

May 9, 1961

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2,983,541

DEVICE FOR REMOVING OR PLACING LIGHT GLOBES IN SOCKETS

Filed Nov. 2, 1959

2 Sheets-Sheet 1

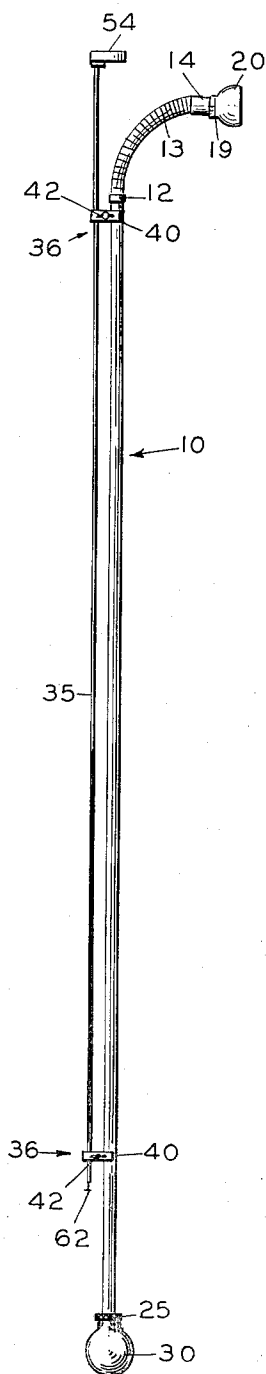


Fig. 1

Fig. 9

Fig. 8

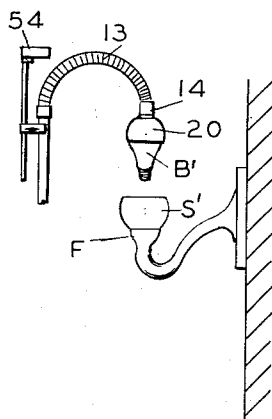


Fig. 7

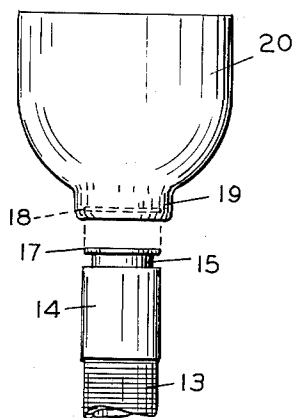
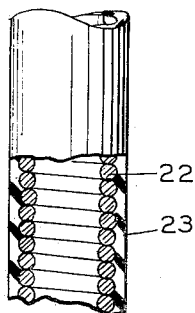
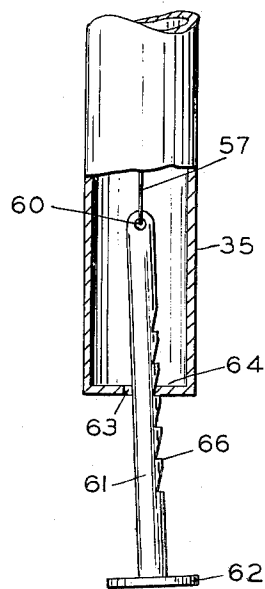


Fig. 6



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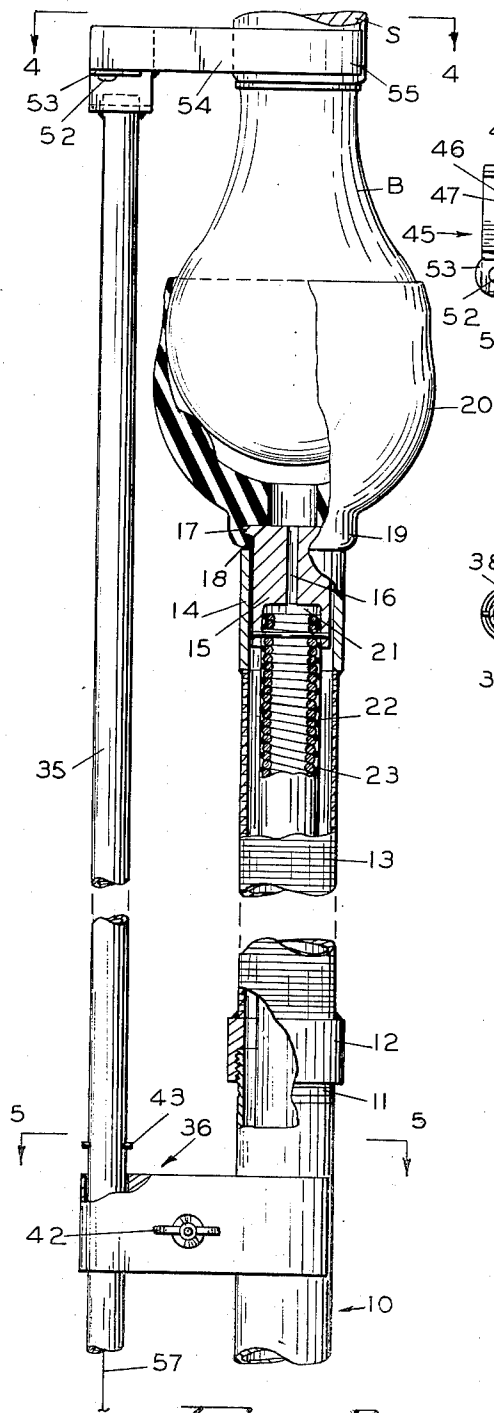


Fig 2

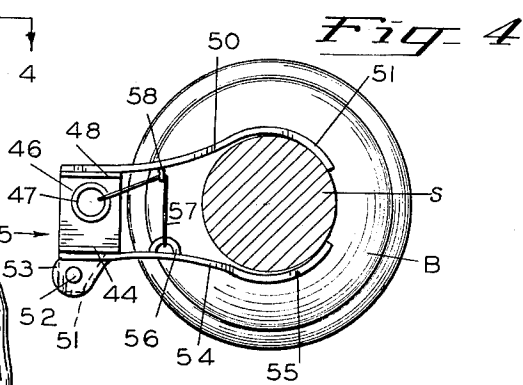


Fig 4

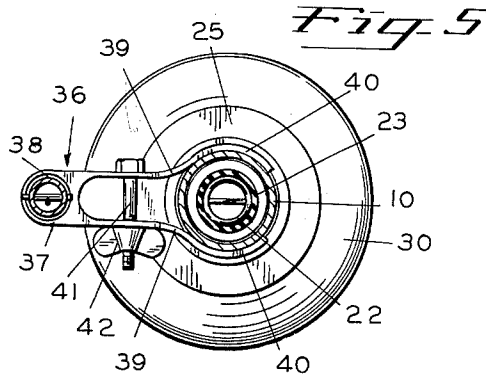


Fig. 5

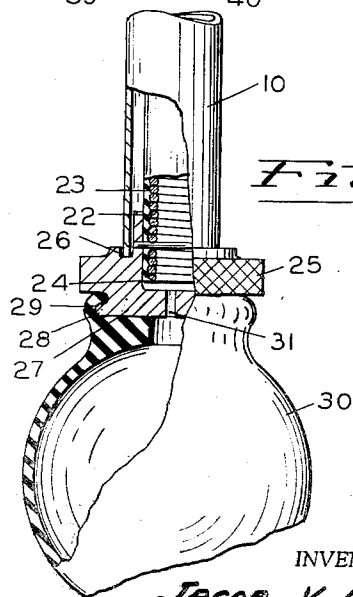


Fig. 3

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DEVICE FOR REMOVING OR PLACING LIGHT GLOBES IN SOCKETS

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1 Claim. (Cl. 294—20)

This invention relates to a device for the placing of light globes or bulbs in sockets, or removing, or otherwise adjusting the same, and has particular applicability to remotely or inaccessibly positioned sockets, such as those positioned under the ceiling, on the walls in high locations, or those that are positioned in ceilings suspended or wall mounted fittings.

A primary object of this invention is the provision of a device of this nature which can be readily manipulated from floor level for the replacement or removal of light globes in such otherwise inaccessible sockets.

An additional object of the invention is the provision of a device of this character which insures a firm grip on the light bulb being positioned.

An additional object of the invention is the provision of such a device which is sturdy and durable in construction, reliable and efficient in operation, and relatively simple and inexpensive to manufacture, assemble and utilize.

Other objects consist in the arrangements of parts, features of construction, and combinations of elements.

Still other objects will in part be obvious, and in part be pointed out hereinafter and disclosed in the accompanying drawing wherein there is shown a preferred embodiment of this inventive concept.

In the drawing:

Figure 1 is a side elevational view of one form of device embodying features of the instant invention;

Figure 2 is an enlarged view, partially in elevation, and partially in section, showing the upper portion of the device of Figure 1 in association with a light bulb;

Figure 3 is an enlarged detail view partially in elevation and partially in section, showing the lower portion of the device of Figure 1;

Figure 4 is a sectional view taken substantially along the line 4—4 of Figure 1, as viewed in the direction indicated by the arrows;

Figure 5 is a sectional view taken substantially along the line 5—5 of Figure 2, as viewed in the direction indicated by the arrows;

Figure 6 is an enlarged fragmentary view, partially in elevation and partially in section, showing a constructional detail;

Figure 7 is a view on an enlarged scale, partially in elevation, and partially in section, showing the interior construction of one of the components of the device;

Figure 8 is a fragmentary view illustrating one form of an adaptation of the device in use with a remotely positioned socket; and

Figure 9 is an exploded elevational view showing constructional details of the globe engaging cup and the associated end of the operating mechanism.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Having reference now to the drawings in detail, and more particularly to Figure 1, there is generally indicated at 10 an elongated tubular element. One end of the member 10 is threaded, as at 11, and has secured

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thereto a cap 12, to which is integrally affixed a flexible tubular member 13. At its other end the tubular member 13 carries a bushing 14, within which is rotatably mounted a plug or fitting 15, having a central bore 16 therethrough, the purpose of which will be more fully described hereinafter. At its upper end the fitting 15 carries an annular flange 17, which is adapted to seat, in sealed relation, within a groove 18 which is formed in an annular flange 19 which is integral with a globe engaging cup 20. Flange 19 and cup 20 are preferably made of resilient material, such as rubber or the like, and the cup 20 is adapted to engage about a bulb B, as best shown in Figure 2. The lower part of fitting 15 is provided with a recess 21, within which is secured one end of a helicoidal operating member 22, which extends the full length of the handle 10. The member 22 is surrounded by a flexible rubber sleeve 23, which is suitably sealed in recess 21, in communication with bore 16 to provide a substantially air-tight fitting.

The opposite or lower end of the fitting formed of members 22 and 23 seats in a recess 24 which is formed interiorly of a knurled nut 25, the nut being provided with an upper annular groove 26, which seats about the lower edge of the tubular member 10. Nut 25 has a lower extension 27, which is provided with a peripheral flange 28, the flange 28 engaging in a groove 29 formed in the upper end of a spherical rubber ball 30. The ball 30 is communicated, by means of a passage 31, with the interior of the fitting 22—23, so that a substantially fluid type passage is provided between the ball 30 and the interior of the cup 20. The arrangement is thus such that pressure on the ball 30 exhausts the air therein and, after the cup 20 is seated over the bulb B, release of this pressure creates a partial vacuum interiorly of the cup 20 in order to enable the same tightly to grip the globe or bulb B. Obviously, rotation of the knurled nut 25 will occasion rotative movement of the helicoidal member 22 and its associated sleeve 23, to rotate the bulb B in order to screw the same into or out of a socket S (see Fig. 2).

Means are provided to hold the bulb socket against rotation, while the bulb B is screwed into or unscrewed therefrom, and such means take the form of a hollow tube 35, which is slidably supported on the member 10 by means of upper and lower spring clips, identical in construction, and generally indicated at 36. As best shown in Figure 5, each of the members 36 includes a head portion 37, having a bore 38 therein in which the tubular member 35 is slidably fitted. Resilient arcuate fingers 39 extend outwardly from the head portion 37, and are provided with arcuate end portions 40 which are adapted clampingly to engage the member 10. A bolt 41 having a wing nut 42 thereon is passed through suitable aligned bores in the fingers 39, and serves to clamp the device firmly into position on the member 10.

A transversely extending stop pin 43 extends through the member 35 above the uppermost clamping member 36, to prevent complete withdrawal of the device from its associated clamping members.

The upper end of the member 35 carries a U-shaped bracket, generally indicated at 45, and including a bight portion 46 having a central aperture 47 therein, the latter being aligned with a hollow interior of tubular member 35. Bracket 45 has a pair of upstanding ears 48 and 49, the ear 48 having affixed thereto a resilient finger 50, having an arcuate end portion 51 adapted to engage one side of the socket S. Aligned lugs formed by the arcuate ends 51 extend from the ear 49, and have pivotally affixed thereto, as by means of a pivot 52, corresponding ears 53 carried by the end of a movable finger 54, which is provided with an arcuate extremity 55 for engaging the opposite side of the socket S. A loop

56 is formed on the inner side of finger 54, and has secured thereto the end of a cord or wire 57, which extends through an oppositely disposed loop 58 on the inside of finger 50, and thence downwardly through the opening 47 into the hollow interior of member 35, all as best shown in Figure 4.

The lower end of cord 57 is secured in an opening 60 in the end of a rod 61, having a handle member 62 on the outer end thereof. The rod 61 extends through an opening 63 in the bottom 64 of tubular member 35, and is provided with ratchet teeth 66, which are adapted to engage the rim of the opening 63, so that when pressure is exerted on the handle member 62 to move the finger 54 into clamping relation with the socket, the cord or wire 57 may be secured in extended position by the engagement of one of the ratchet teeth with the side of the opening 63.

In Figure 2 the device is disclosed in operation in conjunction with a depending bulb, which is fixed at a distance from the floor. Figure 8 shows a means for reaching an upwardly extending bulb, B', which is mounted in a fitting F having a socket F' which extends upwardly. Obviously access may be had to such a bulb simply by bending the member 13 to the position shown in Figure 8, and clampingly engaging the cup 20 over the bulb B', as described in the foregoing modification. The method of removing the bulb, or screwing the same into the socket, is the same as that described in the foregoing modification, and in this instance, the socket being relatively fixed there is no necessity for the employment of the spring fingers 50 and 54.

From the foregoing it will now be seen that there is herein provided an improved apparatus for the insertion of bulbs into sockets which are inaccessibly or remotely positioned, or removing bulbs from same, which accomplishes all the objects of this invention, and others, including many advantages of great practical utility and commercial importance.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

In a device for removing or placing light globes in inaccessible sockets, a tubular handle, a flexible end portion secured to one end of said handle, a flexible helicoidal member extending rotatably through said handle and said flexible end portion, a rubber globe engaging cup fixed to the end of said helicoidal member, a nut rotatably mounted on the other end of said handle and fixed to said helicoidal member, an airtight rubber sleeve surrounding said helicoidal member, in communication with the interior of said cup, a rubber bulb secured to said nut and having its interior in communication with the interior of said helicoidal member and sleeve for creating a partial vacuum in said cup when said cup is clamped over a light bulb, and means for holding the socket against rotation when said helicoidal member is rotated, said last mentioned means comprising an elongated hollow tube having a flange defining an opening at the end thereof adjacent said rubber bulb, spring clips securing said tube in slidable parallel relation to said handle, socket engaging clamping fingers secured to the end of said hollow tube adjacent said cup, a wire extending through said hollow tube for clamping and releasing said fingers, a handle secured to said wire and extending outwardly through said opening defined by said flange, and ratchet teeth on said handle selectively engageable with said flange for securing said clamping fingers in selected clamping position.

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