Feb. 5, 1935. D. G. TRUTNER 1,989,898

SEALING-IN APPARATUS

Filed July 19, 1933 5 Sheets-Sheet 1

Fig.1.

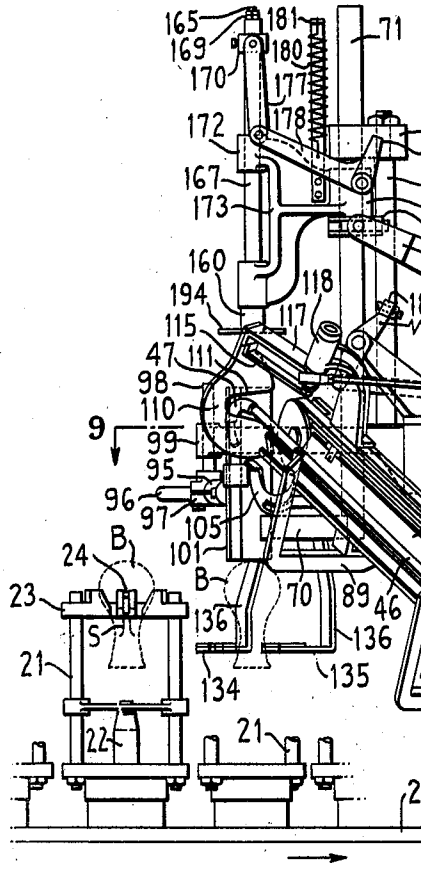


Fig.2.

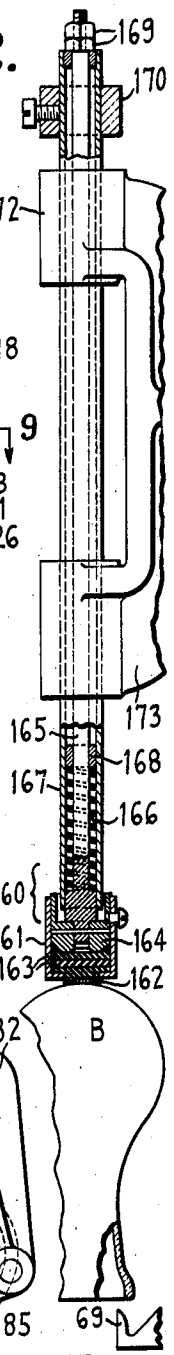
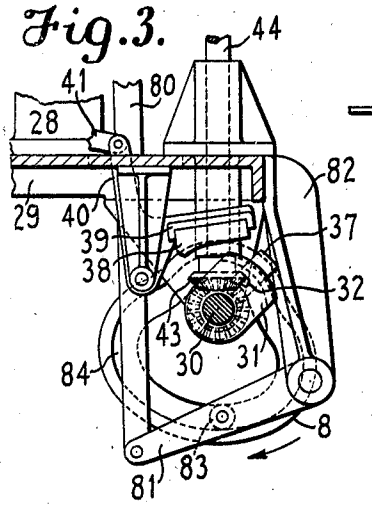


Fig.3.



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SEALING-IN APPARATUS

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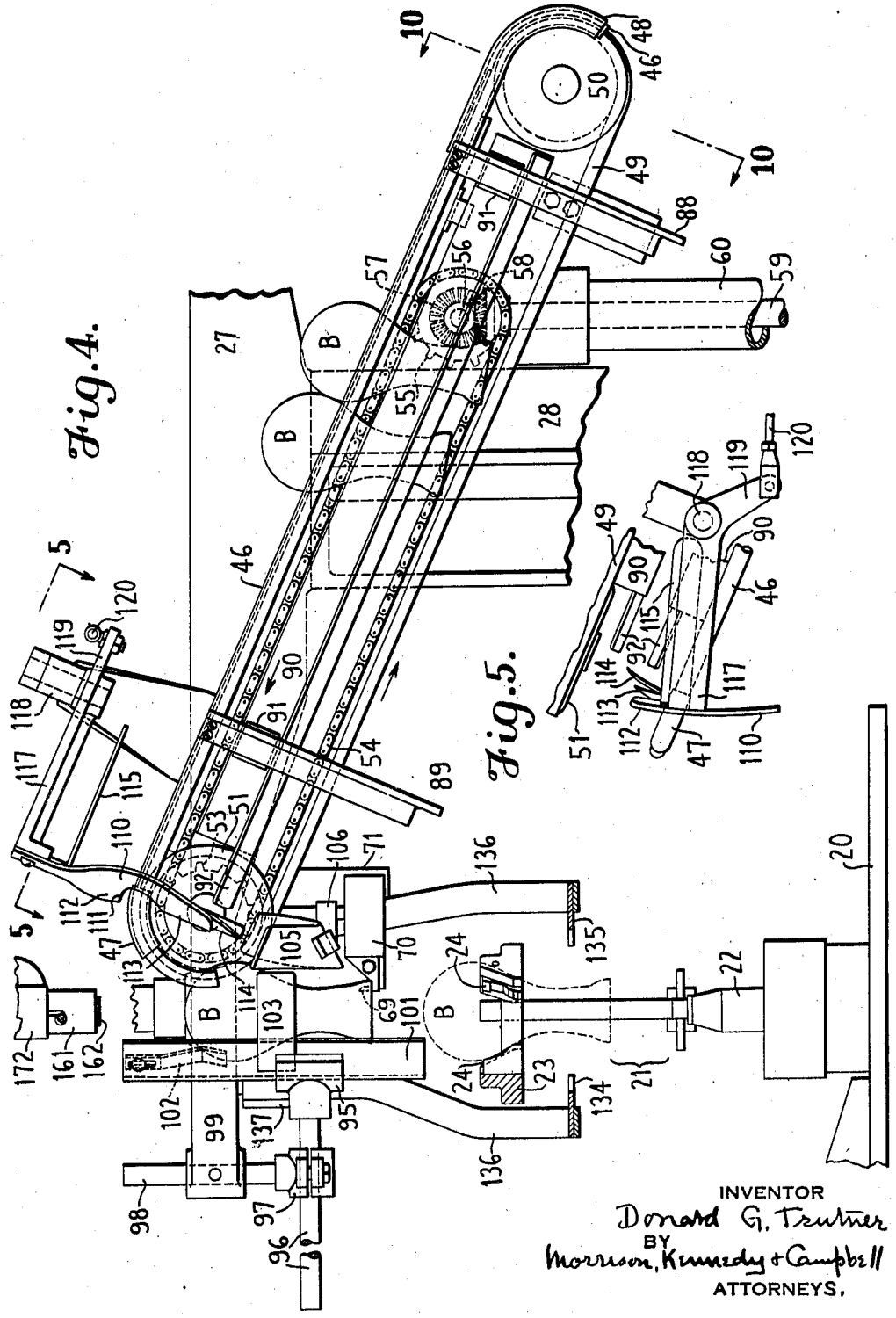


Fig. 4.

Fig. 5.

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SEALING-IN APPARATUS

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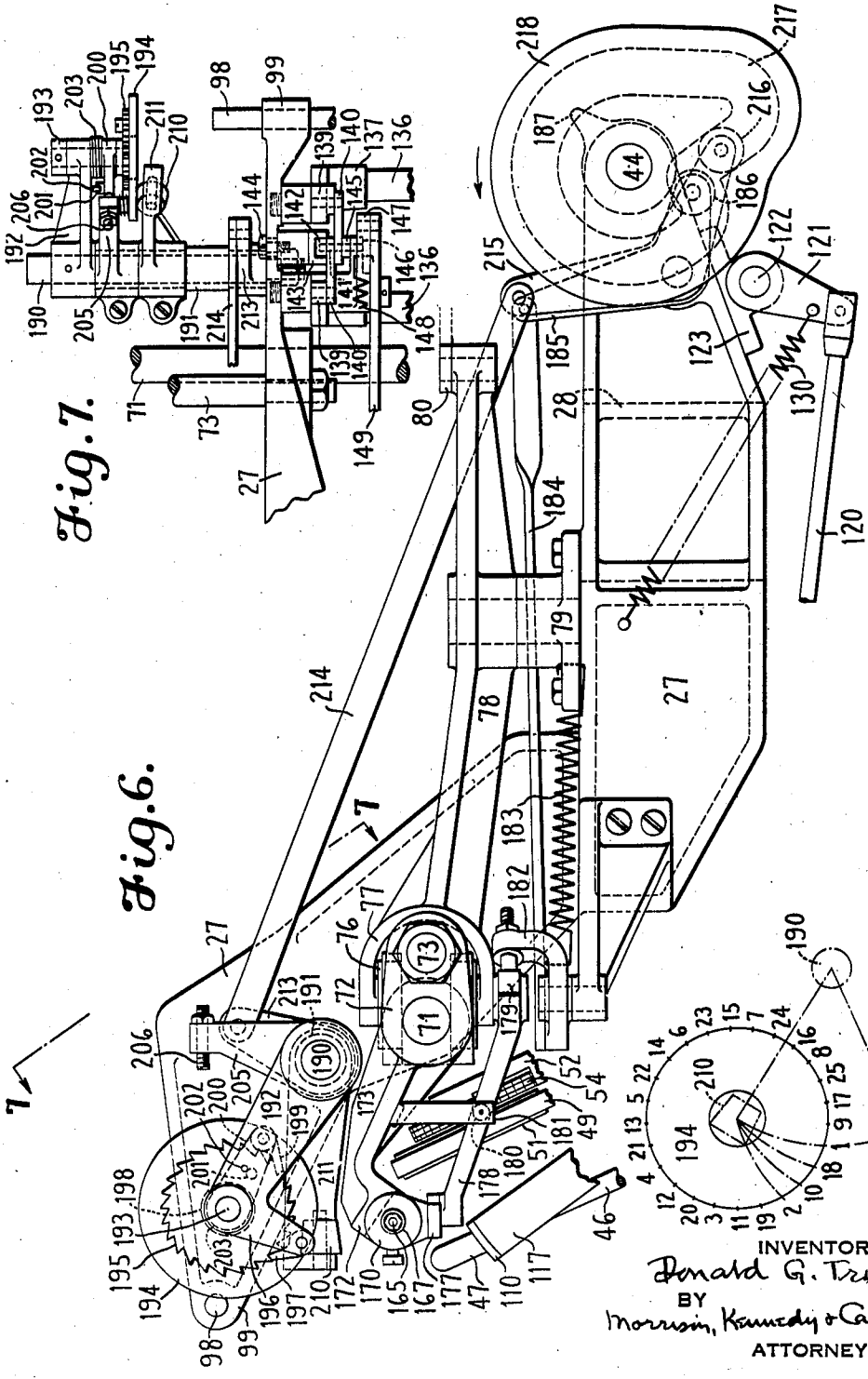


Fig. 7.

Fig. 6.

Fig. 8.

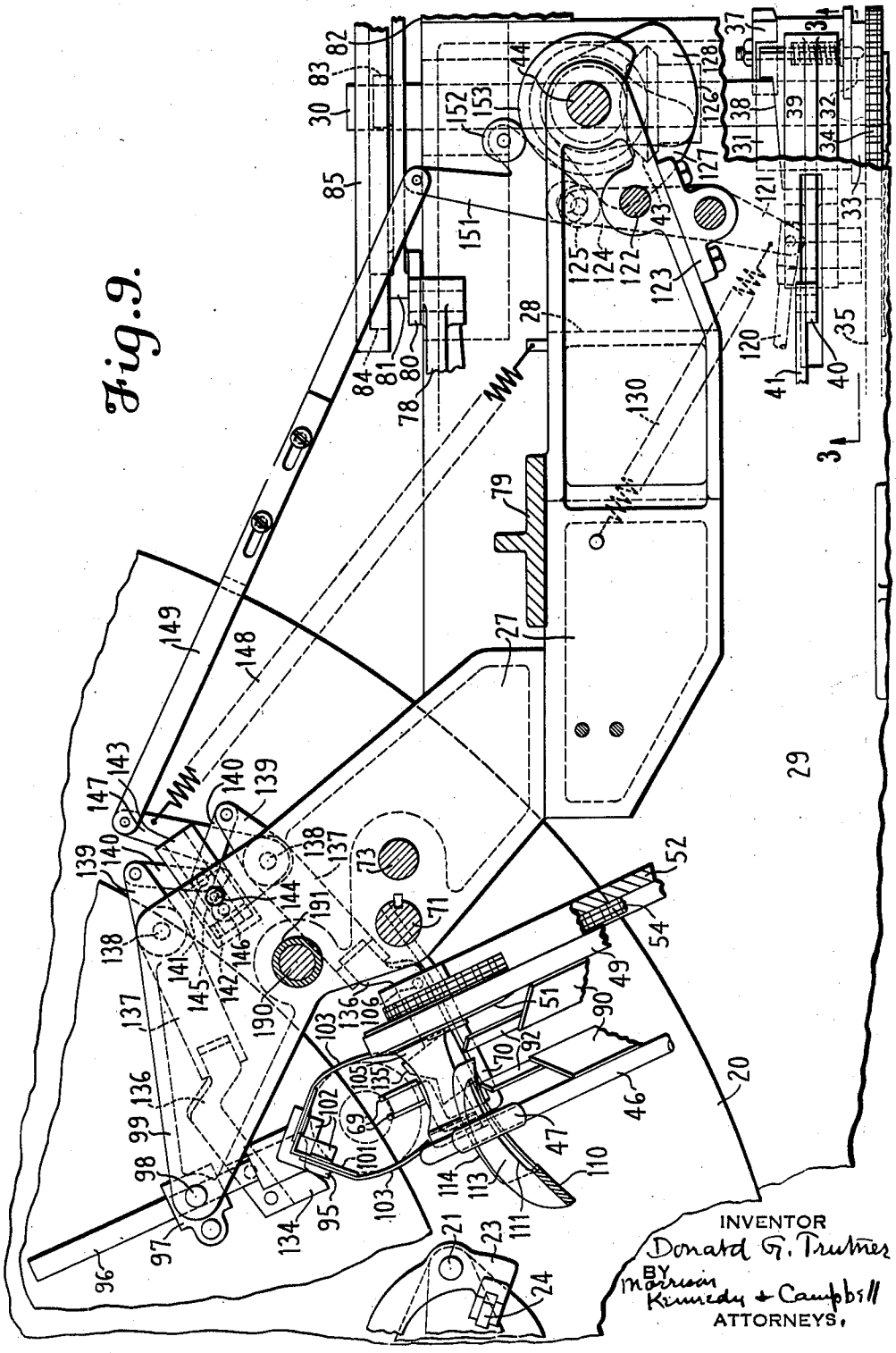
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SEALING-IN APPARATUS

Filed July 19, 1933 5 Sheets-Sheet 4

Fig. 9.



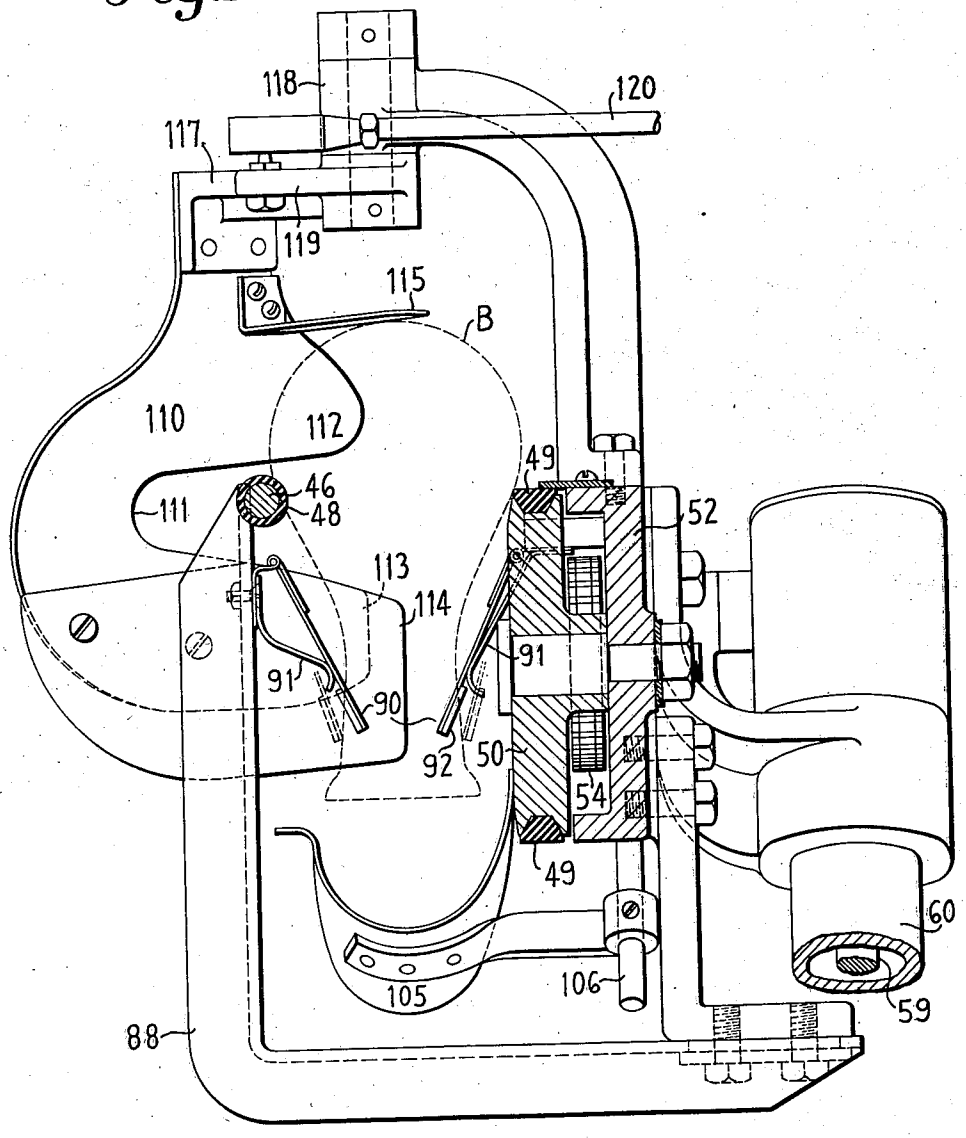
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SEALING-IN APPARATUS

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Fig.10.



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UNITED STATES PATENT OFFICE

1,989,898

SEALING-IN APPARATUS

Donald G. Trutner, North Arlington, N. J., assignor to Alfred Hofmann & Company, West New York, N. J., a corporation of New Jersey

Application July 19, 1933, Serial No. 681,049

11 Claims. (Cl. 101—35)

This invention relates to a sealing-in apparatus, such as is used in the manufacture of incandescent electric lamps, the invention pertaining more particularly to the handling and feeding-in of the bulb element of the lamp. The particular utility of the invention is to bring about the assembling of the bulb and stem elements of the lamp, in a suitable unit or head, preparatory to the sealing-in, that is, the fusing together or uniting of the elements, prior to the steps of exhausting and tipping-off or finally sealing the lamp. The present invention is shown as applied to the type of sealing-in apparatus wherein is a rotary carrier or turret having a series of heads each comprising a holder for the bulb and a holder for the stem, holding them in proper relation for the sealing-in operation; an example of which is shown in pending application of Anderson et al., filed June 30, 1933, Serial No. 678,360.

The general object of the present invention is to improve sealing-in machines by rendering more efficient and reliable the infeeding of lamp bulbs to the holders or heads. Another object is to bring about in an effective manner the marking or etching of the lamps with suitable designations such as trade names and data pertaining to the product. A further object is to provide a means of detecting the presence or absence in each head of a lamp stem and thereby controlling the infeed of the bulb, permitting the bulb to be fed to the head only when a stem is present. Other and more detail objects and advantages of the invention will be explained in the hereinafter following description of an illustrative embodiment thereof or will be understood by those skilled in the subject. To the attainment of such objects and advantages the present invention consists in the novel sealing-in apparatus, and bulb handling and feeding mechanism, and the novel features of combination, operation, arrangement and construction, herein illustrated or described.

In the accompanying drawings Figure 1 is an exterior, or what will be considered a front, elevation of a portion of a sealing-in apparatus, including lamp bulb handling mechanism, embodying the present invention. Fig. 2, on a larger scale than Fig. 1 or 4 or 6, is a front elevation partly in central section of details of the marking devices. Fig. 3, on the same scale as Fig. 1, is a front elevation partly in section on the line 3—3 of Fig. 9. On sheet 2, Fig. 4 is a partial elevation view on a larger scale than Fig. 1, looking at an angle between front and left, or at right angles to the infeeding conveyor. Fig. 5 is a top plan view seen in a slanting direction as indicated by the line 5—5 of Fig. 4. On sheet 3, Fig. 6 is a top plan view of a part of the apparatus on a scale larger than Fig. 1 or 4. Fig. 7 is a partial elevation looking at an angle from the right-rear, as indicated by the line 7—7 of Fig. 6. Fig. 8 is a diagram explanatory of the operation of the marking devices.

On sheet 4, Fig. 9 is a top plan view partly in section on the line 9—9 of Fig. 1, on the same scale as Fig. 6, and partly broken away to show underneath parts.

On sheet 5, Fig. 10 is a partial elevation looking from the right-front, and looking at an upward incline, as indicated by the dotted line 10—10 in Fig. 4, on a larger scale than any other figure.

The traveling carrier or rotary turret 20 is partly indicated in Figs. 1, 4 and 9. This carries a series of heads 21, each comprising a device 22 for holding a stem element S and a device or ring 23 for holding a bulb element B. The bulb holder is preferably of C-shape or open at one side, as indicated, and provided with three supporting contact points 24 on which the bulb rests in centralized position over and partly surrounding the stem. While the head is to rotate during sealing-in it will stand as shown with the open side of the bulb holder at the front during infeeding, and the device or elevator which lowers the bulb to position passes through this opening.

On Fig. 1 is indicated the bulb element B in two positions, these showings being in dotted lines only since no bulb will actually occupy the designated positions at the stage of operation shown in Fig. 1; one of the dotted positions being the position that the bulb will subsequently occupy in the head 21 and the other being the completely lowered position of the bulb in the feeding mechanism.

With the present invention instead of manually feeding the bulbs into the holders 23 this operation is performed automatically by the infeeding mechanism hereof, to which the bulbs are supplied, either by hand, or if desired, from a hopper. The mechanism of the present invention is mounted on a frame comprising generally an upper frame part or table 27, vertical frame parts 28 and a lower frame part or table 29, this entire frame being connected to the frame of the main machine, or mounted on the same base.

The coordinated operations of the mechanisms hereof may be effected from a horizontal main shaft 30 having its bearings in brackets beneath the lower table 29. The main shaft 30 may at

times be uncoupled from its driving source by the following means. Turning with the main shaft is a clutch block 31 as seen in Figs. 3 and 9. Sliding in the clutch block is a clutch pin 32 spring pressed into clutching engagement in a hole in a clutch disk 33 turning loose upon the shaft. Connected to the clutch disk is a gear or sprocket wheel 34 constituting a driving member and shown as actuated by a driving chain 35. The driving chain 35 will be understood as coordinated with the drive of the turret and other parts of the main machine; and the engagement between the clutch members 31 and 33 being a positive or dog engagement, the main shaft 30 is operated always in proper coordination.

Means is shown for uncoupling the clutch. Thus a projecting lug or dog 37 is shown mounted in the clutch member or block 31 and arranged to be displaced axially thereto to withdraw the clutch pin 32 against its spring pressure. The clutch dog 37 may be thrown or wedged rearward for this purpose by a tripping member or block 38 mounted on a lever 39 pivoted to a fixed bracket. The lever has an upstanding arm 40 connected by link connections 41 to a suitable point of control. For example, adjacent to the rotary turret, there may be a detecting means or feeler detecting the presence or absence of a stem in each head 21. Preferably the block 38 drops during each cycle, while the head 21 is coming into position, but if the head contains a stem the block is raised again before the clutch has rotated to releasing position. Thus, so long as the heads advance with stems therein the clutch will remain coupled, and the main shaft 30 will continue in rotation; but on the absence of a stem the connections 41 will allow the lowered tripping block 38 to remain in the path of the dog 37 and thus cause the withdrawal of the clutch pin 32, leaving the main shaft uncoupled, thus avoiding the infeeding of a bulb to the head containing no stem.

The main shaft 30 is one of the controlling shafts of the mechanism and it carries a sprocket wheel 65 and a cam 85 for certain operations. By bevel gears 43 the main shaft drives a vertical shaft 44 which also is a controlling shaft and carries cams 126, 153, 187 and 218, for operations to be described.

The initial infeed of bulbs may be along an upslanting or elevating chute consisting of opposed rails 46 and 49 on which the bulbs rest with their skirts depending. At least one of these rails, namely the right rail 49 in Figs. 1, 9 and 10 is movable and comprises friction material as rubber, so that the succession of bulbs is frictionally conveyed upwardly along the slanting chute. They may be rolled on rail 46 by rail 49, and the rail 46 may have near its upper and lower ends friction coverings or rubber sheaths 47 and 48.

Before describing the details of the chute the driving of the traveling rail 49 will be described. It passes around a lower front pulley 50 and an upper rear pulley 51, these being mounted on an inclined bracket 52 which is mounted upon a column 60 to be described. Adjacent the upper pulley is a sprocket wheel 53 driven by a sprocket chain 54 from a sprocket wheel 55 near the lower end of the chute. This manner of drive maintains the rubber rail or belt taut. The lower sprocket wheel 55 is on a shaft 56 which extends rightward and carries a bevel gear 57 engaging a bevel gear 58 on a shaft 59, which extends downwardly through a hollow column 60. By means of bevel gears 62 at its lower end the shaft 60 is driven from a sprocket wheel 63 actuated by a chain 64 engaging with a sprocket wheel 65 mounted directly on the main shaft 30. By this means the chute is maintained in feeding operation as long as the main shaft is running, the feeding however ceasing along with the other operations whenever, by the absence of a stem element, a bulb is not to be fed to the head.

After each bulb passes over the top end of the feed chute it is received by a device which will be termed an elevator that lowers the bulb into position in the head. The bulb may be received by the lower edge of its skirt entering a pair of hooks 69, see Figs. 2, 4 and 9, projecting into the path of the descending bulb from a U-shape member 70 constituting the elevator, see also Fig. 1. From the position of the elevator hooks 69 it will be seen that they will pass without conflict through the open front side of the bulb holder 23 of the traveling head 21 during the lowering of the bulb into the head. After the head has traveled somewhat beyond receiving position the elevator is again lifted to normal position. The bent or U-shape of the elevator 70 provides space to accommodate one of the centering members to be described.

For its down and up movements the elevator 70 is attached to a vertical slide rod 71 passing through the frame part 27 as a lower bearing and with an upper slide bearing 72 at the top end of a fixed bracket 73. The elevator rod may have a flat side or a spline preventing its rotation. The rod is shown as having secured to it a collar 75, at the lower end of which is a crosshead 76, guided by the fixed bracket 73. This crosshead is grooved to receive studs from a fork 77 at the left end of a rocking lever or walking beam 78, the middle part of which is pivoted on a bracket 79, so that the rocking of the beam 78 effects the down and up movements of the rod 71 and elevator. These parts may be actuated by a long connecting rod 80 extending from the right end of the walking beam downwardly to the swinging end of a cam lever 81, this cam lever being pivoted on a fixed bracket 82 and having a stud or roller 83 engaging the groove 84 of a cam 85 mounted on the main shaft 30. The cam is timed so that in each cycle the elevator is raised to receive a bulb, is then lowered to transfer the bulb from the feed chute to the head 21 and subsequently is retracted partly to an intermediate position, nearer to its lower than to its upper position.

Auxiliary guide means may be employed to insure each bulb keeping its substantially vertical position throughout its feeding movements. Commencing with the chute, see Figs. 4, 9 and 10, the left or fixed chute rail is shown supported by a lower U-shape bracket 88 and a similar upper bracket 89. Depending from these brackets and from the fixed parts at the opposite side of the chute are a pair of light guide plates 90 held slantingly in the path of the bulb skirt by springs 91, so as to exert a light resilient symmetrical pressure at the two sides of the bulb skirt. At the back of each plate 90 is shown a strip 92 which at the upper end of the chute is extended beyond the plate to give guidance substantially to the point of delivery.

As each bulb passes over the chute top end for its downward passage it comes into contact with a rear guide means. A guide support 95 is shown mounted on a stem 96 which extends horizontally rearward and is slidably adjustable in a fixed bracket 99. This affords universal adjustment to

the back guide means, consisting of vertical guide plates 101 mounted at an angle to each other on the guide support 95. Near the top end of each plate 101 is a light spring 102 acting as a cushion to prevent damage to the bulb delivered from the chute. For side guidance there is shown attached to each plate 101 a side strip 103 which may be springy and may be suitably bent to give symmetrical lateral guidance to the descending bulb.

At the front, the rails 46 and 49 of the chute afford guidance to a substantial distance beyond the high point of the chute, as seen in Fig. 4. Therebelow is shown a supplemental front guide 105 in the form of a U-shape plate or strip having a sloping lower portion insuring that the skirt will be delivered properly to the hooks 69 of the elevator 70. The front guide 105 is adjustably mounted on a fixed bracket 106. By these several means the successive bulbs, applied to the chute by hand, are advanced upwardly along the chute, delivered rearwardly from its upper end and guided vertically downward, the elevator taking control of the descent, and lowering each bulb accurately into proper position within the traveling head of the turret.

In order to prevent the feed of more than one bulb in each cycle there is provided a guard or gate 110 at the top of the feed chute, the same being shiftable out of the path of travel of the bulbs to permit a single bulb to pass out of the chute, and then shiftable back to guard against the feed of a second bulb until the next cycle. The gate 110 is shown as consisting of a light plate having a deep notch 111 to accommodate the fixed rail 46 of the chute, see Figs. 1, 4, 9 and 10. Above the notch is an extension or upper finger 112 adapted to stand in the path of the convex part of the bulb, and below the notch is a lower finger 113, attached to which is an extension piece 114 properly bent and configured to contact the skirt of the bulb. The guard is also provided with a horizontal top plate or finger 115 arranged to pass above the top of the bulb and prevent its accidental lifting.

In order to swing the guard 110 into blocking position and to retract it outwardly to permit the advance of each bulb it is shown mounted upon a support 117 in the form of a swinging arm turning on an inclined fulcrum 118 having an extension arm 119 connected by a universal pivot with a rod 120 by which the guard may be cam-actuated in proper timing with the other operations. The connecting rod 120 extends rightward and its right end, see Fig. 1, and dotted lines Fig. 9, is pivoted to a forwardly extending arm 121 mounted at the top end of a short vertical shaft 122 turning in a fixed bearing 123 having at its lower end a rearwardly extending arm 124 carrying a stud or roller 125 contacted and operated by a cam 126 on the vertical shaft 44. The cam 126 is shown composed of two sections or cam plates 127 and 128 mounted upon a hub 129, these plates being relatively adjustable to alter the timing of the cam, since for a larger bulb the guard should retract for a longer period than for a smaller bulb in order to resume its proper guarding position behind each fed bulb. A spring 130 pulling on arm 121 holds the follower to its cam.

Means for centering the skirt of the bulb B in the head 21 after its deposit therein by the elevator 70 is shown in the form of symmetrically opposed centering members or fingers, 134 at the rear and 135 at the front, see Figs. 1, 4 and 9. The two fingers are carried on bent supports or strips 136 having substantial vertical dimension and attached at their top ends to swinging arms 137 mounted at the under side of the frame part 27. These arms are arranged to swing symmetrically about fulcrums 138, and beyond the fulcrums are short arms or extensions 139. For swinging these symmetrically there are provided a pair of links 140 pivoted to the ends of the arms, the other ends of the links pivoted to each other by a pivot pin 141. The pin 141 is extended upwardly as seen in Fig. 7 and enters a slide-piece 142. This slide piece is arranged to slide longitudinally in a grooved block 143 fixed at the under side of the table 27, thus to guide the movements of pin 141. For initial adjustment the block can be shifted slightly laterally to insure that the centering fingers will operate symmetrically, there being a bolt 144 passing through a slot in the table and engaging the block to hold it in its adjusted position.

For operating the links 140, as guided by slide piece 142 the pivot pin 141 is shown as extending into a third link 145, and the other end of link 145 connects with the short arm 146 of a bell crank having a long arm 147.

For operating the described elements the arm 147 is pulled in one direction by a spring 148 and operated in proper timing by connecting rod 149 which extends to a bell crank lever 151 carrying a cam roll or follower 152 running on the periphery of a cam 153, the spring holding the follower to the cam. The cam 153 is mounted on the upright shaft 144 above the cam 126 and below the cam 187, already mentioned. The illustrated timing of the cam 153 causes the centering fingers 134, 135 to be drawn towards each other symmetrically, by the spring 148, so as to contact gently the rear and front sides of the skirt of the bulb, each centering finger having a V-shape centering notch, so that the bulb is brought to accurate upright position; the fingers immediately retracting to permit the shift of the turret and the bringing of a new head into receiving position.

It is of advantage to apply marking to each bulb during its infeed to the sealing-in machine. A marking instrument 160 is shown located centrally above the bulb position adapted to descend and impress the marking centrally upon the top of the bulb. While various types of marking may be used it is herein preferred to mark by application of liquid, in this case preferably an etching fluid or acid, which is applied like printing with ink and produces a permanent designation as to the character of the lamp or other data. The marking instrument is shown in detail in Fig. 2. Near its lower end is a removable cap or enclosure 161 permitting ready change of the printing or etching element 162. This element may be composed of rubber and directly above it are shown a number of cushioning disks 163 of rubber, and above them a block 164 centrally recessed, facilitating the yielding of the center of the printing element to conform to the curvature of the bulb. The annular block 164 is shown pinned to the lower end of an inner plunger or rod 165. Surrounding the rod is a helical spring 166 and exterior to that a sleeve or hollow rod 167, this containing a block or abutment 168 confining the upper end of the spring so that the latter constantly presses yieldingly downwardly upon the block 164 and connected printing elements. At the top of the interior rod is a pair of lock nuts 169 limiting its downward movement, while near the top of the sleeve 167 is attached a collar 170 by which bodily lowering and lifting movements are effected.

The sleeve 167 and the described elements carried by it are movable downwardly and upwardly through a slide bearing 172, seen also in Fig. 1. This bearing is attached rigidly by an arm 173 to the collar 75 which is fast upon the rod 71 which shifts downwardly and upwardly to effect the lowering of the elevator 70 and the bulb. By this arrangement the lowering of the etching means is effected simultaneously with the lowering of the bulb; but after the bulb is in position in the head the etching means is required to descend to a further extent to effect the marking of the bulb. This additional or relative movement of the sleeve 167 in the bearing 162 may be effected by means of a link 177 extending from the collar 170 to the arm 178 of a bell crank lever having also a second arm 179 actuated as will be described. A spring 180 mounted on a bracket 181 pulls constantly upwardly on the arm 178 thereby holding the etching element in its relatively raised position as shown in Fig. 1, its relatively lowered position being shown in Fig. 2.

The actuating connections for the marking devices may be as follows. When the rod 71 and collar 75 have ben lowered to lower the elevator, this brings the bell crank arm 179 in operating relation to an actuating lever 182 having an adjustable contact screw. The arrangement is such that the swinging of the lever 182 rocks the arm 179 and thereby lowers the marking devices relatively to the bearing 172. The actuator lever 182 is mounted on a fixed bracket on the frame part 27. It is pulled into retracted position by a spring 183 and is operated in proper timing by a connecting rod 184 extending to a cam lever 185, see also Fig. 6. This lever carries a roller 186 moving on the periphery of a cam 187 on the upright shaft 44. In each cycle when the cam shifts the cam lever 185 this effects the relative lowering of the marking devices to apply the printing fluid upon the top of the bulb, the parts thereupon retracting.

A special device is illustrated for wetting or inking the marker 160 in each cycle. The parts of this device are mounted principally on a fixed upstanding cylindrical rod or bracket 190 above the frame plate 27, see Figs. 6 and 7. This rod forms a bearing for a surrounding rock sleeve 191 constituting a hollow rock shaft. At the top of the fixed rod is a laterally extending fixed bracket 192 at the extremity of which is mounted a short vertical shaft 193 carrying at its lower end the horizontal wetting or inking disk 194, cooperable with a transferring roller 210 to be described in supplying the marking instrument with fluid, the disk being wetted manually or otherwise at intervals. On top of the wetting disk is shown a feeding ratchet 195 therefor. This is shown with 25 ratchet teeth. Extending above the ratchet is a fixed arm 196, at the under side of which is mounted a spring pawl 197 constantly engaging the ratchet and preventing back movement. There is shown also an operating pawl 199 mounted on a rock arm 200 turning about the vertical shaft 193. As shown the operating rock arm is retracted, it having a stop pin 201 which is in engagement with a stop pin 202 standing down from the bracket 192. The arm 200 and pawl 199 are returned to their stopped position after each action by a coil spring 203 surrounding the shaft 193. These parts are operated to afford intermittent rotation to the ratchet and inking disk by means of a rock arm 205 mounted on the rock sleeve 191 and having an adjustable contact 206 arranged to swing against and cause displacement of the arm 200 at each operation. Preferably the adjustment is such that the pawl 199 will advance the ratchet by three teeth on each actuation.

The transfer of marking fluid from the disk 194 to the marker 160 is shown as accomplished by means of a wetting or inking roll 210 mounted on a rock arm 211 attached to the rock sleeve 191 immediately below the disk 194. The parts are to be set so that the lower face of the wetting disk 194 is the same level as the lower face of the marking instrument 160, so that the oscillating movement of the roll 210 conveys fluid from the disk and applies it to the type or instrument.

The arrangement of having 25 ratchet teeth and an operating pawl moving to the extent of three teeth at each movement is of value in equalizing distribution of the marking fluid and prolonging the time through which one application of fluid will last. The principle is illustrated by the diagram Fig. 8. The width of the transfer roll 210 is between two and three teeth of the ratchet. At every ratchet movement the disk advances to the extent of three teeth, affording a fresh surface. After eight operations the disk will have advanced to the extent of twenty-four teeth, so that the disk is not brought back to its identical position, but to a overlapping position. The numbered lines of roll movement on the disk illustrate this on the diagram. Obviously with the described arrangement it requires three complete rotations, or twenty-five inking operations before the parts duplicate any given position, thus giving maximum opportunity for the fluid to redistribute itself and insure efficient marking operation.

The described fluid applying devices may be operated by the timed rocking of the sleeve 191. For this purpose it is shown as provided with a rock arm 213 connected by a rod 214 with a bell crank lever 215 carrying at its free end a cam roll 216 running in the groove 217 of a cam 218; see also Fig. 1. The cam is so timed that after each elevation of the marking instrument the transfer roll moves across the face of the supply disk to its center, which may be open, thence returning across the face of the disk to its edge, and thence continuing its movement to and across the face of the marking instrument, returning across the face of the marking instrument and coming to rest at a point between the instrument and disk; the feed movement of the disk taking place while the transfer roller is removed from contact with it.

As stated the marking is performed on each bulb after its transfer from the infeed means to the head, and while held by the centralizing means. The centralizing means hereof is a unit mounted in fixed position on the frame, to cooperate with each successive head. The lowering of each bulb to the centralizing fingers and head is done by loose engagement with its lower edge rather than by a higher or gripping engagement. The actual detection of the presence of each stem may be by a radiant or light beam, intercepted by the stem, and cooperating with a photoelectric cell or analogous sensitive device, and an amplifying means to control the clutch opening means.

Reviewing the cycle of operations, immediately after the cam 126 retracts the gate or guard 110 the foremost bulb passes over the chute top and drops into engagement with the elevator 70, the gate returning to blocking position behind this bulb and in front of the succeeding one.

As soon as the elevator receives the bulb the cam 85 lowers the elevator so as to carry the bulb down into the head 21. The centering fingers 134—135 will have commenced, by the action of cam 153, their approaching movement and they operate to center the bulb skirt in the head practically as soon as it reaches its position. The marking instrument 160, having descended with the elevator, is now supplementally lowered by the action of cam 187 so that etching fluid is deposited on the bulb top while the centralizing jaws are holding the skirt of the bulb. Following these operating movements the reverse movements may take place in substantially the reverse order. The roll 210 is moved, by its cam 218, across the wetted disk and back, and then beneath the marking instrument while the latter is in its highest or retracted position, retracting before the marker again descends. The traveling chute, that is, its traveling friction rail 49, is constantly operating to move the succession of bulbs whenever released by the gate; the frictional character of this feed permitting slippage so that the advance of the bulbs may be restrained by the gate, to be immediately resumed on the retraction of the gate.

There has thus been described a sealing-in machine or bulb feeding apparatus embodying the principles and attaining the objects of the present invention. Since many matters of combination, operation, arrangement and construction may be variously modified without departing from the principles it is not intended to limit the invention to such matters except to the extent set forth in the appended claims.

What is claimed is:

1. In a sealing-in apparatus, mechanism for feeding successive lamp bulbs to the successive traveling sealing-in heads, comprising a traveling chute for conveying successive bulbs and delivering them singly at a position over the head, an elevator shiftable downwardly and upwardly and arranged to receive each bulb from the chute delivery and lower it to the head, a gate movable out of the bulb path near the chute delivery to permit feed of each bulb to the elevator and into such path to prevent feed of a second bulb, centering members movable symmetrically to the bulb skirt to center it in the head, and timed driving means actuating said chute, elevator, gate and centering members in coordination.

2. In a sealing-in machine, automatic mechanism for feeding successive lamp bulbs to the successive traveling heads, comprising a traveling chute for conveying successive bulbs and delivering them singly at a position over the head, said chute comprising upslanting rails spaced apart sufficiently for the bulbs to rest thereon with their skirts hanging vertically between them, an elevator shiftable downwardly and upwardly and arranged above the head and below the chute delivery to receive each bulb from the chute delivery and lower it to the head, and means near the chute delivery to permit feed of each bulb over the upper end of the chute and to prevent feed of a second bulb.

3. Mechanism as in claim 2 and wherein the upslanting chute comprises a traveling friction rail and an opposing rail on which the bulbs hang vertically with their skirts depending.

4. In a sealing-in apparatus, mechanism for feeding successive lamp bulbs to the successive traveling sealing-in heads, comprising a chute for delivering successive bulbs singly at a position over the head, an elevator shiftable downwardly and upwardly and arranged above the head and below the chute delivery, to receive each bulb from the chute delivery and support it loosely by its skirt edge and lower it to the head, centering members movable symmetrically to the bulb skirt to center it in the head, and timed driving means actuating said elements in coordination.

5. Mechanism as in claim 4 and wherein the centering members have pivoted levers carrying them at a fixed position below said elevator, links for swinging the levers, and a common part for moving both links.

6. In a sealing-in machine, automatic mechanism for feeding successive lamp bulbs to the successive heads, comprising a traveling chute for conveying successive bulbs and delivering them to position over the head, an elevator shiftable downwardly and upwardly and comprising a member receiving the lower edge of the bulb skirt, arranged to receive each bulb from the chute delivery and lower it to the head, fixed means guiding the bulb during its descent, and movable means near the chute delivery to permit feed of each bulb and to prevent feed of a second bulb.

7. In a sealing-in machine, automatic mechanism for feeding successive lamp bulbs to the successive heads, comprising a chute for conveying successive bulbs and delivering them uprightly to position over the head, an elevator shiftable downwardly and upwardly and arranged to receive each bulb from the chute delivery and lower it to the head, said elevator comprising a support or hook member receiving the lower edge of the bulb skirt, and adjacent means guiding the bulb during its descent.

8. In a sealing-in machine, automatic mechanism for feeding successive lamp bulbs to the successive heads, comprising a traveling chute for conveying successive bulbs and delivering them uprightly to position over the head, an elevator shiftable downwardly and upwardly and arranged to receive each bulb from the chute delivery and lower it to the head, and a gate movable out of the bulb path near the chute delivery to permit feed of each bulb and into such path to prevent feed of a second bulb, said chute gate comprising blades opposing the bulb body and skirt and a blade extending above the bulb.

9. In a sealing-in apparatus, mechanism for feeding successive lamp bulbs to the successive heads, comprising an upslanting chute for delivering successive bulbs singly over the top of the chute to position over the head, an elevator shiftable downwardly and upwardly between the head below and the chute delivery above and arranged to receive each bulb from the chute delivery and support it by its lower edge and lower it to the head, and centering means movable symmetrically to the bulb skirt to center it in the head.

10. In a sealing-in apparatus, mechanism for feeding successive lamp bulbs to the successive heads, comprising a chute for delivering successive bulbs to position over the head, an elevator shiftable downwardly and upwardly and arranged to receive each bulb from the chute delivery and lower it to the head, centering members movable symmetrically to the bulb skirt to center it in the head, said centering members have pivoted levers carrying them, links for swinging the levers, and a common part for moving both links, consisting of a slide, a block in which said slide slides, and means for transversely adjusting the block to determine the initial position of the centering members, and timed driving means actuating said elements in coordination.

11. In a sealing-in apparatus having intermittently-traveling bulb-holding heads, the combination of automatic mechanism for feeding successive lamp bulbs to the heads during pause of travel, and adjacent means associated therewith for marking each bulb; the bulb feeding mechanism comprising means for delivering successive bulbs uprightly to position over each head, an elevator shiftable downwardly and upwardly and arranged to receive from said delivering means each bulb in upright position and lower it into the head, and a centering device below the elevator operating upon each bulb skirt to center and hold it centered in the head; and said bulb marking means comprising a marking instrument mounted above the elevator to descend from its normally elevated position and mark the top of each bulb after the lowering and centering of the bulb and while it is held centered; and timed driving means with connections actuating said elements in coordination, the elevator with bulb being lowered and the bulb being then centered and then marked during the pause of each of the successive heads, said driving connections comprising a common connection or carrier for lowering simultaneously the elevator with bulb and the marking instrument, and another connection for then relatively further lowering the marking instrument to the bulb.

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