Aug. 1, 1950

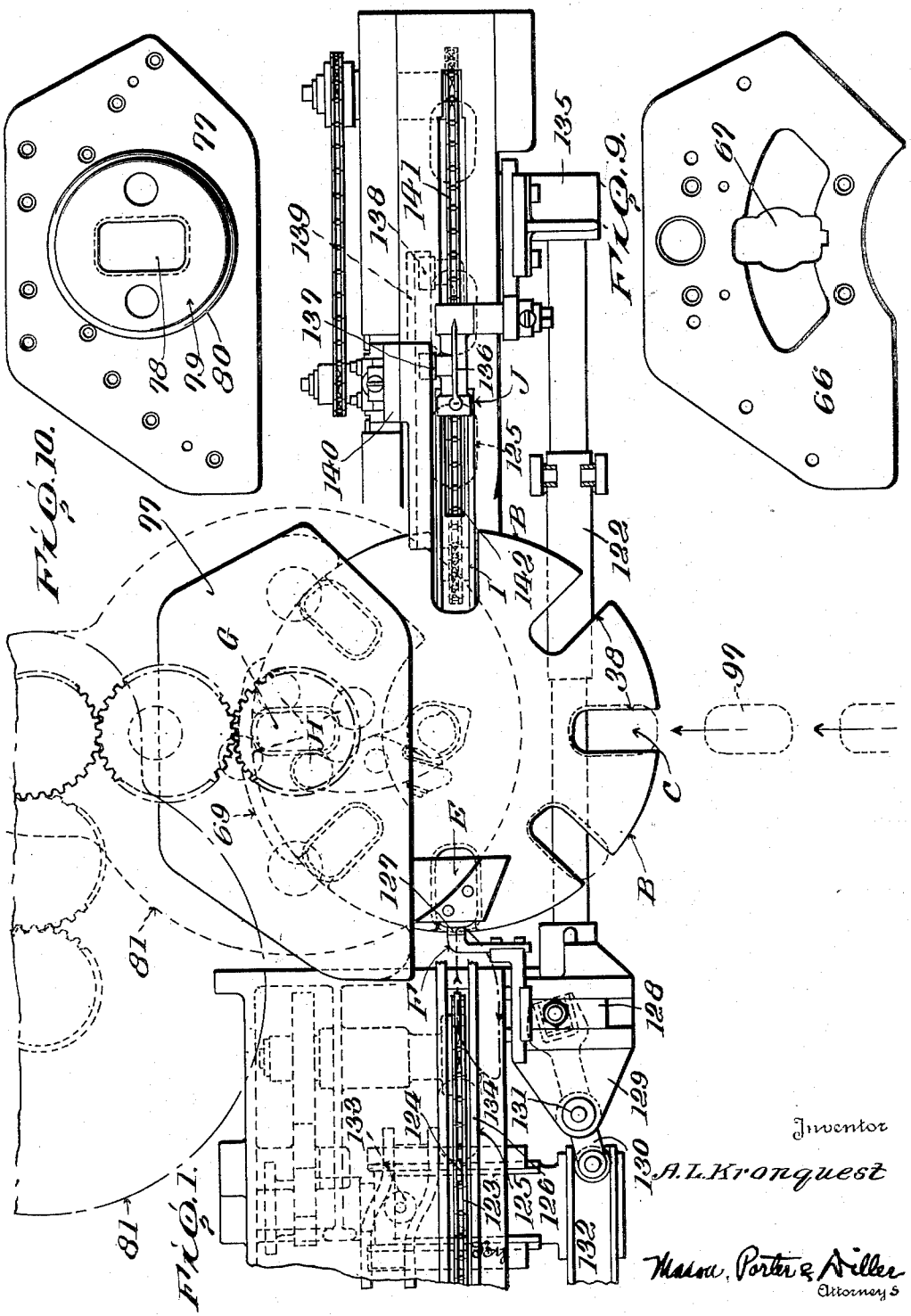
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2,517,323

MACHINE FOR VACUUMIZING AND CLOSING FILLED OBLONG CANS

Filed June 24, 1944

7 Sheets-Sheet 1



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MACHINE FOR VACUUMIZING AND CLOSING FILLED OBLONG CANS

2,517,323

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7 Sheets-Sheet 2

FIG. 3.

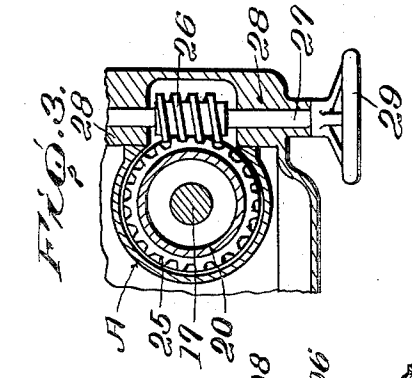
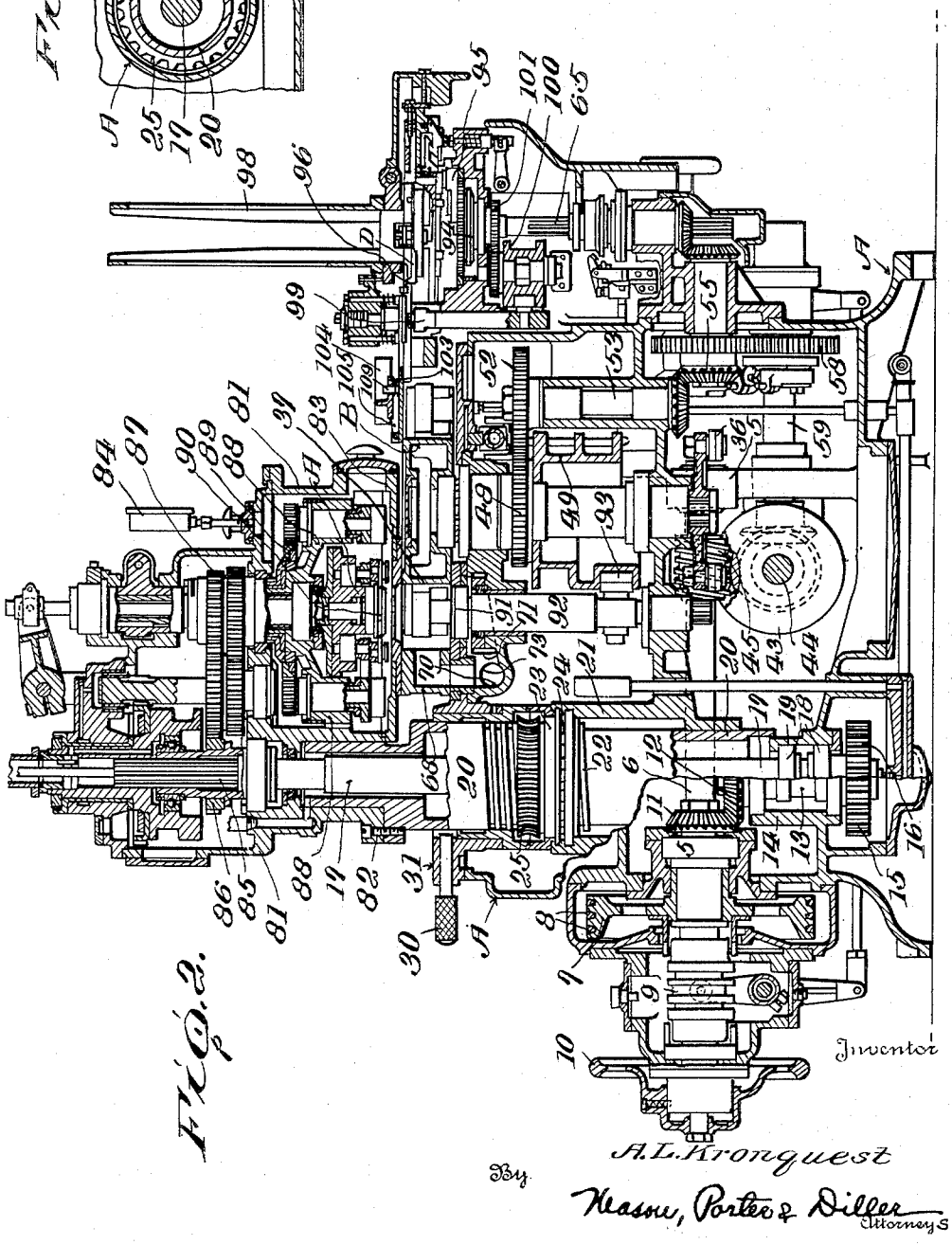


FIG. 2.



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MACHINE FOR VACUUMIZING AND CLOSING FILLED OBLONG CANS

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7 Sheets-Sheet 3

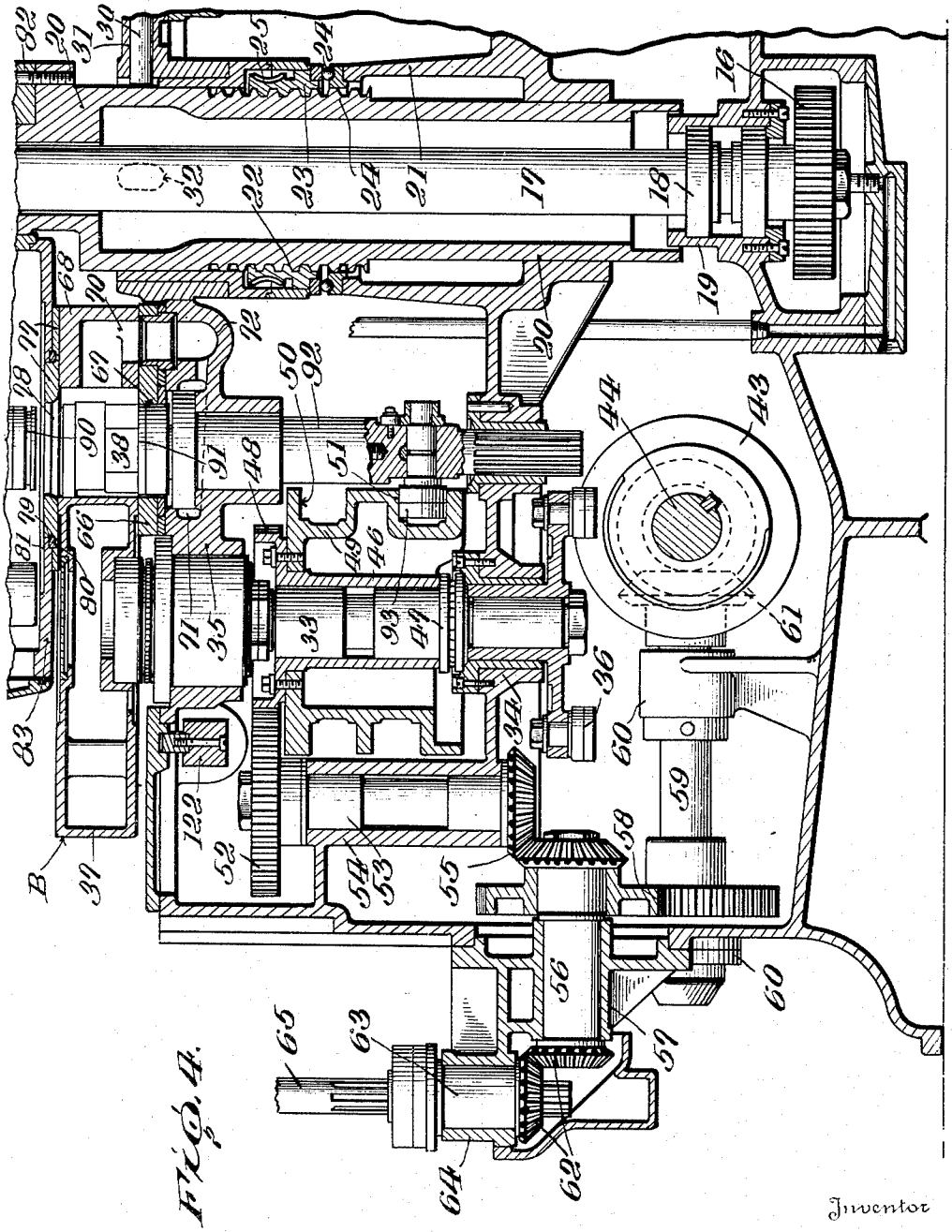


Fig. 4.

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MACHINE FOR VACUUMIZING AND CLOSING FILLED OBLONG CANS

2,517,323

Filed June 24, 1944

7 Sheets-Sheet 4

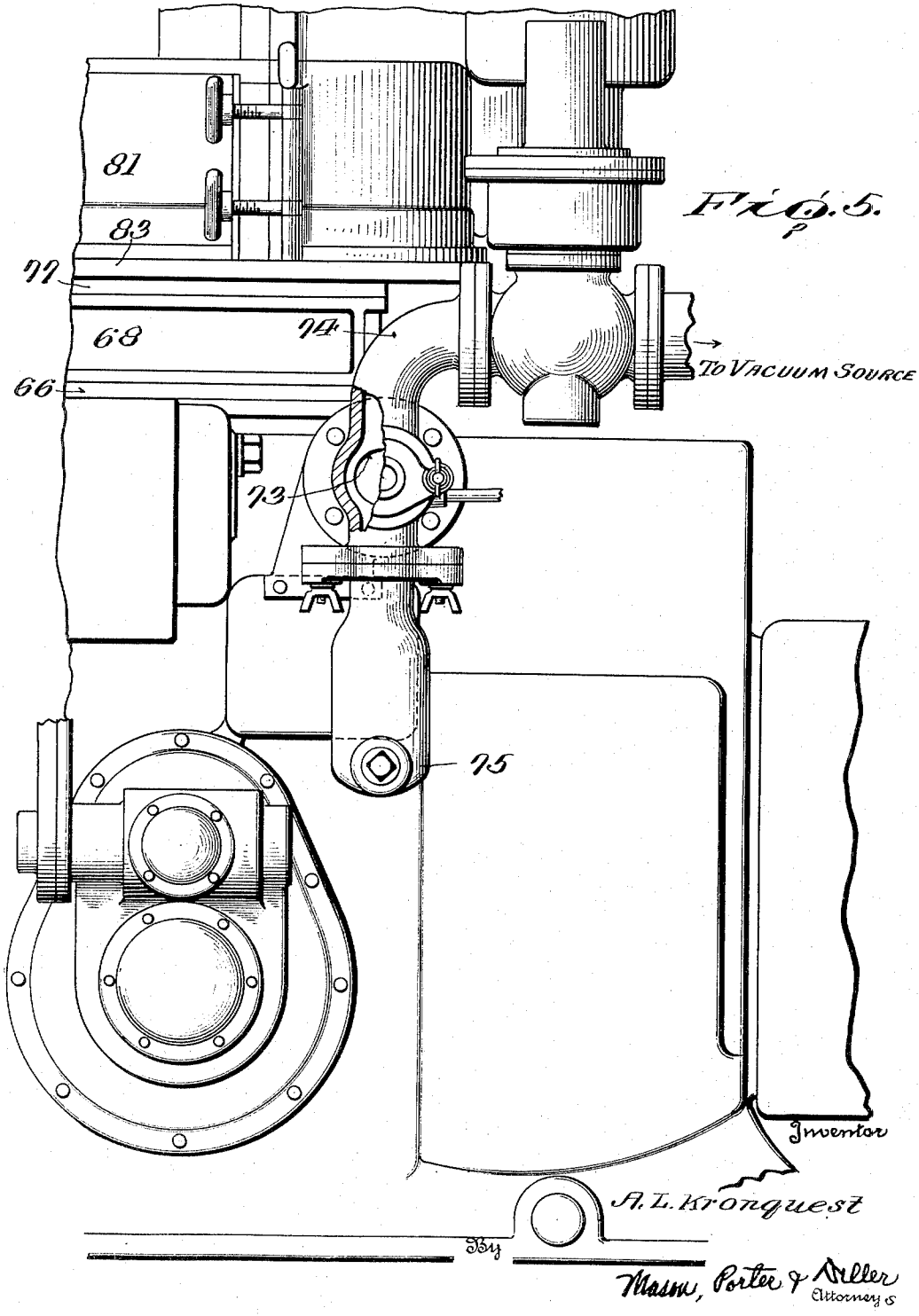


Fig. 5.

Aug. 1, 1950 A. L. KRONQUEST 2,517,323

MACHINE FOR VACUUMIZING AND CLOSING FILLED OBLONG CANS

Filed June 24, 1944 7 Sheets-Sheet 5

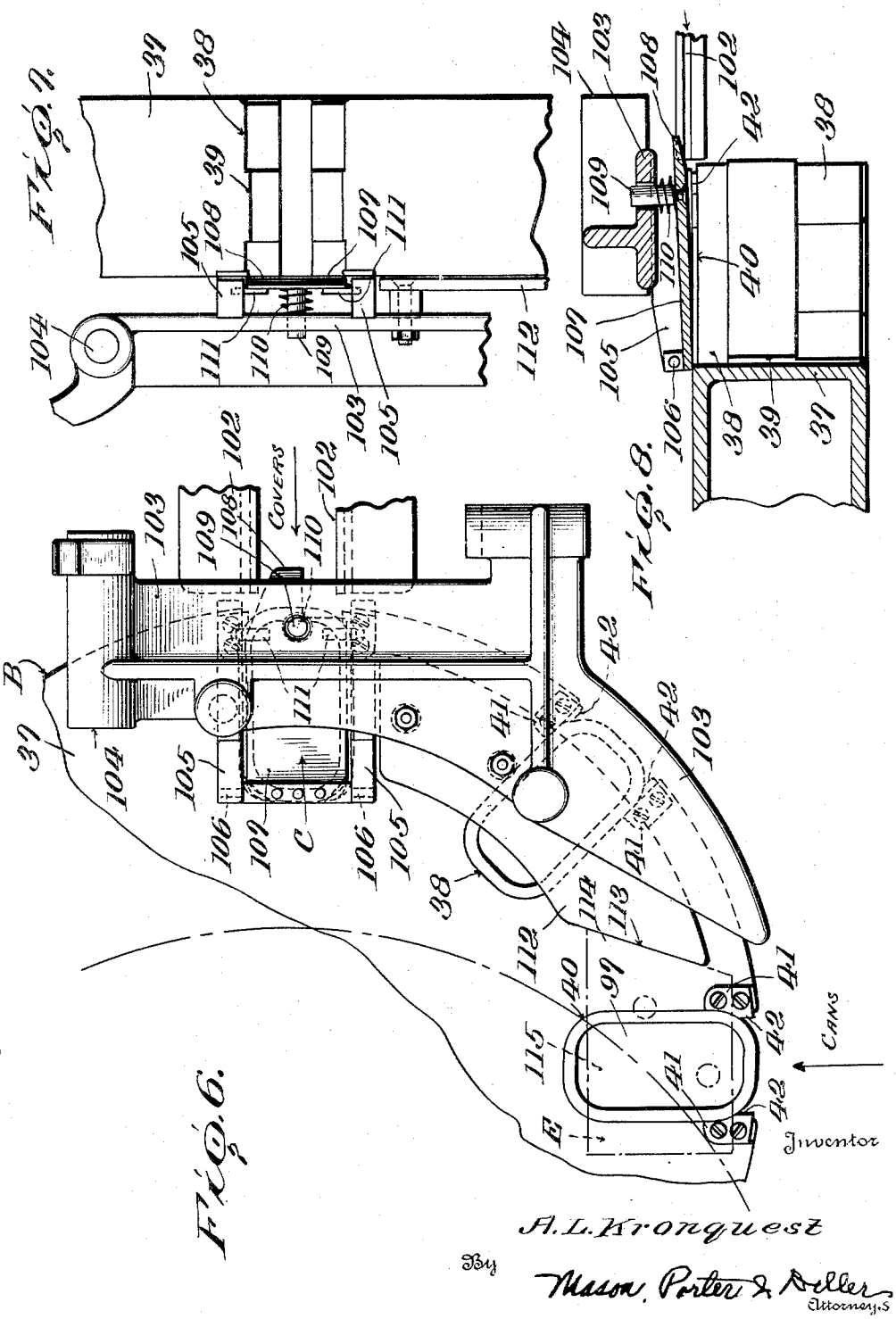


FIG. 7.

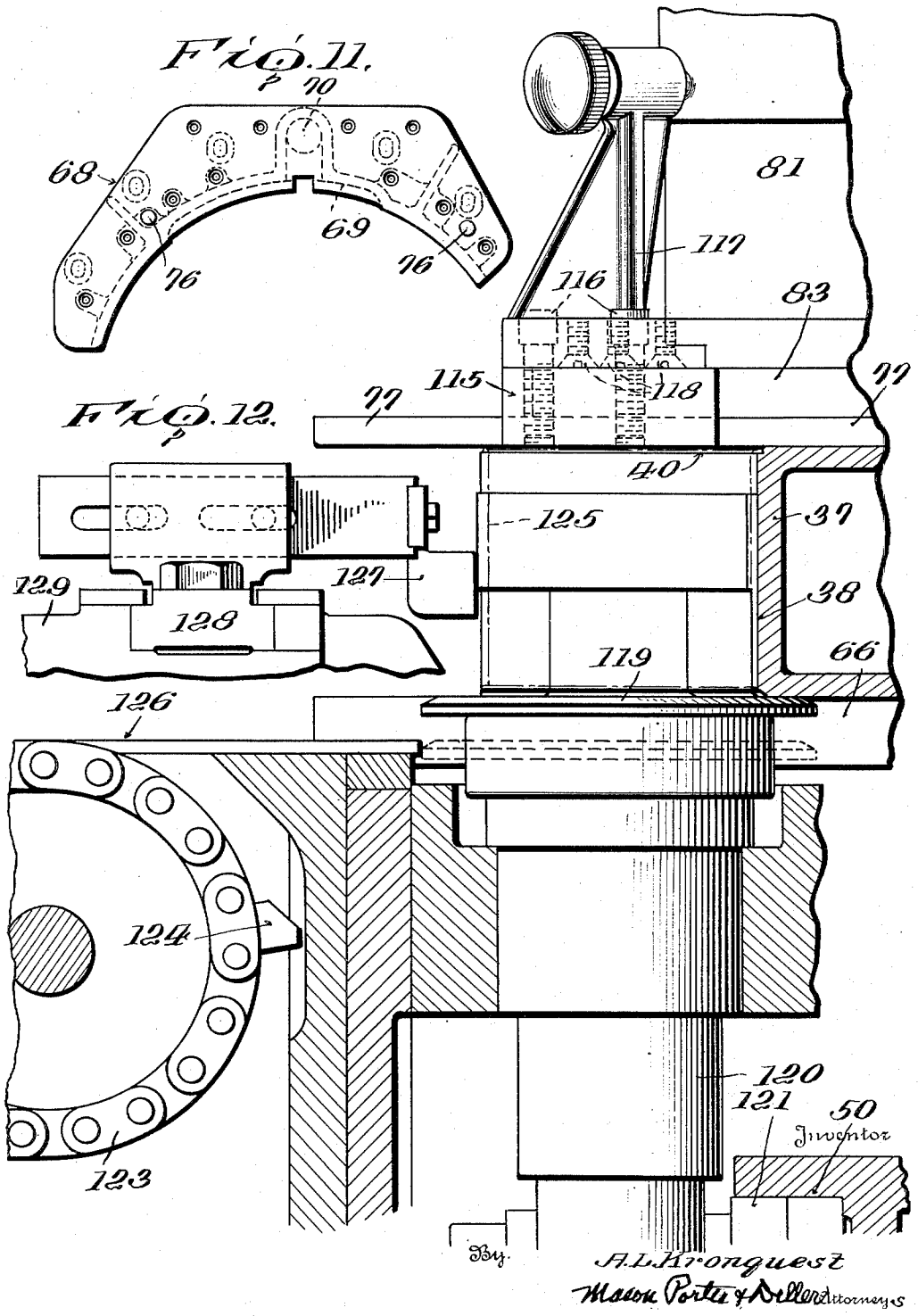
FIG. 8.

FIG. 6.

Aug. 1, 1950 A. L. KRONQUEST 2,517,323

MACHINE FOR VACUUMIZING AND CLOSING FILLED OBLONG CANS

Filed June 24, 1944 7 Sheets-Sheet 6



Aug. 1, 1950 A. L. KRONQUEST 2,517,323

MACHINE FOR VACUUMIZING AND CLOSING FILLED OBLONG CANS

Filed June 24, 1944 7 Sheets-Sheet 7

FIG. 13.

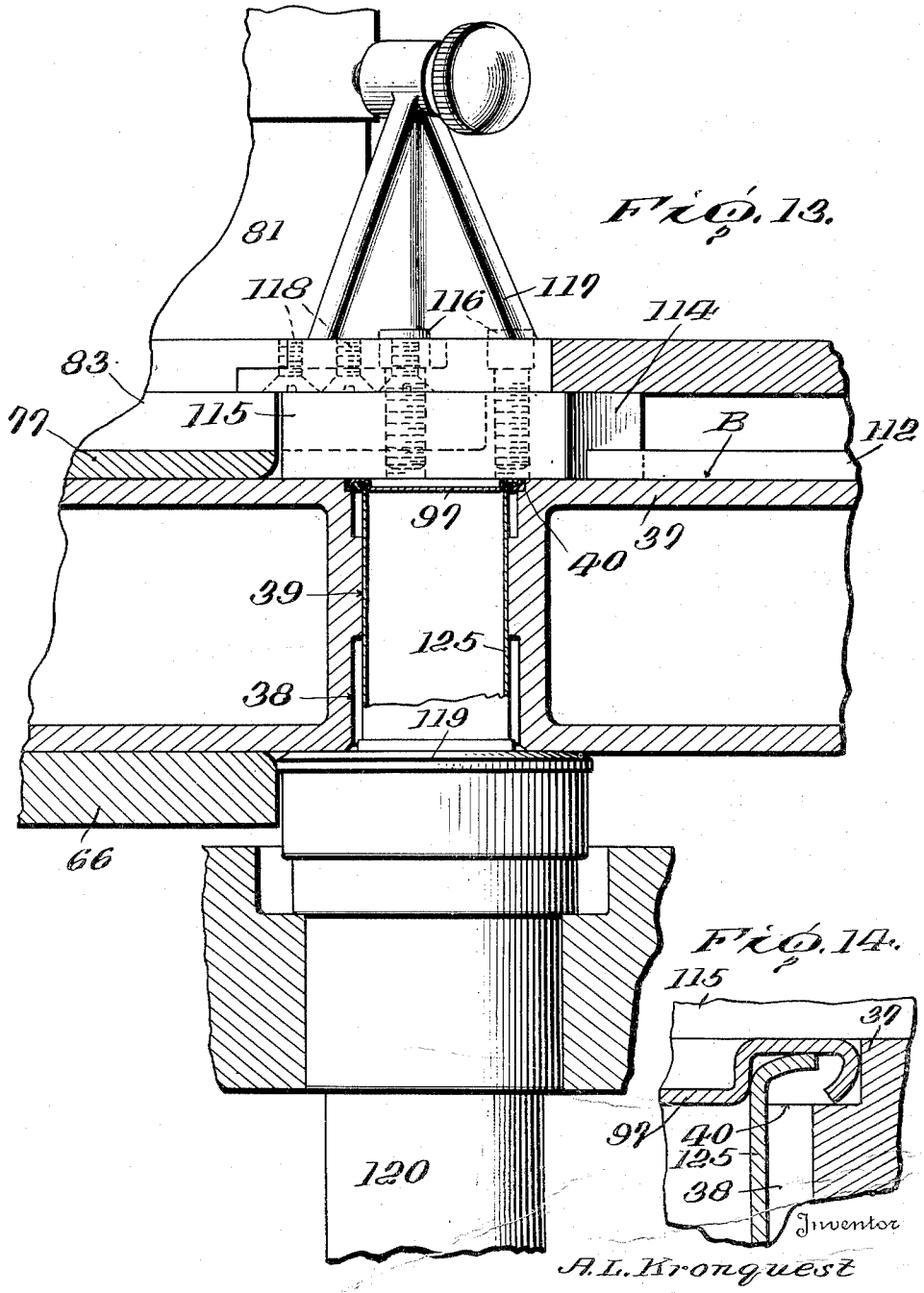


FIG. 14.

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2,517,323

UNITED STATES PATENT OFFICE

2,517,323

MACHINE FOR VACUUMIZING AND CLOSING FILLED OBLONG CANS

Alfred L. Kronquest, Syracuse, N. Y., assignor to Continental Can Co., Inc., New York, N. Y., a corporation of New York

Application June 24, 1944, Serial No. 542,021

17 Claims. (Cl. 226—82.4)

1

The invention relates generally to can closing machines and primarily seeks to provide a novel machine structure adapted for vacuumizing and closing the oblong cans in which meat usually is packaged, although the invention is not to be considered limited to the packaging of any particular product.

More specifically, the invention resides in providing a machine of the character stated in which is included a peripherally pocketed turret into the pockets of which the filled cans are individually received, means for indexing the turret to serially present the pockets thereof at various stations, means for feeding covers into the pockets at one station, means for feeding filled cans into the pockets at another station and for effecting a preassembly of the can and its complementary cover at the station at which the can is received, a vacuum shoe engaging the periphery of the turret over the positions of several pockets and upper and lower plates between which the turret engages and which seal the shoe opposing pockets against ingress of air, a seaming head located over the plates and having seaming devices therein for securing the covers on the can after they have been vacuumized, and means for discharging the closed cans from the turret pockets.

Another object of the invention is to provide a machine of the character stated in which the seaming head rests upon the upper vacuum sealed plate and includes means for pivotally supporting the head for swinging movement about a vertical axis, and means for lifting and lowering the head so as to engage the same with or disengage the same from the upper seal plate to permit swinging of the head from an operative position to an out-of-the-way position or for altering the elevation of the head incidental to adapting the machine for use in the vacuumizing and closing of cans of different heights.

Another object of the invention is to provide in a machine of the character described and including the vertically adjustable and a lateral swingable seaming head, an upstanding centering boss on the top seal plate surrounded by a sealing gasket, and a bottom on the seaming head having an opening therein for snugly fitting over said boss to effect a seal between the seaming head bottom and said plate and definitely place the head with respect to said plate and an opening formed therein and through which the cans are lifted into proper cooperative relation with the seaming devices within the head for being closed by the latter.

2

Another object of the invention is to provide in a machine of the character stated a novel seaming head mounting for the head comprising a vertically disposed head supporting column, means for swingably mounting the column for swinging movement about a vertical axis, a captive screw sleeve rotatably engaging an externally threaded portion of the column, and means for turning the sleeve for lifting and lowering the column.

Another object of the invention is to provide in a machine of the character stated a novel spill duct surrounding the container lifting pad beneath the lower seal plate, a spill trap connected with said duct, and a vacuum source connection communicating with the vacuum shoe through the spill duct.

Another object of the invention is to provide in a machine of the character stated a turret structure having each pocket therein equipped with a cover receiving shelf or recess at the entrance of which is mounted a pair of retainer lugs which overhang at the entrance into the recess in a manner for engaging corners of the covers and preventing radial outward movement thereof, and novel spring plate means mounted over the pocket position at which covers are fed into the pockets and effective to assure that each cover is properly seated in its receiving recess and depressed therein behind the overhanging retaining lug portions.

Another object of the invention is to provide in a machine of the character stated filled can feeding means including a continuously travelling conveyor which feeds the cans toward but not into the turret pockets at the station at which the cans and covers are preassembled, and a four-motion pusher which pushes each can from the continuously travelling conveyor into the turret pocket presented at the preassembly station, the full seating of the filled container being followed by a lifting of the can into preassembly contact with the cover seated in the pocket at a preassembly station.

Another object of the invention is to provide in a machine of the character stated, a rigidly mounted abutment block closely overlying each turret pocket as it is presented at the preassembly station and which will take any upthrust directed against the underlying, pocket contained cover incidental to the upward movement of the filled container during the preassembly of the container and its complementary cover.

Another object of the invention is to provide in a machine of the character stated novel

means for overlying the turret pockets as they travel between the cover feed station and the position of the abutment block at the preassembly station for assuring against any upward displacement of the covers from the pocket recesses.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims, and the several views illustrated in the accompanying drawing.

In the drawings,

Figure 1 is a diagrammatic plan view illustrating the relation of the turret, the vacuum shoe and seal plates, the seaming head, the cover feed, the sealed can feed and the closed can discharging means, the seaming head being shown swung to an out-of-the-way position in dot and dash lines.

Figure 2 is a vertical cross section taken through the machine through the centers of the seaming head and the cover feed means, parts broken away to better illustrate the drive connections between the main drive shaft and the seaming mechanism drive shaft.

Figure 3 is a fragmentary horizontal section illustrating the means for effecting lifting or lowering of the seaming head.

Figure 4 is an enlarged fragmentary vertical section on the same line which Figure 2 was taken but looking in the opposite direction.

Figure 5 is a fragmentary face view illustrating the arrangement of the spill trap and the suction source connection.

Figure 6 is a fragmentary plan view illustrating the cover placing plate, the hold-down plate and the abutment block, said hold-down plate and said block being mounted at the cover feed station and the cover and can preassembly station respectively.

Figure 7 is a fragmentary side elevation illustrating a turret pocket disposed beneath the cover placing plate.

Figure 8 is a fragmentary vertical cross section taken through a turret pocket positioned at the cover feed station.

Figure 9 is a detail plan view illustrating the lower seal plate.

Figure 10 is a detail plan view illustrating the upper seal plate.

Figure 11 is a detail plan view illustrating the vacuum shoe.

Figure 12 is an enlarged fragmentary vertical section through a turret pocket positioned at the preassembly station, the can being shown as lifted to the preassembly position and the four-motion feed dog as having started its movement of retraction.

Figure 13 is a vertical cross section through the pocket and parts illustrated in Figure 12.

Figure 14 is an enlarged sectional view showing fragments of a can and closure complement preassembled in a turret pocket.

In the example of embodiment of the invention herein disclosed the machine includes a base framing A whereon is mounted a peripherally pocketed turret B which is indexed, station by station, to present its pocket at a cover feed station C whereat the covers are fed into the turret pockets, a filled can feeding or preassembly station E whereat the filled cans are fed into the turret pockets by feeding devices generally designated F and lifted into preassembly contact with their complementary covers, a closing station G whereat the covers are secured on the cans by seaming devices generally designated H after evacuation of air from the cans, and a discharging station I whereat the vacuumized and closed cans are discharged from the turret pockets by discharging devices generally designated J.

In the machine framing A there are arranged bearings 5 in which there is rotatably mounted a drive shaft 6 having a driver pulley 7 loosely mounted thereon, the latter being driven by a belt 8 from a power source not shown. Rotation of the pulley is imparted to the shaft only when clutch mechanism generally designated 9 is properly actuated, and the shaft 6 is equipped with a hand wheel 10 so that the various mechanisms of the machine can be turned over by hand whenever it is desired to do so.

The horizontally disposed shaft 6 has a bevel gear 11 secured thereon which meshes with a bevel gear 12 affixed to a vertically disposed shaft 13 rotatable in bearings provided therefor in the frame well 14. The shaft 13 has a spur gear 15 secured on its lower end, and this spur gear meshes with a spur gear 16 of like diameter fixed on the lower end of a seaming mechanism drive shaft 17 which is rotatable in an upright position in bearings 18 provided therefor in the frame well 19.

The seaming mechanism drive shaft 17 extends upwardly through a large supporting sleeve or support column 20 which is oscillatably mounted in a frame well 21. A portion of the sleeve 20 is externally threaded as at 22 and is surrounded by an internally threaded adjustor sleeve 23 which is supported on a thrust bearing 24. The adjustor sleeve includes a worm wheel portion 25 which is engaged by a worm gear 26 secured on an adjustor shaft 27 which is rotatable in frame bearing 28 and equipped with a hand wheel 29. See Figure 3. It will be obvious that by rotating the hand wheel 29 in one direction or the other, rotation of the captive sleeve 23 will be effected and lifting or lowering movement will be imparted to the seaming head supporting sleeve or support column 20 according to the direction in which the hand wheel is turned. A latch bolt 30 is slidably mounted in a frame bearing 31 and is insertible into a recess 32 in the seaming head supporting sleeve or support column 20 so as to be effective to secure the sleeve against rotary movement about its axis when it has been moved to bring about an out-of-the-way positioning of the seaming head in the manner illustrated in dot and dash lines in Figure 1.

A turret shaft 33 is supported uprightly in frame bearings 34 and 35 and has an indexing head secured to its lower end in the manner best illustrated in Figures 2 and 4 of the drawings. The indexing head is equipped with a plurality of equidistantly spaced depending rollers 36, there being one roller for each turret pocket or station. The turret B is secured on top of the shaft 33 and includes a skeletonized body 37 having 8 equidistantly spaced and radially disposed peripherally open pockets 38. Each pocket has a pair of can side engaging and guiding projections 39 therein, spaced a distance above the bottom of the pockets sufficient to permit lifting of the cans in the pockets, and a cover supporting ledge 40 confined at the outer or open end thereof by a pair of cover holder lugs 41 each having an inwardly projected or overhanging portion 42. It will be apparent by reference to Figure 6 of the drawings that the lug portions 42 so engage the outer corners of a cover properly seated on its receiving ledge 40 that said cover will be securely held against radial outward movement.

The desired indexing of the turret is effected in a manner well known in the art by an indexing cam 43 engageable with the indexing rollers 36, said cam being fixed on the cam shaft 44 which is rotatably supported in a horizontal position in the machine frame and driven by a worm wheel couple 45 with the main drive shaft 6.

A sleeve 46 is rotatable about the turrent shaft 33 and rests on a thrust bearing 47. The sleeve is equipped with a spur gear 48 at its upper end and has a barrel cam 49 secured thereto, the latter being equipped with a preassembly pad lifting and lowering groove 50 and a chucking pad lifting and lowering groove 51. The sleeve 46 and the attached cam 49 are driven by a spur gear 52 which meshes with the cam gear 48 and is secured on the upper end of a shaft 53 rotatable in a vertical position in a frame bearing 54. At its lower end, the shaft 53 is bevel gear coupled as at 55 with a horizontally disposed drive shaft 56 which is rotatable in a frame bearing 57 and is driven through the medium of a spur gear couple 58 with a driver shaft 59 rotatable in frame bearings 60 and in turn driven through the medium of a bevel gear couple 61 with the cam shaft 44. The shaft 56 also has a bevel gear couple 62 with a captive sleeve 63 rotatably mounted in the frame bearing 64 and having a spline connection with the cover feed drive shaft 65. See Figures 2 and 4.

At the position of the closing station G and extending over slightly more than one full station at each side thereof, a bottom seal plate 66 is secured upon the machine frame. See Figures 1 and 9. The plate 66 is equipped with an opening for accommodating the positioning and movement of the chucking pad which will be referred to hereinafter. Upon the plate 66 is secured an arcuate vacuum shoe 68, said shoe being shown in detail in Figure 11. The turret periphery opposing face of the shoe is equipped with an arcuate vacuum clearance 69, and the shoe is equipped with a vacuum duct 70 leading through the bottom thereof and into the clearance 69, said duct opening downwardly into a spill duct 71 surrounding the closing station G below the seal plate 66 and having a low point 72 which connects through a frame duct 73 with a vacuum source connection 74, said duct 73 also leading into a spill trap 75 in the manner best illustrated in Figure 5. The shoe 68 is provided at its upper face with upwardly projected dowels 76 for engaging in recesses and definitely placing the top seal plate 77 which is secured upon the shoe 68. The top seal plate 77 is provided with a can passing center opening 78 and an upstanding centering boss surrounding said opening and which will be referred to again hereinafter. The boss is surrounded by a vacuum seal gasket 80.

It will be apparent by reference to Figures 1, 2 and 4 of the drawings that the periphery of the turret B snugly engages the arcuate inner surface of the vacuum shoe 68, and the upper and lower surfaces of the turret snugly engage the upper and lower surfaces of the lower and upper seal plates 66 and 77. It will be apparent by reference to Figure 1 that the shoe and plates are so proportioned that three of the turret pockets will engage with the shoe between the upper and lower seal plates. The vacuum clearance 69 is of a length for extending slightly past a pocket disposed at the closing station G, and in the opposite direction far enough to communicate with a pocket disposed in the station preceding the closing station. The turret engages in air tight

contact with the inner surface of the shoe and the opposing surfaces of the seal plates, and in order to facilitate the air seal it is preferred that the inner face of the shoe which opposes the periphery of the turret be lapped and scraped, and that the turret opposing faces of the seal plates be ground and lapped, and also chromium plated and polished.

The seaming head, including the seaming devices hereinbefore generally designated H and referred to as located at the closing station G, includes a seaming head casing 81 wherein the seaming devices are housed. The casing is secured at 82 on the supporting sleeve or support column 29 and the sleeve is normally adjusted so that the bottom plate 83 of the casing rests upon the top seal plate 77 in the manner clearly illustrated in Figures 2 and 4 of the drawings with the top seal plate boss 79 snugly seated in the opening in the bottom plate 83 and with the casing effectively sealed against ingress of air by contact of said bottom plate with the sealing gasket 80. It is to be understood that a vacuum is continuously drawn in the shoe 68, in the three turret pockets disposed between the upper and lower seal plates 77 and 66 as illustrated in Figure 1, and in the communicating interior of the seaming head casing 81. The casing is provided with a gage 84 so that the state of the vacuum drawn in the casing, the turret pockets and the shoe always will be apparent to an operator observing the operation of the machine.

The seaming device drive shaft 17 is spline connected as at 85 to the drive gear sleeve 86 within the seaming head and imparts rotation to the gearing generally designated 87 through which the rotor 88 and the cam drive gear 89 of the seaming head are rotated. The chuck against which the cans are lifted and which is surrounded by the seaming rolls and levers is indicated at 90. It is believed unnecessary to describe the specific structure and operation of the seaming head parts since any approved square can seaming mechanism can be employed and an example of the particular form of seaming means is fully disclosed in U. S. Letters Patent 2,271,152 issued to A. L. Kronquest on January 27, 1942.

A chucking pad 91 is disposed in and operates through the opening 67 in the lower seal plate 66, and the pad 91 is supported on a stem 92 equipped with a roller 93 which engages in the lifting and lowering groove 51 in the barrel cam 49. See Figures 2 and 4.

The cover feed drive shaft 65 drives the rotor 94 and the crank gear 95 which form a part of the device for imparting straight line reciprocation to the feed dog 96 by which the can closures or covers 97 are fed one by one from the stack 98 past the marker 99 to the turret pockets as they are serially presented at the cover feed station C. The vertically reciprocable marker 99 is reciprocated by the rotary grooved cam 100 which is driven through the medium of the gear couple 101 from the feed drive shaft 65.

While the covers are being fed to the serially presented turret pockets they slide over guides 102 which accurately guide them onto the receiving ledges 40 of the turret pockets. An arcuate bracket plate 103 is preferably hingedly mounted as at 104 on the machine framing and is equipped with bracket pieces 105 which are secured in parallel spaced relation to the under surface of the plate 103, one thereof being disposed at each side of a pocket presented at the cover feed station C. The inner ends of the pieces

105 provide a pivotal support as at 106 for a cover seating plate 107 which is equipped at its outer end with a cam nose portion 108 presented in alignment with the cover guide ways 102. See Figures 6, 7 and 8. A plunger 109 projecting upwardly from the free end of the plate 107 extends through an opening in the bracket plate 103, and a compression spring 110 surrounds the plunger 109 between the upper surface of the seating plate 107 and the under surface of the bracket plate 103 and serves to yieldably depress the outer end of the plate to the extent permitted by the stops 111 which overhang and engage portions of the pieces 105 in the manner illustrated in Figures 6 and 7. As each cover is forced under the plate 107 and onto the receiving ledge 40 of the turret pocket then presented at the cover feed station C, its advance end will ride over the inwardly projected or overhanging portion 42 of the retainer lugs 41 of said pocket, and as the corners of the trailing end of the cover pass over and inwardly beyond said lug portions 42, said end will be depressed by the spring pressed plate 107 and accurately placed behind said lug portions in the position clearly illustrated in Figure 6, thereby assuring against objectionable radial outward displacement of covers on the receiving ledges 40 of the pockets.

In order to assure against displacement upwardly of the covers while the turret is being indexed from the cover feed station C to the preassembly station E, an arcuate hold-down track or plate 112 is secured to and beneath the bracket plate 103 in the manner clearly illustrated in Figures 6 and 7 of the drawings. The plate 112 is shaped at its end as at 113 to bear angular relation to a line drawn radially from the turret center and to conform to the shape of the extended angular portion 114 of the abutment block 115 which is screw secured as at 116 to the supporting bracket 117 which is in turn rigidly secured as at 118 to the seaming head housing 31. See Figures 1, 6, 12 and 13. The lift pad 119 disposed at the preassembly station E has a supporting stem 120 equipped with a roller 121 which engages in the preassembly pad lifting and lowering groove 50 of the barrel cam 49. As each filled can is fully seated in the turret pocket presented at the preassembly station E and upon the lift pad 119, said pad is lifted by action of the cam groove 50 to lift the can into preassembled relation or contact with the complementary cover 97 in the manner illustrated in Figures 12 and 13, the lifted position of the pad being illustrated in said figures in full lines and the lowering positions of said pad being indicated in dotted lines in Figure 12.

Any approved filled can feeding means may be employed for feeding filled cans into the turret pockets, and vacuumized and closed cans from said pockets in the manner diagrammatically illustrated in Figure 1, and an example of such mechanism is illustrated in detail in U. S. Letters Patent 2,346,511 issued to Otto A. Schmitt on April 11, 1944. An acceptable feed mechanism is somewhat diagrammatically illustrated in the present disclosure and forms the subject matter of a copending application for U. S. Letters Patent filed by Alfred L. Kronquest on June 24, 1944, and identified by Serial No. 542,020, now Patent No. 2,378,855.

The feeding mechanism above referred to as forming the subject matter of a copending patent application includes a horizontally reciprocable thrust bar 122 which is reciprocated in properly timed relation to the moving parts of the machine and driven from a moving part of the machine by means not shown. This feeding mechanism also includes an endless chain 123 provided with suitably spaced feed lugs 124 for feeding the filled cans 125 over feed-ways 126 to a point short of the turret pocket presented at the preassembly station E, as will be apparent by reference to Figures 1 and 12 of the drawings. A four-motion feed dog 127 serves to feed the filled cans from the terminus of the feeder chain 123 to the turret and into the pockets thereof as they are serially presented at the preassembly station E. The four-motion feed dog is mounted on a slide 128 which is laterally reciprocable in a guide provided therefor in a head 129 which is secured to one end of the reciprocable thrust bar 122 as shown in Figure 1. The slide 128 is laterally reciprocated by a rocker arm 130 which is fork connected at one end to the slide, pivoted intermediate its ends as at 131 on the head 129 and has a roller provided at its other end engaged in a longitudinal groove on a slide 132 which is laterally slidable by operation of the rotary cam and roller connection, generally designated 133. By combination of the lateral sliding movement of the slides 128 and 132 and the longitudinal movement of the head 129, the four motion feed dog 127 is caused to follow a horizontal four-motion feed path as indicated at 134 in Figure 1. In other words on the effective portion of the travel of the feed dog it moves behind the can engaged by a chain lug just before reaching the end of the chain 123 and takes over the feeding of the can so as to move it away from the chain 123, onto the pad 119 and fully into the turret pocket presented at the preassembly station, and then on the return stroke said dog 127 moves laterally and away from the can to its fully retracted position from which it will again move laterally and forwardly to properly come behind the filled can next brought along by a lug on the feed chain 123.

At the other end of the reciprocating thrust bar 122 there is secured a head 135, this head has upper and lower grippers 136 pivotally mounted on the upper and lower ends thereof. One gripper is equipped with an actuator roller 137 to one side of its pivotal connection with the head, and the other gripper is equipped with an actuator roller 138 disposed at the opposite side of its pivotal connection with the head. Each roller engages in a horizontal guide groove 139 mounted on a vertically reciprocable member 140, and it will be apparent that because of the relation of the roller 138 with respect to the pivotal mounting of the respective levers the ends of the grippers extended toward the turret pocket presented at the discharging station I will be moved apart each time the member 140 is lifted and will be moved together each time said member 140 is lowered. The member 140 is lifted as the bar 122 is moved into a direction for moving the grippers 136 toward the turret, and then moves downwardly as the ends of the grippers nearest the turret come over and under the outer end of the closed can in the turret pocket presented at the discharge station so as to cause said grippers to grip the can above and below and retain the grip as the head 135 moves back with the reciprocating bar 122 thereby to withdraw the closed can from the turret pocket and place the same in position for being carried away by the chain conveyor 141. After each can has been withdrawn in the manner stated the member 140 again moves down so as to separate the grippers and position them

for any movement toward the turret. By this means a four-motion feed movement in the vertical plane is imparted to the can engaging end of each gripper member 136.

Operation

In operation of the machine, a vacuum is continuously drawn in the shoe 68, the turret pockets presented between the upper and lower seal plates 77 and 66 and in the interior of the seaming head casing 81. As each filled can is presented at the end extremity of the feeder chain 123, that is at a point spaced from the turret B, the four-motion feed dog 127 moves in behind the can and then, moving in a rectilinear path pushes the can onto the preassembly pad 119 and into the turret pocket 38 then presented at the preassembly station E. After the can 125 has been fully seated in the pocket 38, the pad 119 is lifted by action of the cam groove 51 on the pad stem roller 93 and the can is lifted into preassembly contact with the complementary cover 97 in the manner clearly illustrated in Figure 13. It frequently happens that a portion of the fill will project above the open top of the can 125 and the upward movement of the can incident to the can and cover preassembly above referred to might tend to displace the complementary cover 97 from the receiving ledge 40 in the pocket except for the contact of the cover with the fixedly mounted abutment block 115 which is disposed over the turret pocket presented at the preassembly station in the manner clearly illustrated in Figures 1 and 13.

Prior to arrival of each turret pocket at the preassembly station a cover 97 is fed onto the receiving ledge 40 at the cover feed station C, being definitely placed in the pocket by action of the spring pressed plate 107 in the manner hereinbefore described. The pocket lugs 42 prevent radial outward displacement of the covers, and upward displacement of the covers is prevented by the arcuate hold-down plate 112 while the covers are moving with the turret from the cover feed station C to the preassembly station E. The angular relation of the terminus 113 of the plate 112 and the angular extension 114 of the abutment block 115 assures that the covers will not be caused to engage abrupt edge portions which might tend to displace them while travelling into a centered position beneath the block in the manner illustrated in Figure 13.

After a can and its complementary cover have been preassembled at station E in the manner above described, the turret pocket carrying the preassembled can moves between the lower and upper seal plates 66 and 77 and has the open outwardly directed portion thereof sealed by engagement with the vacuum shoe 68. As the pocket opening registers with the shoe clearance 69 and while the pocket is travelling to the closing station G it will be evacuated and air will be evacuated from the interior of the filled can about the upper end of the can and beneath the cover 97 which is assembled but not secured on the can.

At the closing station E the vacuumized can is lifted through the opening 78 on the top seal plate 77 and into contact with the chuck 90 of the seaming mechanism, after which the seaming rolls forming a part of the seaming mechanism will be brought into action to securely close and seal the can, after which the pad 91 will again lower the vacuumized and closed can to the level of the upper surface of the lower seal plate 66.

The vacuumized and closed can is thereafter indexed to the discharge station I at which the gripper members J engage the can above and below and draw it out of the turret pocket and into position for being engaged and conveyed away by the conveyor 142.

Whenever it is desired to gain free access to the closing station G or parts thereabout including the vacuum shoe and the cooperating upper and lower seal plates, the hand wheel 29 may be actuated to effect a lifting of the seaming head supporting sleeve or support column 20 so as to free the bottom plate 83 of the casing 81 from the placing boss 79 of the top seal plate 77. With the seaming head thus freed from the boss 79, the whole seaming head may be swung about the axis of the supporting sleeve or column 20 and within the frame well 24 to the out-of-the-way position indicated in dot and dash lines in Figure 1. The provision of the thrust bearing 28 greatly facilitates this swinging away of the seaming head, and by use of the latch bolt 30 and the sleeve or column recess 32 the seaming head may be securely held in the out-of-the-way position. It will also be obvious that the vertical adjustment of the seaming head will greatly facilitate changing over the machine to adapt it for vacuumizing and closing cans of different heights. If the heights and no other dimensions of the cans are changed it will only be necessary to replace the turret B and the vacuum shoe 68 with parts of the necessary depth, but if other dimensions of the cans are changed, it will, of course, be necessary to change the sizes of the lifting and lowering pads and also to substitute appropriately sized top and bottom seal plates.

While one form of the invention has been shown for purposes of illustration, it is to be clearly understood that various changes in the details of construction and arrangement of parts may be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. In a can closing machine, a frame, a plate supported in horizontal position on said frame, a peripherally pocketed turret mounted uprightly on the frame and extending beneath said plate, said plate having an upstanding centering boss and a can passing opening therein, means for indexing the turret to serially present turret pockets and can and cover complements therein beneath said opening, a support column swingable about a vertical axis parallel to the axis about which the turret is indexed, a seaming head mounted on and swingable with said column and including a chuck and cooperating seaming devices within a casing having a bottom plate equipped with an opening dimensioned to snugly receive said boss, a vertically reciprocable pad for effecting a chucking of the serially presented can and cover complements through said plate opening, and means for lifting and lowering the column so that the head can rest upon said plate with its boss in the bottom plate opening or be elevated clear of said boss and swung to an out-of-the-way position.

2. Machine structure as defined in claim 1 in which the column lifting and lowering means comprises a captive sleeve threadably connected with and surrounding the column and having a worm wheel portion, a worm gear rotatably supported on the frame and meshing with the worm wheel, and a hand wheel secured to the worm gear for rotating the same.

3. Machine structure as defined in claim 1 in

which the seaming head supporting column has a recess therein, and in which there is included a latch bolt slidably mounted on the frame and insertable into the recess when the head is swung to an out-of-the-way position for securing the head in said position.

4. Machine structure as defined in claim 1 in which the column lifting and lowering means comprises a captive sleeve threadably connected with and surrounding the column and having a worm wheel portion, a worm gear rotatably supported on the frame and meshing with the worm wheel, and a hand wheel secured to the worm gear for rotating the same, and in which the seaming head supporting column has a recess therein, and there is included a latch bolt slidably mounted on the frame and insertable into the recess when the head is swung to an out-of-the-way position for securing the head in said position.

5. In a can vacuumizing and closing machine, a frame, a plate supported in horizontal position on said frame, a peripherally pocketed turret mounted uprightly on the frame and extending beneath said plate, said plate having an upstanding centering boss and a can passing opening therein and a sealing gasket surrounding said boss, means for indexing the turret to serially present turret pockets and can and cover complements therein beneath said opening, a support column rotatable about a vertical axis parallel the axis about which the turret is indexed, a seaming head mounted on and swingable coincidental with the rotary movement of said column and including a chuck and cooperating seaming devices within a casing having a bottom plate equipped with an opening dimensioned to snugly receive said boss, means through which a vacuum may be drawn in the seaming head and in a pocket communicating therewith through said boss opening, a vertically reciprocable pad for effecting a chucking of the serially presented can and cover complements through said plate opening, and means for lifting and lowering the column so that the head can rest upon said plate gasket for sealing the drawn vacuum and with the plate boss in the bottom plate opening or be elevated clear of said boss and swung to an out-of-the-way position.

6. In a can vacuumizing and closing machine, a frame, a bottom seal plate and a top seal plate secured in parallel spaced relation on said frame, a peripherally pocketed turret mounted uprightly on the frame and having the upper and lower faces at one side thereof engaging in snug sliding fit between said plates, said top seal plate having an upstanding centering boss and a can passing opening therein and said bottom seal plate having an opening therein registering with the top seal plate opening, means for indexing the turret to serially present turret pockets and can and cover complements therein in line with said registering openings, a vacuum shoe secured between the seal plates and engaging in snug sliding fit against the periphery of the turret over a multiple of pockets, a support column rotatable about a vertical axis parallel the axis about which the turret is indexed, a seaming head mounted on and swingable coincidental with the rotary movement of said column and including a chuck and cooperating seaming devices within a casing having a bottom plate equipped with an opening dimensioned to snugly receive said boss, means through which a vacuum may be drawn in the shoe, the multiple of pockets opposing the shoe

and in the seaming head, a vertically reciprocable pad operable in the bottom seal plate opening for effecting a chucking of the serially presented can and cover complements through the top seal plate opening, and means for lifting and lowering the column so that the head can rest in vacuum sealing contact upon the top seal plate with the boss in the casing bottom plate opening or be elevated clear of said boss and swung to an out-of-the-way position.

7. Machine structure as defined in claim 6 in which the seaming head supporting column has a recess therein, and in which there is included a latch bolt slidably mounted on the frame and insertable into the recess when the head is swung to an out-of-the-way position for securing the head in said position.

8. Machine structure as defined in claim 6 in which the column lifting and lowering means comprises a captive sleeve threadably connected with and surrounding the column and having a worm wheel portion, a worm gear rotatably supported on the frame and meshing with the worm wheel, and a hand wheel secured to the worm gear for rotating the same, and in which the seaming head supporting column has a recess therein, and there is included a latch bolt slidably mounted on the frame and insertable into the recess when the head is swung to an out-of-the-way position for securing the head in said position.

9. Machine structure as defined in claim 6 in which each turret pocket includes a recess in which to receive a can cover, and in which is included a cover feed station and means thereat for feeding covers into the pocket recesses serially presented at the cover feed station, and a can and cover preassembly station, means for feeding a can into each pocket presented at the preassembly station and beneath the cover therein, and a vertically reciprocable pad onto which the cans are pushed at the preassembly station and which is timed to lift each can into preassembly contact with the overlying complementary cover after the can has been pushed all the way into the respective pocket, and a fixedly mounted abutment block closely overlying each pocket carried cover presented at said preassembly station.

10. Machine structure as defined in claim 6 in which each turret pocket includes a recess in which to receive a can cover, and in which is included a cover feed station and means thereat for feeding covers into the pocket recesses serially presented at the cover feed station, and a can and cover preassembly station, means for feeding a can into each pocket presented at the preassembly station and beneath the cover therein, and a vertically reciprocable pad onto which the cans are pushed at the preassembly station and which is timed to lift each can into preassembly contact with the overlying complementary cover after the can has been pushed all the way into the respective pocket, and an abutment block closely overlying each pocket carried cover presented at said preassembly station, said abutment block being fixedly secured to and swingable with the seaming head.

11. Machine structure as defined in claim 6 in which each turret pocket includes a recess in which to receive a can cover, and in which is included a cover feed station and means thereat for feeding covers into the pocket recesses serially presented at the cover feed station, and a can and cover preassembly station, means for feeding a

can into each pocket presented at the preassembly station and beneath the cover therein, and a vertically reciprocable pad onto which the cans are pushed at the preassembly station and which is timed to lift each can into preassembly contact with the overlying complementary cover after the can has been pushed all the way into the respective pocket, a fixedly mounted abutment block closely overlying each pocket carried cover presented at said preassembly station, and a hold down plate overlying turret pockets in their travel between the cover feed station and the preassembly station, said hold down plate and said abutment block having their under surfaces disposed in a common plane and including mutually contacting edge portions bearing angular relation to a line extended radially from the center of the turret.

12. In a machine of the character described, an indexed turret having a plurality of equidistantly spaced peripherally open pockets shaped to receive rectangular can bodies each said pocket having a ledge recess in which to receive a cover to fit on a can received in said pocket, overhanging lugs mounted at the outer limits of each ledge recess and effective to confine a cover against radial outward movement on said ledge, a cover feed station, means at said station for feeding a cover radially inwardly over the lugs and onto the ledge of each pocket presented at said station, and a single presser means mounted at said station with which each pocket registers as it is presented at said station and effective for pressing the trailing edge portion of each cover so fed onto said ledge as said trailing edge portion passes inwardly beyond the particular pocket lugs.

13. In a machine of the character described, an indexed turret having a plurality of equidistantly spaced peripherally open pockets shaped to receive rectangular can bodies each said pocket having a ledge recess in which to receive a cover to fit on a can received in said pocket, overhanging lugs mounted at the outer limits of each ledge recess and effective to confine a cover against radial outward movement on said ledge, a cover feed station, means at said station for feeding a cover over the lugs and onto the ledge of each pocket presented at said station, and means mounted at said station with which each pocket registers as it is presented at said station and effective for downwardly pressing the trailing edge portion of each cover so fed onto said ledge as said trailing edge portion passes inwardly beyond the particular pocket lugs, said last named means comprising a plate supported in position for overlying each pocket as it is presented at the cover feed station, stationarily mounted means for pivotally supporting the plate at the end thereof nearest the turret center, and means yieldably urging the plate downwardly at the end thereof remote from the turret center and overlying the outer extremities of the underlying cover ledge.

14. In a machine of the character described in which there are provided a cover feed station, a cover and can preassembly station, a can closing station, and a peripherally pocketed turret which is indexed to serially present the pockets at said stations, a fixedly mounted abutment block closely overlying each pocket carried cover presented at the preassembly station, a hold down plate overlying turret pockets in their travel between the cover feed station and the preassembly station and having an end thereof extended in close proximity to the abutment block, a bracket hingedly mounted so as to be swingable between operative and out-of-the-way positions and supporting the hold down plate, each turret pocket having a ledge recess in which to receive a cover complementary to a can to be received in the same pocket, overhanging lugs mounted at the outer limits of each ledge recess and effective to confine a cover against radial outward movement on said ledge, and means carried by said bracket for pressing the trailing edge portion of each cover onto said ledge as said trailing edge portion passes inwardly over the particular pocket lugs.

15. Machine structure as defined in claim 6 in which the means through which the vacuum may be drawn includes a duct in the frame and opening upwardly into the vacuum shoe.

16. Machine structure as defined in claim 6 in which the means through which the vacuum may be drawn includes a duct in the frame and opening upwardly into the vacuum shoe, and in which there is included in the frame a spill duct surrounding the chucking pad and connecting with said frame duct.

17. Machine structure as defined in claim 6 in which the means through which the vacuum may be drawn includes a duct in the frame and opening upwardly into the vacuum shoe, and in which there are included a spill duct surrounding the chucking pad and connecting with said frame duct, a spill trap into which the frame duct deposits, and a suction duct connected with the frame duct above said trap.

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