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C. OLSON

3,435,792

ONE-PIECE SOCKET AND PRONGED RING

Original Filed Oct. 7, 1963

Fig. 1.

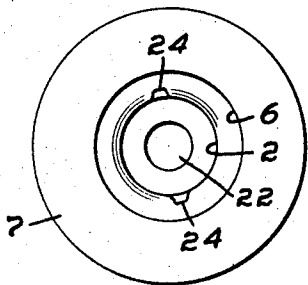


Fig. 2.

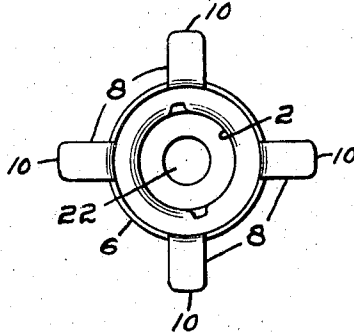


Fig. 3.

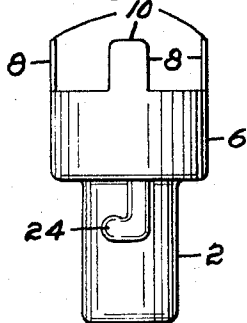


Fig. 4.

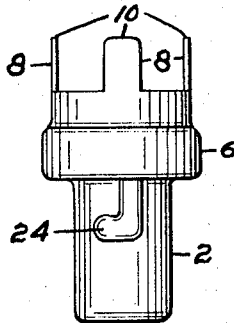


Fig. 5.

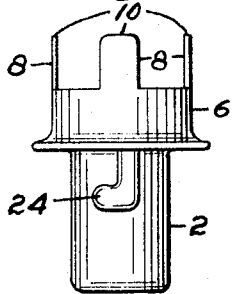
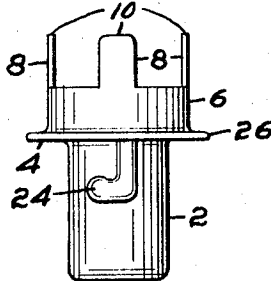


Fig. 6.



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3,435,792

ONE-PIECE SOCKET AND PRONGED RING

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Original application Oct. 7, 1963, Ser. No. 314,373. Divided and this application Apr. 6, 1966, Ser. No. 559,018

Int. Cl. B21d 53/00; H02g 15/02

U.S. Cl. 113-119

1 Claim

ABSTRACT OF THE DISCLOSURE

This is a method of forming a socket wherein leg blanks are first formed extending from a forward edge of a body portion and then the body portion is necked to provide a flange with a barrel portion following which the legs are wiped back to provide back-acting legs whose terminal ends are in close relationship to the flange.

This application is a division of application Ser. No. 314,373, filed Oct. 7, 1963, now abandoned.

This invention relates generally to an article of manufacture having integral fastener means and more specifically to a lamp socket having integral fastener means.

An object of the present invention is to provide a drawn article of commerce having integral fastener means.

Another object of the present invention is to provide a one-piece socket and fastener means, the fastener means comprising back-acting legs.

A still further object of the invention is to provide a one-piece fastener and socket which is non-tangling.

Another object of the present invention is to provide a method of manufacturing a one-piece socket and fastener means through the utilization of a transfer press.

In the drawings:

FIG. 1 is a top plan view showing the formation flange prior to shearing out the legs;

FIG. 2 is a top plan view showing the legs sheared out prior to the wiping operation;

FIG. 3 is the first stage of the necking operation;

FIG. 4 is the second stage of the necking operation;

FIG. 5 is the third stage of the necking operation; and

FIG. 6 is the last stage in the necking operation.

In the past, it was usual to produce a socket which utilized a plug button type fastening device. It was customary to make the socket in a minimum of two parts, one part as the fastening means and the other part as the tubular portion of the socket. The patent to Wagstaff, United States Patent No. 2,494,845, exemplifies one of the typical constructions. One of the greatest difficulties with a socket of the Wagstaff type was its tendency to tangle in transportation when the socket shell was transported, particularly in trucks. A further difficulty in the Wagstaff type of socket is that the legs extend beyond the protection of the body proper of the socket, and, therefore, could easily be distorted or damaged during transportation. Both of these mentioned difficulties have been overcome by the applicant's device and in addition there is the obvious cost advantage of having the part in one piece. Furthermore, it is frequently advantageous to place bosses or other decorative or assistant holding means on the legs; and this is extremely difficult to do in the construction of sockets of the Wagstaff type. The reason for this difficulty is that the wiping action necessary to place the legs at angular relationship to the base or flange in the Wagstaff type of socket would destroy any possibility of retaining accurate boss or decorative embellishments. The cost factor which has been mentioned

as a difference between the one-piece socket and the multiple piece socket of the Wagstaff type also concerns the necessity of placing a key or guide device in the Wagstaff type and the necessity of having some mechanism for placing the plug button on the socket body proper utilizing the leg.

Two of the main dimensions that concern the manufacture of plug buttons are the root diameter which is the diameter of the part at the root of the prongs and the knuckle diameter which is the diameter of the part at the bend (knuckle) of the prongs. A problem in the Wagstaff type of socket is the difficulty of obtaining a soft action when engaging the prong ring with the aperture in the support. It is extremely difficult to get a proper root diameter so that the soft action of engagement will not interfere with the holding power that is desirable. In the inventor's device the root diameter, in effect, is at the terminal end of the leg; and, of course, the angularity leading into the knuckle may be made easily without interfering with desirable holding power. In other words the controlling feature of a leg of the type of the inventor's device or of a device of the Wagstaff type is the root diameter of the leg. When the root diameter, as in the Wagstaff device, is at the connection between the base of the fastener leg and the base portion of the fastener, then it is extremely difficult to provide the necessary control in the formation of the leg to give varying degrees of action. However, in the case of the device described herein, since the root diameter appears at the free terminal end of the leg, almost any number of actions may be formed. That is, the angle of the knuckle can be varied with ease without too much difficulty.

Another factor of some importance in the applicant's socket is that the tubular body portion and tubular barrel portions are formed without the necessity of having a longitudinal slot, thereby avoiding the difficulty of an operation to roll the material which appears in some of the one-piece socket shells extant in the art.

Turning now to the drawing, and specifically to FIGS. 1 through 6 we shall discuss the method of forming the shell of the socket. The first six operations are drawing operations which may be performed on any number of available transfer presses well known in the art. At the end of the final draw a part is formed which has a barrel portion 2, a body portion 6 of greater diameter than the barrel portion 2 and a formation flange 7 extending from the open end of the body portion 6. The closed end of the barrel portion 2 is pierced with an aperture and its wall is worked to provide J slots. The next operation is a trimming operation which removes a fixed amount of material and produces the blanks for the legs 8 as shown in FIG. 2. If desired this trimming operation could leave a connecting flange between each of the legs 8. The formation flange is then cut to provide a series of legs 8. In the next operation, the legs 8 are wiped upwards to provide the construction shown in FIG. 3. A necking operation then takes place in a series of three stages providing a flange 4 having upper and lower layers of material and which connects the barrel portion 2 and the body portion 6. The legs 8 are then bent downward and simultaneously the flange 4 is cupped upward so that as shown in FIG. 6 the free terminal ends 10 of the legs are closer to the external surface of the body portion 6 than the outer periphery of the flange 4. In effect the diameter of the body portion 6 is reduced from that shown in FIG. 3 to that shown in FIG. 6 and at the same time produces the flange 4.

The material utilized to form the flange 4 is taken completely from the body portion 6 which results in a reduction of the diameter of the body portion 6 from the stage shown in FIG. 3 to the stage shown in FIG. 6.

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The material utilized to form the socket shell, of course, must be of a conductive material.

While there has been illustrated and described a preferred embodiment of the invention, it should be understood that the invention is best described by the following claim.

I claim:

1. The method of forming an article of manufacture having a tubular body portion having an edge, a plurality of yieldable attaching legs extending from points adjacent said edge, each of said legs lying along the side of and spaced from said tubular body portion and a flange extending from said tubular body portion, said flange extending from said tubular body portion at a point spaced from said points of jointure which comprises the steps of drawing a barrel portion, a body portion of greater diameter than the barrel portion and a formation flange extending from an open end of the barrel portion, forming a series of legs from the formation flange

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in right angle relation to the axis of the body portion wiping the legs upwardly to lie on planes parallel to the axis of the body portion, then necking the body portion to provide a flange connecting the body portion and the barrel portion and then bending the legs back to lie along side of the body portion.

References Cited

UNITED STATES PATENTS

10	2,239,255	4/1941	Shaw	339—128
	2,434,905	1/1948	Burt et al.	113—119
	2,468,169	4/1949	Carlson et al.	
	2,731,612	1/1956	Heller	339—128
15	3,081,528	3/1963	Hanna	113—119

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U.S. Cl. X.R.

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