the body, a bottom plate forming a closure for the bottom of the body and provided with spaced recesses and slots, a screw extending through the bottom plate and engaging the lower portion of the bushing, vertical conductor bars mounted at the lower end in the recesses of the closure plate and provided intermediate of their ends with angular portions forming shoulders fitted against the top wall of the body, said conductor bars being clamped between the bottom plate and the top wall, the upper portions of the conductor bars extending through the top wall into the screw plug and spring contacts carried by the conductor bars, and located at the side slots and at the sides of the bottom plate.

2. A cap pin type socket including a body open at the bottom and having a substantially cylindrical compartment and provided at opposite sides thereof with grooves and having horizontal slots communicating with the grooves at the upper portions thereof, said grooves being arranged in pairs, a bottom plate forming a closure for the compartment and secured to the body and provided with opposite recesses located between the grooves of the body, conductor bars mounted between the top wall of the body and the bottom plate and having their lower terminals fitted in the recesses, said conductor bars being provided with horizontal and vertical spring contacts, the horizontal contacts extending into the vertical grooves which permit the conductor bars and the spring contacts to be assembled through the open bottom of the body, said bottom plate being provided with slots located in line with the vertical spring contacts and the horizontal spring contacts being arranged in line with the slots of the body.

In testimony whereof I have hereunto set my hand.

WILLIAM ILE.