

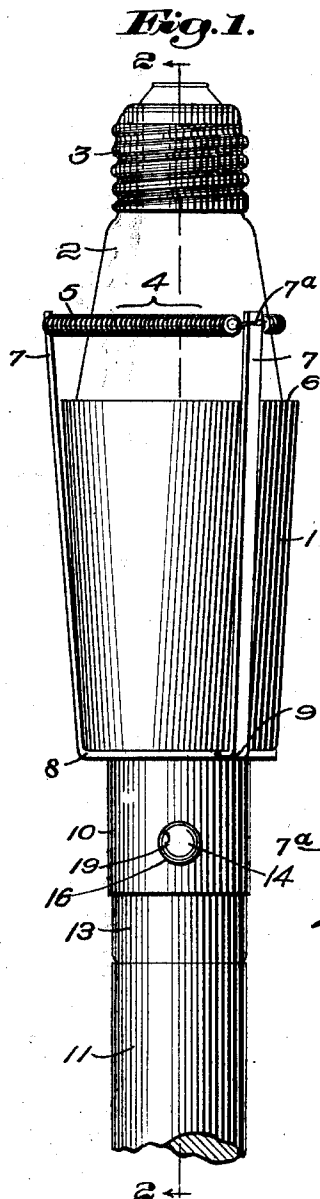
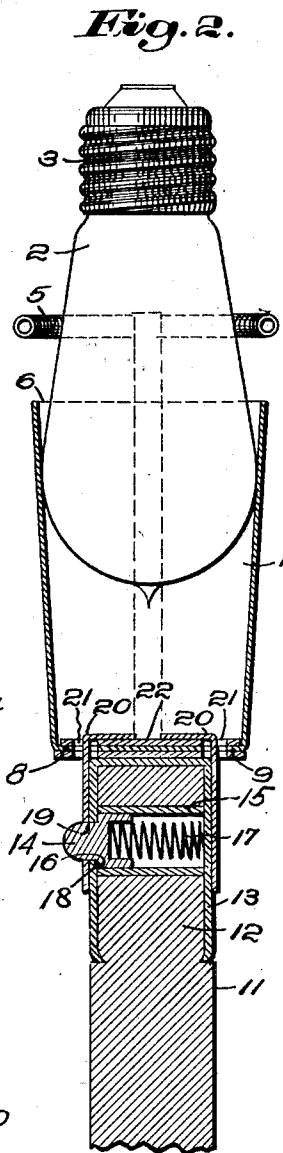
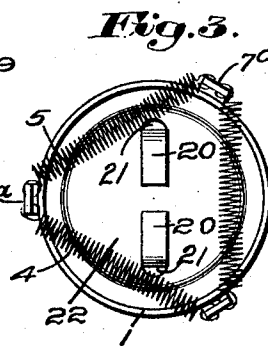
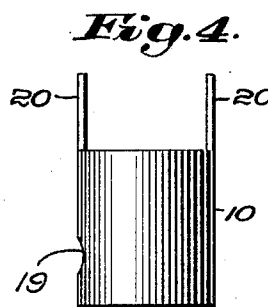
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LAMP BULB INSERTING AND REMOVING DEVICE

Filed July 22, 1924



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UNITED STATES PATENT OFFICE.

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LAMP-BULB INSERTING AND REMOVING DEVICE.

Application filed July 22, 1924. Serial No. 727,592.

This invention relates to apparatus for inserting and removing incandescent lamp bulbs and similar devices and its aim is to provide simple and efficient means for reaching to remote and otherwise inaccessible or difficult places for exerting removing and inserting pressures upon the bulbs and for preventing accidental dropping of said bulbs.

In the accompanying drawings wherein I have shown merely for illustrative purposes one embodiment of the invention:

Fig. 1 is a side elevation of the device with an incandescent lamp bulb contained therein;

Fig. 2 is a longitudinal section of the device taken substantially on the line 2—2 of Fig. 1;

Fig. 3 is an end elevation of the open end of the device; and

Fig. 4 is a detail side elevation of the casing supporting socket.

In the preferred embodiment of my invention I have provided a substantially frusto conical casing 1 herein composed of a tough, flexible but substantially inexpandable material capable of conforming to the contour of a bulb or other object that is to be inserted therein. The flexibility and conical formation of the casing cooperate to permit it, under very slight pressure, to produce a gripping or clutching action upon the bulb herein shown at 2 sufficient, upon the rotating of said casing, to impart a like movement in one direction or the other to cause the threads 3 of the plug of said bulb either to unscrew from an electric socket or to screw into said socket.

Because of the tapered or flaring formation of the casing there is always the possibility of a bulb loosening and dropping from said casing if the latter is tipped downwardly after the bulb has been detached from the socket. Therefore means for holding the bulb within said casing regardless of its position, are provided.

In the present example I have provided, for this purpose, means for engaging a portion of said bulb of relatively small diameter herein, that portion intermediate of the socket and large ends of the bulb, which means may consist of a single circumferentially arranged expansible and contractible elastic member such for example as a heli-

cally wound spring 5 or, as herein shown, a series of three or more of such springs. These elastic members are normally under tension and form an encircling band normally of triangular formation and relatively smaller in diameter than the portion of the bulb that it is to embrace but capable of being expanded by the insertion of the rounded end of the bulb to admit said bulb and to exert a gripping action thereon after said bulb has been properly adjusted within the casing 1.

Desirably the series 4 of expansible elements is supported at a slight distance beyond the open or mouth end 6 of the casing and suitable supporting means are provided for said elements herein consisting of a plurality of arms 7, for example three, which, for convenience, are shown as integral extensions of a disk 8 mounted near the closed end 9 of the casing, said arms 7 being spaced from the outer face of the casing 1 to permit more or less distortion of said casing during the fitting or conforming of the same to the bulb upon the insertion of the bulb therein or upon the fitting of the casing over a bulb.

The outer ends of said arms are preferably perforated at 7^a to receive the ends of the helical springs 5, the ends of two of such springs being received in each perforation, thus completing the circumferential triangular arrangement of resilient elements, and insuring the direct contact of said springs with said bulb at a point substantially midway between said supporting arms, said supporting arms being spaced far enough apart so as never to come in contact with said bulb. The tension of the springs 5 is sufficient to retain the bulb 2 within the casing 1 when said bulb is detached from its socket although said tension is sufficiently resilient to allow the bulb to be easily inserted and withdrawn from the casing.

It is within the scope and purpose of the invention to provide suitable and appropriate means for attaching the casing 1 to the actuator of the device and herein I have shown a socket 10 preferably cylindrical and adapted to receive the end of an actuator shown at 11 including a pole provided with a ferrule 13. To insure positive rotation of the socket 10 and parts carried thereby with the actuator 11 I prefer

to provide latching means of a suitable and convenient character such as a push button 14 slidably arranged in a suitable casing 15 disposed transversely of the ferrule 13. The push button 14 is preferably shouldered at 16 and this shoulder is normally maintained against the inner wall of the ferrule 13 by a spring 17 arranged within the casing 15. Furthermore said push button is rounded at its outer end and protrudes a sufficient distance beyond the shoulder 16 through a suitable opening 18 in the ferrule 13 and a similar opening 19 in said socket, to permit depression thereof from the exterior when it is desired to disconnect the socket 10 from the actuator 11.

Obviously the socket 10 may be attached to its casing in many ways but I prefer to provide tongues 20 herein two, formed integral with and at one end of said socket and extending in a longitudinal direction therefrom through appropriate perforations 21 in the closed end 9 of the casing. To reinforce the closed end 9 which is of relatively thin material like the walls of the casing, a washer 22 is placed against the inside face of said end wall having perforations registering with the perforations 21 in said end wall. The disk 8 is also arranged against the outer face of said end wall and similarly perforated to receive said tongues, said tongues being clinched upon the inside of the casing against the inner face of the reinforcing plate 22, firmly securing the washer 22, end 9 and disk 8 against the end of said socket 10.

It should be understood that the casing 1 of the invention may be varied in size to fit various sizes of lamp bulbs or other devices of a similar nature adapted to be inserted or removed from sockets or plugs or similar instruments and furthermore that the invention is capable of being used either singly or with one or more other like devices. Also that the number of elements 5 and the supporting arms which constitute means for holding the bulb within the friction member or casing 1 may be increased or diminished as desired without departing from the spirit and scope of the invention.

While I have herein shown and described

merely for illustrative purposes, certain embodiments of my invention, it is to be distinctly understood that numerous modifications may be made in the form and details of the device herein shown without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. In a device of the character described, a casing having flexible, relatively inextensible side walls for receiving and rotating an incandescent lamp bulb, said casing having an integral end closing wall, an actuator receiving socket, a reinforcing plate arranged adjacent to the inner face of said end closing wall, and means extending from said socket through said end closing wall and reinforcing plate for securing said members together.

2. In a device of the character described, a casing having flexible side walls for receiving and frictionally rotating an incandescent lamp bulb, casing supporting means arranged at one end of said casing, a circumferentially arranged expansible resilient member disposed adjacent to the other end of said casing to yieldingly retain a bulb therein and a plurality of arms extending from said casing supporting means outside of and spaced from said casing to support said resilient member, at least at three points outside of the range of said bulb.

3. In a device of the character described, a casing having integral side walls and base formed of thin, flexible sheet material, a reinforcing member adjacent the inner and outer faces respectively of said base, a socket provided with integral tongues at one end extending through said base and said reinforcing members for securing said members together, a series of arms formed integrally with the reinforcing member adjacent the outer face of said base and extending to the open end of the casing, and extensible means stretched between said arms and forming a triangular gripping member for restraining the bulb in said casing.

In testimony whereof, I have signed my name to this specification.

HAROLD D. GRINNELL.