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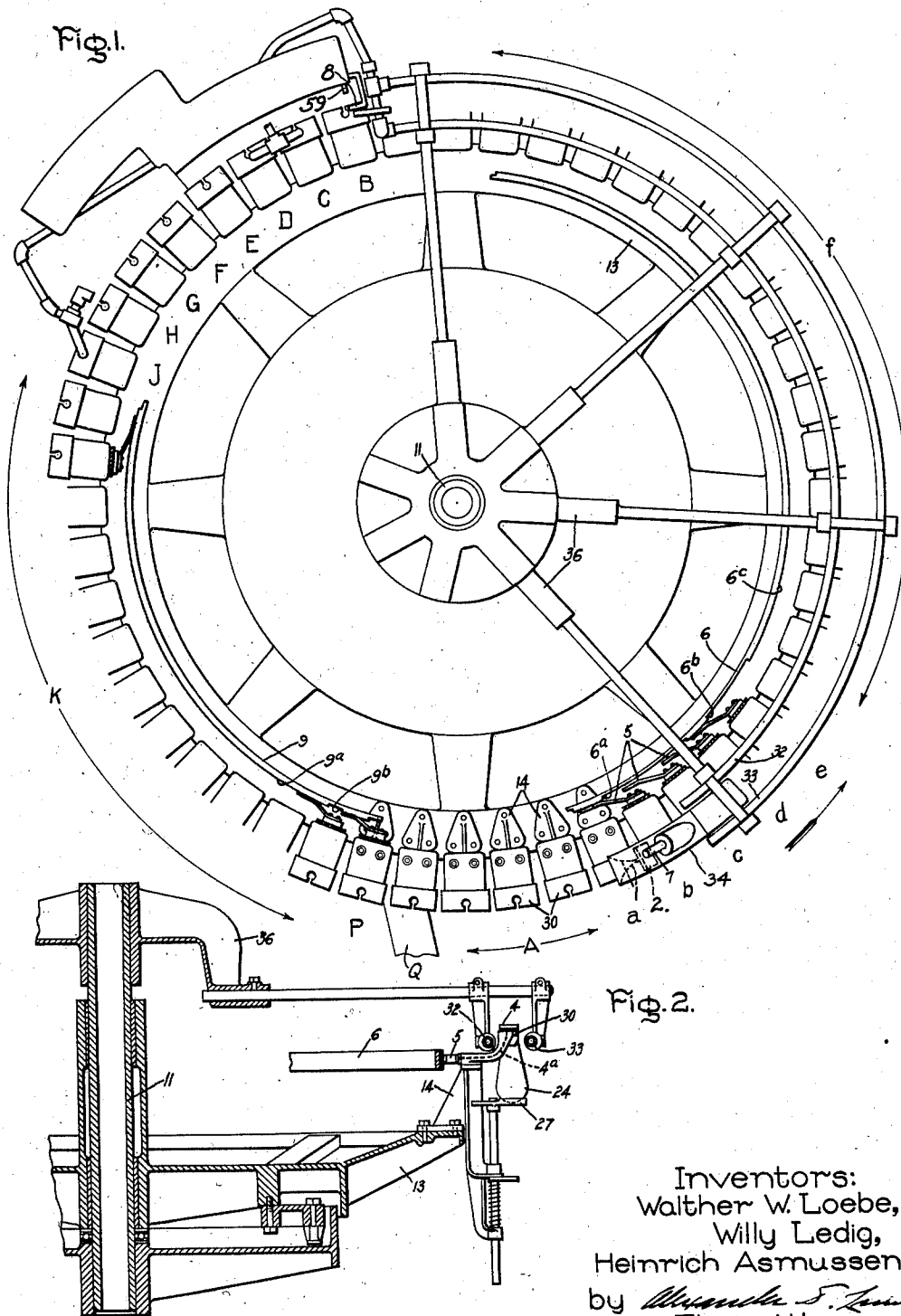
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BASING MACHINE FOR INCANDESCENT LAMPS AND SIMILAR DEVICES

Filed March 23, 1927

2 Sheets-Sheet 1



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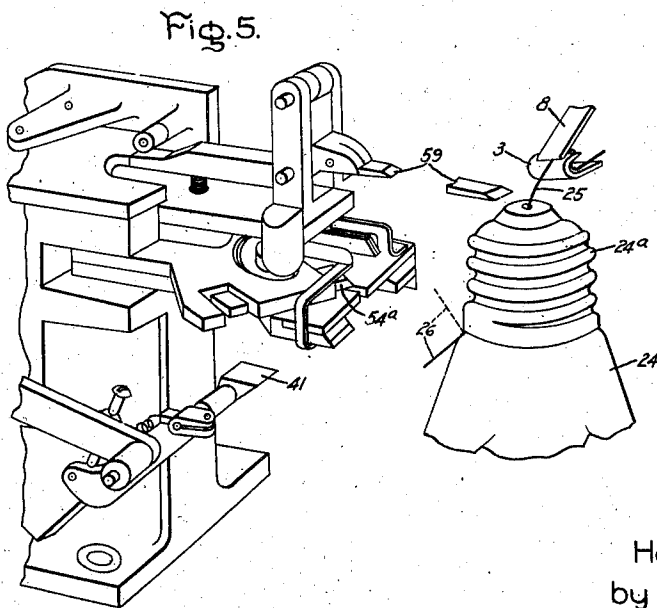
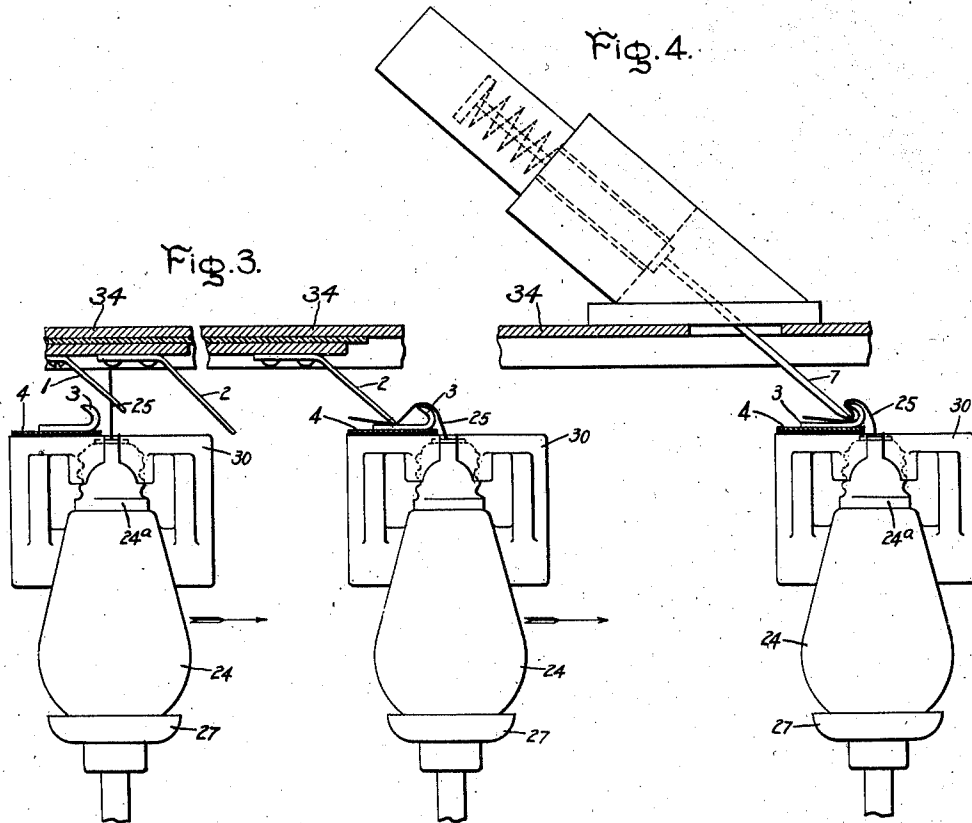
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2 Sheets-Sheet 2



Inventors:
Walther W. Loeb,
Willy Ledig,
Heinrich Asmussen,
by *Wm. S. Lane*
Their Attorney.

UNITED STATES PATENT OFFICE

WALTHER-WINFRIED LOEBE, OF WAIDMANNSLUT, BERLIN, WILLY LEDIG, OF BERLIN, AND HEINRICH ASMUSSEN, OF CHARLOTTENBURG, BERLIN, GERMANY, ASSIGNORS TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK

BASING MACHINE FOR INCANDESCENT LAMPS AND SIMILAR DEVICES

Application filed March 23, 1927, Serial No. 177,734, and in Germany April 8, 1926.

Basing machines are known in which the lamps do not need any auxiliary treatment either prior to or after their treatment in the basing machine, as not only the setting of the cement, but also the cutting off and soldering of the leading in wires, the cooling of the bases, and finally the flashing and aging of the lamps by passing current through them by means of vertically movable contacts take place successively during one revolution of the machine. It has been found, however, that at the usual speed of operation of the machine the time available for passing current through the lamps in the base cooling positions by means of contacts moved up and down suffices only for lamps of a medium or low voltage, but not for high voltage lamps (220 volts and more.)

In order to be able to manufacture high voltage lamps properly when the machine is operated at the usual speed there is provided, in accordance with the invention, over the positions for the setting of the cement and if necessary also over some of the base cooling positions of the travel of each basing head a contact rail, from which the lamps are, by means of sliding contacts attached to the basing heads, fed with current for the flashing and aging of the lamps. In this manner the lamps are supplied with current in a simpler manner than by use of the vertically movable contacts, which introduced considerable complication into the machine, and furthermore the current is supplied during a much greater part of the travel of the basing head, as there is provided for the setting of the cement a considerably greater number of heating positions in the machine than for the base cooling. For the purpose of obtaining a reliable feed of current to the lamp the lead wire projecting from the center contact of the base is straightened out before or as it enters the cement setting positions and is also bent over and thereby connected to an insulated metal plate fixed to the basing head and connected to a sliding contact whereby the lead wire is well connected to the source of current. The cutting off of the lead wire which projects from the center contact after the cement hardens is simplified by the previous bending

over of the lead wire, as there is required only the cutter and a pressure friction spring for holding the lead wire fast.

One example of a basing machine embodying the invention is shown in the accompanying drawing, in which

Figure 1 is a diagrammatic plan view.

Figure 2 is a vertical section adjacent one of the basing heads.

Figures 3 and 4 show on a larger scale and partly in section a basing head in two successive positions of the machine.

Figure 5 shows in perspective the device for cutting off the lead wire.

Fig. 6 is a top view, with some parts broken away, of the device for straightening up the lead wire.

The machine shown has a carrier 13 rotatable step by step about the vertical post 11. To this carrier are fixed in a circle a number of basing heads 14, each having a base cup 30 for holding the lamp bases 24* and also resilient bulb cups 27 for engaging the lamp bulbs 24. Above the rotatable carrier 13 is a spider 36, which carries two burners 32, 33 set concentrically to direct their flames on the base cups 30. In the heating positions A, as in the previous machine, the lamps, provided with a base with fresh cement, are placed in the basing heads. By the movement of the basing heads in the direction of the arrow, Figure 1, the lamps are first carried into the heating position *a*, in which the lead wire 25 projecting from the center contact of the base comes between and is yieldably gripped by a wire gripper, such as two fingers 1 set at an angle to each other and projecting downward from a stationary bracket 34 set near the rim of the rotatable carrier and above the path of the base cups 30. While passing the next heating position *b*, the lead wire 25 is straightened up by these fingers 1 which have a small passage or slot between them for guiding the wire as it is straightened. Then too the lead wire 25 while its loose end is in this passage and while the lamp is moving from position *a* to position *b* comes under an insulated bender, such as a friction spring 2 fixed to a stationary part of the machine, and which, as best shown

in Figure 3, bends the lead wire backwards over a hook 3 on the metal plate 4, which is fixed on but insulated from the base cup 30. In order to close a testing circuit through the lamp while it is in position *b*, the metal plate 4 is connected by a short wire 4^a (Fig. 2) with a spring contact 5 mounted on the base holder 14 to project laterally and encounter a short contact 6^a on a contact rail 6 which is connected to a source of current and extends through as many of the heating or cement setting positions of the machine as may be necessary. In this position *b* current flows from the contact rail 6 through a projection or lug on the contact rail and constituting a contact 6^a, through the spring contact 5, the wire 4^a and the metal plate to the lead wire 25 which rests on the plate 4, and thence through the filament of the lamp, its base, and the machine frame back to the source of current. So long as the lamp remains in heating position *b*, it receives current, but only a small amount, for example, only enough to bring the filament to red heat, as this low lighting of the lamp is only to determine whether the lamp is good or has a short circuit. If the lamp is short circuited the machine is stopped by a relay circuit not shown, so that the attention of the operator is called to the defective lamp, and it can be removed.

In the next heating position *c* the lamp base comes within range of the burners 32, 33 which set the cement. At the same time the bent over lead wire 25 comes under an electromagnetically actuated punch 7, which upon the entrance of the lamps into this heating position immediately moves downwardly and thereby tightly presses the bent over lead wire in behind the hook 3 of plate 4. In this way there is secured a firm contact between the lead wire 25 and plate 4 during further travel of the lamp. In position *c*, and also in the following position *d*, the spring contact 5 is out of engagement with the contact rail 6, so that in these two heating positions of the machine the lamp is without current. When, however, the lamp reaches the heating position *e*, the circuit through the lamp is again closed by the spring contact 5 engaging another lug or projection on the contact rail constituting a short contact 6^b. In this case the lamp receives a current of such intensity, that the Edison effect appears, causing blue glow and thus removing the residual gases of the lamp. During the passage of the lamp through all the succeeding heating positions of the machine it burns uninterruptedly because the spring contacts 5 of the separate basing heads are constantly in contact with the long projecting lug or contact surface 6^c of the contact rail 6.

Directly beyond the heating or cement setting positions of the machine there occurs the

cutting off of the two lead wires in heating position B. The side lead wire 26 is bent up by a rocking wedge 41, as shown in Figure 5, and cut off by a swinging knife 54^a. The lead wire 25 projecting from the center contact and bent over the hook 3 comes, when entering this heating position, under a clamp, such as a fixed friction spring 8, which holds the lead wire taut with its end fast between the spring and the upper part of hook 3. As the knife 59 moves forward in this heating position the lead wire 25 is reliably cut off close to the center contact of the base.

In the following heating positions C to J the cut-off ends of the lead wires are removed, the lead wires are soldered, and the soldering irons are cooled. The soldering may be done by the application of soldering flux and liquid solder, but this may also be done by means of solder wire brought to soldering irons previously heated, either electrically or by gas flame, as the heat imparted to the base for hardening the cement does not usually suffice for a reliable fusion of the solder.

In the cooling positions marked K of the machine the bases are cooled by special cooling ducts, not shown. In these positions of the machine there is also provided a contact rail 9 with two contact surfaces 9^a and 9^b. So long as the spring contacts 5 bear on the long contact surface 9^a the aging of the lamp takes place. After a short interruption of the current supply the lamps are again, in position P, connected in circuit for the purpose of test by the operators, and then slide automatically down the outlet duct to the point of removal Q.

If strong cooling is provided for, there need be only a few cooling positions, the number of cement setting positions can be increased correspondingly and the flashing and aging which takes place in these positions can be extended over a greater period. In some cases the aging in the cooling positions can be entirely omitted.

What we claim as new and desire to secure by Letters Patent of the United States, is:—

1. In a basing machine, the combination of a rotatable carrier, a plurality of basing heads mounted on said carrier in a circle concentric with the axis of rotation of said carrier, heating means adjacent a portion of the path of movement of said heads for heating said heads to set the cement in bases in said heads, a contact rail adjacent said portion of the path of movement of said heads and curved to be parallel to said path, and a sliding contact mounted on each of said heads to engage said rail and thereby electrically connect a base in said head to said contact rail so that said filament is lighted during the cement setting operation.

2. In a basing machine, the combination of a rotatable carrier, a plurality of basing heads mounted on said carrier in a circle con-

centric with the axis of rotation of said carrier, cooperating fingers set at an angle to each other adjacent the path of said heads and in position to engage and straighten up a lead wire projecting from said head during the movement of said head past said fingers, an insulated contact plate on each of said heads adjacent the base cup of said head, means for bending said straightened lead wire into firm contact with said plate during the travel of said head, a contact rail mounted adjacent and parallel to the path of said heads, and a spring contact on said head connected to said plate and projecting into position to engage said contact rail during movement of said head.

3. In a basing machine, the combination of a rotatable carrier, a plurality of basing heads mounted on said carrier in a circle concentric with the axis of rotation of said carrier, each of said heads having an insulated hook adjacent the base cup of said head, a spring fixed adjacent the path of said head to engage and bend down upon said hook a projecting lead wire of a base in said cup, a punch mounted adjacent the path of said head to move into the bend of said hook and thereby press said lead wire into said hook, means for automatically actuating said punch when said hook is within range of it, and means for supplying current to said hook.

4. In a basing machine, the combination of a rotatable carrier, a plurality of basing heads mounted on said carrier in a circle concentric with the axis of rotation of said carrier, a hook on each of said heads adjacent the base cup of said head, a stationary wire gripper mounted adjacent the path of said heads to yieldingly grip a lead wire projecting from a base in said head and draw it out straight over said hook as said head moves away from said gripper, a flat spring fixed adjacent the path of said heads in position to engage said hooks on said heads as said heads move under said spring and thereby clamp the projecting lead wire to said hook, and a wire cutter mounted adjacent said spring in position to cut said lead wire while held by said flat spring.

5. In a basing machine, the combination of a basing head mounted to move along a predetermined path, burners adjacent a portion of said path to heat said head, a contact rail adjacent said portion of said path, and a sliding contact on said head to engage said rail.

6. In a basing machine, the combination of a basing head mounted to travel along a predetermined path, a wire gripper mounted adjacent said path in position to grip and yieldingly hold a lead wire projecting from a base in said basing head as said head moves past said gripper, an insulated contact plate on said basing head, a wire bender projecting

into the path of said contact plate to bend said projecting lead wire held by said gripper into engagement with said plate as said head travels past said bender, and means responsive to movement of said head for connecting said contact plate to a source of current.

7. In a basing machine, the combination of a basing head, mounted to travel along a predetermined path, and comprising a base cup, a contact plate mounted on and insulated from said head and having a reentrant recess, means responsive to movement of said head for placing transversely of said recess a lead wire projecting from a base in said base cup, and means mounted adjacent the path of said head for automatically pressing into said recess the overlying part of said lead wire.

8. In a basing machine, the combination of a basing head mounted to travel along a predetermined path and having a projection transverse to said path, means responsive to movement of said head for placing lengthwise of the path of said head and over said projection a lead wire projecting from a base in said head, and a resilient clamp mounted adjacent the path of said head in position to press upon said projection during the travel of said head and thereby clamp the projecting lead wire to said projection.

In witness whereof, we have hereunto set our hands this 8th day of March, 1927.

Dr. WALTHER-WINFRIED LOEBE.

WILLY LEDIG.

HEINRICH ASMUSSEN.

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