Dec. 26, 1967 P. H. WINTER 3,360,768

SCREW SOCKET

Filed Nov. 2, 1966 2 Sheets-Sheet 1

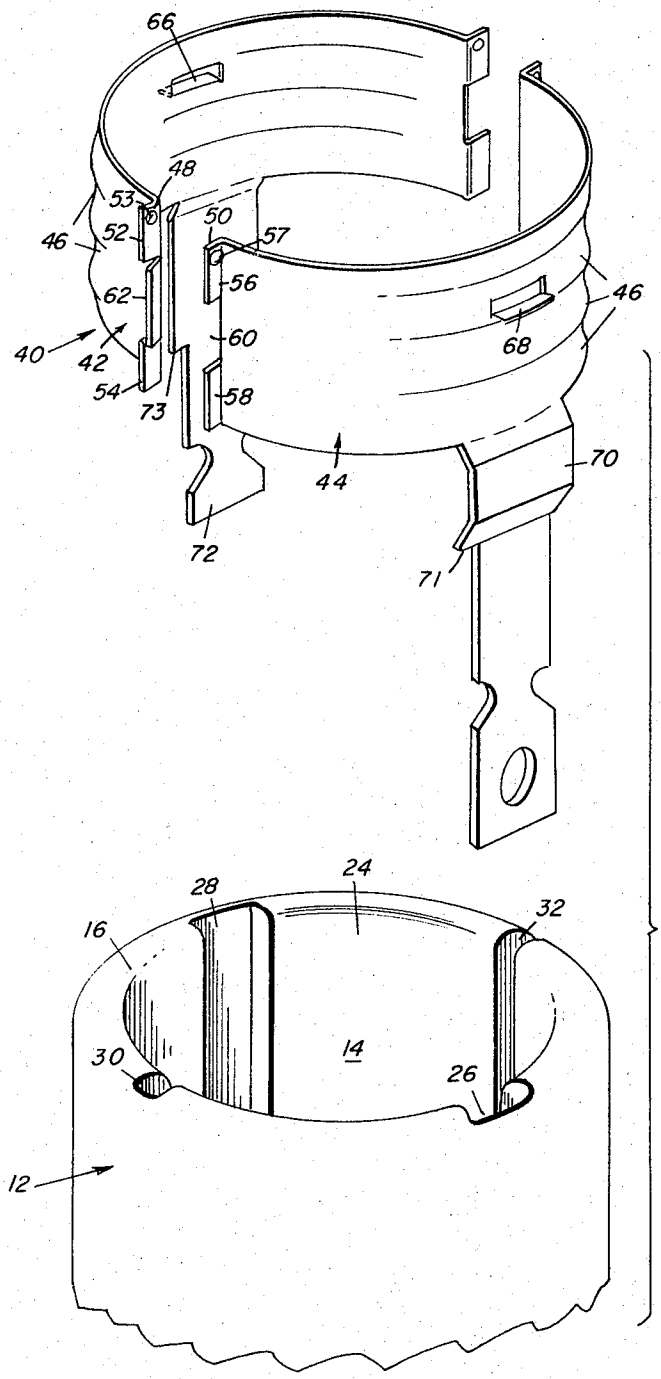


FIG. 1

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SCREW SOCKET

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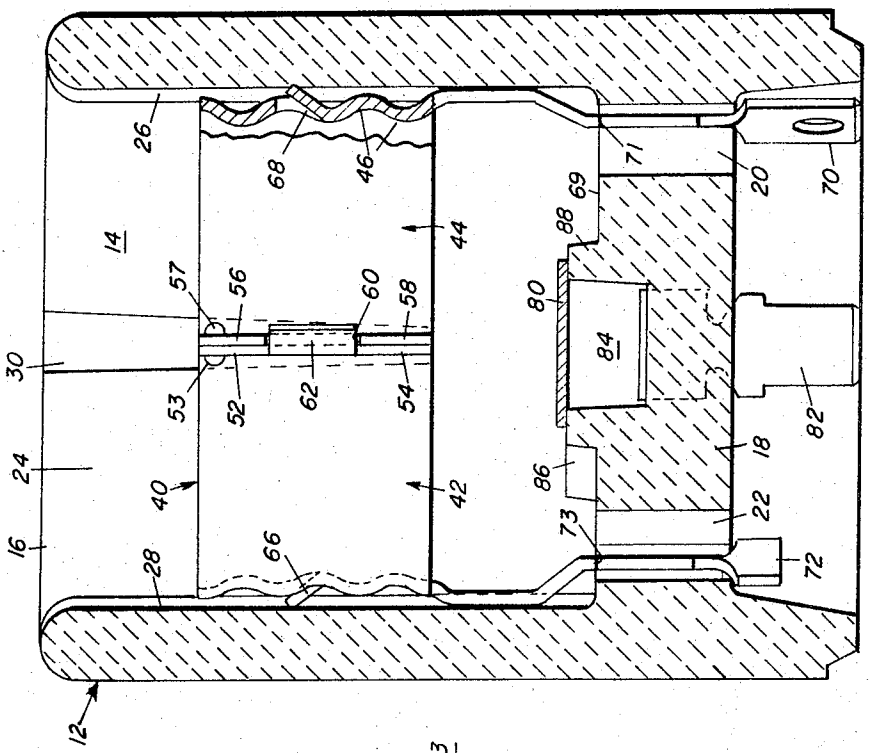


FIG. 3

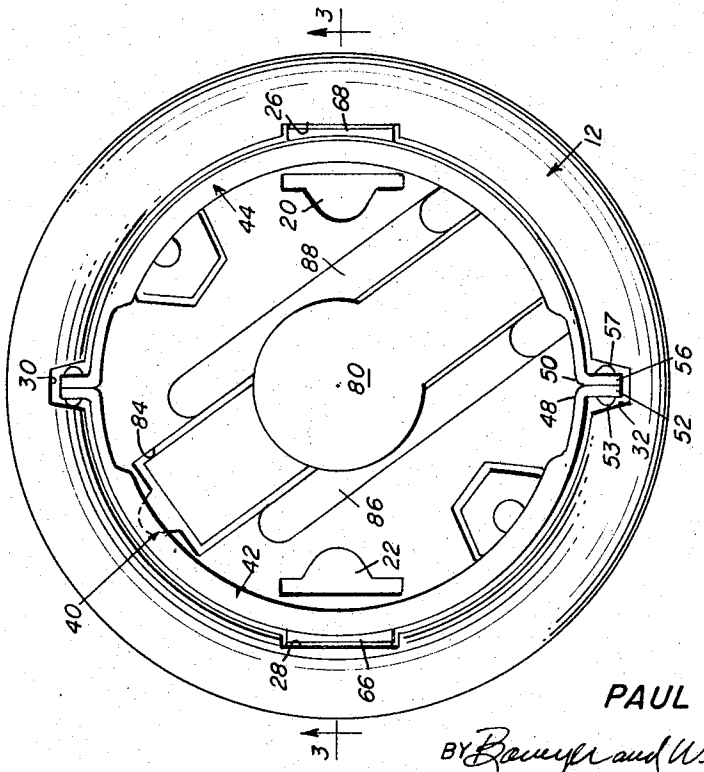


FIG. 2

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SCREW SOCKET

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7 Claims. (Cl. 339—199)

This invention relates to an Edison type lamp socket and more particularly the screw threaded contact shell forming a part of the socket.

The commonly used method for making screw threaded contact shells is to take a disc of suitable metal and draw it into a cup form, then punch the necessary openings and finally roll the thread. These operations require expensive equipment which will not produce shells at a very rapid rate as compared to a conventional punch press operation.

In addition, a shell produced as indicated above has a substantial disadvantage when used with the larger type bulbs since the shell is only supported at the bottom by means of screws or rivets, the threaded portion being generally unsupported, particularly in porcelain sockets where manufacturing variations inherent in the porcelain socket bodies require clearance around the shell.

In the larger sockets, the amount of copper alloys used in the socket shell is substantial which adds appreciably to the cost of the unit. Increasing production and raw material costs have made it most desirable to provide means for reducing the cost of the socket shells.

In view of the foregoing, it is an object of this invention to provide an Edison type lamp socket having a two-piece contact shell capable of being completely produced on a punch press.

It is another object of this invention to provide a two-piece contact shell wherein only one piece is made of relatively expensive conducting metal while the other is made of a less expensive relatively non-conducting metal.

It is a further object to provide a socket having a two-piece contact shell so formed that assembly is both simple and rapid.

The above and other objects and advantages will become more apparent when considered in conjunction with the following detailed description and drawings, showing by way of example one preferred embodiment of the invention.

In the drawings:

FIG. 1 is an exploded perspective view showing the two-piece contact shell and the socket housing into which they fit;

FIG. 2 is a top plan view of the socket with the two-piece contact shell positioned therein, and

FIG. 3 is a cross sectional view taken along line 3—3 of FIG. 2 showing further details with regard to the mounting of the two-piece contact shell in the socket housing.

As illustrated in the various figures of the drawings, the socket of this invention comprises a porcelain housing **12** of generally cylindrical configuration having a cylindrical bore **14** with an open end **16** and base **18**. The base **18** has appropriate openings **20** and **22** to receive the terminal portions of the contact shell. The bore wall **24** is provided with a pair of opposed locator slots **26** and **28** and a pair of retaining grooves **30** and **32**. The slots and grooves are interpositioned and generally parallel to the longitudinal axis of the bore. These slots and grooves extend up to the open end **16** of the housing. It should be noted that these slots and grooves may be slightly tapered downwardly from the open end of the housing to assist in assembly operations and facilitate pressing of the porcelain housing.

A two-piece contact shell **40** is interfitted within the housing **12**. The contact shell comprises two separate curved shell elements **42** and **44** which when assembled together form a shell unit substantially cylindrical in shape

and sized to fit within the housing bore **14**. Cured shell elements **42** and **44** are of the same general height and are grooved as indicated by numerals **46** to form in effect a continuous thread when the two elements are assembled together to receive a like-threaded lamp base.

It should be noted that the two-piece contact shell **40** which is substantially cylindrical in shape may be slightly flattened on opposite sides, most advantageously between the two end portions of each curved shell element, so that the diameter between these opposite flattened portions is less than the general diameter of the contact shell. When a lamp base is threaded into such a contact shell the resulting distortion of the two shell elements **42** and **44** will produce a generally cylindrical socket providing a substantial amount of friction between the lamp bulb threads and those of the socket shell to prevent loosening of the bulb due to vibrations and the like.

The respective confronting edges **48** and **50** of curved shell elements **42** and **44** have flanges **52** and **54** and flanges **56** and **58** respectively extending outwardly therefrom with respect to the cylinder formed by the two shell elements **42** and **44**. It should be noted that flanges **56** and **58** in curved element **44** are spaced from one another to form a gap **60**. A positioning and alignment lug **62** is formed between flanges **52** and **54** on shell element **42**. It should be noted that this lug **62** extends outwardly of and generally parallel to the edge **48** of the shell element **42** thus when the flanges **52** and **54** are brought into confronting engagement with flanges **56** and **58** the lug **62** will fit into gap **60** and thereby maintain alignment of the two shell elements **42** and **44**. The gap **60** and the lug **62** are properly sized to provide a close fit. Obviously, the positioning lug **62** could be located on both edges of the same shell element or one could be located on each shell element at opposite edges. The arrangement is a matter of choice as long as both edge portions of each shell element have either the gap or the positioning lug.

Flange **56** on curved shell element **44** and flange **52** on curved shell element **42** each have a bump **57** and **53** respectively on the uppermost portion of the flange facing away from the confronting flange. These bumps are generally struck from the flange by a well known dimpling process. Thus the bumps **53** and **57** face away from each other and provide a tight fit when the assembled curved shell elements **42** and **44** are assembled and placed in the housing bore **14**. Since the retainer grooves **30** and **32** are tapered from top to bottom, these bumps are necessary to provide a snug fit at the upper portion of the grooves where the groove is widest.

Both curved shell elements **42** and **44** have locator members **66** and **68** respectively struck therefrom intermediate their ends. These locators extend outwardly from the shell elements and are sized to fit into locator grooves **26** and **28** in the housing.

Referring to FIG. 1, it will be observed that curved shell element **44** has a terminal portion **70** extending downwardly therefrom. In addition, curved shell element **42** also has a projecting portion **72** similarly positioned. In this particular embodiment curved shell element **44** is made from a conventional current carrying metal such as a copper alloy while curved shell element **42** may be made from a relatively poor conducting material which is less expensive such as steel.

In assembling the parts of the socket to form the completed article, the curved shell elements **42** and **44** are brought together with their flanges **52** and **54**, confronting flanges **56** and **58** and positioning lug **62** fitted within gap **60**. This arrangement of flanges and positioning lug is found on both confronting end portions of the curved shell elements **42** and **44**. The two curved shell elements so assembled form the substantially cylindrical socket **40** which is then introduced into the open end **16** of the

housing **14** with the locators **66** and **68** sliding down in locator slots **28** and **26** respectively, and the flange portions fitting down in retaining grooves **30** and **32**. It should be noted that the socket shell **40** is introduced into the housing bore **24** with the terminal portion **70** and projecting portion **72** extending down through holes **20** and **22** respectively. The projecting portion **72** and terminal **70** are twisted, bent or otherwise deflected to act as retainers for the socket shell **40**. Terminal **70** may be formed in the conventional manner to receive a conductor or remain straight.

Although not a part of this invention, FIGS. 2 and 3 illustrate various conventional features found in sockets. For example this socket is provided with a spring type center contact **80** including a lower terminal portion **82**. The contact **80** is positioned in an elongated opening **84** having raised shoulders **86** and **88** on either side thereof. In addition the socket shell **40** is vertically positioned within the housing bore by the intermediate bearing portions **73** on projecting portion **70** and bearing portion **71** on terminal **70** both resting on the upper face **69** of the housing base **18**.

It should be noted that the assembled socket shell **40** is accurately and easily oriented within the housing bore **14** by means of the locators **66** and **68** fitting in locator grooves **26** and **28** and tapered slots **30** and **32** which receive the confronting flange pairs of the curved shell elements **42** and **44**.

It will be readily apparent to those experienced in this field that the two-piece socket shell **40** wherein one piece is made from steel and the other from a better current conducting metal represents a substantially economy by way of raw material. Secondly, such two-piece sockets can be completely made by well known punch press methods, hence rapid increase in production rate is achieved. Even though these economies are realized by this invention, there is no decrease in strength or serviceability as in the case of many "cut-rate" type sockets.

What is claimed is:

1. In an Edison type screw socket adapted to receive a threaded lamp base, a socket housing, said socket housing having a cylindrical bore with one end open, the bore wall having a pair of retaining grooves formed therein, said grooves being generally parallel to the longitudinal axis of the bore and extending up to the open end, a two-piece contact shell interfitted within the housing, said contact shell comprising two separate curved shell elements forming together a generally complete cylinder sized to fit within the housing bore, said two curved shell elements being grooved to form a thread when together, said thread being adapted to receive a like-threaded lamp base, the respective confronting edge portions of the shell elements having flange portions directed generally outwardly with respect to the cylinder formed by the two shell elements, said two shell elements being fitted together with their flange portions in confronting relation to form the cylindrical socket shell which is fitted down into the bore of the housing with the outwardly extending flange portions positioned in the retainer grooves so that the socket shell is accurately assembled in the housing.

2. The invention as set forth in claim **1** and wherein the bore wall is also provided with a pair of locator grooves interpositioned with respect to the retainer grooves and parallel therewith, said two shell elements having locator means extending outwardly therefrom, said locator means fitting in the locator grooves when the two shell elements are assembled and placed in the socket housing.

3. The invention as set forth in claim **1** and wherein at least one of the shell elements is made of a good electroconductive material and has a terminal extended therefrom.

4. In an Edison type screw socket adapted to receive a threaded lamp base, a socket housing, said socket housing having a cylindrical bore with one end open, the bore wall having a pair of opposed locator slots and a pair of retaining grooves formed therein, the slots and grooves being interpositioned and generally parallel to the longitudinal axis of the bore, said slots and grooves extending up to the open end of the housing, a two-piece contact shell interfitted within the housing, said contact shell comprising two separate curved shell elements forming together a generally complete cylinder sized to fit within the housing bore, said two curved shell elements having the same height and being grooved to form an interrupted thread adapted to receive a threaded lamp base, the respective confronting edge portions of the shell elements having flanges directed outwardly with respect to the cylinder formed by the two shell elements, positioning means interengaging the respective confronting flanges to maintain alingment between the two curved shell elements, each shell element having a locator extending outwardly therefrom intermediate the ends thereof, said two curved shell elements being fitted together with their respective flanges closely confronting each other and the positioning means maintaining alignment of the two elements to form the cylindrical shell which is fitted into the bore of the housing with the confronting flanges retained within the retainer grooves and the locators in the locator grooves to accurately position the two-piece contact shell within the housing.

5. The invention as set forth in claim **4** and wherein one of the shell elements is made of a good electroconductive material and has a terminal portion extending therefrom.

6. The invention as set forth in claim **4** and wherein the two piece contact shell is formed slightly out of round whereby when the lamp base is threaded thereinto the contact shell will slightly bind on the lamp base thread so as to prevent loosening of the lamp base due to vibration.

7. The invention as set forth in claim **4** and wherein each curved shell element has a downwardly projecting strip-like portion adapted to cooperate with the housing to retain the contact shell within the housing.

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