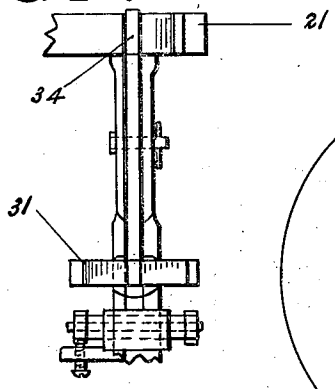
May 3, 1927. 1,626,628

W. S. ROTHERHAM

SEALING-IN HEAD FOR INCANDESCENT ELECTRIC LAMPS

Filed May 22, 1926

FIG. 4



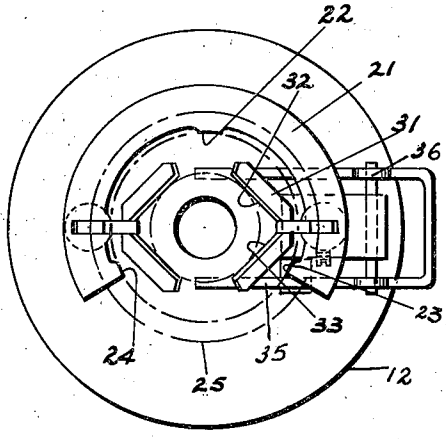


FIG. 1

FIG. 5

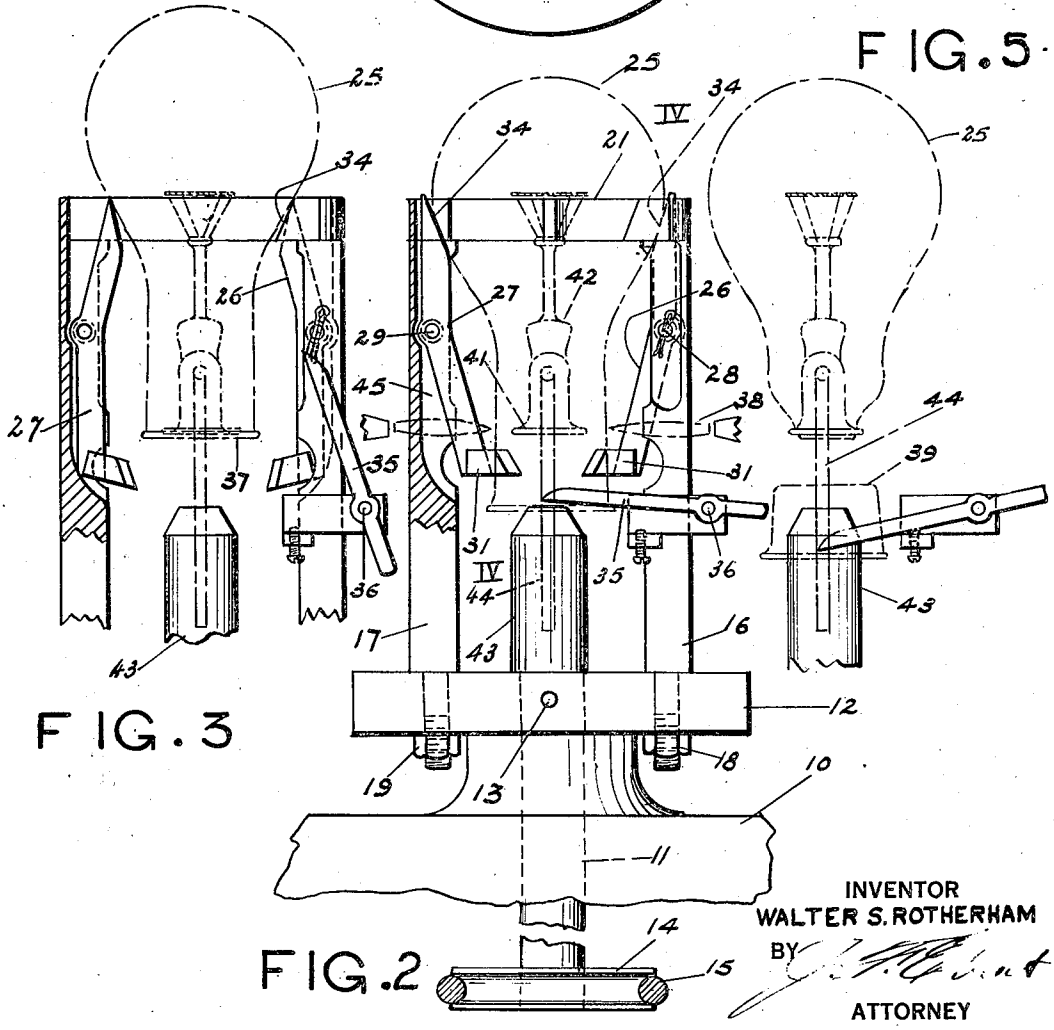


FIG. 3

FIG. 2

INVENTOR
WALTER S. ROTHERHAM
BY
ATTORNEY

Patented May 3, 1927. 1,626,628

UNITED STATES PATENT OFFICE.

WALTER S. ROTHERHAM, OF LITTLE FALLS, NEW JERSEY, ASSIGNOR TO WESTINGHOUSE LAMP COMPANY, A CORPORATION OF PENNSYLVANIA.

SEALING-IN HEAD FOR INCANDESCENT ELECTRIC LAMPS.

Application filed May 22, 1926. Serial No. 110,903.

The present invention relates to the manufacture of incandescent electric lamps and relates more particularly to machines for performing what is termed "a sealing-in operation" to effect the consolidation of a lamp mount and a bulb.

In the manufacture of incandescent electric lamps, it is necessary to provide a device for holding a lamp bulb in proper relation to a lamp mount while the bulb and mount are bonded together by fusion. The lamp mount constitutes the internal structure of the lamp and is comprised of a unitary glass supporting structure upon which is mounted the filament or light source to be disposed in a proper relative position within a bulb.

During a sealing-in operation, a mount is disposed in a vertical position in a suitable support and it is then necessary to properly position a bulb so that it will have a symmetrical relation with respect to the mount and retain such relation after the mount and bulb have been consolidated by the fusing or sealing-in operation.

The peculiar shape of a bulb makes it difficult to provide mechanism which will properly support the same and it has been the custom to employ what is termed "an adaptor" comprised of a plurality of stationary inclined contact surfaces to receive the enlarged or spherical portion of the bulb.

In the most popular types of bulbs, the neck portion is comparatively long so that when a bulb is seated in an adaptor, any slight variation in the position of the bulb upon the contact surfaces is multiplied at the lower end of the neck portion of the bulb. It, therefore, became necessary to provide additional means for adjusting the bulb to bring it to a proper position, that is, to dispose the longitudinal axis of the bulb coincident with the longitudinal axis of a supported mount.

The additional means employed consisted in a pair of movable members or jaws which gripped the neck of the bulb and operated in conjunction with an inclined surface adapted to hold the bulb in position. Devices of this character, however, generally included mechanism which necessitated an additional effort on the part of an operator in order to close the jaws upon the neck of the bulb or relatively complicated mechanism for automatically closing the jaws, such, for example, as that illustrated in Patent 1,547,735. The patent mentioned shows a sealing-in head of the type to which the present invention relates and although the mechanism shown in the patent has been employed with satisfactory results, the present invention simplifies such construction and provides a head which is self-acting under the single movement of the bulb during its application to the head.

The object of the present invention is, therefore, to provide a sealing-in head of simplified construction for the expeditious alignment of a bulb during the loading thereof to a head.

Other objects and advantages will be disclosed as the description proceeds.

The present invention includes a bulb-supporting structure which is termed a head and which may be mounted for rotation upon a conveyor in the usual manner. The head may comprise a support for holding a mount in axial alignment with the vertical axis of the head adjacent to the mount and in symmetrical relation thereto.

Associated with the head is a ring having a three-point contact seat for a bulb and in operative relation thereto are provided a pair of gripping members disposed at the ends of lever arms so arranged that the introduction of the bulb into the head causes an actuation of the gripping members to engage with the neck of the bulb as the same is lodged upon the seat of the ring.

By reason of this construction, a bulb may be quickly loaded into a head with a minimum amount of effort and without attention by the operator to the alignment of the bulb or its symmetrical relation to the mount.

The invention will be more fully understood by reference to the accompanying drawing in which—

Fig. 1 is a plan view of a sealing-in head embodying the present invention;

Fig. 2 is a side view of the head partly broken away to show one of the movable contact members;

Fig. 3. is a fragmentary view of the head shown in Fig. 2 and illustrates the position of a bulb as it enters the head;

Fig. 4 is a view taken on line IV—IV in Fig. 2, and

Fig. 5 shows a sealed-in lamp in dotted

lines and indicates the removal of the lower portion of the bulb after the sealing-in operation has been performed.

The present invention may be employed in connection with any type of lamp-making machine where it is desired to support a bulb in a given position, and the present embodiment of the invention discloses a head mounted on a supporting structure 10 which may be a portion of a rotary conveyor.

The sealing-in head may comprise a centrally disposed shaft 11 having a plate or cross-head 12 secured thereto by pin 13. The cross-head is thus rotatable with the shaft 11 which is provided with a pulley 14 and may be rotated by means of a belt 15 connected with any suitable source of power as another driving pulley forming part of the usual type of sealing-in machine, not shown.

The cross-head 12 is provided with standards 16 and 17 disposed at opposite sides of the shaft 11 and secured to cross-head by means of suitable head nuts 18 and 19.

Upon upper ends of the standard is mounted an arcuate member 21 having its open side normally positioned toward an operator. The member 21 is provided with contact surfaces 22, 23 and 24 disposed substantially in diametrical opposite relation and the member as a whole may be termed a seat or seating-ring for a bulb 25 indicated in dotted lines.

Means for automatically gripping the neck of the bulb may comprise double arm lever members 26 and 27 pivoted at 28 and 29 in the standards 16 and 17 respectively. The lever members are of similar construction and the lower arm of each is provided with a V shaped jaw 31 having double contact surfaces 32 and 33 and the upper arm of each lever is provided with an inclined contact surface 34.

The lever members are so constructed that the contact surfaces 34 are normally positioned to initially engage with bulb as it is inserted into the head. This positioning of the upper ends of the levers is caused by the potential energy of the relatively heavy or lower ends thereof, that is the ends which carry the V-shaped members 31.

When a bulb is inserted into a head and engages with the upper ends of the lever members as shown in Fig. 3, the inclined surface of the bulb causes an outward movement of the upper members of the levers and an inward movement of the contact jaws at the lower ends thereof. As the bulb reaches its seat, therefore, the lower jaws will have been moved to engage the neck of the bulb as shown in Fig. 2 and the bulb will rest upon the seat of the ring 21.

When a bulb has been positioned in a head, a forked member 35 pivoted at 36 is dropped over the head portion 37 at the lower end of the neck of the bulb. When the bulb is heated, therefore, by suitable flames 38, the weight of the forked member stretches the neck and removes a surplus portion or cullet 39 therefrom as the bulb is sealed to a flared portion 41 of a lamp mount 42.

The lamp mount may be disposed in any suitable holder 43. The present embodiment of the invention shows a lamp mount having an exhaust tube 44 which is inserted into a holder 43. The holder is positioned on the axial line of the head, the mount is thus disposed with its axis coincident with the axis of the head. Stem supports or mount holders of various constructions are available and any suitable type may be employed.

In operation, sealing-in heads are usually rotated while the flames play upon the neck of the bulb to render the same plastic. It is desirable, therefore, to construct a head in such manner that the movable parts thereof are not subjected to the heat of the flames. In the present construction, the lever members 26 and 27 are disposed in slots 45 in the standards 16 and 17 and are thus protected from a direct impingement of the flames during the sealing-in operation. Furthermore, the contact or gripping jaws which engage the neck of the bulb are so disposed as to be removed from the path of the flames, thus the possibility of warping or becoming burned out is avoided.

Usually a plurality of sealing-in heads are mounted on a conveyor which may be of the circular rotary type, and the heads are disposed in spaced relation adjacent to the periphery of the conveyor. The conveyors are moved intermittently and as a head is brought into position opposite to an operator, a sealed-in lamp is removed, a new mount positioned in the mount support, and a bulb loaded in the head over the mount. The forked member is then thrown over to engage the neck of the bulb.

It will be understood that the rate of production of a sealing-in machine depends to a great extent upon how fast an operator is able to load a head. If, as in the present invention, it is only necessary for the operator to insert the bulb over the stem without directing attention to the proper symmetrical relation of the work parts, any exertion thru strain in ascertaining whether the bulb is aligned, is saved as well as a manual operation in adjusting the bulb. It is possible therefore for the operator to load the machine at an increased rate of speed thus promoting production and reducing cost of manufacture.

Although a preferred embodiment of the invention is shown and described herein, it is to be understood that modifications may be made therein without departing from the

spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A lamp-making machine comprising a plurality of contact members for engaging a lamp bulb, a seat for a bulb, and means for actuating said members to grip the bulb upon a movement thereof to said seat.

2. A lamp-making machine comprising a plurality of sets of contact members for engagement of one set of members with the bulb to actuate the other set of members.

3. A device for holding a lamp bulb comprising a plurality of sets of contact members operable to engage a bulb at different points along its length and means whereby an engagement from one set of members will actuate the other set.

4. A device for holding a lamp bulb comprising a pair of sets of contact members and means for actuating one pair of said set of members when a bulb is moved to engage with the other set.

5. A device for holding a lamp bulb comprising a pair of single point contact members and a pair of double point contact members and means for causing an engagement of said double point contact members with the neck of the bulb when said single point members engage the enlarged portion of the bulb.

6. A device for holding a lamp bulb comprising a pair of double arm lever members thereto, a contact surface at opposite ends of each of said lever members, said contact surfaces being so disposed as to cause a sequential engagement of the respective pairs thereof upon the introduction of a bulb therebetween.

7. A sealing-in head comprising a mount holder, a seat for a bulb, a plurality of pairs of contact members and means for actuating said members to grip the neck of a bulb as the same is disposed upon said seat.

8. A sealing-in head comprising a mount holder, a seat for a bulb, a plurality of contact members for engaging the neck of a bulb, and means associated with said contact members arranged to engage with the enlarged portion of the bulb to actuate said members to grip the neck of the bulb when the same is moved into contact with said seat.

9. A sealing-in head comprising a mount holder, a seat for a bulb, a pair of double arm pivoted members, a jaw for engaging the neck of the bulb disposed upon one of each of the arms of said members, the other arms of each of said members being arranged to engage with the enlarged portion of the bulb to actuate said members to bring the said jaws in contact with the neck of the bulb as the same is moved into contact with said seat.

10. A sealing-in head comprising a mount support, a pair of double arm lever members pivoted to oscillate in a vertical plane, a jaw at the end of the lower arm of each of said members, means for normally positioning the upper arms in relatively close relation for engagement with the spherical portion of a bulb to cause a movement of the jaws on the said lower arms to engage with a neck of a bulb as the same is moved into contact with said seat.

In testimony whereof, I have hereunto subscribed my name this 20th day of May, 1926.

WALTER S. ROTHERHAM.