July 23, 1940. C. J. BRIEFER 2,209,186

TOOL

Original Filed June 8, 1935

Fig. 1.

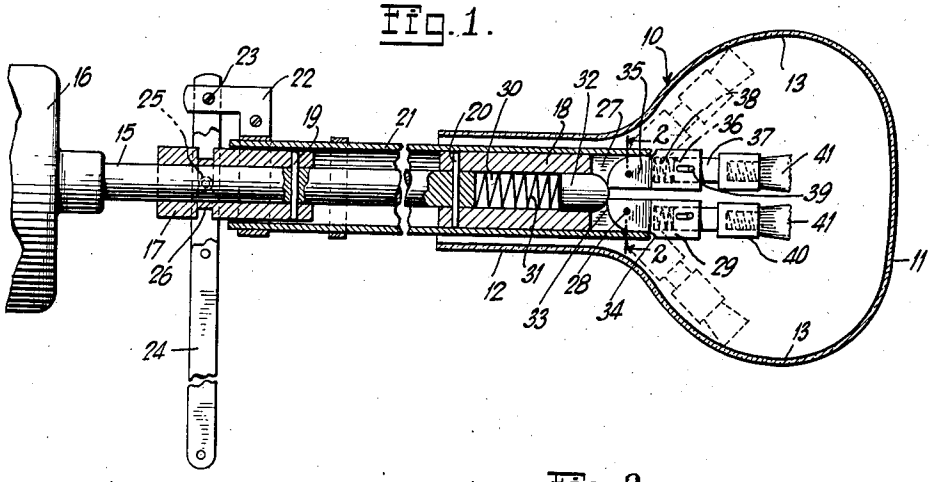


Fig. 2.

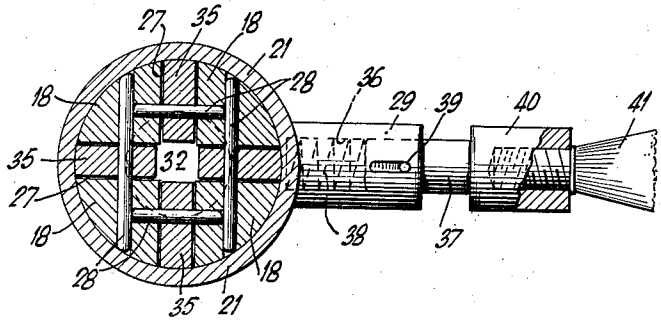


Fig. 3.

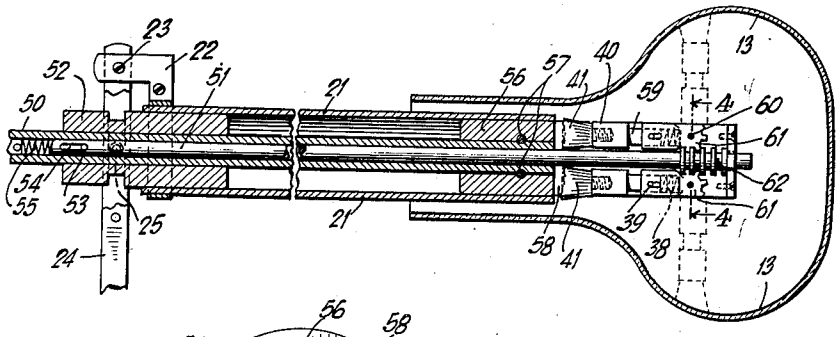
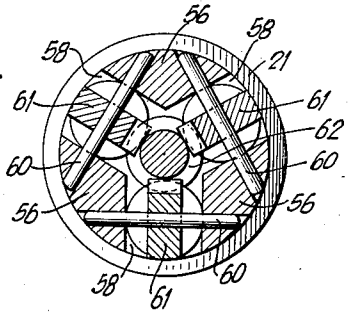


Fig. 4.



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TOOL

Caesar J. Briefer, Brooklyn, N. Y.

Original application June 8, 1935, Serial No. 25,592. Divided and this application April 30, 1936, Serial No. 77,079½

4 Claims. (Cl. 15—72)

This invention relates to tools by which incandescent lamps may be readily manufactured with a reflecting surface upon a portion of the interior of the bulb.

This application is a division of my co-pending application Serial #25,592, filed June 8, 1935.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description, taken in connection with the accompanying drawing, in which:

Figure 1 is a sectional view of a tool embodying this invention for the manufacture of lamps having the outer end of the bulb uncoated.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a sectional view of a tool used in the making of lamps with the base of the bulb uncoated.

Figure 4 is a section on the line 4—4 of Figure 3.

In accordance with this invention, the most practical way of coating a portion of the surface of a glass bulb intended for the manufacture of incandescent lamps is to apply the coating to a greater portion of the bulb than that desired for a reflecting surface and then to remove the excess by a special tool that can be inserted within the bulb.

In the form illustrated in Figure 1, there is shown a step in the manufacture of a bulb having the base portion of the bulb alone coated. The bulb here is designated by the numeral 10, having a bulb portion 11, and step portion 12.

At this step in the proceedings, the bulb has already been coated with this transparent reflecting coating therein designated by the numeral 13 and the function of this step in the proceedings is the removal of the coating throughout the outer or extreme end of the bulb.

Referring now to Figures 1, 2, 3, and 4, the numeral 15 designates a shaft adapted to be connected to and driven by any suitable source of power, for example an electric motor 16. This shaft carries in its intermediate portion a collar 17 and at its end a second collar 18, which collars are pinned to the shaft by pins 19 and 20 respectively. A sleeve 21 is journaled upon the collars to permit the shaft 15 and the collars to rotate within the sleeve and to permit the sleeve to move longitudinally upon the shaft.

To effect this longitudinal movement of the sleeve, there is provided upon the sleeve 21 a bracket on which is pivoted at 23 a bifurcated lever 24 carrying pins 25 to engage a circumferential groove 26 in the block.

The collar 18 extends beyond the end of the shaft 15 and at its own end it is provided with circumferentially spaced radial slots 27 in which are pivoted at 28 fingers 29.

Within the bore 30 in the collar 18 and beyond the end of the shaft 15 is provided a spring 31 bearing outwardly upon a block 32. This block 32 and the back surface 33 of the fingers 29 are so arranged that the pressure of the spring 31 is exerted out of alignment with the pivots 28 to urge the fingers to fly outwardly about their pivots. This outer movement of the fingers, however, is controlled by the end of the sleeve 21 which in its outer position engages a cam surface 34 upon the fingers to press them together.

Each of the fingers 29 preferably comprises a block 35 pivoted at 28 as previously described and having an internal bore 36 in which is slidingly mounted a brush holder 37 urged outwardly by a spring 38 and restrained in its outward position by a pin 39. This brush holder 37 is itself tapped at 40 to receive a brush 41 which may be of any suitable material, for example, soft wood or soft homogeneous material.

With the above construction it will be clear that when the tool is inserted within the glass as shown in Figure 1, a movement of the lever 24 will cause the fingers 29 to expand until the brushes resiliently engage the surface of the bulb, completely rubbing off all of the coating as far as desired without in any manner scratching the glass. As soon as the coating is removed the lever 24 may be manipulated to draw all of the fingers parallel to the shaft to permit the removal of the tool from the bulb.

The form of the invention disclosed in Figure 3 is in general principles identical to that previously described except that the fingers are adapted to fold back along the shaft rather than to extend outwardly away from it.

In this embodiment, the shaft 50 is hollow and has journaled within it an inner rod 51. The block 52 corresponding to the block 17 of the previous embodiment is slidably mounted upon the shaft 50 and pinned to the rod 51 by pin 53 working through a slot 54 in the shaft 50. The bracket 22 on the sleeve 21 and the lever 24 serve

to move the block 52 back and forth, as in the previous modification, but in this instance it is the inner rod 51 which is moved by the lever 24 relative to sleeve 21, and not the drive shaft. A spring 55 within the hollow shaft 50 bears against the end of the rod 51 to urge the rod outwardly to withdraw the fingers, as will hereinafter be described.

At the outer end of the shaft 50 is provided a collar 56 which is pinned to the shaft 50 by pins 57 so that the collar will rotate with the shaft. This collar 56 is provided with a plurality of circumferentially spaced radial slots 58 of a length slightly greater than the length of fingers 59 corresponding to fingers 29 in the previous modification, but these fingers 59 are pivoted at 60 at the outer ends of the slots, and lie backwardly toward the shaft within the slots. Each of the fingers 59 carries a gear segment 61 which meshes with a circumferential rack 62 on the end of the rod 51 and this rack and gear are so disposed that when the rod 51 is thrust outwardly as far as possible by the spring 55, that the rack will engage the gear segment 61 to withdraw the fingers 59 completely within the slots 58, and in this position the tool may be inserted into and out of the lamp bulb.

When it is desired to expand the fingers, the lever 24 may be manipulated to press the rod 51 inwardly against its spring and thereby through the rack 62 and segment 61 forcing the fingers 59 outwardly to bring the brushes 41 into resilient engagement with the coating. This form of device may be utilized where it is desired to permit the coating to remain upon the outer portion of the bulb while removing the coating from that portion extending toward the stem.

By the use of these tools a new and improved lamp can be manufactured rapidly without danger of the glass breaking and in such a manner as to cause the finished lamp to present a neat appearance.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

What I claim and desire to secure by Letters Patent is:

1. A device of the character described comprising in combination an elongated drive member restrained from axial movement having slots in its forward end, fingers pivoted within said slots and having extensions lying within said slots extending on the opposite side of the pivots of said fingers from the body of said fingers, each of said fingers having a tip of a soft material, and means including a member movable axially of said drive member for engaging said extensions and a spring, associated with said axially movable member, said means being constructed and arranged to rotate said fingers about their pivots.

2. A device of the character described comprising in combination an elongated drive member restrained from axial movement having slots in its forward end, fingers pivoted within said slots and having extensions lying within said slots extending on the opposite side of the pivots of said fingers from the body of said fingers, each of said fingers having a tip of a soft material, and means including a member movable axially of said drive member for engaging said extensions and a spring associated with said axially movable member, said means being constructed and arranged to rotate said fingers about their pivots, and means including a block axially movable with respect to said drive member and means constraining said block and said drive member to move together and a lever connected to said block and arranged to move said endwise movable member.

3. A device of the character described comprising in combination a non-rotatable sleeve adapted to be inserted in the stem of a lamp bulb, a rotatable member having a maximum diameter not substantially greater than the sleeve, and having a portion rotatably disposed therein, and having slots therein, fingers pivoted within said slots having extensions lying within said slots extending on the opposite side of the pivots of said fingers from the body of said fingers, said fingers having a soft tip, and a member concentric with said rotatable member constructed and arranged to engage said extensions to move said fingers about their pivots.

4. A device of the character described comprising in combination a non-rotatable sleeve adapted to be inserted in the stem of a lamp bulb, a rotatable member having a maximum diameter not substantially greater than the sleeve and having a portion rotatably disposed therein, and having slots therein, fingers pivoted within said slots having extensions lying within said slots extending on the opposite side of the pivots of said fingers from the body of said fingers, said fingers having a soft tip and means including a member concentric with said rotatable member, a block axially movable with respect to said rotatable member and a lever pivoted to said block and connected to move said concentric member, the latter being constructed and arranged for moving said fingers about their pivots.

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