

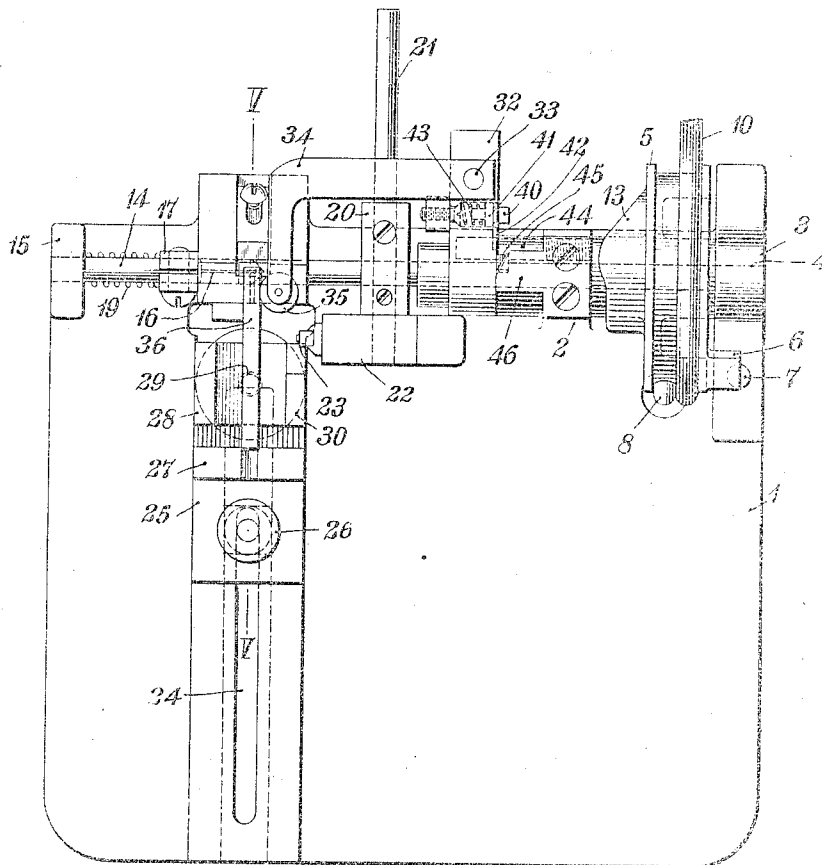
G. W. BEADLE.  
MACHINE FOR MANUFACTURING INCANDESCENT LAMPS.  
APPLICATION FILED NOV. 22, 1909.

971,515.

Patented Oct. 4, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS-SHEET 2.

Fig. 2.

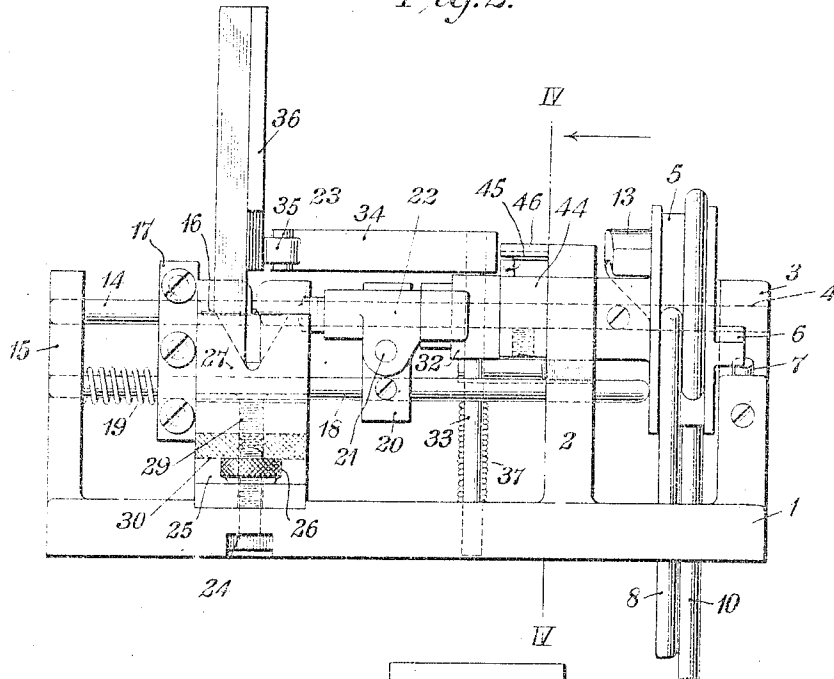
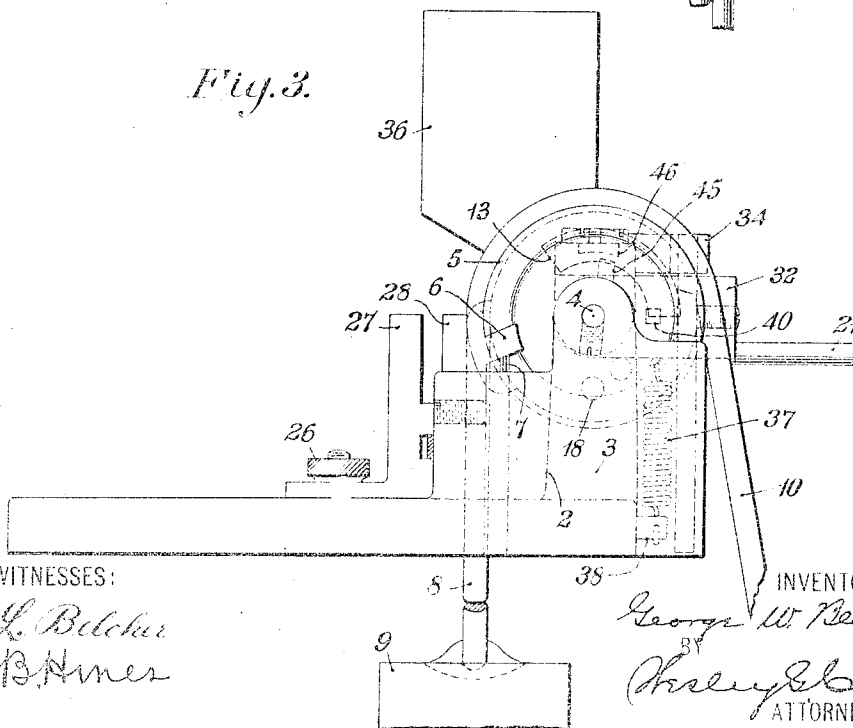


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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MACHINE FOR MANUFACTURING INCANDESCENT LAMPS.

971,517.

Specification of Letters Patent.

Patented Oct. 4, 1910.

Application filed November 22, 1909. Serial No. 529,333.

*To all whom it may concern:*

Be it known that I, GEORGE W. BEADLE, a citizen of the United States, and a resident of East Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Machines for Manufacturing Incandescent Lamps, of which the following is a specification.

My invention relates to machines that are employed in the manufacture of incandescent lamps, and it has for its object to provide a machine by means of which the extremities of filament-supports or anchors may be suitably shaped and the stems of the lamps marked with the voltage thereof or with other data relating thereto.

It has become a customary practice, in the manufacture of electric incandescent lamps, to support the longer filaments at one or more intermediate points by means of anchors that are mounted in and project from the lamp stems. The extremities of the filament-supports or anchors are usually hook-shaped, or are otherwise suitably formed, for attachment to the filaments, and the stems are usually marked with the lamp voltages, or with other data relating to the lamps. The forming of the hooks upon the extremities of the anchors and the marking of the stems have heretofore been separate and independent operations, and the operations have usually been performed manually. The present invention provides a machine for performing both of these operations simultaneously and expeditiously.

Figure 1 of the accompanying drawings is a plan view of a machine embodying the present invention. Fig. 2 is a view, in front elevation, of the machine. Fig. 3 is a view, in end elevation, of the machine. Fig. 4 is a view in end elevation and in section along the line IV—IV of Fig. 2. Fig. 5 is an enlarged end and sectional view of some of the parts along the line V—V of Fig. 1, and Figs. 6 to 12, inclusive, are enlarged side and sectional views of the main shaft and of the mandrel of the machine in different relative positions, and illustrate the manner in which hooks are formed upon the extremities of the filament anchors.

The machine comprises a base member 1 having bearing posts 2 and 3 for the main shaft 4 upon one end of which, and between the bearing posts 2 and 3, is mounted a driving pulley 5, having a projection 6 upon its

outer annular face that is normally maintained in engagement with an adjustable stop 7 by means of a belt 8, from the free end of which a weight 9 is suspended. The driving pulley 5 and the shaft 4 may be rotated in opposition to the pull upon the belt 8 through an angle of approximately 180° by means of another belt 10, that is attached to the pulley and passes over it in the opposite direction from the belt 8 and to the free end of which a pedal (not shown), or other suitable means, for manually operating the same may be attached. Upon the inner face of the pulley 5 is an annular boss 13 having a cam surface that serves a purpose which will be explained hereinafter. The end of the shaft 4, opposite that to which the pulley 5 is attached, is provided with a lateral transverse slot 11 that extends into the shaft to a depth somewhat greater than half its diameter, and a drilled central longitudinal recess 12 that extends into the shaft some distance beyond the slot 11 and communicates therewith.

Mounted at the end of a rod 14, that is supported by a post 15 in alignment with the shaft 4 so as to be capable of longitudinal reciprocation, is a pin or mandrel 16 that projects into the end recess 12 in the shaft 4. The rod 14 is connected, by means of clamp 17, to another rod 18 that is capable of reciprocation and for which guide bearings are provided in the posts 15 and 2, the rods 14 and 18 being normally maintained in the positions illustrated by means of a helical compression spring 19 that surrounds the shaft 18 and is interposed between the post 15 and the clamp 17. One end of the rod 18 extends beyond the post 2 and into the path of movement of the boss or cam 13, by which it is reciprocated. Secured upon the rod 18, but so as to be capable of adjustment longitudinally thereof, is a bracket 20 in which another rod 21 is similarly secured at right angles to the rod 18, a block 22, having a marking device 23 upon one end face, being mounted upon one end of the rod 21. The marking device 23, by reason of the peculiar character of its supporting means, is adjustable to any desired position and is reciprocated simultaneously with the rod 18 and the mandrel 16, it being thus moved into and out of engagement with the lamp stem.

The base 1 is transversely recessed and

slotted at 24 to provide a guide for a holder for the lamp stem while it is being operated upon by the machine, the said holder comprising a main block 25 that may be secured in any desired position in the recess 24 by means of a thumb nut 26, the said block having a relatively narrow vertically extending portion 27 that is slotted for the reception of the terminal leads that project through the lamp stem. The lamp stem is seated, as shown in Fig. 5, in a V-shaped slot in the upper end of a second block 28 having a supporting stem 29 that extends downwardly through an aperture in the block 25 and upon which a thumb nut 30 is threaded for the purpose of adjusting the height of the block 28, the nut 30 being located in a horizontal slot in the block 25.

Loosely mounted upon the main shaft 4, and projecting rearwardly therefrom is an arm or bracket 32, in the free end of which a rod 33 is adjustably secured, the said rod carrying upon its upper end an L-shaped arm 34 at the free end of which is a roller 35 that normally engages an inked pad or plate 36 and by means of which ink is applied to the marking device 23. The rod 33 being adjustably mounted in the arm 32, permits of adjusting the roller 35 to correspond to the position of the marking device 23. In order to normally retain the roller in the position indicated in the drawings, a helical tension spring 37 is stretched between the block 32 and a pin 38 that is attached to the base 1. One face of the arm 32 is recessed for the reception of a pin 40 that is provided with a flange 41 at its middle and is retained in the said recess by means of a perforated cover plate 42, a helical compression spring 43 serving to press the pin 40 outwardly. Projecting from the circumferential surface of a cylindrical member 44, that is rigidly attached to the main shaft 4, is another pin 45 that is adapted to engage the outer end of the pin 40 and to thereby effect counter-clockwise rotation of the arm 32 and the roller 35 simultaneously with the shaft 4, one face of the pin 45 being beveled or inclined to its plane of movement so that, when rotated in a clockwise direction, it will first press the pin 40 inwardly, then pass it and finally engage it upon its lower side. During counter-clockwise rotation of the arm 32, the pin 40 is brought into engagement with the inclined face of a projection 46 at the top of the bearing post 2, the pin 40 being thus forced inwardly until it becomes disengaged from the pin 45, whereupon the spring 37 effects a quick return of the arm 32 and the roller 35 to their normal positions, the pin 45 continuing its movement for a short distance after the pin 40 has become disengaged therefrom.

In the operation of the machine, a lamp

stem 47 is placed upon the support which is provided therefor, with its cylindrical portion seated in the V-shaped slot in the top of the block 28 and with its flared end against the part 27, either or both of the leads 48 projecting through the slot in the said part, and the anchor or filament support 49 that is in the stem being inserted in the transverse slot in the end of the shaft 4 above the mandrel 16 and so as to lie substantially in the vertex of said slot 11, as illustrated in Fig. 5. After the stem and anchor are placed in position, the shaft 4 is given a clockwise rotary motion by applying tension to the belt 10. During its rotation, the shaft 4 bends the end of the anchor 49 around the mandrel 16, as illustrated in Figs. 7 to 10, inclusive, the boss 13 upon the inner face of the pulley 5 being brought into engagement with the end of the rod 18 to effect longitudinal movement thereof against the pressure of the spring 19 and cause partial withdrawal of the mandrel 16 from the recess 12 in the end of the shaft 4, *i. e.*, until it no longer projects into the lateral slot 11. The purpose of effecting withdrawal of the mandrel 16 from the slot 11 is to permit of ready removal of the anchor 49 from the said slot after a hook has been formed upon its end, these operations being illustrated by Figs. 10 to 12, inclusive. While the mandrel 16 is being partially withdrawn from the recess in the end of the shaft 4, the marking device 23 is brought into engagement with the flat portion of the stem of the lamp, and the voltage of the lamp or other desired data is thereby applied to the flattened end portion of the stem. Upon releasing the belt 10, the pulley 5 and the shaft 4 are rotated in a counter-clockwise direction by the weight 9, and the pin 45 which has engaged the pin 40 during the clockwise movement of the shaft 4, now effects a counter-clockwise rotation of the arm 32 and of the roller 35, the roller 35 being thus moved out of engagement with the inked pad 36, and into engagement with the marking device 23. Just prior to the completion of the counter-clockwise rotation of the shaft 4, the pin 40 is released from the pin 45 by the projection 46, and the arm 32 and the roller 35 are then returned, by the spring 37, to their normal positions, the roller being thus removed from the immediate vicinity of the stem so as to permit of its ready removal from the machine.

I claim as my invention:

1. A machine of the character described comprising a rotatable member, a mandrel cooperating therewith, means for reciprocating the mandrel as the member is rotated, a marking device that is reciprocated simultaneously with the mandrel, an inker for the marking device, means carried by the rotatable member for causing the inker to en-

gage the marker, and means for releasing the ink when the rotatable member has moved through a predetermined angle.

2. A machine of the character described comprising a rotatable member having an end recess and a lateral slot connecting with the recess, a mandrel projecting into the said recess, means for reciprocating the mandrel into and out of the said slot as the said member is rotated, a marking device that is reciprocated simultaneously with the mandrel, an ink for the marking device, means carried by the rotatable member for causing the ink to engage the marker, and means for releasing the ink when the rotatable member has moved through a predetermined angle.

3. A machine of the character described comprising a rotatable member, a reciprocatory mandrel cooperating therewith, a re-

ciprocatory marking device, an ink for the marking device that is biased toward a position out of engagement with the marking device, means carried by the rotatable member for causing the ink to engage the marker, and means for releasing the ink when the rotatable member has moved a predetermined distance.

4. A machine of the character described comprising a rotatable member, a reciprocatory mandrel cooperating therewith, and a reciprocatory marking device.

In testimony whereof, I have hereunto subscribed my name this 12th day of November, 1909.

GEORGE W. BEADLE.

Witnesses:

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