

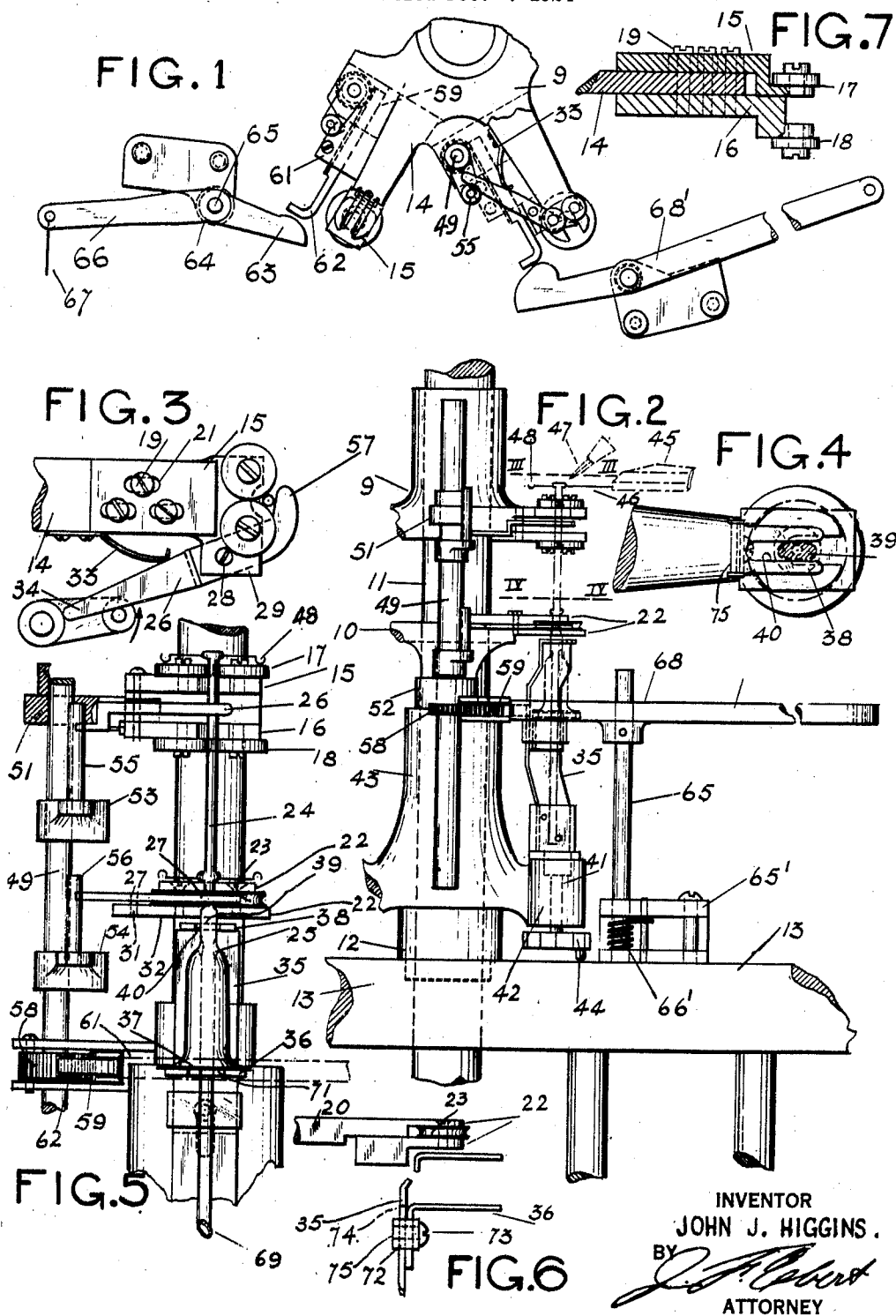
March 27, 1928.

1,663,550

J. J. HIGGINS

LAMP STEM HOLDER

Filed Dec. 3, 1924



UNITED STATES PATENT OFFICE.

JOHN JOSEPH HIGGINS, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO WESTINGHOUSE LAMP COMPANY, A CORPORATION OF PENNSYLVANIA.

LAMP STEM HOLDER.

Application filed December 3, 1924. Serial No. 753,559.

This invention relates to machines for the manufacture of incandescent electric lamps and more particularly to a holder for supporting lamp stems for operations thereon.

5 An object of the invention is to provide a rigid and durable stem holder applicable to lamp-making machines.

Another object of the invention is to provide a stem holder comprising substantially anti-friction members to vertically support a lamp stem.

Another object of the invention is to provide a plurality of contact members having movable contact surfaces for supporting a lamp stem for rotation with its longitudinal axis coincident with a given vertical line.

15 A further object of the invention is to provide a multiple contact gripping device attachable to a support wire inserting machine to support a stem for rotation during the insertion of support wires.

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

25 The manufacture of incandescent electric lamps includes an operation which is known as inserting. This inserting operation includes the local heating of a button of a lamp stem and the insertion of an end of a wire into the heated or softened portion. The wire is then severed at a given length and the free end bent to provide a hook.

30 The support wires are inserted radially in spaced relation around a button or buttons of a stem and a filament wire is subsequently draped about or hung upon the support wires. A stem having the filament mounted thereon is ready for consolidation with a bulb and is termed a mount. Inasmuch as the support wires are inserted at different points in a button, the stem must be so supported that it may be held in a given position and at the same time be rotatable to present different points successively for the insertion of support wires.

45 Mechanism for performing the operation of rotating a support of this character is more clearly shown in copending application of Madden and Higgins, Serial No. 556,957, filed April 27, 1922, combined button making and inserting machine and assigned to the same assignee as is the present application.

50 The present invention for properly supporting a stem may comprise an upper and a lower gripping member disposed in opera-

tive relation to a rotatable platform including a slotted extension to receive a reduced portion of a stem. The gripping members may include contact surfaces comprising roller members and spring actuated fingers may be provided to maintain a stem in contact with the rollers and to furnish an additional contact point to center the stem.

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

Fig. 1 is a plan view of a portion of a stem-making machine showing two stem holders in accordance with the present invention;

Fig. 2 is a side elevational view of a portion of an inserting machine showing one of the stem supports;

Fig. 3 is an enlarged fragmentary view taken on line III—III in Fig. 2;

Fig. 4 is an enlarged fragmentary view taken on line IV—IV in Fig. 2;

Fig. 5 is an enlarged front view of the stem holder showing a stem positioned therein;

Fig. 6 is a sectional view of a portion of the rotatable support showing an adjustable platform, and

Fig. 7 is a sectional view taken through the bearings for the rollers which constitute an upper gripping member.

An embodiment of the invention may comprise multiple arm supports or spiders 9 and 10 secured to a central shaft 11 which may be rotatable in a bearing 12 of stationary structure 13 of a lamp-making machine. The shaft 11 may be rotated intermittently through any suitable mechanism (not shown), in a manner common to this type of machine; that is, when a lamp stem has been held in a certain position for given operations, mechanism operates to rotate the shaft and position another stem for operations thereon.

The spider 9 is provided with arms 14 to the ends of which are attached adjustable bearing plates 15 and 16. The plate 15 is provided with a pair of rollers 17 and the plate 16 is provided with a pair of rollers 18. The plates 16 and 17 may be secured to the end of the arm 14 by suitable tap bolts 19 which may extend through slots 21 in the plate 15 through the arm and into threaded apertures in the plate 16. By reason of the slots 21, the rollers 17 may

be adjusted with respect to the rollers 18. The ends of the arms 20 of the lower spider 10 are provided with bearing plates 22 to support a pair of grooved rollers 23. When the device is set up initially, the rollers 18 and 23 may be positioned in proper alignment to engage with an arbor 24 of a stem 25 as shown for example in Fig. 5. The rollers 17 may then be adjusted to position to also engage with the arbor, thus a stem when engaged with three pairs of contact members will be properly positioned in the desired vertical alignment.

The rollers which may be termed adjustable or changeable surface contact members, not only permit the free rotary movement of a stem, but have long life as contacts, since any wear that may occur is uniformly distributed. On the other hand, the wear is less than with a stationary contact, since the friction between the stem and the contact surface is reduced to a minimum.

For the purpose of maintaining the arbor 24 in engagement with the rollers, contact arms or lever members 26 and 27 are provided, the lever 26 being pivoted at 28 in an extension 29 which may project from an end of an arm 14. The lever 27 may be pivoted at 31 in an extension 32 at the end of an arm 20. The levers 26 and 27 are normally urged to engage with an arbor under the action of springs 33 (see Fig. 3) which make contact with the longer arms 34 of the contact levers.

In addition to the several contacting members for aligning the stem, means for rotating a stem are provided and may comprise a bracket 35 having a platform 36 to receive a flared portion 37 of a stem and a projection 38 having a slot 40 (see Fig. 4) to receive the flattened press portion 39 of the stem. The bracket 35 may be secured to a spindle 41 rotatable in a vertical bearing 42 integral with a hub 43 secured to the shaft 11. The spindle 41 may have secured to the lower end thereof a ratchet wheel 44 which is adapted to be engaged by suitable mechanism to rotate the spindle and hence the bracket 35 intermittently, in accordance with the inserting operation as set forth in the above mentioned copending application.

In Fig. 2 a so-called inserting ram 45 is indicated in dotted lines as inserting a wire 46 into the button of a stem; a fire 47 is also indicated showing the relative position thereof. It will be understood the flame heats a portion of the button and the ram inserts a support wire 46. The button is then rotated a given number of degrees; the flame heats another portion of the button and the ram then operates to insert the end of another wire 46. After each inserting operation, the wire is severed and mechanism operates to form a hook 48 at the end thereof.

It will thus be seen that the present holder provides a simple and effective device adapted to facilitate the rotation of the stem and at the same time avoids wear upon the contact surfaces. Although the lever arms 26 and 27 may be operated independently, means are provided whereby the same may be operated together by hand or by a foot-treadle.

The simultaneous actuation of the arms 26 and 27 may be accomplished by means comprising a vertical shaft 49 rotatably disposed in bearings 51 and 52 integral with the spiders 9 and 10 respectively. The vertical shaft 49 is provided with arms 53 and 54 having upright pins 55 and 56 adapted to engage with the arms 34 of the levers 26 and 27 respectively. A rotary movement of the shaft 49 effects an engagement between the levers 26 and 27 and the uprights 55 and 56 causing ends or jaws 57 of the levers to move to release or secure a stem. This rotary movement may be had by providing the shaft 49 with a pinion 58 disposed in mesh with a rack 59 slidable in a suitable housing 61 integral with the lower spider 10. The rack may be provided with a projection 62 so proportioned as to be disposed in operative relation with an end 63 (see Fig. 1) of a lever 64 when a stem holder is in a given position, as for example in the unloading position and it is necessary to remove a stem. The lever 64 is pivoted at 65 in bearings 65' secured to any suitable stationary portion of the machine and a spring 66' may be provided to normally maintain the upright pins 55 and 56 in contact with the levers 26 and 27.

A long arm 66 of the lever 64 may be connected by means of a cable 67 to a foot-treadle (not shown) or the arm may be operated by hand to cause the end 63 to engage with the projection 62 of the rack 59, thus actuating the device to open the jaws to receive or release a stem.

Each of the stem holders may be provided with mechanism as above described for simultaneously actuating the upper and lower levers. In certain types of machines, only one operating lever is required such as the lever 64 for actuating the jaws when a holder reaches a given position, as for example in machines in which the loading and unloading is performed at one position.

However, in other types of machines where one girl unloads and another girl loads, a second operating lever 68' is required, the mechanism for and the operation of which is, similar to that described for the levers 64.

The reason for two operators in connection with certain of these machines is that the operator who receives the stem at the unloading position also performs a mounting operation; that is, she mounts the fila-

ment on the stem as soon as she receives it, whereas the operator at the loading position takes care of a stem-making machine and transfers the stems therefrom to the inserting machine.

From the foregoing description, it will be evident that a lamp stem may be readily applied to a holder by opening the jaws 57 through a manipulation of an actuating lever, when a support has reached the loading position. The stem is then positioned upon the platform 36 and the flattened pressed portion 39 of the stem enters the slot 40, thus the platform may be rotated to rotate the stem. For stems of the tipless lamp type which include an exhaust tube 69, a notch 71 may be provided in the platform 36. As shown in Fig. 6 the platform 36 is adjustable along the bracket 35 and may be secured thereto by means of a clamp comprising a U-shaped member 72 and a screw 73 which may extend through a slot 74 in the bracket and be threadedly connected to the back portion 75 of the U-shaped plate member.

A device such as shown and described herein is particularly advantageous in connection with lamp-making machinery since it provides a simple and practical holder adapted for the free movement of a stem during operations thereon and is of particular advantage in connection with inserting machines where an accurate and steady supporting structure for a stem is essential.

The novel structure constituting this present holder includes what may be termed a five point contact for the stem since the three pairs of rollers and the two arms engage with the stem and thus insure its accurate alignment and its firm disposition against lateral movement.

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 by the appended claims.

What is claimed is:

1. A device for holding an incandescent electric lamp stem comprising a rotatable support having an adjustable platform to support a stem, means for preventing relative movement of said stem with respect to said platform, adjustable members for aligning a stem on the axis of rotation of said support and means for holding a stem in contact with said members.

2. A device for holding an incandescent electric lamp work part comprising a rotatable support to hold a work part, a plurality

of rotatable contact members to align said part upon the axis of rotation of said support and means for resiliently retaining a work part in contact with said members.

3. A device for holding an incandescent electric lamp work part, comprising a rotatable bracket, an adjustable platform associated with said bracket to support a work part, means for preventing relative movement of said bracket and said work part, a plurality of pairs of disc members to engage with and align said work part on the axis of rotation of said bracket and means for maintaining said part in contact with said members.

4. A device for holding an incandescent electric lamp stem comprising a bracket to support a stem, a plurality of pairs of roller members spaced apart to engage with and align a lamp stem upon the vertical axis of said bracket, an arm cooperating with each pair of rollers to hold a stem in contact therewith and means for simultaneously actuating said arms to release said stem.

5. A machine for holding lamp stems during the insertion of support wires comprising a rotatable conveyor, a plurality of stem holders carried by said conveyor, said holders including adjustable contact members for aligning a stem upon the vertical axis of a holder and means for holding the stems in engagement with said members.

6. A machine for holding lamp stems during the insertion of support wires comprising a rotatable conveyor, a plurality of stem holders carried by said conveyor, said holders including roller members for aligning a stem upon the vertical axis of a holder, lever arms for pressing said stems in contact with said members and means for automatically actuating said arms to release said stems.

7. A machine for holding a lamp part during the insertion of support wires therein, comprising a conveyor disposed in operative relation to a support wire inserting machine, a plurality of lamp part supports rotatably mounted on said conveyor for successive disposition adjacent to said inserting machine, each holder including a plurality of pairs of rollers positioned to align a lamp part upon the axis of rotation of a support, a lever arm associated with each pair of rollers to press the lamp part thereagainst and means for automatically actuating the arms to release said part.

In testimony whereof, I have hereunto subscribed my name this first day of December 1924.

JOHN JOSEPH HIGGINS.