

May 5, 1925.

1,536,740

J. A. AKEROYD

FEEDING MECHANISM FOR BASE MAKING MACHINES

Filed Sept. 5, 1919

4 Sheets-Sheet 1

Fig. 1

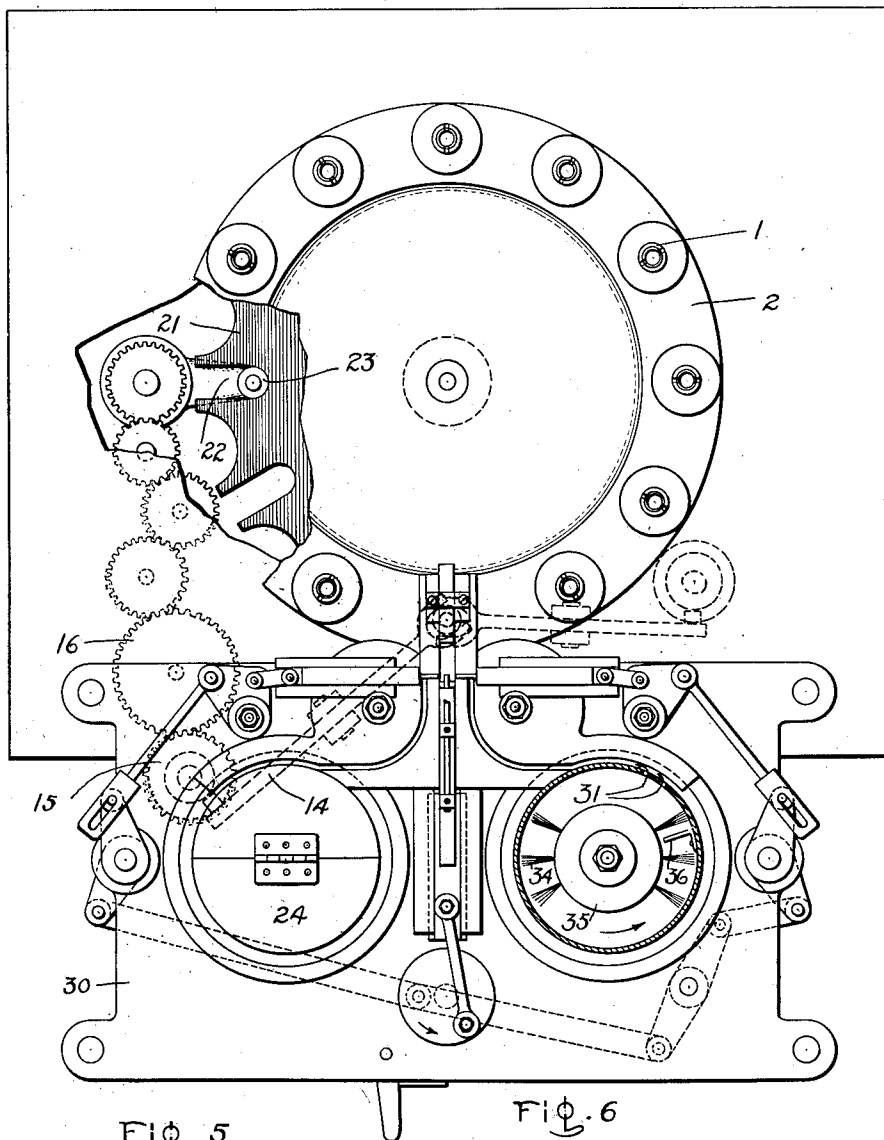


FIG. 5

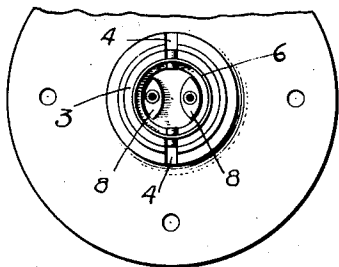
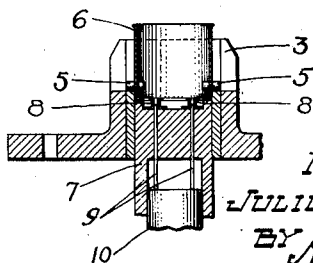


FIG. 6



INVENTOR -
JULIUS A. AKEROYD
BY *Albert G. Davis*
HIS ATTORNEY

May 5, 1925.

1,536,740

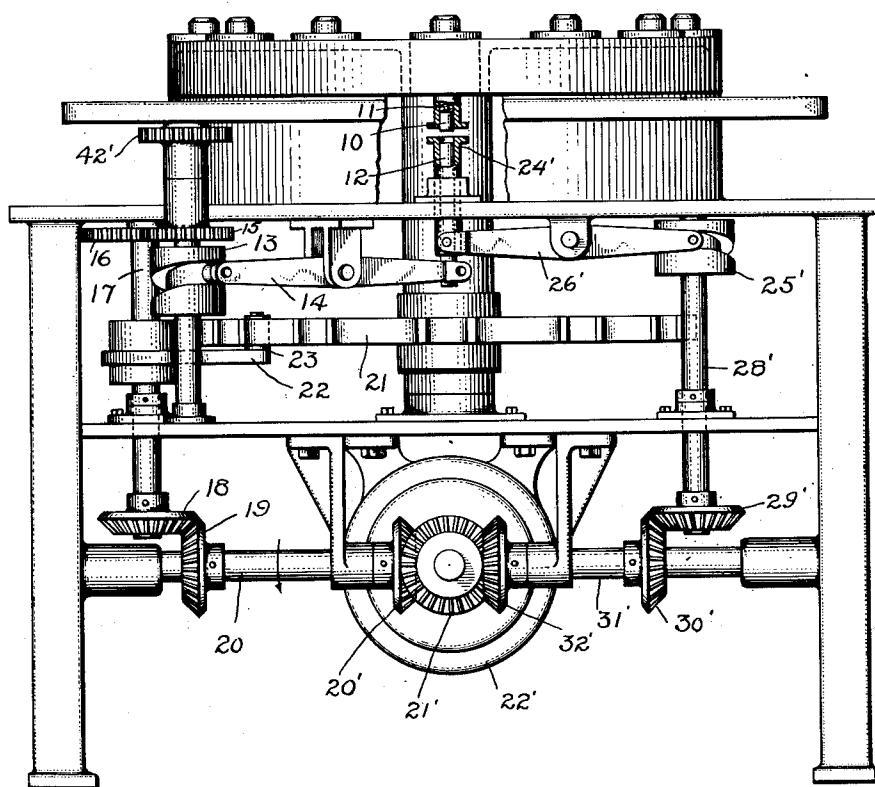
J. A. AKEROYD

FEEDING MECHANISM FOR BASE MAKING MACHINES

Filed Sept. 5. 1919

4 Sheets-Sheet 2

Fig. 2



INVENTOR:
JULIUS A. AKEROYD
BY *Alfred E. Davis*
HIS ATTORNEY

May 5, 1925.

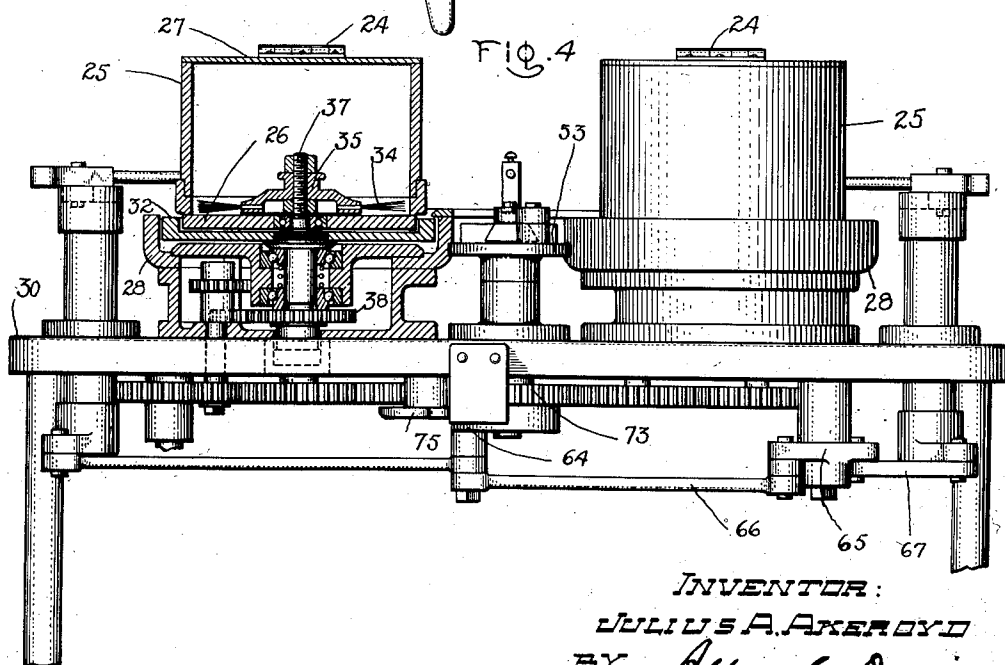
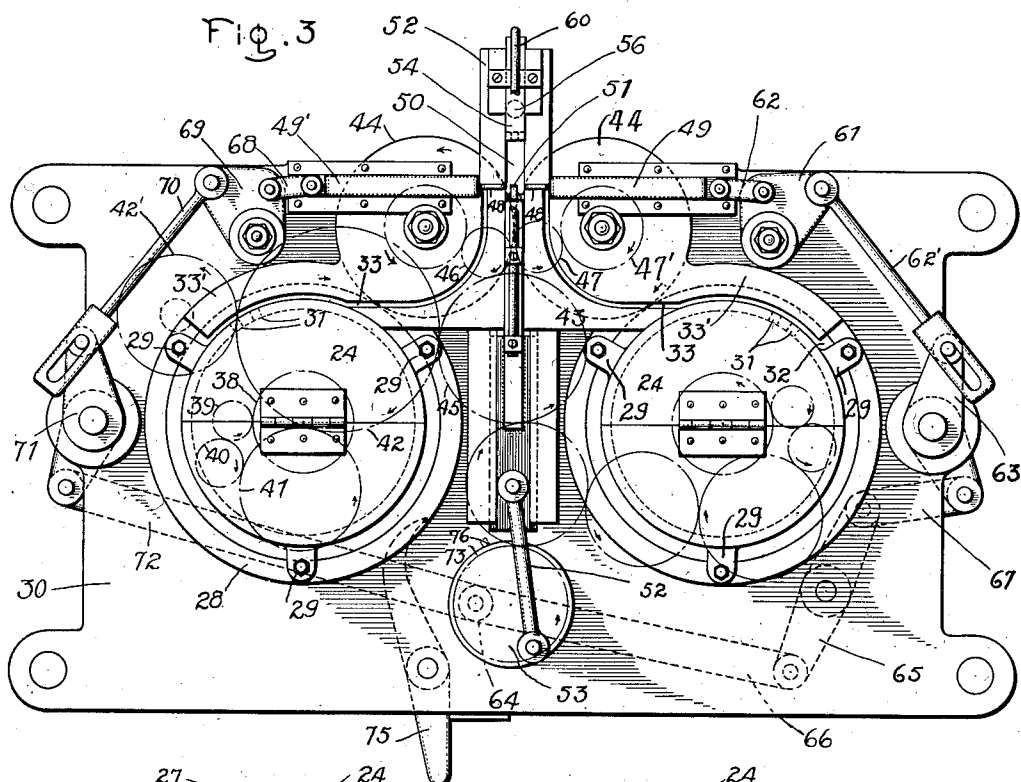
J. A. AKEROYD

1,536,740

FEEDING MECHANISM FOR BASE MAKING MACHINES

Filed Sept. 5, 1919

4 Sheets-Sheet 3



INVENTOR:
JULIUS A. AKEROYD
BY *Albert G. Davis*
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

JULIUS A. AKEROYD, OF EDGEWOOD, PROVIDENCE, RHODE ISLAND, ASSIGNOR TO
GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

FEEDING MECHANISM FOR BASE-MAKING MACHINES.

Application filed September 5, 1919. Serial No. 321,967.

To all whom it may concern:

Be it known that I, JULIUS A. AKEROYD, a citizen of the United States, residing at Edgewood, Providence, in the county of Providence, State of Rhode Island, have invented certain new and useful Improvements in Feeding Mechanism for Base-Making Machines, of which the following is a specification.

My invention relates more particularly, though not exclusively, to machines for making the bases of miniature incandescent lamps, such bases commonly consisting of metallic shell and bottom contact pieces held together by a web of glass or other fusible insulating material.

In its specific application to this use, the invention comprehends improved automatic feeding mechanism for inserting the metallic parts of the base into the molds of a base-forming machine, and other improvements in the mechanism of the machine.

The invention is herein illustrated as embodied in a conventional type of machine for making lamp bases, having particular utility in its application to a machine employed for that purpose. The invention, however, has applications to purposes other than, and is not limited to, the manufacture of lamp bases, the feeding mechanism in a generic sense being applicable to feeding articles, other than metallic base parts, for presentation to any desired operation, or for other purposes.

In the drawings, Fig. 1 is a plan view partially broken away showing, in general, a base-making machine embodying one form of the invention; Fig. 2 is a front elevation of the same machine with the feeding mechanism removed and part of the machine broken away for the sake of clearness; Fig. 3 is an enlarged plan view of the mechanism for feeding the bottom metallic contacts or eyelets; Fig. 4 is a partial sectional elevation of the same; Fig. 5 is an enlarged plan view of a mold with the shell and eyelets in position; Fig. 6 is a vertical sectional elevation through the same showing the pins for locating the eyelets in the mold; Figs. 7 and 8 are fragmentary sectional elevations showing the action of the slide and associated mechanisms; Fig. 9 is an enlarged top plan

view of the converging eyelet guideways; Fig. 10 is a fragmentary elevation of a detail of the slide and Fig. 11 is a plan view thereof; Fig. 12 is a fragmentary elevation of a detail of the slide and associated parts; Fig. 13 is an enlarged elevation of an additional detail of the slide and Fig. 14 is a top plan view thereof; and Fig. 15 is an enlarged fragmentary sectional elevation of a detail of the slide and co-acting parts.

Figs. 1 and 2 illustrate a machine for making lamp bases of the general type described in prior patents to Swan, Numbers 774,403 and 796,470; to Marshall, 856,972 and 856,974; and to Walker and Akeroyd, 1,210,237 and 1,210,238. Referring briefly to the operation of the principal mechanism of a machine of this type, the molds or receptacles 1 for the base parts, herein, twelve in number, are carried upon a rotary head 2, or other mold carrier, which serves to present them in succession to the several operating mechanisms of the machine. Each mold 1 comprises a shell holder 3 as shown in Figs. 5 and 6, having slots 4 adapted to receive the projecting pins 5 on the shell part 6 of the base. The mold is provided with the vertically movable bottom die 7, shaped to receive the bottom of the shell and to hold also in appropriate relation thereto the two perforated metallic contacts or eyelets 8 as well as shape the molten glass. These eyelets are held in place by pins 9, which are secured to a plunger 10 normally depressed to a fixed position by the spring 11 as shown in Fig. 7, but adapted to be lifted at the appropriate time by a vertically movable lifting arm 12 as shown in Fig. 2 to lift the pins 9 through the supporting slide 12' and the perforations in the eyelets 8 as shown in Figs. 8 and 15 and more fully described hereinafter. The lifting arm is actuated by a cam 13, through the lever 14, driven through gears 15 and 16, shaft 17, bevel gear 18 and bevel gear 19 on the power shaft 20 of the machine driven through the bevel gear 20' and 21' by the motor 22'. The bottom die 7 of the mold is normally depressed by a spring 23' but is lifted at the appropriate time by the vertically movable lifting arm 24', actuated by the cam 25' through the lever 26', to bring the bottom

die 7 into contact with the under side of the support 27', as shown in Figs. 8 and 15 and more fully described hereinafter. The cam 25' is attached to the shaft 28' to which is
5 attached the bevel gear 29' driven by bevel gear 30' on the shaft 31' driven from the motor 22' through the bevel gears 32' and 21'.

The mold carrier is given a step by step
10 movement by means of the notched wheel 21, the rotary arm 22 and the pin 23, or by any other suitable means, so as to present each mold in succession to charging devices for introducing a charge of molten glass into
15 the mold, compressing means for compressing and forming the web of molten glass, a clearing device to clear the perforations of the eyelets and finally to the lifting lever and cooperating means for removing the
20 completed base from the mold, all of which mechanisms being well known are not shown in the drawing. The movement is such that the mold carrier is caused to dwell for an interval between each movement to permit
25 the several operations to take place simultaneously upon the bases or base parts in different molds of the series.

Referring now to the automatic feeding mechanism for feeding and inserting the
30 metallic shell parts in appropriate relation in the mold, as shown, both the shell and eyelet parts are carried in appropriate supply hoppers from which they are discharged to guideways and presented therein in a
35 continuous series to devices which convey them and place them in molds.

Referring more particularly to Figs. 1, 3 and 4 and to the eyelet feeding mechanism therein illustrated, a supply of the eyelets or
40 contact pieces is contained in each of the two identical hoppers 24. Each comprises a cylindrical shell 25, bottom 26 secured thereto, and hinged cover 27 through which the supply of eyelets may be replenished
45 from time to time. The hopper parts are fixedly secured to the casting 28 by means of the extensions 29, the casting being secured to the top 30 of the feeding attachment. In the lower edge of the hopper
50 shell there are provided one or more openings 31 (herein two are shown in each shell) of a suitable shape and size to permit the discharge of the eyelets right side up from the hopper to a traveling wall, the latter
55 comprising the annular plate 32 encircling the hopper and forming the bottom of an eyelet passage 33, the sides of which are formed by the hopper shell on one side and the fixed plate 33' on the other. The eye-
60 lets are forcibly ejected from the hopper by means which agitate the mass and tend to separate and force individual pieces through the openings 31. Any suitable means may be employed for this purpose, but herein there are provided a plurality of radially

arranged wire brushes 34 carried by a rotary head 35 so as to sweep along the hopper bottom in the direction of the arrow (Fig. 1). A transverse partition 36 partly closes
70 the main passageway of the hopper above the path of the brushes so that the partition tends to hold back the contacts and leave the space between it and the openings 31 comparatively open. The contacts, being
75 piled up against the partition, are forced toward the middle of the hopper and fall upon the inclined walls of the rotary head 35. Some of these contacts are deflected to the open space in front of the partition,
80 tending to right themselves in the act of sliding to the hopper bottom so that they are struck by the next brush emerging from below the partition and thrown toward an
85 opening 31, where the pressure of the succeeding contacts and the succeeding brush tends to throw them out on the annular feed plate 32 right side up. Overturned and excess
90 contacts are swept past the openings by the long brushes while the intermediate short brushes serve to force accumulated contacts out of the hopper. Rotary move-
95 ment is imparted to the brush head 35 and feed plate 32 through the stud 37, pinion gear 38 and gears 39, 40, 41, and 42 (Fig. 3) which is driven by gear 42', on the
100 same shaft as the gear 15 hereinbefore described. The discharged contact pieces are carried in the passage 33 (Figs. 1 and 3) partly around the hopper and are then deflected into a continuation of the passage,
105 the sides of which are formed by a continuation of the plate 33' and by the fixed slotted plate 43 and the bottom by the rotary plate or disk 44. Such passage continuation lies along the edge of the rotary disk 44 and
110 the latter is in close proximity to the annular feed plate 32 so that the contacts pass from the annular plate to the disk and are carried by the latter in a continuous series toward the mouth of the passage, which
115 latter is normally closed by the transfer mechanism to be later described. The disk 44 is turned in the direction of the arrow (Fig. 3) by the gear 42 acting through the intermeshing gears 45, 46, 47 and 47' which
is attached to the disk.

From the guideway just described, one eyelet at a time is permitted to pass into the guideway 48 where, by means of a slide
120 49 (operated by means described later) the eyelet is pushed from guideway 48 into another guideway 50 extending at right angles. (See Figs. 3 and 9.) The slide 49' is opposite to the slide 49.

While I have described the movement of
125 the eyelets from one hopper only, it is understood that the eyelets from the other hopper move in identically the same manner, the parts being similar for the two hoppers and passages. Thus, two eyelets enter the guide-
130

way 50 at the same time and from opposite directions. A reciprocable member 51, with a slotted nose so shaped that it engages the two eyelets (see Figs. 10 and 11) on its forward movement and pushes them along the guideway, is caused to reciprocate by means of the arm 52 attached to the eccentric 53 which in turn is actuated through a train of gearing connected to the main drive. The nose of the member 51 engages in its forward movement a block 54, slidably held at the end of the guideway 50, in such a manner as to position the two eyelets securely in their seats in the nose as shown in Fig. 12. As the member is pushed still further forward, it engages on its under side a supporting slide 12' (see Figs. 7 and 8) which it pushes over the hole 56 in the support 27'. This hole is situated directly above the shell molds when they are in position to receive the eyelets and is tapered slightly in order to feed the eyelets to the mold. It is preferable that a continuous side wall be presented to the eyelets to act as a guide into the bottom die 7 while the eyelets are sliding down the pins. While the member 51 is pushing the supporting slide 12' over the hole 56 it is also pushing forward the block 54 with the two eyelets positioned as previously described. The eyelets arrive over the hole together with the supporting slide 12' and are thus supported by it as shown in Fig. 15. The two eyelets are now positioned over the shell mold 1 in which are located the pins 9 and the bottom die 7 which is to receive the eyelets. The bottom die is first lifted (by means previously described) and then the pins are raised. The pins in their upward movement pass through slots in the slide 12' and enter the perforations of the eyelets as shown in Figs. 8 and 15.

The member 51 now starts on its backward movement, the slide 12' is returned to its normal position by the spring 58 and a bent rod 60 fastened to the member 51 returns the block 54. The return of the slide 12' leaves the eyelets in a position to move freely with the pins which then drop and thus place and position the eyelets in the bottom die 7 as shown in Fig. 5. The bottom die 7 also drops and then by means of the step by step movement the rotary head 2 is moved on and another mold is positioned ready to receive the next set of eyelets.

The slide 49 (Fig. 3) through a link 62 is reciprocated by an arm 61 which is connected through a link 62' to a crank 63 which is operated by means of the eccentric 64 through the pivoted piece 65 and the links 66 and 67. The slide 49' is operated in a similar manner through the link 68, crank 69, link 70, pivoted piece 71 and link 72 connected to the eccentric 64.

The gear train from the main drive re-

volves the gear 73 (Fig. 7) which is connected to the eccentric 64 through a spring key or clutch 74. The eccentrics 53 and 64, pinned on the same shaft, revolve together and cause the slides 49, 49', and the slide 51 to alternate in their reciprocating movement.

A lever 75 (Figs. 3 and 4) disconnects the gear 73 from the eccentric 64 by wedging its nose between the gear and the projecting piece 76 (Fig. 7) and thus removing the spring key from the gear 73. This allows the feeding mechanism to remain idle when such action is desired.

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

1. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising a common guideway leading to said mold position into which said contacts are fed and means for engaging said contacts and for forcing them along said guideway.

2. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising a common guideway leading to said mold position into which said contacts are fed and a reciprocable member mounted to engage said contacts and force them along said guideway.

3. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, discharge passages communicating with said receptacles, feeding mechanism disposed between the delivery ends of said passages and said mold position comprising a common guideway leading to said mold position into which said contacts are fed and a reciprocable member mounted to engage said contacts and force them along said guideway, and means carried by said mold to transfer said contacts thereinto.

4. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, discharge passages com-

communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising a common guideway leading to said mold position, a plurality of means for transferring a contact from each of said discharge passages to said common guideway and means for engaging said contacts and forcing them along said guideway.

5. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising opposed reciprocable slides, a guideway leading to said mold position into which said contacts are fed by said slides, and a reciprocable member mounted to engage said contacts and force them along said guideway.

6. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising opposed reciprocable slides, a guideway leading to said mold position into which said contacts are fed by said slides, a reciprocable member mounted to engage said contacts and force them along said guideway, a block coacting therewith to position the said contacts in the said member, and a supporting slide coacting therewith to support the said contacts in the said guideways.

7. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising opposed reciprocable slides, a guideway leading to said mold position into which said contacts are fed by said slides, a reciprocable member mounted to engage said contacts and force them along said guideway, a block coacting therewith to position the said contacts in the said member, and a supporting slide coacting therewith to support the said contacts in the said guideway, means for advancing and retracting said supporting slide in said guideway, and means carried by said mold to transfer said contacts, said means comprising pins which enter the per-

forations of the said contacts and means for raising and lowering said pins.

8. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of perforated contacts, discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising opposed reciprocable slides, a guideway leading to said mold position into which said contacts are fed by said slides, a reciprocable member having a slotted nose mounted to engage said contacts and force them along said guideway, a block coacting therewith to position the said contacts in the said slotted nose, a supporting slide coacting therewith to support the said contacts in the said guideway, means for advancing and retracting said supporting slide in said guideway, a plurality of pins which enter the perforation of said contacts and means for raising and lowering said pins.

9. In a base making machine the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, substantially horizontally extending discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising a common substantially horizontally extending guideway leading to said mold position into which said contacts are fed and means for engaging said contacts and for forcing them along said guideway.

10. In a base making machine the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, substantially horizontally extending discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said passages and said mold position comprising a common substantially horizontally extending guideway leading to said mold position into which said contacts are fed and a reciprocable member mounted to engage said contacts and force them along said guideway.

11. In a base making machine, the combination of a mold, means for carrying the same and means for causing it to assume a definite position when desired, with a plurality of receptacles for holding a supply of contacts, substantially horizontally extending discharge passages communicating with said receptacles and feeding mechanism disposed between the delivery ends of said pass-

ages and said mold position comprising opposed reciprocable slides, a substantially horizontally extending guideway leading to said mold position into which said contacts are fed by said slides, a reciprocable member mounted to engage said contacts and force them along said guideway, a block coacting therewith to position the said contacts in the said member, and a supporting slide coacting therewith to support the said contacts in the said guideways. 10

In witness whereof, I have hereunto set my hand this 27th day of August, 1919.

JULIUS A. AKEROYD.