

L. H. BUNKER & A. H. HEMPEL.
MEANS FOR CLEANSING LAMP BULBS.
APPLICATION FILED AUG. 18, 1910.

1,034,343.

Patented July 30, 1912.

3 SHEETS-SHEET 1.

Fig. 1.

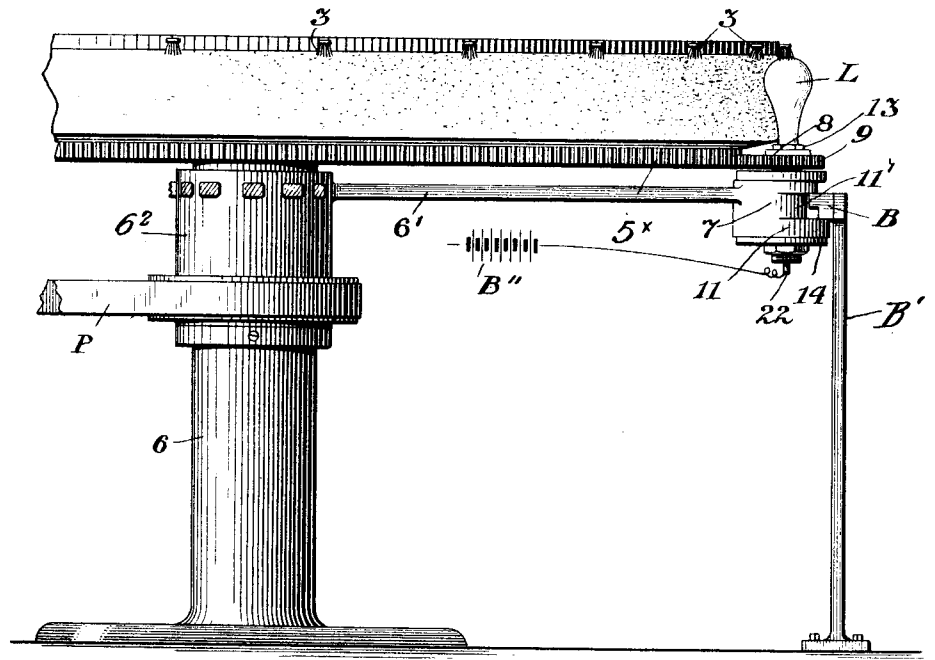


Fig. 2.

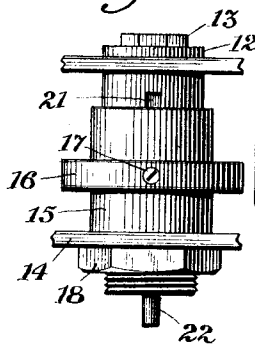
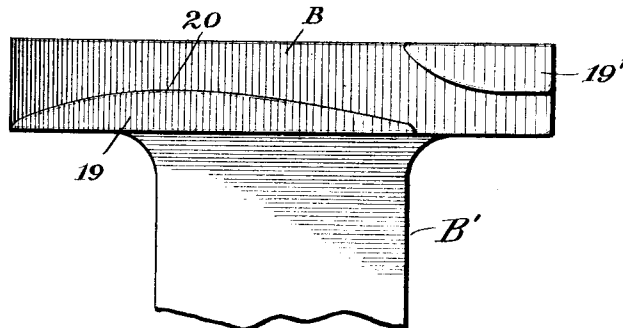


Fig. 3.



Witnesses:
E. A. Gimm
Audrey Doty

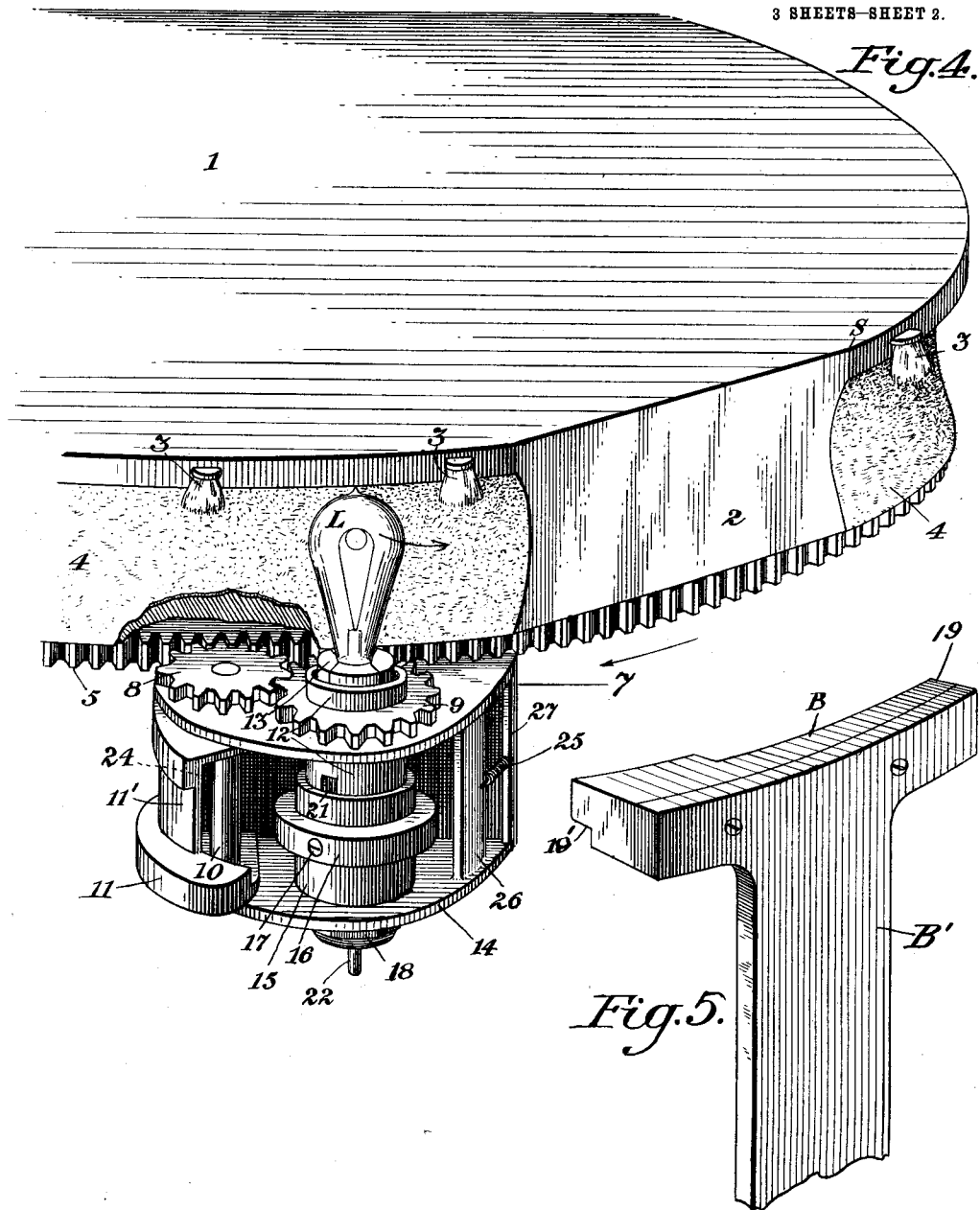
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3 SHEETS—SHEET 3.

Fig. 6.

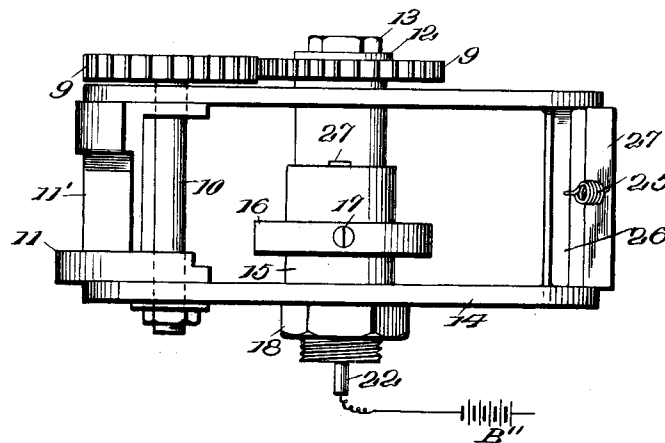
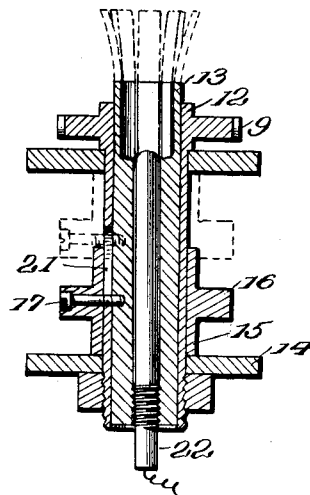


Fig. 7.



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UNITED STATES PATENT OFFICE.

LOYD H. BUNKER AND ALBERT H. HEMPEL, OF WARREN, OHIO, ASSIGNORS OF ONE-FOURTH TO GEORGE W. UPTON, OF WARREN, OHIO.

MEANS FOR CLEANSING LAMP-BULBS.

1,034,343.

Specification of Letters Patent.

Patented July 30, 1912.

Application filed August 18, 1910. Serial No. 577,891.

To all whom it may concern:

Be it known that we, LOYD H. BUNKER and ALBERT H. HEMPEL, citizens of the United States, residing at Warren, in the
5 county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Means for Cleansing Lamp-Bulbs, of which the following is a specification.

Heretofore it has been customary to
10 cleanse incandescent lamps wholly by hand, namely, by rubbing a towel or tissue paper over the bulbs. This is necessarily a slow and expensive operation, the loss from breakage usually being considerable, and
15 the number of persons employed for this one purpose is quite large. Even with the exercise of care there is considerable loss by breaking of the small tip points.

The primary object of our invention is to
20 effect the cleansing of incandescent lamp-bulbs by machinery, and thus reduce the loss by breakage and enable one attendant to suffice where several were formerly required.

In cleansing lamp-bulbs, a molecular or
25 magnetic attraction tends to draw the filament toward the bulb far enough to spoil its shape and frequently to cause breaking, thus impairing or destroying its efficiency. We have discovered that this may be avoided
30 by electrically charging the filament while the lamp is being cleansed.

Therefore a further object of our invention is to avoid all danger of the filament being impaired or destroyed by the cleansing
35 operation. And a further object is to provide simple and highly efficient means for taking hold of the lamps and releasing them after being cleansed.

The invention will be hereinafter fully
40 set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation, with parts broken away. Fig. 2 is a view of a lamp holder
45 and circuit closer. Fig. 3 is a face view of the track for actuating the lamp holder. Fig. 4 is a fragmentary view in perspective, on an enlarged scale, with parts broken away. Fig. 5 is a rear view, in perspective,
50 of the track and its support shown in Figs. 1 and 3. Fig. 6 is a front end view of a lamp carrier, with parts omitted. Fig. 7 is

a sectional view of the lamp holder showing the means for binding the socket end of a lamp bulb. 55

Referring to the drawings, 1 designates a table or support which is preferably stationary, being mounted at its center on a leg or pedestal 6. The periphery of the table is, at its upper edge, circular, save for
60 a segmental flat portion 2, and the lower portion of such periphery, beneath the top edge, is curved inwardly and outwardly to conform to the outline of a lamp bulb. To the upper edge are secured brushes 3, the
65 number of which may be varied, while the curved portion is padded with soft fabric or toweling 4.

Beneath the table is a fixed gear wheel 5, the teeth of which are nearly flush with the
70 lower edge of the periphery of the table, and beneath this gear wheel is a series of horizontally disposed arms 6' which radiate from a sleeve 6² rotatably mounted on the leg 6 and to which power is applied by any
75 suitable means, as for instance, a belt P. In Fig. 1 we have shown one of the arms 6', the remainder being broken away to avoid confusion. On the outer end of each arm 6' is a lamp carrier 7 which projects beyond
80 gear wheel 5. Mounted on carrier 7 is a gear pinion 8 whose shaft 10 is supported by a frame 11 extending from arm 6' and projecting between the top 14 and bottom
85 14' of the lamp carrier and also projecting somewhat beyond the edges thereof, said frame 11 having a channel 11' in its outer face. The pinion 8 meshes with a second pinion 9 which is fast on a vertically disposed cylinder 12 wherein is located a lamp
90 holder 13 which is designed to automatically bind and release the socket of an incandescent lamp bulb. This holder is shown in the form of a split cylinder inclosed by cylinder 12. The latter is surrounded by a
95 collar 15 to which is secured a flange or wheel 16, which in turn is connected by screw 17 to the lamp holding cylinder 13. This screw 17 projects through a slot 21 extending longitudinally of cylinder 12 so
100 that the lamp holding cylinder 13 and collar 15 may, together with wheel 16, be moved longitudinally of cylinder 12. The latter at its lower end projects through the bot-

tom 14 of the lamp carrier and is held by a nut 18, as clearly shown in Fig. 2.

When the lamp holding cylinder 13 is moved upwardly its jaws automatically open to release or receive the socket of a lamp, and when moved downwardly the jaws will close and bind the socket end of the lamp. For the purpose of effecting the opening and closing movement of the lamp holder, the flange or wheel 16 thereof is designed to engage the upper edge 20 of a cam 19 mounted on a track B supported by a post B', which is preferably secured to the floor at a point opposite the segmental flat portion 2 of the table but could be carried by an arm rigidly attached to the leg 6. While the jaws of the holder are open the attendant removes a lamp and inserts another, and as the carrier 7 travels across track B the flange or wheel 16 will, upon engaging the lower edge of an upper cam 19', effect the lowering of cylinder 13 and the closing of the jaws on the lamp socket. In this way the lamp holders carried by the several radial arms 6' are automatically opened and closed while said arms are moving relatively to the table. While the wheel 16 is traveling across the face of track B said track is within the channel 11' of the lamp carrier, the upper and lower edges forming such channel preventing, by engagement with the track, any strain upon the carrier or its supporting arm consequent upon the upward and downward movement of the parts controlling the lamp holder.

Extending longitudinally through each of the lamp holders 13 is a circuit closer 22 in the form of a metal rod which is electrically connected with a battery indicated at B', Fig. 1. As soon as a lamp is inserted in the holder 13 the circuit is closed through rod 22 and the filament is lighted and remains lighted throughout the cleansing operation. In consequence of this fact the danger of the filament being injuriously deflected or broken under the frictional excitation caused by the cleansing operation is entirely obviated. Of course, with some lamps it is not necessary that the filaments be electrically charged while the bulbs are being cleansed, but it is essential that this be done in the case of lamps of high voltage.

In order to allow the lamp bulbs to conform under all conditions to the contour of the table, or the fabric covering thereof, the carrier 7 is capable of moving relatively to the frame 11. For this purpose each carrier 7 is hinged on shaft 10 (see Fig. 6) and its opposite or free end is held by a spring 25, which is shown as attached to an upright bar 26 connecting the top 14 and bottom 14' of the carrier arm 6', and also to the fixed portion 27 of the carrier.

In practice, the operator is usually lo-

cated in close relation to track B, with the lamp bulbs conveniently at hand. As each of the bulb carriers 7 is brought into engagement with track B, the lamp holder thereof is automatically opened to enable the operator to position a lamp, after first removing a previously introduced lamp, and as the carrier moves out of engagement with track B the holder automatically binds the lamp socket, and while the current is closed through the filament by means of a contact rod 22, the lamp bulb is cleansed through the coöperative action of the brushes 3 and fabric 4. As the lamps travel around the table edge they also travel on their axes, and by reason of this planetary movement the bulbs are thoroughly cleansed in a single journey around the table. The brushes 3 may be of any suitable material, but are preferably of soft fiber so as to avoid all danger of injuring the bulbs especially by breaking off the teats thereof.

Although we prefer to carry out our invention in the manner hereinbefore described, yet it is obvious that changes may be made without departing from the theory of the invention.

We claim as our invention.

1. Means for cleansing incandescent lamp bulbs comprising, in combination, a lamp carrier, a cleansing device between which and said lamp carrier there is a relative movement, and a circuit closer for charging a lamp while on said carrier and during the relative movement between the cleansing device and the lamp carrier.

2. Means for cleansing incandescent lamp bulbs comprising, in combination, a cleansing device, a lamp carrier movable relative to the cleansing device, and a circuit closer movable with the lamp carrier for charging a lamp while being moved by said carrier.

3. Means for cleansing incandescent lamp bulbs comprising, in combination, a stationary support having a padded surface conforming in outline to a lamp bulb, a lamp carrier, pivotally supported so as to be free to move toward and away from the padded surface, means for automatically binding and releasing a lamp while the carrier is in motion, means for moving the lamp carrier in proximity to the support with the lamp bulb constantly in engagement with said padded surface, and means for rotating the lamp on its own axis while traveling with the carrier and in engagement with said padded surface.

4. Means for cleansing incandescent lamp bulbs comprising, in combination, a stationary circularly-arranged support having a padded surface conforming in outline to a lamp bulb, brushes depending from the upper edge of said support, a lamp carrier, means for moving the lamp carrier around the support with a lamp bulb constantly in

engagement with the padded surface therefor, and means for rotating the lamp on its own axis while traveling with the carrier and in engagement with said padded surface.

5 5. Means for cleansing incandescent lamp bulbs comprising, in combination, a circularly-arranged cleansing device, a lamp carrier, means for moving the lamp carrier
10 around the cleansing device with a lamp bulb constantly in engagement with the latter, means for rotating the lamp on its own axis while traveling with the carrier, and
15 means mounted on the lamp carrier for charging the lamp while moving relatively to the cleansing device.

6. Means for cleansing incandescent lamp bulbs comprising, in combination, a cleansing device, a lamp bulb holder, an electric
20 connection, and means for causing the holder to automatically grasp the lamp bulb and draw its base into contact with said electric connection.

7. Means for cleansing incandescent lamp bulbs comprising, in combination, a cleansing device, a lamp bulb holder, between
25 which and said cleansing device there is a relative movement, an electric connection, and means for causing the holder to automatically grasp the lamp bulb and draw the
30 base into contact with said electric connection during said relative movement.

8. The combination, with a table having cleansing means at its periphery, of a radially-supported carrier, means for rotating
35 the carrier around the table, a lamp bulb holder mounted on the carrier and having means for binding the socket end of a lamp, means for rotating said holder, means for
40 automatically releasing and closing said binding means while the carrier is in motion, and means for permitting the carrier to move toward and away from the cleansing means.

9. The combination with a table having cleansing means at its periphery, of a radially-supported carrier, means for rotating
45 the carrier around the table, means for permitting the carrier to move toward and away from the cleansing means, a lamp bulb holder mounted on the carrier and having
50 means for binding the socket end of a lamp, means for rotating said holder, means for automatically releasing and closing said binding means while the carrier is in
55 motion, and means for electrically charging a lamp while held by said holder.

10. The combination with a table having cleansing means at its periphery, of a radially-supported carrier, means for rotating
60 the carrier around the table, a lamp bulb holder mounted on the carrier and having means for binding the socket end of a lamp and comprising a vertically movable split
65 cylinder, means for rotating the holder, and

means for automatically moving the split cylinder vertically to release or bind a lamp in said holder.

11. The combination with a table having an inwardly and outwardly curved periphery and a cleansing fabric conforming thereto, of a radially-supported carrier, means
70 for rotating the carrier around the table, means for permitting the carrier to move toward and away from the cleansing fabric, a lamp holder mounted on the carrier and
75 having means for binding the socket end of a lamp, means for rotating said lamp holder to cause a lamp bulb to rotate in engagement with said fabric in the direction opposite to the travel of the carrier, and
80 means for automatically releasing and closing said binding means while the carrier is in motion.

12. The combination with a table having an inwardly and outwardly curved periphery and a cleansing fabric secured thereto, of a radially-supported carrier, means for rotating the carrier around the table, means
85 for permitting the carrier to move toward and away from the cleansing fabric, a lamp holder mounted on the carrier and having means for binding the socket end of a lamp, means for rotating said lamp holder to
90 cause a lamp bulb to rotate in engagement with said fabric in the direction opposite to the travel of the carrier, means for automatically releasing and closing said binding means while the carrier and holder are in
95 motion, and means for electrically charging a lamp-bulb while held by said holder.

13. The combination with a cleansing device, of a lamp carrier, a cylinder mounted on said carrier, a holder comprising a split
105 cylinder located within the first mentioned cylinder, a flange or wheel surrounding the first cylinder and secured to the split cylinder, and a fixed element having cam surfaces with which said flange engages for moving
110 said split cylinder alternately in opposite directions to release or bind a lamp bulb.

14. The combination with a cleansing device, of a lamp carrier, a cylinder mounted on said carrier, a holder comprising a split
115 cylinder located within the first mentioned cylinder, a flange or wheel surrounding the first cylinder and secured to the split cylinder, a fixed element having cam surfaces with which said flange engages for moving
120 said split cylinder alternately in opposite directions to release or bind a lamp bulb, a contact rod arranged centrally in said split cylinder, and a source of electrical supply connected to said rod.

15. The combination of a lamp cleaner, a clutch for grasping the base of an incandescent lamp, an electrical connection and
125 mechanism for automatically tightening said clutch and drawing said lamp base into contact with said electrical connection to in- 130

candesce the filament of the lamp while the bulb is being cleaned by the cleaner.

16. The combination of a holder for incandescent lamps consisting of a split cylinder fitted to receive the stem of a lamp; a surrounding cylinder sliding on said split cylinder; a wheel surrounding said sliding cylinder, loosely sleeved thereon and having a screw passing from its periphery through its center, through a slot in said second cylinder and entering rigidly in to said split cylinder for lifting the latter; a metallic

central core in said split cylinder to connect with the base of a lamp when inserted and with an electric current supply, substantially as described. 15

In testimony whereof we affix our signatures in presence of two witnesses.

LOYD H. BUNKER.
ALBERT H. HEMPEL.

Witnesses:

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WARD SCHRYVER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."