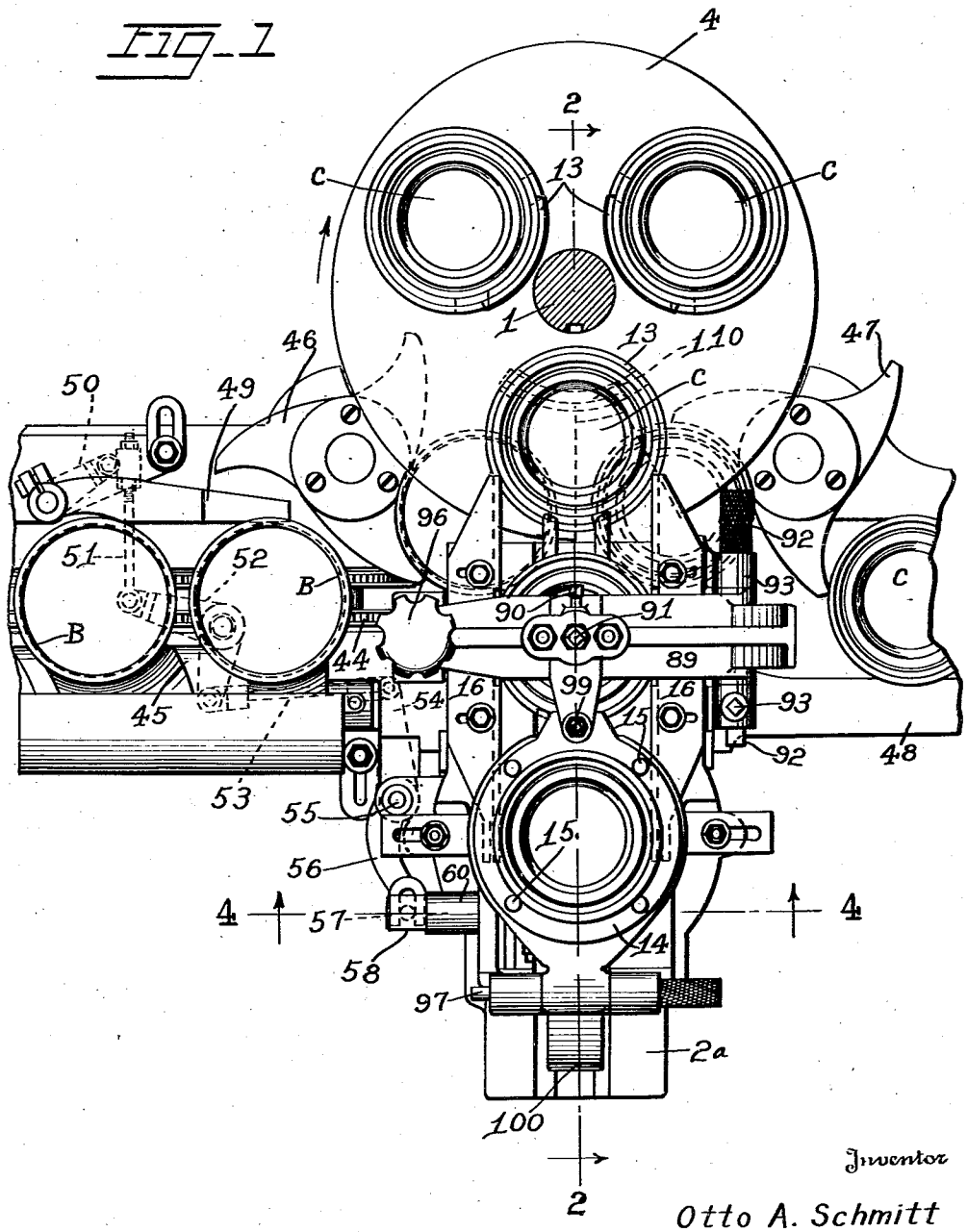
May 21, 1940. O. A. SCHMITT 2,201,924

CAN END FEEDING AND MARKING MECHANISM

Original Filed Nov. 10, 1937 6 Sheets-Sheet 1

FIG. 1




Inventor

Otto A. Schmitt

By Mason & Porter

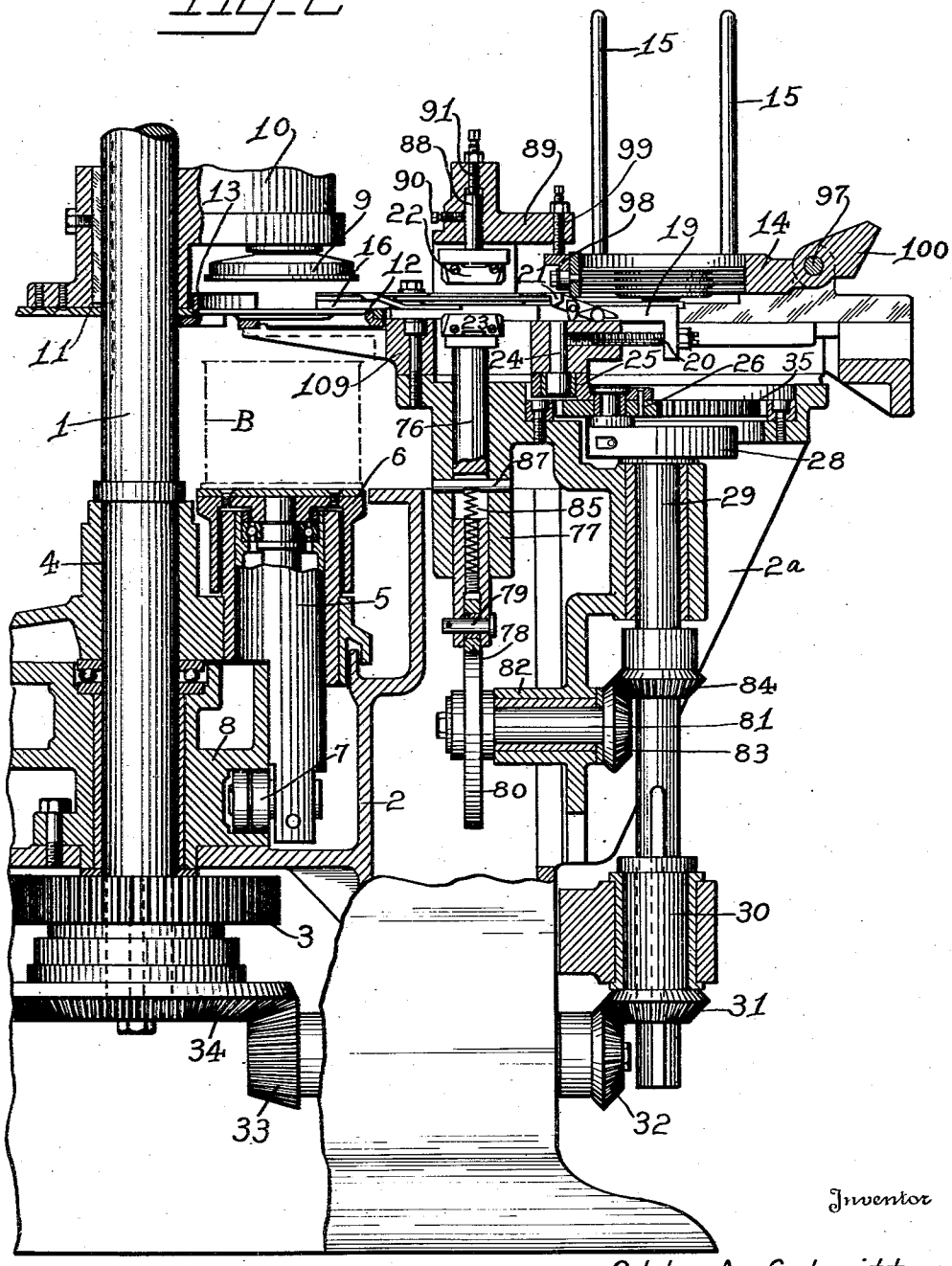
Attorneys

May 21, 1940. O. A. SCHMITT 2,201,924

CAN END FEEDING AND MARKING MECHANISM

Original Filed Nov. 10, 1937 6 Sheets-Sheet 2

Fig. 2




Inventor

Otto A. Schmitt

By Mason & Porter

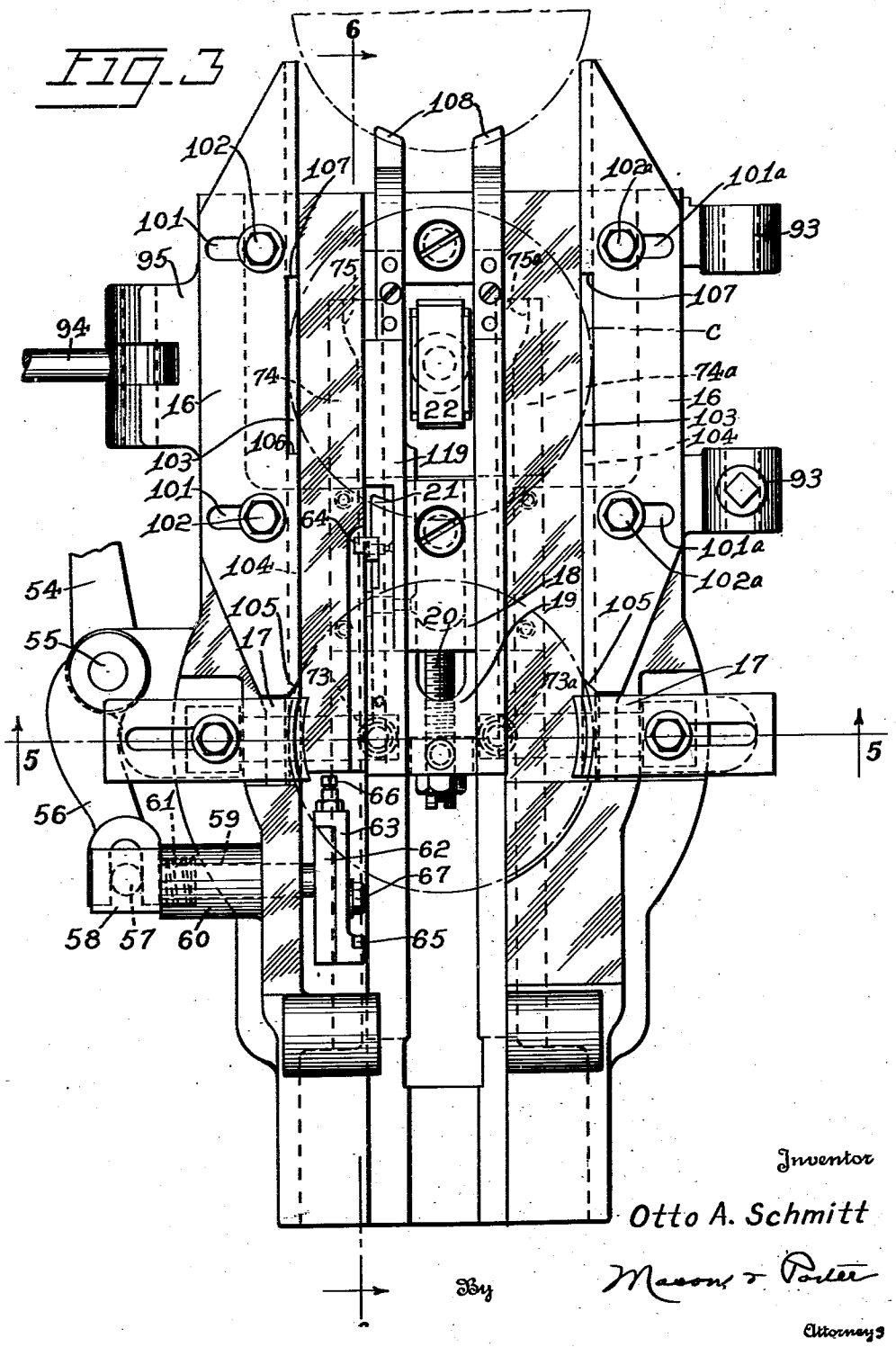
Attorneys

May 21, 1940. O. A. SCHMITT 2,201,924

CAN END FEEDING AND MARKING MECHANISM

Original Filed Nov. 10, 1937 6 Sheets-Sheet 3

Fig. 3




Inventor

Otto A. Schmitt

By Mason & Porter

Attorneys

May 21, 1940. O. A. SCHMITT 2,201,924

CAN END FEEDING AND MARKING MECHANISM

Original Filed Nov. 10, 1937 6 Sheets-Sheet 4

Fig. 4

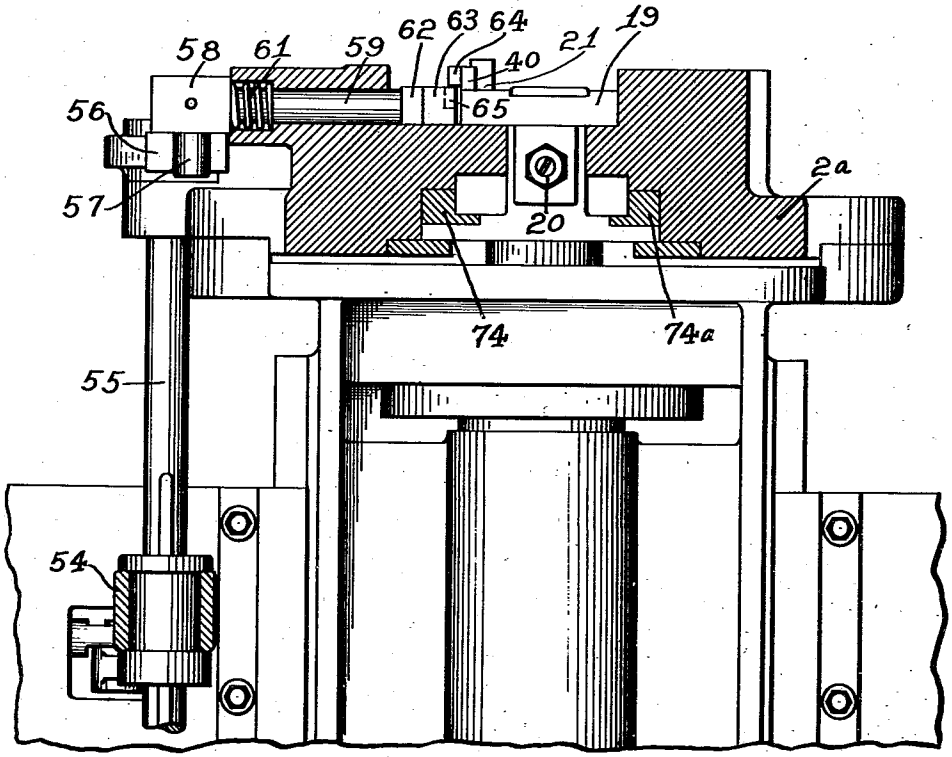
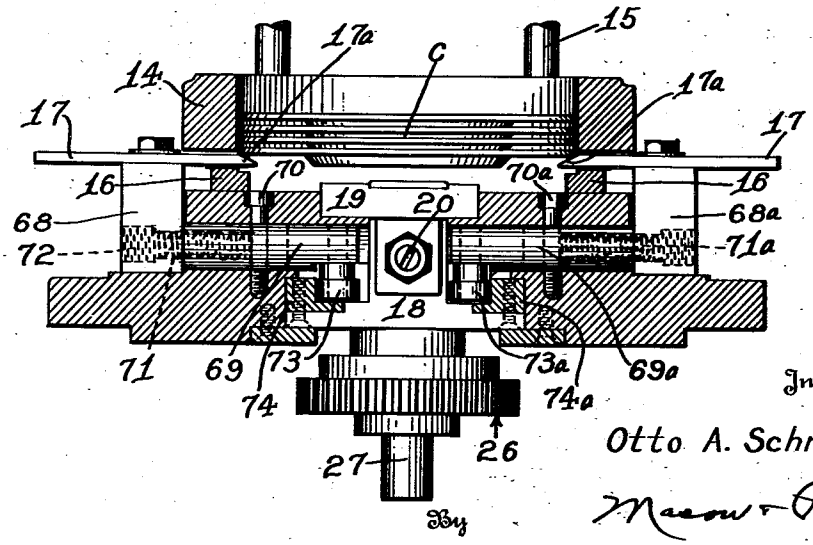



Fig. 5




Inventor

Otto A. Schmitt

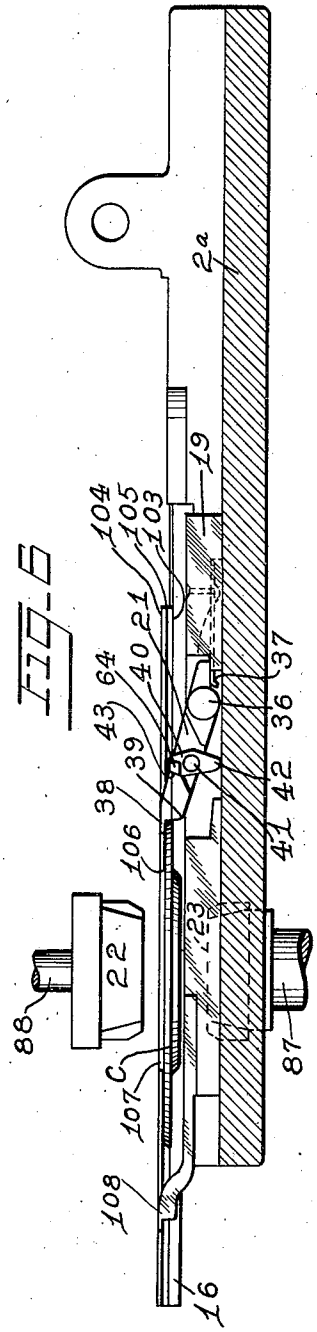
By Mason & Paller

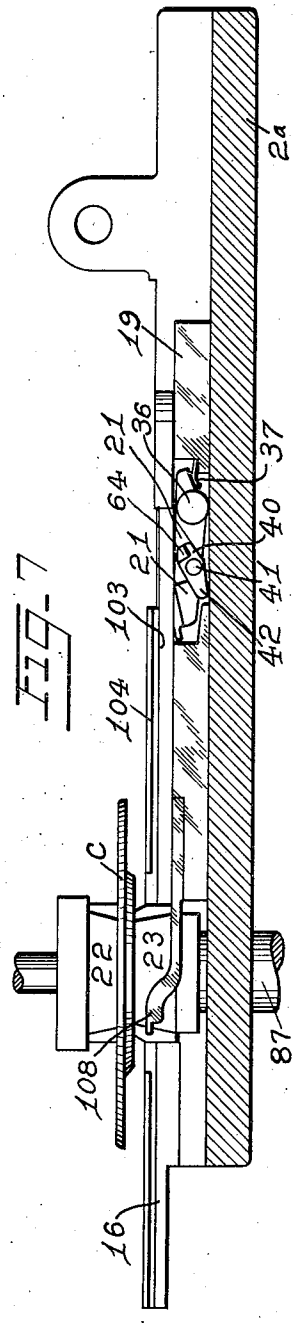
Attorneys

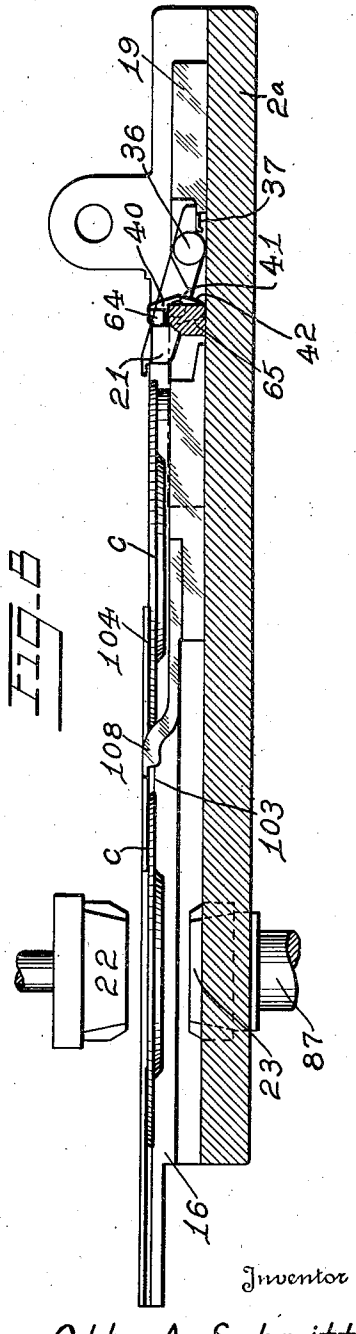
May 21, 1940. O. A. SCHMITT 2,201,924

CAN END FEEDING AND MARKING MECHANISM

Original Filed Nov. 10, 1937 6 Sheets-Sheet 5




Inventor

Otto A. Schmitt

By Mason & Porter

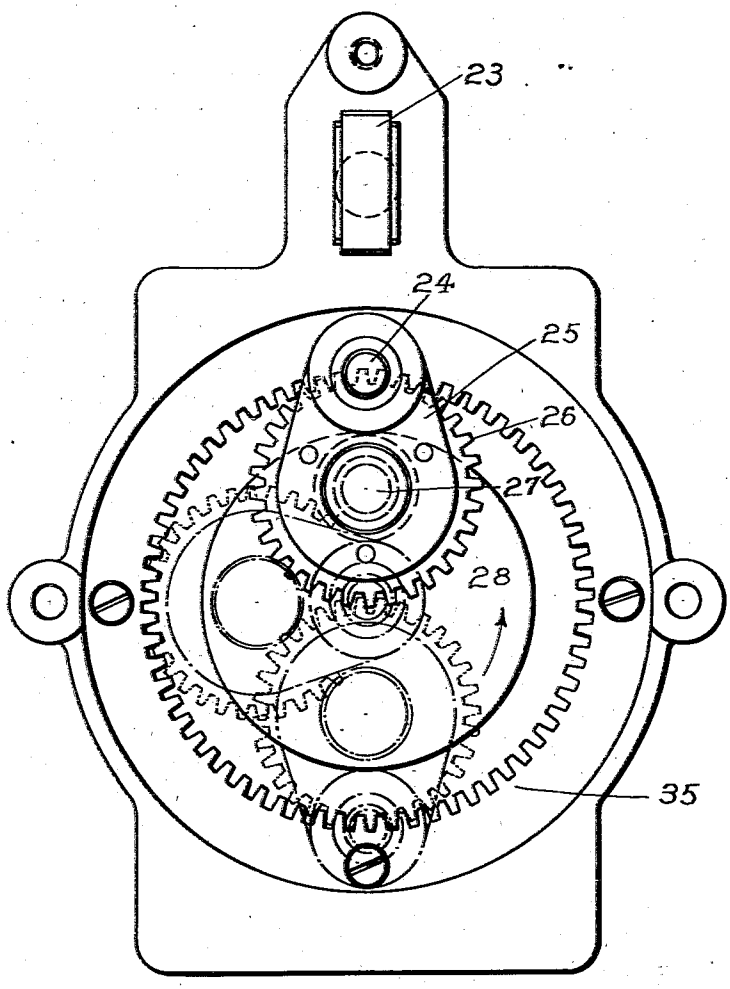
Attorneys

May 21, 1940. O. A. SCHMITT 2,201,924

CAN END FEEDING AND MARKING MECHANISM

Original Filed Nov. 10, 1937 6 Sheets-Sheet 6

Fig. 9




Inventor

Otto A. Schmitt

By Mason & Parker

Attorneys

Patented May 21, 1940 2,201,924

# UNITED STATES PATENT OFFICE

2,201,924

## CAN END FEEDING AND MARKING MECHANISM

Otto A. Schmitt, Syracuse, N. Y., assignor to Continental Can Company, Inc., New York, N. Y., a corporation of New York

Original application November 10, 1937, Serial No. 173,931. Divided and this application September 2, 1938, Serial No. 228,237

2 Claims. (Cl. 101—4)

The invention relates to new and useful improvements in can end feeding mechanisms for feeding can ends one at a time from a supply station to a seaming machine where the ends are clinched to can bodies and finally double-seamed thereon. This application is a division of the parent application filed by me on November 10, 1937, Serial Number 173,931.

The principal object of the present invention is to provide a novel mechanism of the character stated with which is associated a can end marking means for marking the can ends after they leave the supply station and before they are delivered at the delivery station, wherein said marking means, during the marking of a can end, lifts the end from its path of travel so as to permit the reciprocating feeding means to pass beneath the can end without contacting therewith.

Another object of the invention is to provide a novel arrangement of reciprocating feeder and marking means in which an element of the marking means is movable upwardly through the feeder for lifting a can end thereabove during the marking function.

Another object of the invention is to provide a novel feeder structure including a dog for feeding can ends from the supply station to the marking station and which is depressible to prevent contact with the can ends at the supply station during retraction of the feeder, and a rigid feeding element for feeding can ends from the marking station to the delivery station and above which the can ends are lifted to avoid element and can end contact during retraction of the feeder.

Another object of the invention is to provide means for disabling the feed dog upon absence of a can body timed to receive the next can end to be fed by the dog without altering the capacity of the feeding element to feed a can end from the marking station to the delivery station.

These and other objects will in part be obvious and will in part be hereinafter more fully described.

In the drawings which show by way of illustration one embodiment of the invention—

Figure 1 is a plan view showing a cover feed, a portion of the conveyor for the can bodies and the turrent of the clinching machine;

Figure 2 is a vertical sectional view on the line 2—2 of Figure 1;

Figure 3 is an enlarged detail showing in plan the base on which the stack is mounted and along which the ends are fed from the stack to the clinching machine and the feeding means for feeding the ends;

Figure 4 is a sectional view on the line 4—4 of Figure 1;

Figure 5 is a sectional view on the line 5—5 of Figure 3;

Figure 6 is a longitudinal sectional view through the supporting base showing the marking devices and also the dog and the controlling means which renders the same operative for feeding the end when there is a can body to be closed, the dog being in raised or operative position;

Figure 7 is a view similar to Figure 6, but showing the dog in inoperative position;

Figure 8 is a view similar to Figure 7, but showing the dog retracted and the control means in operative position for raising the dog to position for engagement with the end, and

Figure 9 is a plan view of the operating mechanism for the slide which feeds the ends, also showing the relation of the same to the lower marker.

The invention relates to a can end feeding mechanism for feeding the ends from a stack holder into a seaming machine where the ends are attached to the can bodies. The machine for attaching the ends to the can bodies may be of any desired construction. The can bodies pass one after another into the machine. The can ends are fed from a stack holder through a marking mechanism and are then placed in a machine directly over the can body so that it may be placed on the can body and seamed thereto.

The can ends are fed from the stack holder to the marker and then into the seaming machine by feed dogs carried by a reciprocating slide. The dog which engages the end and moves the same from beneath the stack is so connected to the slide that it may be raised to an operative position for engagement with the end for removing it from beneath the stack holder. It also may be lowered so that the dog will reciprocate beneath the stack holder without engagement with the end. Mechanism is associated with the dog for raising and lowering the same, and this mechanism is so constructed that the dog will be lowered during its retracting stroke so that it will pass beneath the ends in the stack without rubbing against the same. There is also mechanism associated with the end feed which causes the dog to be raised so as to contact with and remove the end from the stack if there is a can body passing into the machine to receive the end.

This dog just referred to places the ends in the marking station, and there are a pair of dogs carried by this slide which engages the ends at the marking station and conveys the same into the seaming machine. The marking mechanism is so constructed as to raise the end when these advance dogs are on their return stroke, and thus the dogs pass beneath the ends without contacting with the same.

It is believed that the invention will be better understood by a detail description of the illustrated embodiment thereof.

The seaming machine for attaching the end to the container body may be of any desired construction and only a portion of a machine for clinching the ends to the can body is shown. The clinching machine includes a vertical shaft 1 which is mounted for rotation in a suitable supporting frame 2. The shaft is driven by a gear wheel 3 by any suitable means. Mounted on this shaft and rotating therewith is a turret 4. Mounted in the turrent are three can end supports, each of which includes a standard 5 on which is rotatably mounted a table 6 adapted to support the can body to be closed, which is indicated in broken lines at B in Figure 1. The standard 5 is raised and lowered by means of rollers 7 running in a cam groove formed in the sleeve 8 which is fixed to the frame so that it remains stationary.

Directly above the table support 6 for the can body is a chuck 9 which is mounted in the upper section 10 of the turret for free rotation. Mounted beneath the chuck 9 is a can end supporting plate 11 which carries a tapered ring 12 in alinement with each chuck 9. The tapered ring has a seat at its upper face for a can end, and there is also a guide 13 associated with each tapered ring for aiding in the placing of the can end on its seat on the tapered ring. After the end is seated on the tapered ring, the can body is raised through the tapered ring and the end thus centered on the rounded up can body is brought into contact with the chuck 9 and firmly held seated on the can body while the turret rotates, bringing the edge of the can end into contact with the means for clinching the can end to the can body. The can body with the end clinched thereto then passes into a seaming machine for the formation of a double seam which joins the end to the can body. This clinching machine is of well-known construction and further illustration and description thereof is not thought necessary. No novelty is claimed for the clinching machine or the seaming machine associated therewith, and so far as the present invention is concerned, the can bodies and the can ends may be fed directly into the machine which seams the end to the body without this preliminary clinching operation.

The can ends are placed in a stack holder which includes a supporting base ring 14 and rods 15, 15 of the usual construction. This holds the ends stacked one above the other, and allows them to descend into the ring 14. Located beneath the ring 14 are guides 16, 16. The stacked can ends, when released, will move downward until they rest on these guides 16, 16. Associated with the stack holder are separator blades 17, 17. These blades are retracted from beneath the stacked can ends when the feed dogs are fully retracted, and as the feed dog associated with the stack holder approaches the stacked can ends, the separator blades 17, 17 are forcibly moved inward so as to lift all of the ends in the stack off from the lowermost end and leave the same free to be moved forward along the guides 16, 16 by the feed dog which is associated with the stack holder.

The stack holder is mounted on an auxiliary frame structure indicated at 2a, which frame structure is supported by the main frame of the clinching machine. Directly beneath the stack holder is a reciprocating head 18 to which is attached a slide 19 by means of a bolt 20 which is threaded into the reciprocating head. By adjusting this bolt, the position of the slide 19 relative to the head 18 may be adjusted. A feed dog 21 is mounted on this slide 19, and this feed dog operates in conjunction with the stack holder for feeding the ends from the stack holder to the marking station. At the marking station is an upper marking head 22 and a lower reciprocating marking head 23 which will be more fully described later.

The means for reciprocating the head includes a crank pin 24 carried by a crank 25 fixed to the pinion 26. The crank 25 and pinion 26 are mounted on a shaft 27 which is fixed to a disk 28 carried at the upper end of a shaft 29. This shaft 29 is keyed to a sleeve 30 carrying a bevel gear 31 which meshes with a bevel gear 32 in a shaft journaled in the frame 2, and this last-named shaft carries a bevel gear 33 meshing with a bevel gear 34 on the main spindle of the clinching machine.

Fixed to the auxiliary frame 2a is an internal gear 35 with which the pinion 26 meshes. When the shaft 29 is rotated, it will rotate the disk 28, and as the disk 28 rotates, it will cause the shaft 27 to move in a circular path and the pinion 26 which meshes with this internal gear to turn. It will be noted by reference to Figure 9 of the drawings that the axis of the pinion 26 is disposed exactly half way between the axis of the internal gear 35 and the pitch circle of said gear, or in other words, the pitch circle diameter of the pinion is exactly half the pitch circle diameter of the internal gear. It will be noted also that the radius of the pitch circle of the pinion 26 coincides with the distance to which the crank pin 24 is spaced from the radius of said pinion. The gear and the pinion are thus so dimensioned that as the disk 28 rotates, the crank pin 24 will be caused to reciprocate in a right-line which is parallel with the line of travel of the can ends from the stack holder into the clinching machine. Thus it is that the head 18 is reciprocated by this continuously moving crank pin, and a relatively long path of reciprocation is given to the crank pin 24 without unduly enlarging the disk 28 and the parts associated therewith.

The feed dog 21 is pivoted at 36 to the feed slide 19. This feed slide moves in a guideway in the auxiliary frame which supports the stack holder. A leaf spring 37 extending under the rear end of the dog normally tends to move the dog in a counter-clockwise direction as viewed in Figures 6 to 8. The feed dog has a projecting lip 38 which overlies the can end, and the shoulder 39 which makes contact with the can end for moving the same along the supporting guides 16, 16. Associated with the feed dog 21 is a pawl 40. This pawl is pivoted at 41 to the feed dog. The lower end 42 of the pawl 40 is rounded. The upper end of the pawl, when said pawl is in the position shown in Figure 6, makes contact with a shoulder 43. When the pawl is in the position shown in Figure 7, then the dog is moved by means of the spring to its lowered position, or

inoperative position. When said dog remains in this position, it will move back and forth beneath the stack holder and will not contact with a can end therein in either direction of movement. When the pawl is in the position shown in Figure 6, then the dog is raised so that it will contact with an end and move the same along the supporting guides therefor.

In the feeding of can ends from a stack, it is very desirable that the feed dogs should not contact with the under face of the can end which may be lacquered or enameled, as the dog contacting therewith might scratch or break the lacquer and thus cause the metal to be exposed. Means is provided so that when there is no can body to receive a can end, no end will be fed from the stack, and this means is so constructed that the feed dog will be raised into position for feeding an end after the dog is retracted from beneath the stack, so that said feed dog in its retracting movements is always in a depressed position free from contact with the end, and when the slide moves forward, it will either be depressed, if there is no can to be closed, or will be raised in order to feed an end when there is a can to be closed.

The can bodies as they pass into the clinching machine are moved along a support therefor by means of a conveyor chain **44**. Associated with the conveyor chain is a timer screw **45** which is of the usual construction. A star wheel **47** takes the can bodies from the conveyors and places the same on the support associated with the clinching turret. The clinching turret rotates in a clockwise direction, and the star wheel **47** removes the can body with the end clinched thereto from the turret and it is then conveyed along a support **48** into the seaming machine. As the can bodies are moved along the support by the conveyor **44**, they are caused to contact with a lever **49**. This lever is connected to an arm **50** which in turn is connected by means of a link **51** with a bell crank lever **52**, and the bell crank lever **52** is connected by means of a link **53** with an arm **54** mounted at the lower end of a shaft **55**. The shaft **55** carries an arm **56** at its upper end. This arm **56** is forked so as to engage a pin **57** depending from a block **58** mounted on the outer end of a rod **59** which is supported for reciprocation by a bearing sleeve **60** mounted on the frame of the machine. A spring **61** forces the rod outward and normally presses the arm **49** inward, so that if there is no can restraining the movement of the arm **49**, then the rod **59** will assume its extreme position to the left, as viewed in Figure 3. When a can body contacts with the arm **49**, then the arm is forced outward, and this through the linkage described, will force the pin **57** to the right, as viewed in Figure 3.

Mounted on the inner end of the rod **59** is a head **62** and slidably carried by said head is a plate **63**. The pawl **40** is provided with a projecting lug **64**, which lug is adapted to contact with a cam face **65** on the plate **63** when said plate is in the position shown in Figure 3. At this time, the can body is passing the outer end of the arm **49**, and this can body will reach the clinching machine support at the same time that the can end is placed on the tapered ring above the can body, if the feed dog **21** is moved to raised position on its retracting movement. When the feed slide moves back, the lug **64** will contact with the cam **65**, as shown in Figure 8, and this will force the pawl **40** from the position shown in Figure 7 to the position shown in Figure 6. The pawl will remain in this position when the feed slide moves forward, by reason of the fact that the lower end of the pawl frictionally engages the bottom of the guideway in which the feed slide reciprocates. The frictional contact between the rounded end **42** of the pawl and the guideway tends to turn the pawl in a counter-clockwise direction at this time, and thus the feed dog is held raised. When the feed slide is retracted or moved to the right, as viewed in Figure 6, then the frictional contact between the rounded end of the pawl and the bottom of the guideway will cause the pawl to turn to the position shown in Figure 7, and the feed dog will be depressed through the action of the leaf spring **37** thereon. If there is no can body contacting with the arm **49** so as to hold the cam **65** positioned as shown in Figure 3, then the rod **59** will be moved to the left through the action of the spring **61** and the lug **64** will not contact with the cam surface on the plate **63** and the feed dog will not be caused so as to feed an end from the stack holder.

The plate **63** may be adjusted on the head **62** by means of an adjusting screw **66** and is locked in adjusted positions by means of a clamping bolt **67**. This enables the cam **65** to be set so that the feed dog will be raised after it passes from beneath the end and before the slide reverses its movement. By this nicety of adjustment of the cam, there is little or no lost movement in the reciprocation of the feed dog, and neither does the feed dog contact with the under side of the can end during its retracting movements.

The can ends in the stack are lifted from the can end which is to be fed forward by the separator blades **17**. The separator blade **17** at the left of Figure 5 is mounted on a supporting member **68**, which supporting member is attached to a rod **69**. This rod **69** is mounted for reciprocation in the supporting frame for the stack holder. There is a slot in the rod **69** and a pin **70** passes through the slot and serves as an abutment for a spring **71**. The spring bears against an abutment screw **72** carried by the supporting member **68**. This spring normally tends to force the supporting member **68** to the left, as viewed in Figure 5, and this will withdraw the separator blade from beneath the stacked ends.

The blade **17** at the right is mounted on a support **68a** attached to a rod **69a**. A pin **70a** passes through the rod and serves as an abutment for a spring **71a**. This spring **71a** will normally force the separator blade **17** to the right in Figure 5 so as to withdraw it from beneath the stacked ends. When the two blades are retracted, the ends will drop on to the guides **16, 16**. They are in this position when the feed dog **21** is at the rear end of its stroke.

The rod **69** is provided with a roller **73**, and the rod **69a** is provided with a roller **73a**. The feed slide **19** is provided with cam rails **74** and **74a**. The rollers **73** and **73a** contact, respectively, with these cam rails. The cam rails **74** and **74a** have cut-away sections **75** and **75a**, respectively, (see Fig. 3). When the feed slide is fully retracted, these cut-away sections permit the rollers **73** and **73a** to move outward through the action of the springs **71** and **71a**, and this will retract the separator blades. This occurs when the feed slide is fully retracted and permits the ends in the stack to move down into contact with the guides **16, 16**. On the forward movement of the feed slides, the rollers will contact with the guides, and these cut-away sections are so shaped that

the rollers will be forced inwardly toward the center of the stack and this will forcibly move the separator blades between the lowermost end and the remainder of the ends in the stack and the stack will be lifted from the lowermost end, releasing the same so that the feed dog may contact therewith and remove the same from beneath the stack. The ends of the blades 17, 17 are beveled as indicated at 17a to facilitate the separation of the stacked ends from the lowermost end and the raising of the same.

The feed dog 21 upon the forward reciprocation of the feed slide moves the can end from the stack to the marking station where the desired marking is impressed in the metal of the can end. The marking station includes two marking heads 22 and 23. The marking head 23 is carried by a rod 76 mounted for reciprocation in a bearing sleeve 77 formed as a part of the auxiliary frame of the seaming machine. The lower end of this rod is forked and located in the forked end is a roller 78 which is mounted on a pin 79. The roller 78 bears on a cam 80 mounted on a shaft 81 which rotates in a bearing sleeve 82. This shaft 81 carries a bevel gear 83 which meshes with a bevel gear 84 on the shaft 29. As the shaft 29 rotates, the cam 80 will cause the rod to raise. A spring 85 located in a bore in the rod 76 bears against a pin 87 in the sleeve 77 and also against an abutment plug carried by the rod. This is a compression spring and it serves to move the rod downward, holding the roller in contact with the cam 80, so that it is the cam 80 which controls the up and down movements of the lower marking head 23. The upper marking head 22 is carried by a rod 88 which is clamped in a bracket 89. The bracket is provided with a recess for the rod and a clamping bolt 90 secures the rod in a set position. An adjusting screw 91 serves as an abutment for the rod 88 and determines its set position. This bracket 89 is mounted on a pin 92 (see Fig. 1) which is fixed in lugs 93, 93 carried by the auxiliary frame. These lugs are located at one side of the path of movement of the ends from the stack holder to the seaming machine. At the other end of the bracket 89 there is a clamping bolt 94 which is pivoted to a lug 95 carried by the auxiliary frame. This bolt swings between the forked ends of the bracket 89 and a clamping nut 96 serves to hold the bracket with the upper marking head in a fixed position. When it is desired to remove the upper marking head from its operative position to change a marker or to gain access to the can end slide beneath this upper marker head, the nut 96 is released and the bracket is swung on its pivot to a raised position.

It is sometimes desirable to gain access to the guideways for the can ends beneath the stack holder in case of a jam. The stack holder ring 14 is pivoted at 97 to the auxiliary frame, and when in operative position as shown in Figure 3, an adjustable lug 98 carried by the ring lies directly beneath the bracket 89. An adjustable bolt 99 contacts with this lug 98. When the bracket 89 is raised, the bolt 99 is moved away from the lug 98 and the stack holder may be shifted to a tilted position on its pivot 97. An arm 100 carried by the ring contacts with the auxiliary frame and limits the tilting movement given to the stack holder.

The marking heads are of the usual character and a detail description of the same is not thought necessary. The end is placed between the marking heads by the feed dog 21, and after it is positioned between the marking heads and centered relative to the same, the lower marking head 23 moves upward, contacts with the lower face of the end and lifts it into contact with the upper marking head 22 which is stationary. After the desired marking is embossed in the metal of the can end, then the lower marking head descends and the end will pass down with the same until it is placed on the guides along which the end slides from the stack holder to the seaming machine.

The guide 16 at the left of the machine, as viewed in Fig. 3, is provided with slots 101, 101, which are at right angles to the path of reciprocation of the feed slide. Clamping bolts 102, 102 are provided for clamping the guide in a set position. The guide 16 at the right, as shown in Figure 3, is provided with similar slots 101a, 101a, and clamping bolts 102a, 102a serve to secure this guide in a set position. Each guide is provided with a ledge 103 which extends from one end of the guide to the other end thereof. When the guides are in a set position, the distances between the ledges are such that a can end indicated at C in Figure 3, will overlie the ledge and rest thereon. This serves as a means for supporting the ends so that they may be fed from the stack holder to the marking station and thence to the seating ring associated with the seaming machine. These guides are each provided with an overhanging lip 104 which overlies the end during the greater portion of its travel so as to retain it on the supporting ledges 103, 103. These retaining lips terminate at 105 close to the stack holder so that the end may drop on to the ledge and pass beneath the lips. The lips also terminate at points 106 and begin again at points 107 and extend all the rest of the way to the ends of the guides. Between the points 106 and 107 the lip is cut away so as to permit the end to be raised off from the ledges and into contact with the upper marking head.

The feed slide extends to a point beyond the marking station when the feed slide is in forward position as shown in Figure 3. It has a central portion, however, cut away, so as to provide a recess through which the marking head 22 passes as it moves up into contact with the can end and raises the same into engagement with the upper marking head. Fixed to the extreme forward end of the feed slide are two feed dogs 108, 108. These feed dogs are rigidly attached to the feed slide and operate to engage the end at the marking station and move the same on to the seating ring.

At each seaming cycle, an end is removed from the stack holder and placed at the marking station. At the next following cycle, the end is taken from the marking station and placed on the seating ring, and another end is moved from the stack holder into the marking station. This occurs only when the can bodies are moving one after another into the seaming machine. If there is no can body to which the end is to be attached passing into the machine, then the arm 49 will move so as to withdraw the cam 65 and the pawl will not contact therewith and the feed dog will not be raised to engage an end to move the same into the marking station. When the can bodies again pass so as to move the arm 49 outward, then the cam 65 moves inward and operates to engage the pawl and shift the pawl so as to raise the feed dog into operative position. As has already been stated, when the pawl is

shifted to raise the dog, the frictional contact of the slide with the lower end of the pawl maintains the dog in raised position during the entire forward movement of the feed slide. This feed dog only moves to a position adjacent the marking station and is then retracted. If the dog is in raised position and has fed an end to the marking station, as it starts its retracting movement again, the pawl contacting with the slide will be turned so as to permit the lowering of the feed dog through the action of the spring thereon, and the spring will maintain the dog in its lowered position during its retracting movement. The dog will, therefore, be lowered on all retracting movements of the feed slide, regardless of whether an end is to be fed to the seaming machine, and when an end is fed to the seaming machine, the dog likewise will be lowered on its retracting movement. At no time can the dog contact with the lower end in the stack and scratch or injure the same on its retracting movement. The dog 21 thus comprises what might be termed a four motion feed dog.

The feed dogs 108 move back and forth in a fixed raised position and will engage an end resting on the guides and move the same along the guides to the seating ring of the seaming machine. During the retracting movement of these dogs to a position to contact with an end, the end is raised by the lower marking head to the position shown in Figure 7, and it is during this marking of the end that the dogs are retracted to the position shown in Figure 8. Therefore, the retracting of the dogs will cause the same to pass beneath the end which is being marked without contacting with the same so as to scratch or injure the enameled surface of the end.

The operation of the cam end feeding mechanism has been described in connection with the detail description of the mechanism, and further explanation is not thought necessary.

Attached to the auxiliary frame is a bracket 109 which projects beneath the upper section 10 of the turret. This bracket carries a plate 110 which is curved about the axis of rotation of the turret. The seating ring 12 has cut-away sections in its under face so that the ring may travel over the bracket and the plate 110 be close to the plane of the seat on which the can end rests. The purpose of this plate is to prevent any tilting of the end as it is moved by the feed dogs 108 on to the ring and against the feed guide 13.

It is obvious that many changes in the details of construction and arrangement of parts may be made without departing from the spirit of the invention as set forth in the appended claims.

I claim:

1. In can end feeding means, a can end supply station, a can end delivery station, a marking station between said supply and delivery stations, can end marking devices at said marking station, a pair of laterally spaced guide rails having opposed grooves therein extending at a single level from the supply station to the delivery station for receiving extreme lateral edge portions only of can ends being fed from the supply station to the marking station and from the marking station to the delivery station, a continuously reciprocated can end feeder movable between said rails and having spaced can end feeding fingers engageable with can ends for moving them from the marking station to the delivery station and a four motion feed dog engageable with can ends at the supply station for feeding them to the marking station, said grooves constituting the sole means of support for said can ends, said marking devices including an element movable upwardly between the spaced fingers to lift can ends during marking thereof and prevent contact of said fingers with can ends at the marking station and during retraction of the feeder, said grooves being interrupted upwardly at the marking station to permit lifting and lowering movement of can ends at the marking station, means effective upon each retraction of the feeder for lowering the dog to avoid contact thereof with can ends at the supply station, and means for again lifting the dog into effective position after it has passed beneath can ends at the supply station.

2. In can end feeding means, a can end supply station, a can end delivery station, a marking station between said supply and delivery stations, can end marking devices at said marking station, a pair of laterally spaced guide rails having opposed grooves therein extending at a single level from the supply station to the delivery station for receiving extreme lateral edge portions only of can ends being fed from the supply station to the marking station and from the marking station to the delivery station, a continuously reciprocated can end feeder movable between said rails and having spaced can end feeding fingers engageable with can ends for moving them from the marking station to the delivery station and a four motion feed dog engageable with can ends at the supply station for feeding them to the marking station, said grooves constituting the sole means of support for said can ends, said marking devices including an element movable upwardly between the spaced fingers to lift can ends during marking thereof and prevent contact of said fingers with can ends at the marking station and during retraction of the feeder, said grooves being interrupted upwardly at the marking station to permit lifting and lowering movement of can ends at the marking station, means effective upon each retraction of the feeder for lowering the dog to avoid contact thereof with can ends at the supply station, means for again lifting the dog into effective position after it has passed beneath can ends at the supply station, and means for displacing said last named means to prevent feeding of can ends from the supply station without preventing the feeder of a marked can end from the marking station.

OTTO A. SCHMITT.