Dec. 28, 1926. 1,612,537

O. J. SCHROEDER

LEADING-IN WIRE LOCATING DEVICE

Filed August 29, 1924

FIG. 1.

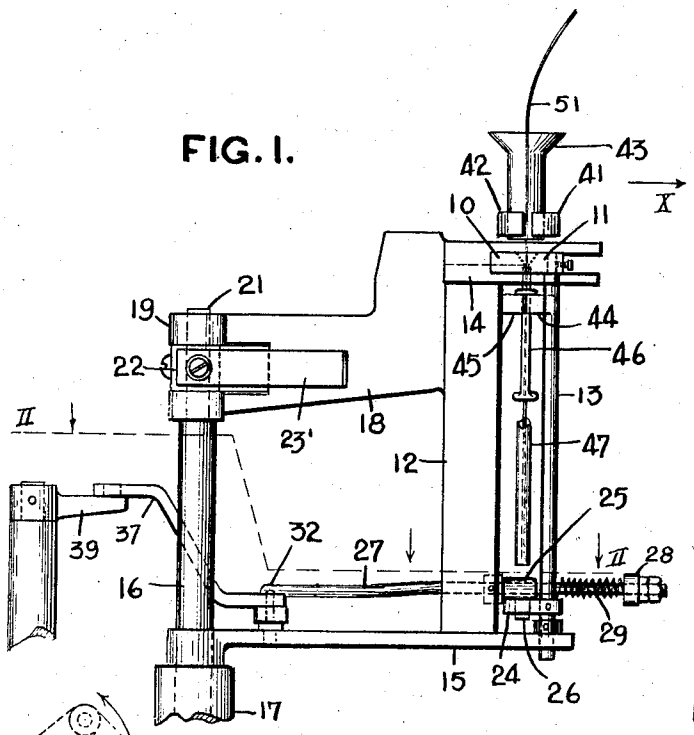


FIG. 2.

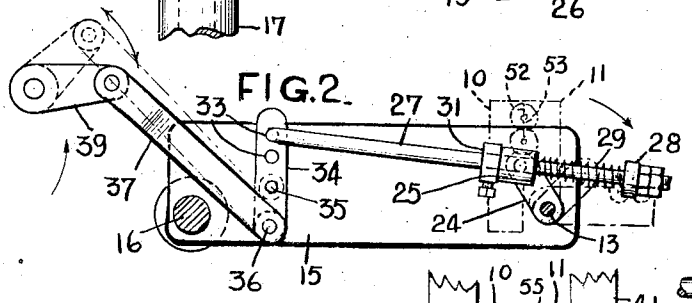


FIG. 3.

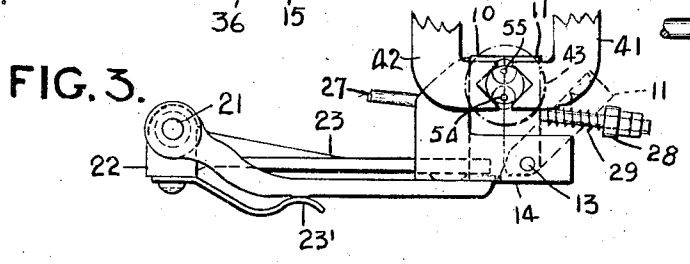
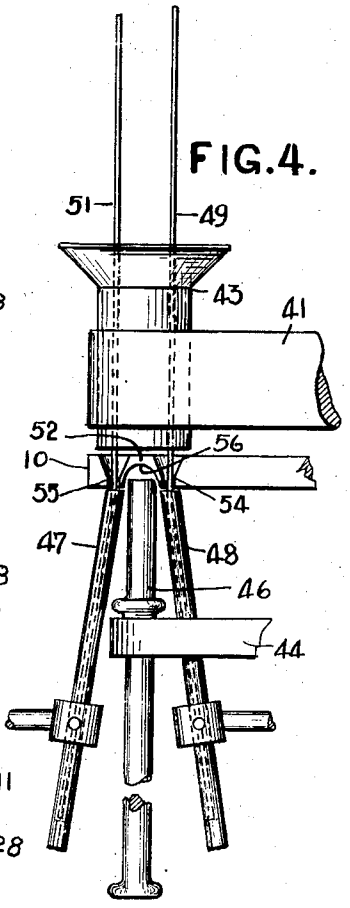


FIG. 4.



INVENTOR
OSCAR J. SCHROEDER
BY
ATTORNEY

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UNITED STATES PATENT OFFICE.

OSCAR J. SCHROEDER, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO WESTINGHOUSE LAMP COMPANY, A CORPORATION OF PENNSYLVANIA.

LEADING-IN WIRE-LOCATING DEVICE.

Application filed August 29, 1924. Serial No. 734,823.

This invention relates to lamp making machines and more particularly to an improvement in machines for manufacturing tipless lamp stems.

An object of the invention is to facilitate the assembly of stem parts and expedite production.

Another object of the invention is to provide an attachment applicable to a stem-making device to facilitate the disposition of certain component parts of the stem.

Another object of the invention is to provide an auxiliary guide member adapted for application to a stem-making machine for cooperation with other guides to facilitate the insertion of leading-in wires into the stem-making machine.

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

In certain types of machines for manufacturing incandescent electric lamp stems, several pairs of jaws are provided to hold the several glass component parts of a stem in proper relative positions until their union is effected by a heating and pressing operation.

In addition to the glass parts, the stem includes several leading-in wires or conductors which are disposed in such relation to the stem parts that when the parts are consolidated, the leading-in wires will be sealed at the point of union of the parts or in what is termed the press. The insertion of leading-in wires to their proper positions is a more or less tedious operation and requires the service of a careful and experienced operator, as the machine is indexed. This is particularly true of machines which are automatically operated at a uniform rate of movement. In some machines, pockets or tubular guides are provided for the leading-in wires as a protection against high temperatures in subsequent operations. It is necessary, therefore, for the operator not only to properly position the leading-in wires, but to thread them into the guides. Owing to the necessity of uniting the glass parts by a fusing operation, it is not practical to bring the guides up to a point where the operator may most conveniently observe them for the insertion of leading-in wires.

The present invention, therefore, aims to provide auxiliary guide pockets for use in stem heads as an aid in inserting the leading-in wires and which may be temporarily applied to the ends of the tubular pockets when a stem-making device is moved to position for the loading of the several component parts of the stem.

The present invention may include either a pair of movable members or a single movable member adapted to be positioned to provide, in conjunction with another member, a pair of auxiliary flaring guide apertures through which leading-in wires may be readily applied to tubular passages. The auxiliary guides or pockets may be so arranged that when the leading-in wires have been positioned, a portion of the pocket may be adjusted and the pockets opened to permit a movement of stem-part holding jaws to another position, the leading-in wires being also carried away from the loading position. The movable parts of the auxiliary guide may be rearranged in proper relation to a succeeding set of jaws when they reach the loading position.

Considerable advantage is derived from the present appliance inasmuch as means are provided for bringing guide slots or orifices temporarily to such position as to be within convenient reach and vision of an operator, thereby eliminating the strain which heretofore attended the insertion of the leading-in wires and greatly facilitating the manufacture of lamp stems.

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

Fig. 1 is a front elevational view of the device showing pairs of jaws holding lamp parts in operative relation thereto;

Fig. 2 is a view taken on line II—II in Fig. 1;

Fig. 3 is a plan view of the device shown in Fig. 1; and,

Fig. 4 is an enlarged detailed view showing leading-in wires in position.

An embodiment of the invention may comprise a pair of guide-jaws 10 and 11. The jaw 10 may be supported immovably upon a bracket 12 and the jaw 11 may be secured to a vertical shaft 13 and movable therewith. The bracket 12 may be provided with an extension 14 to serve as a bearing for the

shaft 13 and the lower end of the shaft may be journaled at an end of a plate 15. The plate 15 may be movable about a post 16 secured in a socket 17 suitably fastened to a stationary portion of a machine to which the device is to be applied. The plate 15 and the bracket 12 may be integral and the bracket may be provided with an arm 18 having a hub 19 journaled on a reduced portion 21 of the post 16. The hub 19 may be split and a hub 22 of a stop-finger 23 (see Fig. 3) may be fastened to the portion 21, the stop-finger serving to prevent movement of the bracket 12 in one direction and a leaf-spring 23′ secured to the hub 22 is provided to normally urge the bracket in contact with the finger 23. By reason of this construction, it will be readily appreciated that the whole bracket may be swung in a clockwise direction to a limited extent about the axial line of the post 16 to facilitate access to the machine to which the present device may be applied.

The jaw 11 is actuated by a movement of the shaft 13 about its longitudinal axis. For the purpose of producing such a movement, the shaft is provided with an arm 24 having a swiveled guide-member 25 at the exposed end thereof. The guide-member may be of tubular form and provided with a stud 26 movable in an aperture provided in the lever 24. A slide-rod 27 is slidably positioned in the swivel member 25 and is provided at one end with a collar 28 and a helical spring 29 is disposed between the collar and the swivel member to exert a force upon the arm 24 and normally maintain the jaws closed. A stop-collar 31 is, however, provided to limit the movement of the arm 24. An end 32 of the slide-rod is bent at right angles and disposed in an aperture 33 of a lever 34, pivoted at 35 upon the plate 15.

The opposite end of the lever 34 is pivotally connected at 36 to one end of an arm 37. The opposite end of this arm may be pivotally connected to an end of an oscillatory member 39. This member may be in the form of an arm secured to suitable elements to produce a rocking action as found in machines of the type to which the present invention is applicable.

A movement of the member 39 in one direction will, by reason of its engagement with the projection 38, effect an alternate pull and push upon the arm 37 to actuate the lever arm 34 and thrust the slide-rod 27, thereby causing the stop-collar 31 to engage the swivel member 25 and effect a partial rotation of the shaft 13 to open the jaw 11.

When the member 39 moves a sufficient distance, to cause the above operation, it will return and an opposite rotary movement of the shaft 13 will be produced and the jaw 11 closed. The lever arm 34 is provided with several of the apertures 33 so that the stroke of the slide-rod may be varied and the jaw opened more or less depending upon the position of the end 32 of the lever 34.

The foregoing mechanism may be applied to a machine provided with jaws 41 and 42 for gripping a flare tube 43 and jaws 44 and 45 for gripping an arbor 46. As shown, the jaws may support a flare tube and arbor and in conjunction therewith, tubular guide members 47 and 48 may be provided to receive the ends of leading-in wires 49 and 51. The guides may be provided with adjustable stop-plugs (not shown) or may be closed at the bottom to prevent the passage of leading-in wires therethrough. When the several component parts of a lamp stem are secured by the jaws, an operator passes the leading-in wires through the flare tube and into the guide-jaws.

In the present invention, the guide-jaws 10 and 11 may be arranged in such relation to a stem machine as to be positioned adjacent and upper ends of the guide-members 47 and 48 when the stem-part holding jaws and guide-members are in position to receive the several component parts of a stem. Faces 52 and 53 of the guide-jaws 10 and 11 of the present invention are provided with semi-circular grooves 54 and 55 of tapered form having the narrow end adjacent the guide-members 47 and 48, so that when the guide-jaws are closed, the grooves constitute flared guide apertures through which the leading-in wires are readily guided into the guide-members 47 and 48. The guide-jaws may be provided with a recess 56 to permit the passage of an upper end of an arbor. When the leading-in wires have been properly positioned, the device is operated to open the guide-jaw 11 after which the jaws for gripping the flare tube and arbor, as well as the guide-members 47 and 48, carrying the work-parts, may be moved away from the guide-jaws 10 and 11 and other machine elements may be positioned to receive a flare tube, arbor and leading-in wires.

Certain advantages are resident in the present construction which make the device particularly adaptable for glass handling machinery. As will be seen, the slide-rod 27 operates to tensionally retain the jaw 11 in contact with the jaw 10. Thus, any slight variation in the length of stroke of the rod 27 will not affect the operative position of the jaw, inasmuch as such movement will be accommodated by reason of the spring 29. Furthermore, if a broken work part, such as a piece of glass, becomes lodged between the jaws, the variation or interruption of the movement of the jaw will be compensated for by the spring 29 and the pressure exerted will be only that due to the compression of the spring and no excess strain will be created in the positively movable elements

of the device. The swiveled guide 25 serves to provide a flexible operating structure and permits a relative movement of the parts to provide for a full stroke of the slide-rod 27.

The present device is applicable to various types of machines which provide movable mechanism with which the device may be associated and when such a device is employed, the leading-in wires may be quickly inserted into their respective positions without the skill as required heretofore. The illustrated embodiment of the invention shows jaws for securing the glass parts of a stem and the positioned tubular guides.

It will be understood that after the leading-in wires have been positioned, the lamp part gripping jaws and the tubular guides may be moved away, the jaw 11 being opened to permit the required lateral movement of the leading-in wires from the inserting or loading position. As, for example, in the direction of the arrow "X" to another station or stage at which the arbor may be moved upwardly until it is positioned within the lower end of the flare tube. Heat is then applied to the flare tube adjacent the end of the arbor and until the two parts become plastic, at which time they are pressed and consolidated together.

When a flare tube and arbor are employed, the stem is used in a lamp of the tipped-type. However, mechanism may be employed to insert what is termed an exhaust tube which is consolidated with the arbor and flare tube in the manner above described.

It will be appreciated that any desirable type of lamp stem may be manufactured when using the present device and the present invention has to do with the mechanism for facilitating the entrance of leading-in wires to their proper positions for union with the other component parts of a stem.

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

What is claimed is:

1. A machine for making incandescent lamp stems comprising means for supporting stem parts, a guide for a leading-in wire and an auxiliary guide adapted to cooperate with the first mentioned guide to facilitate the entrance of a leading-in wire therein.

2. A machine for making incandescent lamp stems comprising means for supporting component parts of a stem in axial alignment, a plurality of guides for leading-in wires and an auxiliary guide adapted to be temporarily positioned adjacent said first mentioned guides to facilitate the entrance of leading-in wires therein.

3. A machine for making incandescent lamp stems comprising a plurality of tubular members to receive leading-in wires and a pair of guide members adapted to provide a temporary guide to facilitate the entrance of leading-in wires into said tubular members.

4. A leading-in wire guide comprising a pair of guide-jaws having grooves to provide a guide aperture when the jaws are closed and means for moving one of said jaws to permit a lateral movement of the wires from the guide.

5. A leading-in wire guide comprising a pair of guide-jaws, each of said jaws having a pair of grooves to provide passages for leading-in wires when the jaws are closed and means for changing the relative positions of the jaws to permit a removal of leading-in wires.

6. A leading-in wire guide comprising a fixed member and an oscillatory member, each of said members having faces with two longitudinal grooves, the grooves on opposite members serving when the said faces are in contact to cooperate and provide guide passages for leading-in wires.

7. A leading-in wire guide comprising a fixed member and an oscillatory member, each of said members having faces with two longitudinal grooves, the grooves on opposite members serving when the said faces are in contact to provide guide passages for leading-in wires and means for moving one of said members to permit a lateral movement of leading-in wires from position in said passages.

8. In a stem-making machine having a movable member, a guide for leading-in wires comprising a support, a pair of guide-jaws mounted on said support, and means associated with said jaws for cooperation with said movable member to open said jaws.

9. In a stem-making machine, a pair of guide-members comprising one movable member and a fixed member, grooves in opposite faces of said members, said grooves serving as guide-passages when the jaws are closed and means for operating said jaws in a given relation to said stem machine.

10. A stem-making machine comprising means for supporting glass stem parts, guides for supporting leading-in wires in a given relation to said stem parts and means for providing temporary continuations of said guides to facilitate the entrance of leading-in wires therein.

11. A stem-making machine comprising means for supporting glass stem parts, guides for supporting leading-in wires in a given relation to said stem parts and means for providing temporary continuations of said guides to facilitate the entran e of leading-in wires therein and means for removing said temporary guide to permit a lateral movement of said leading-in wires away from said guide-jaws.

12. A stem-making machine comprising

means for supporting glass stem parts, tubular guide-members to receive and hold leading-in wires in a given position with relation to said glass parts, a rigid member and a movable member, means for moving said members in contact with each other, a pair of grooves upon each contacting surface of said members, said pairs of grooves serving when the jaws are closed to provide temporary guides to facilitate the entrance of leading-in wires into said guide-members.

In testimony whereof, I have hereunto subscribed my name this 23rd day of August, 1924.

OSCAR J. SCHROEDER.