Nov. 24, 1925. 1,562,938

D. L. BISSET

CAN END DRIER

Filed July 9, 1924 6 Sheets-Sheet 1

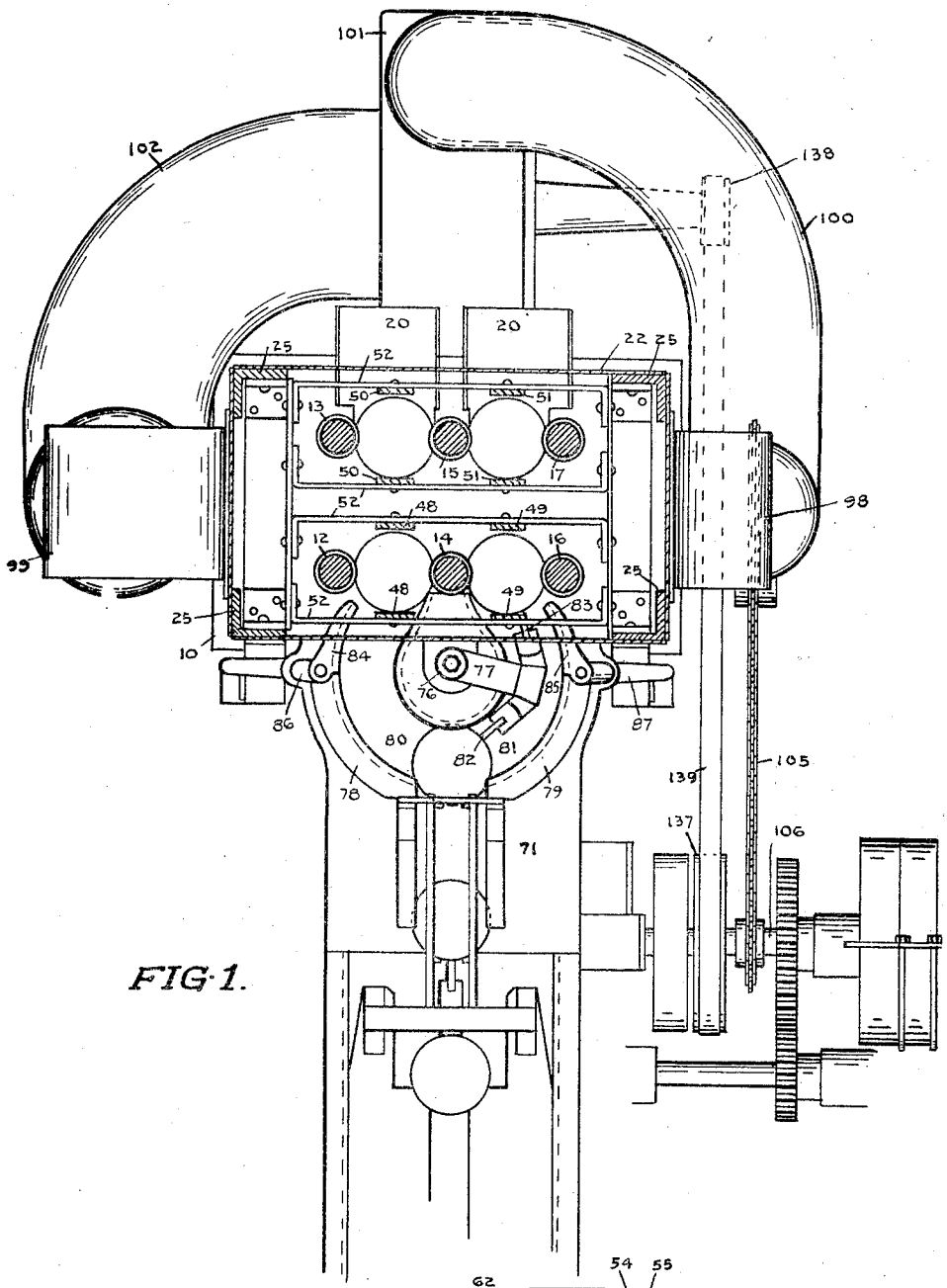



FIG. 1.

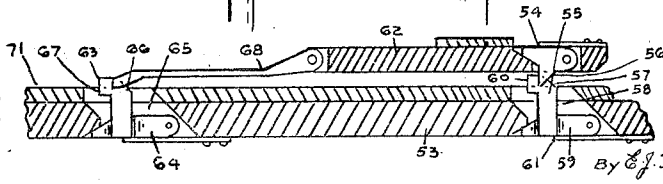



FIG. 7.

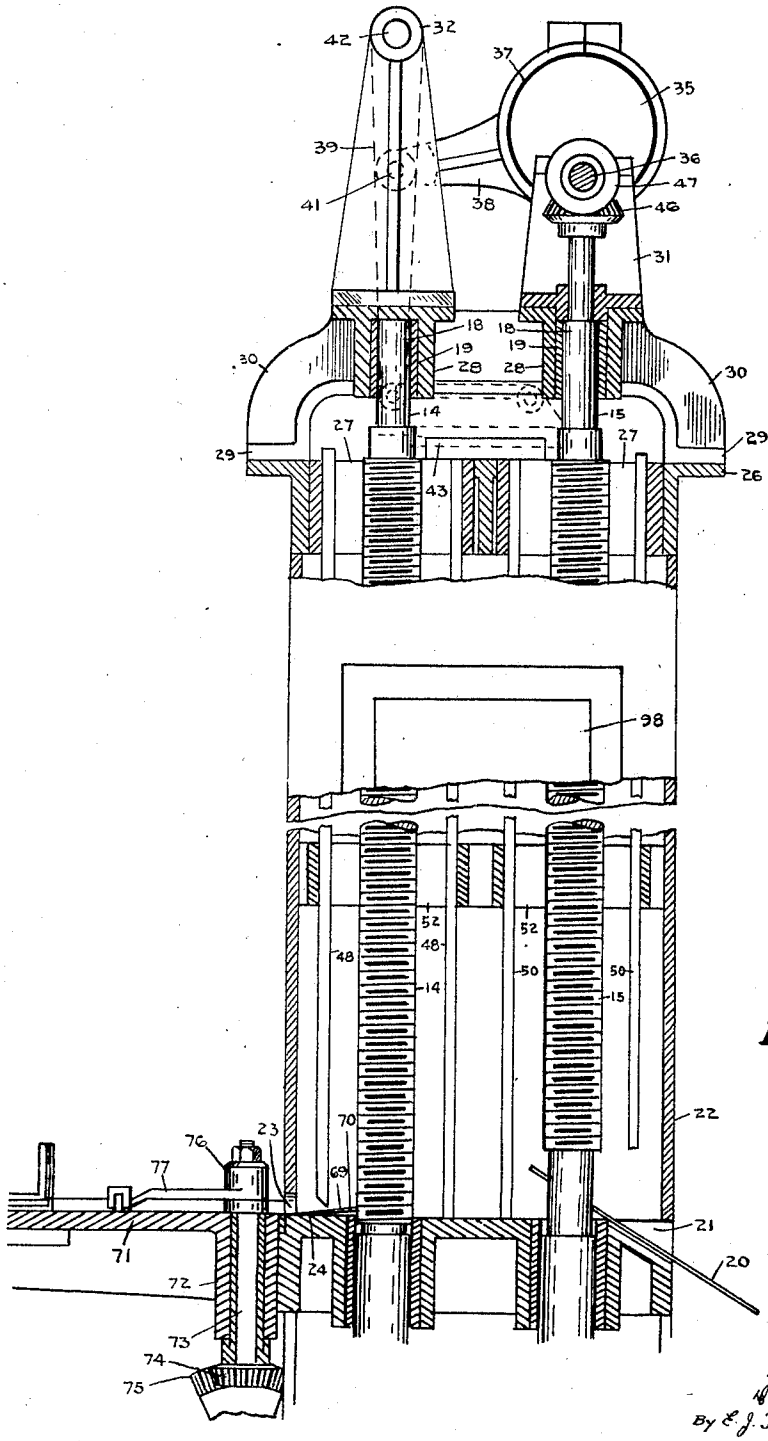
INVENTOR
D. L. Bisset.
By E. J. Fetherstonhaugh
ATTORNEY

Nov. 24, 1925. 1,562,938

D. L. BISSET

CAN END DRIER

Filed July 9, 1924 6 Sheets-Sheet 2




FIG·2.

INVENTOR
D. L. Bisset
By E. J. Fetherstonhaugh
ATTORNEY

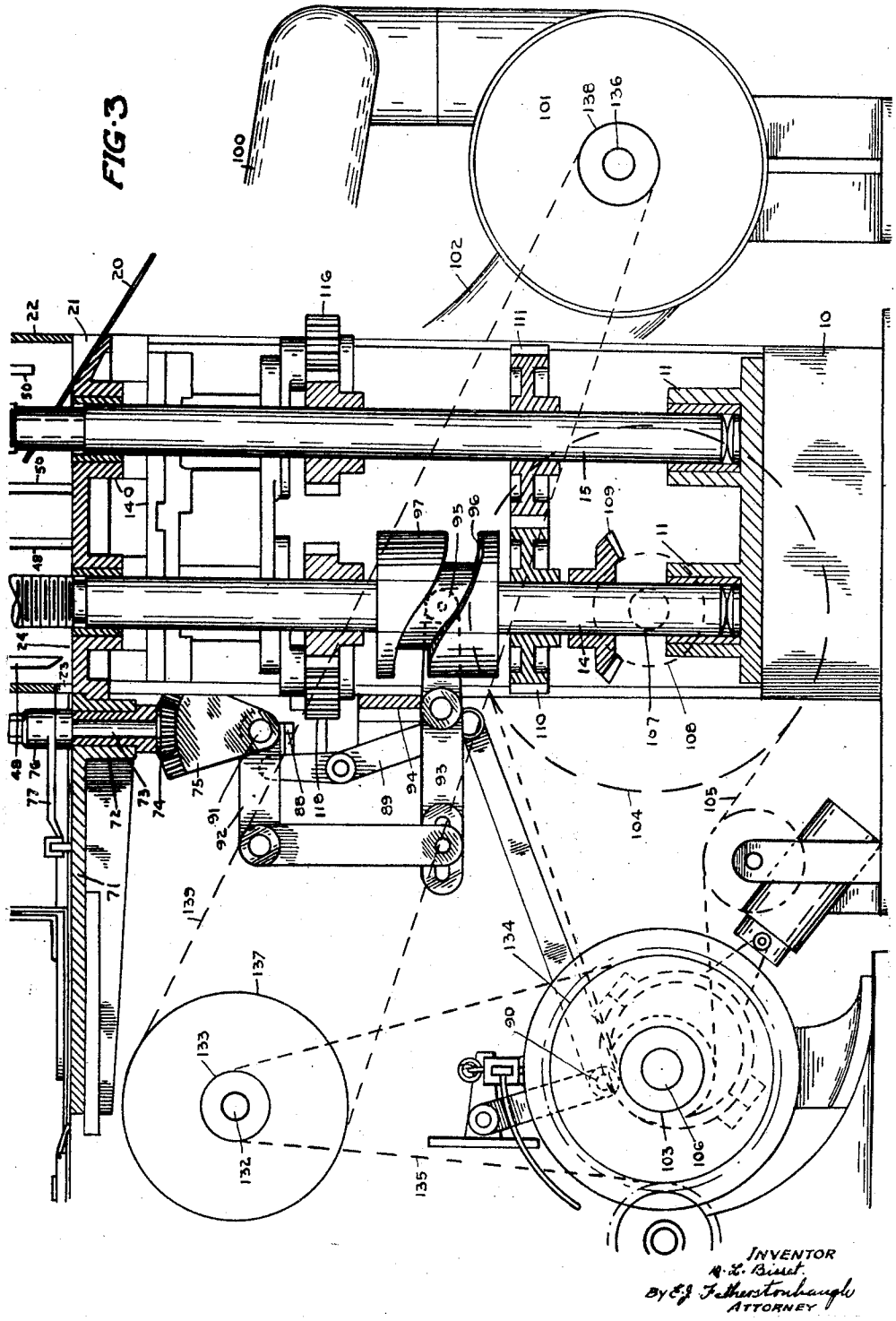
Nov. 24, 1925. 1,562,938

D. L. BISSET

CAN END DRIER

Filed July 9, 1924 6 Sheets-Sheet 3

FIG. 3




INVENTOR
D. L. Bisset.
BY E. J. Fetherstonhaugh
ATTORNEY

Nov. 24, 1925. 1,562,938

D. L. BISSET

CAN END DRIER

Filed July 9, 1924 6 Sheets-Sheet 4

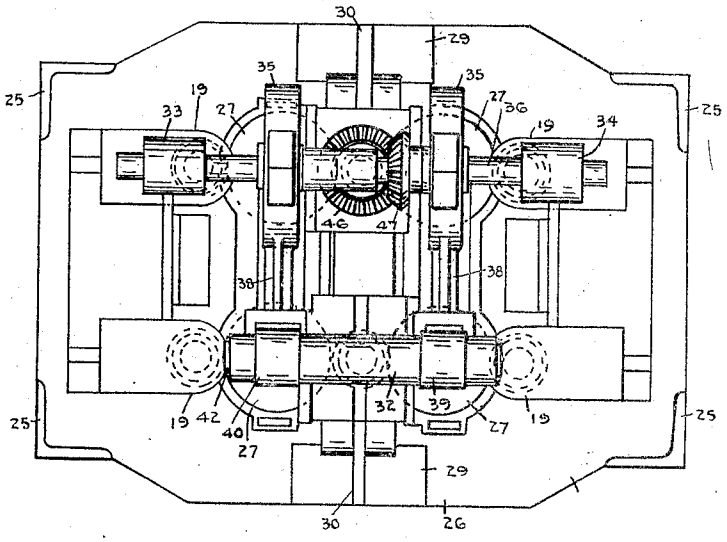



FIG. 4

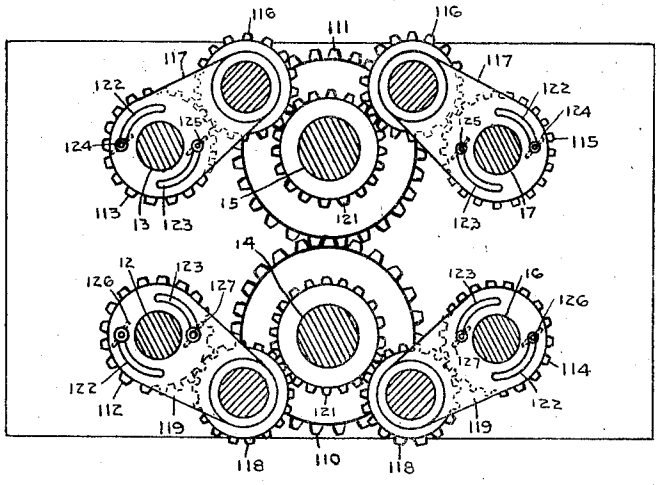



FIG. 5.

INVENTOR
D. L. Bisset.
By E. J. Fetherstonhaugh
ATTORNEY

Nov. 24, 1925. 1,562,938

D. L. BISSET

CAN END DRIER

Filed July 9, 1924 6 Sheets-Sheet 5

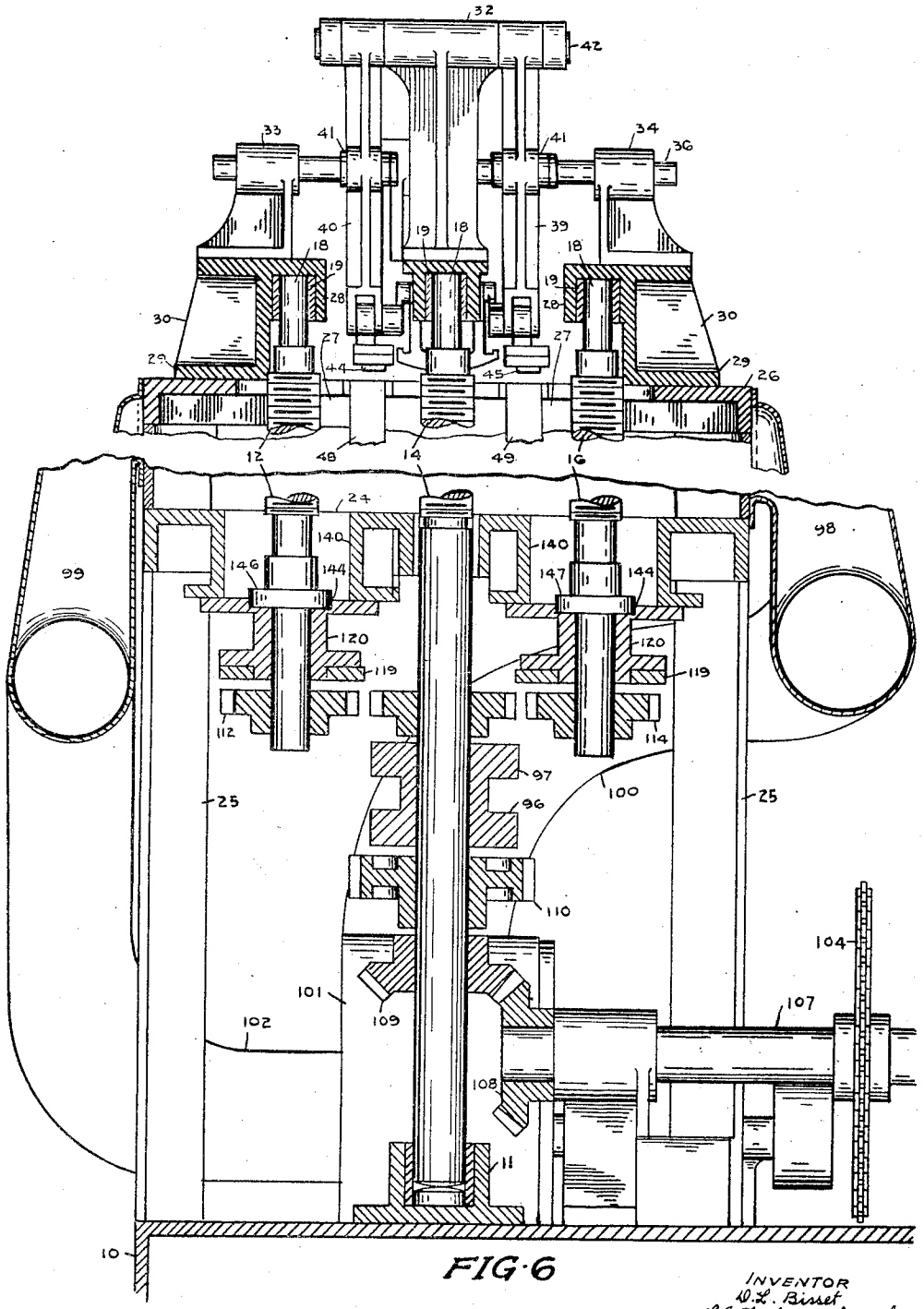



FIG. 6

INVENTOR
D. L. Bisset
By E. J. Fetherstonhaugh
ATTORNEY

Nov. 24, 1925. 1,562,938

D. L. BISSET

CAN END DRIER

Filed July 9, 1924 6 Sheets-Sheet 6

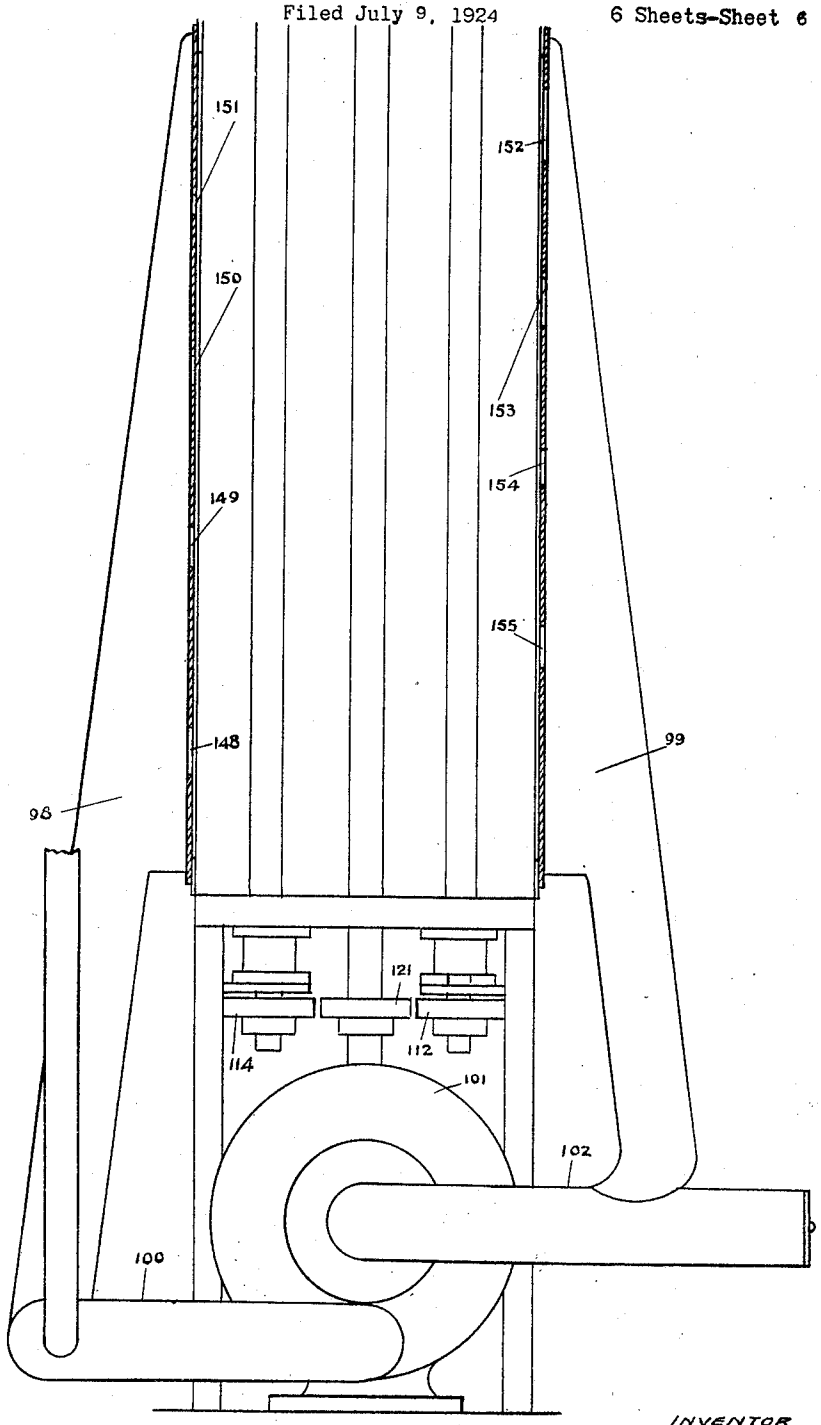



FIG. 8.

INVENTOR
D. L. Bisset
By E. J. Fetherstonhaugh
ATTORNEY

Patented Nov. 24, 1925. 1,562,938

# UNITED STATES PATENT OFFICE.

DAVID LOGAN BISSET, OF MONTREAL, QUEBEC, CANADA, ASSIGNOR TO A. R. WHITTAL CAN COMPANY, LIMITED, OF MONTREAL, QUEBEC, CANADA.

## CAN-END DRIER.

Application filed July 9, 1924. Serial No. 725,028.

*To all whom it may concern:*

Be it known that I, DAVID LOGAN BISSET, a subject of the King of Great Britain, and residing at the city of Montreal, in the Province of Quebec, in the Dominion of Canada, have invented a new and useful Can-End Drier, of which the following is the specification.

The invention relates to sanitary can end driers, as described in the present specification and illustration in the accompanying drawings that form part of the same.

The invention consists essentially of the novel features of construction pointed out broadly and specifically in the claims for novelty following a description containing an explanation in detail of an acceptable form of the invention.

The objects of the invention are to increase the output in can factories by facilitating the obsorption of the free water in raw gum gasket compositions used in sanitary can covers; to eliminate the deleterious influence of metal joints in food packages; to maintain during the operation a constant feed and delivery of can ends; and generally to insure despatch and efficiency in providing ends for the bodies without stopping during the manufacturing of the cans.

In the drawings, Figure 1 is a plan view of the elevating screw arrangement showing the latter in cross section.

Figure 2 is a vertical sectional view of the machine.

Figure 3 is a vertical view of the driving mechanism in section.

Figure 4 is a plan view of the machine head.

Figure 5 is a plan view of the gear connections of the vertical shafts.

Figure 6 is a vertical front sectional view of the machine showing the driving mechanism at right angles to Figures 2 and 3.

Figure 7 is a longitudinal sectional view of the feed mechanism.

Figure 8 is a diagrammatic view of the hot air circulation.

Like numerals of reference indicate corresponding parts in the various figures.

Referring to the drawings, the base 10 forms a support for the lower shaft bearings 11 and in which the lower ends of the central members 14 and 15 of the vertical shafts 12, 13, 14, 15, 16 and 17 are inserted. These shafts are arranged in parallel pairs 12 and 13 forming one pair, 14 and 15 another and 16 and 17 another, and are threaded for the greater portion of their height to elevate and lower the can ends and thereby allow them the required period for drying the gasket solution.

The vertical shafts are journalled at their upper ends 18 in the bearings 19 and the threads of the shafts 13, 15 and 17 do not extend downwardly as far as the threads of the shafts 12, 14 and 16 for the delivery chutes 20, must be below the threads in order that the can ends may release themselves and slide through the discharge opening 21 in the casing 22, the threads on the shafts 12, 14 and 16 extend downwardly to the feed openings 23, so that the can ends coming in from the feed mechanism may be engaged by the threads and elevated.

The casing 22 extends upwardly from the table 24 and is secured to the corner angle posts 25, which are secured at their lower ends to the base 10 and from the table upwardly rigidly held by the casing walls.

The bearing mounting 26 is supported by and secured to the angle posts 25 and is formed with the openings 27 into which the ends of cans pass in being transferred from one set of screws to the other set in elevating and lowering operations, therefore the several screws extend through these openings to the bearings 19, which are in the form of inverted cups 28 extending upwardly from a plate structure 29 having the reinforcing webs 30. The plate 29 is rigidly secured to the mounting 26 though removably so, as this particular member is adapted to regulate the spacing of the outer shafts from the central shafts according to the size of can end being dried.

The machine head 31 is rigidly secured to the top of the bearing 19 and removable therefrom to allow said bearing to be changed as mentioned in the foregoing paragraph. The machine head 31 extends upwardly in the centre and at its extreme upper end forms the pivot shaft bearings 32, and at each side extends upwardly and forms the bearings 33 and 34 lower than the bearings 32 and to the rear thereof.

The eccentrics 35 are mounted on the shafts 36 journalled in the bearings 33 and 34 and the eccentric straps 37 extend over

in the bars 38 to the pivoted levers 39 and 40 and are secured thereto by the pivots 41 intermediately of the distance between the pivot shaft 42 carrying said levers 39 and 40 and journalled in the bearings 32. The transfer shelf 43 is supported on the mounting 26 and the levers 39 and 40 have push bars 44 and 45 at the lower ends operating over this shelf forwardly and backwardly to move the can ends from the elevating screws to the lowering screws. The rear shaft 15 extends upwardly beyond the bearings 19 and carries at its upper end the bevel pinion 46 and this pinion 46 drives the pinion 47 mounted on the eccentric shaft 36, so that at each revolution of the shafts a can end is delivered to the push bars and transferred over the transfer shelf to the lowering screws and the said push bar return for the next end.

The vertical guide bars 48 and 49 and 50 and 51 are rigidly secured by the braces 52 above and below and extend upwardly from the table 24 except the outer guides adjacent to the feed and delivery openings 23 and 21 respectively, as these bars must terminate above the table to permit the can heads to enter the machine and be discharged.

In the feed mechanism the can ends are propelled from the machine that provides the gasket solution and which may here be termed by its shop name as the liner machine as it forms no part in this invention. These ends are sent forward one by one over the feed base 53 and to reach this base the can end forces its way through the spring-held dogs 54 and 55, which are bevelled on the backs 56 and 57. The dog 55 is pivotally secured in a slot 58 in the base 53 through the lug 59, extending outwardly from the lower end of said dog 55, while the upper end of the latter is offset forwardly to form the stop 60. The spring 61 holds the stop 60 to its normal position behind the can end.

The dog 54 is pivotally secured in the reciprocating carriage 62 and is adapted to engage the can end and propel it forwardly and leave it ahead of the dog 63 having the rearwardly extending lug 64 pivotally secured to the base 53 in the slot 65, said dog 63 being bevelled at 66 and offset at 67 to form a stop.

The dog 68 extends forwardly from the carriage 62 and is pivotally secured thereto and takes up the can end ahead of the stop 63 and propels it forwardly to be placed into position between two of the elevating screws over the ledges 69 and 70, where it is taken up by the threads and gradually to the top to be transferred to the lowering screws, the whole operation, that is to say, the raising and lowering taking the requisite time for the complete absorption of the free water in the raw gum gasket by the hot air circulating throughout the can ends during their passage through the enclosure.

The base 53 is secured to the shelf 71, which is rigid with the table 24. The latter forms the vertical bearing 72 extending downwardly and in this bearing 72 the pin 73 is journalled, the said pin 73 at its lower end carrying the gear 74 coacting with the segmental gear 75, and at its upper end carrying the collar 76, from which the lever 77 projects into the curved guides 78 and 79 for the two way paths.

The lever 77 at the end forms a double head 82 and 83 therefore when the said lever 77 has just completed pushing a can end into the screws, it is ready to push another from the slide along the other path, the feed operating automatically and alternately from path to path and consequently from one pair of screws 12 and 14 to the other pair of screws 14 and 16 and back again continuously piling up the can ends by feeding the piles from below, thereby delivering a constant stream of can ends at quite a large number per minute.

The emergency levers 84 and 85 are mounted at the upper ends of the pins 86 and 87 which are journalled in the shelf 71 and project downwardly and carry the cams 88 at the lower ends. The cams 88 are always in contact with the rocker arms 89, therefore any movement of the levers 84 and 85 at once affects the rocker arms 89 and as these levers form continuations of the outer guides 78, when a can end is jammed and does not properly reach its place between the screws a lever 84 or 85 is operated by the misdirection of the can end, and the result of this is the turning of a pin 86 or 87 as the case may be, and naturally the rocker arms is turned on its pivot, which through the connecting rod 89 moves the pivoted arm 90 to operator belt shifter or clutch and thereby stop, the whole machine instantly.

The segmental gear 75 is mounted on the shaft 91 journalled in a suitable bracket supported from the machine frame and the fixed arm 92 projects from said shaft 91 and extends downwardly at an angle and is pivoted in a slot in the lever 93; which is pivotally mounted in the bracket 94 and at its inner end carries the roller 95 extending into a semi-spiral groove 96 in the cam block 97 which is mounted on a vertical shaft so that the latter in revolving moves the segmental gear 75 forwardly and backwardly consequently reciprocating the lever 77 from path to path continuously in the can end feed.

The flues 98 and 99 for the heating gases are secured to the end walls of the casing and communicates therethrough to the interior and consequently the gases are distributed within the casing throughout the can ends being elevated or lowered. The

inlet flue 98 is connected by the pipe 100 to the blower 101, while the outlet flue 99 is connected by the pipe 102 to said blower 101. The best form of heat to use is gas and a suitable burner is introduced at any desirable place.

The main drive is shown by the sprockets 103 and 104 and the chain 105 from the main drive shaft 106 to the gear shaft 107 at the end of which the bevel gear 108 is mounted. This gear 108 coacts with a bevel gear 109 mounted on the vertical shaft 14. The spur gears 110 and 111 connect the front and rear central shafts 14 and 15.

The spur gears 112 and 113 are mounted on the front and rear vertical shafts 12 and 13 and the spur gears 114 and 115 are mounted on the front and rear vertical shafts 16 and 17.

The vertical shafts 13 and 15 and 15 and 17 are connected by the idler gears 116 mounted in the swinging frames 117 and the vertical shafts 12 and 14 and 14 and 16 are connected by the idler gears 118 mounted in the swinging frames 119 and spur gears 121 on the shafts 14 and 15. The frames 117 and 119 are pivotally secured to the lower bearing members 120 of the outer shafts and therefore swing truly from said shafts. The frames 117 and 119 have the arc-slots 122 and 123 through which the pins 124 and 125 respectively extend, said pins extending from the lower surface of the bearing members 120 and having screwed thereon the butterfly nuts 126 and 127 to their adjusted position according to the distances between the central shafts and outer shafts as determined by the size of the can ends.

This connects all the vertical shafts for coincident operation, as by driving the central shaft 14, the motion is at once communicated to the shaft 15 and also through the idlers 116 and 118 to the outer shafts.

The main shaft 108 is further connected to the countershaft 132 through the pulleys 133 and 134 and belt 135 and the countershaft 132 is connected to the blower shaft 136 through the pulleys 137 and 138 and belt 139, thereby connecting up all the parts for coincident movement, though it will be understood that any other form of drive may be used.

The bearing members 120 for the end shafts 12 and 13 and 16 and 17 respectively are rigidly secured to the flanges 140 projecting downwardly from the table 24 and these bearing members are recessed at 144 to receive the collars 146 and 147 encircling said shafts.

It may be mentioned in further reference to the hot air circulation that the openings through the well of the casing for the ingress of hot air from the inlet flue 98 are graduated in size the largest opening 148 being at the bottom, the next largest 149, a short distance thereabove, the next 151 the smallest of the lot, of course the particular number of openings is not essential as there may be more or less than shown according to the size or demands of the machine.

On the outlet side into the flue 99 the openings 152, 153, 154 and 155 decrease in size from the top to the bottom just the reverse of the inlet side, therefore the largest quantity of hot air exists at the upper opening and less as it gradually decreases and decreases to the exhaust as it reaches the bottom all outlet openings being above inlet openings.

In the operation of this machine the cam ends forming the covers and bottoms of the cans are furnished with the gasket solution in a machine known as the liner and from this liner machine, which may or may not provide the power for the drier feed mechanism the can end is pushed on to the feed shelf 71 and prevented from backing up by the spring stops in the can end pass. The can end is moved forwardly to the centre of the two way path to the machine and the lever 77 swings around in time with the cam block 97 and carries the can end along the path to the screws where it is caught by the rotating thread and carried upwardly. Meanwhile another can end has come to the parting of the paths and the swing backwards of the lever 77 sends the can end inwardly along the other path to and between the screws. The elevating screws turning as they do keep a constant stream of can ends moving up and as each head reaches the top it is pushed over by the eccentric mechanism and caught by the thread of the lowering screws and finally dropped on to the delivery chute and this occupies but a short period and as the discharge is constant at a speed governed by the feeding machine there is always a supply of can ends for the bodies.

What I claim is:—

1. In a can end drier, a plurality of rotatable screw shafts having elevating and lowering threads adapted to raise the can ends from the feed and lower them to the delivery, and gear connections from shaft to shaft, means for transferring the can ends at the upper end, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

2. In a can end drier, a plurality of rotatable screw shafts, in front and rear pairs having one of each pair adjustable for different sizes of can heads, one of the shafts being driven and connected through a chain of gears to the other shafts, a casing enclosing said screw shafts, means for driving

said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

3. In a can end drier, a plurality of rotatable screw shafts in front and rear pairs having central shafts in fixed bearings and adjustable end shafts, gear connections between the shafts having one connection swinging and held to the adjusted position of the end shafts, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

4. In a can end drier, a plurality of rotatable screw shafts, having front and rear central shafts journalled at their lower ends in fixed bearings and operatively connected and driven and adjustable end shafts, to accommodate different sizes of can ends and operatively connected between front and rear and adjustably connected to said central shafts, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

5. In a can end drier, a plurality of rotatable screw shafts, in front and rear pairs having central driven shafts common to each pair and end shafts adjustable for can ends of different sizes, gears connecting front and rear shafts, gears connecting front and rear pairs and mounted in pivoted frames adapted to be secured rigidly to their adjusted positions in connecting front and rear end shafts to front, and rear central shafts, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

6. In a can end drier, a plurality of rotatable screw shafts having front and rear central members extending downwardly to bottom fixed bearings and end shafts, completing front and rear pairs adapted to receive the can ends for raising and lowering the same, and journalled in intermediately supported bearings, gears operatively connecting front and rear shafts, gears operatively connecting the pair members and mounted in frames pivotally secured to the intermediate bearing members, and locking thereto in the adjusted positions by means of pins in arc-shaped slots, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

7. In a can end drier, a plurality of front and rear screw shafts in pairs adapted to receive the can ends, and elevate and lower them in a heated area, push bar at the heads of the front screws operated from a rotating shaft and adapted to transfer the can end from the front pair of shafts to the rear pair, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

8. In a can end drier, a plurality of front and rear screw shafts in can end elevating and lowering pairs, a reciprocating push bar at the top of a front pair, an eccentric and lever suitably operated and operating said push bar to transfer the can ends to the lowering screws, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

9. In a can end drier, a plurality of front and rear screw shafts, in pairs for raising and lowering the can ends an eccentric shaft having a bevel gear connection with a screw shaft, an eccentric mounted on said eccentric shaft, a strap on said eccentric, a lever connected to said strap, a push bar secured to said lever and engaging the can ends, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends, between the threads on the screw shafts.

10. In a can end drier, a plurality of screw shafts, an upper bearing member for said shafts, lower bearing members for said shafts, a bearing mounting supporting said upper bearing member, a frame supporting said mounting, an end supported on the upper bearing member, a can end transfer operating mechanism secured in said end and extending downwardly into said mounting, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

11. In a can end drier, a plurality of screw shafts, upper and lower bearing members therefor, a mounting for said upper bearing member, a frame supporting said mounting, an end secured to said upper bearing having a pivot shaft bearing elevated above an eccentric shaft bearing and a lever swinging from said pivot bearing and carrying a push bar at its lower end, an eccentric shaft journalled in said eccentric bearing and an eccentric mounted thereon and encircled by a strap having a strap bar pivotally secured to said lever intermediate of the length of the latter, a casing enclosing said screw shafts, means for heating the

interior of said casing and a feed mechanism introducing the can head between the threads on the screw shafts.

12. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings and adapted to receive the can ends, therebetween and receive and deliver them in rapid succession, a frame formed of angle corner posts, a base having said posts rigidly secured thereto, a casing closing in the upper portions of said posts and said screw shafts and having feed and discharge openings adjacent to the bottom thereof, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

13. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a frame supporting a casing bottom and sides closed in at the top and shaft bearings below said bottom, a base at the extreme lower end of said frame, shaft bearings on said bottom journalling two of said shafts, the remainder being journalled in the intermediate bearings below said bottom, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

14. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a base, central shaft bearings fixedly secured to said base, angle corner posts projecting upwardly from said base, a table rigidly secured to said posts intermediate of their height and forming a casing bottom, casing walls secured to said posts above said table and having feed, discharge and heat openings therethrough, bearings for the screw shafts at the extreme upper end supported by said angle posts, intermediate bearings for screw shafts, an end closing in the top of the casing, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

15. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a base, a frame mounted thereon and partially enclosed to form a casing having feed, discharge and heat openings, screw shaft bearings in the end of said casing, screw shaft bearings, secured to the bottom of said casing, screw shaft bearings secured to the base, said upper bearings and said intermediate bearings removable and replaceable, means for driving said screws shafts, means for heating the interior of said casing, and a feed mechanism introducing the can ends between the threads on the screw shafts.

16. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts and having an end, a bottom and side walls and feed, discharge and heat openings therethrough, a base a frame supporting said casing above said base, a gear mounted on one of said shafts towards the lower end, a coacting gear and shaft extending therefrom and journalled in suitable bearings, a pulley mounted on said gear shaft, a main shaft suitably driven and a pulley thereon connected by a belt shifter, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shaft.

17. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing the threaded portions of said shafts, the latter having extensions below said casing, a base bearing for two of said shafts, intermediate bearings for the remaining shafts, a gear drive for one of said shafts extending to the base connected to a suitable power, spur gears operatively connecting the two base bearing shafts, gears connecting the latter shafts to the remaining shafts from front to rear and rear to front respectively, certain of said connecting gears being adjustable, means for heating the interior of said casing and a feed mechanism introducing the can ends between the threads on the screw shafts.

18. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a base having shaft bearings from the bottom thereof, and in the top thereof and having feed discharge and heat openings, a main driving shaft suitably driven, a gear drive operatively connected to said driving shaft, and to a screw shaft journalled in a base bearing a blower having flues therefrom leading to and from said heat opening and operatively connected to said main driving shaft, a burner suitably situated in relation to said flues and a feed mechanism introducing the can ends between the threads on the screw shafts.

19. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings and adapted to receive the can ends therebetween and receive and deliver

them in rapid succession, a base having shaft bearings for the lower ends of extending central screw shafts, a frame secured to said base and supporting said intermediate bearings, a casing closing in the upper portion of said frame and the threaded portions of said screw shafts and having a discharge opening and chute therefrom a feed opening and shelf therefrom, front and rear can end guides suitably braced, heat opening and flues therefrom a burner situated at a suitable place, and a feed mechanism introducing the can ends between the threads on the screw shafts.

20. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shaft, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism including a base having vertical slots and spring-held dogs forming a successive stop in advancing the can end and a reciprocating dog adapted to move the can end from stop to stop and therebeyond.

21. In a can end drier, a plurality of rotatable screw shafts, journalled in suitable bearings and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screws shafts, means for heating the interior of said casing, and a feed mechanism including a base having spring-held stops and a reciprocating carriage having a rear dog spring-held and a pivoted front dog adapted to advance the ends to and beyond said stops.

22. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism including a base having a plurality of longitudinally spaced slots, a plurality of dogs having lugs extending rearwardly from their lower ends and pivoted to said base in said slots and bevelled backs and offset faces forming stops and a reciprocating carriage having a rear dog overlapping the first of said stops and a pivoted dog projecting forwardly from said carriage and normally overlapping the inner stop.

23. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing and a feed mechanism including a base, stops and reciprocating member adapted to propel the can ends successively to the parting of two paths into the machine having curved guides at each side and means for pushing the can ends alternating from path to path.

24. In a can end drier, a plurality of rotatable screw shafts, journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing, and a feed mechanism including two way guides having means for taking the can ends alternately from the parting of the ways, through the two guides and means for advancing the ends to said parting.

25. In a can end drier, a plurality of rotatable screw shafts, journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing, and a feed mechanism including curved two way guides, means for advancing the can ends to said guides and a lever arm reciprocating from inner end to inner end of said guides respectively and mounted on a rotatable pin suitably operated.

26. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing, and a feed mechanism including curved two way guides, a lever arm projecting from a rotatable pin journalled centrally and a double header push bar secured to said pin.

27. In a can end drier, a plurality of rotatable screw shafts, journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing, and a feed mechanism including curved two way guides, a pin centrally journalled in relation to said guides and having gear teeth at the lower end, a segmental co-acting gear mounted on a crank shaft, having a bearing in a bracket from the frame, a lever bar pivotally secured and at its outer end, joined by a link to a crank and at its inner end having a roller, and a cam block having semi-spiral grooves and engaging said roller and fixedly mounted on one of said screw shafts.

28. In a can end drier, a plurality of rotatable screw shafts, journalled in suitable

bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing, and a feed mechanism including a curved guide having a section thereof pivoted and its pivoted side engaged by a rocker arm operatively connected with a belt shifter.

29. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing, and a feed mechanism including a curved guide having a pivoted section and a cam lug at the lower end of the pivot pin, a rocker arm engaged by said cam lug and a connecting rod to a belt shifter.

30. In a can end drier, a plurality of rotatable screw shafts journalled in suitable bearings, and adapted to receive the can ends therebetween and receive and deliver them in rapid succession, a casing enclosing said screw shafts, means for driving said screw shafts, means for heating the interior of said casing, and a feed mechanism including a pivoted section operatively connected with mechanism for stopping the machine.

Signed at Montreal, Canada, this 17th day of June, 1924.

DAVID LOGAN BISSET.