April 2, 1929. M. M. SEDWICK 1,707,928

STACK HOLDER AND CAN END FEED THEREFOR

Filed July 22, 1925 7 Sheets-Sheet 1

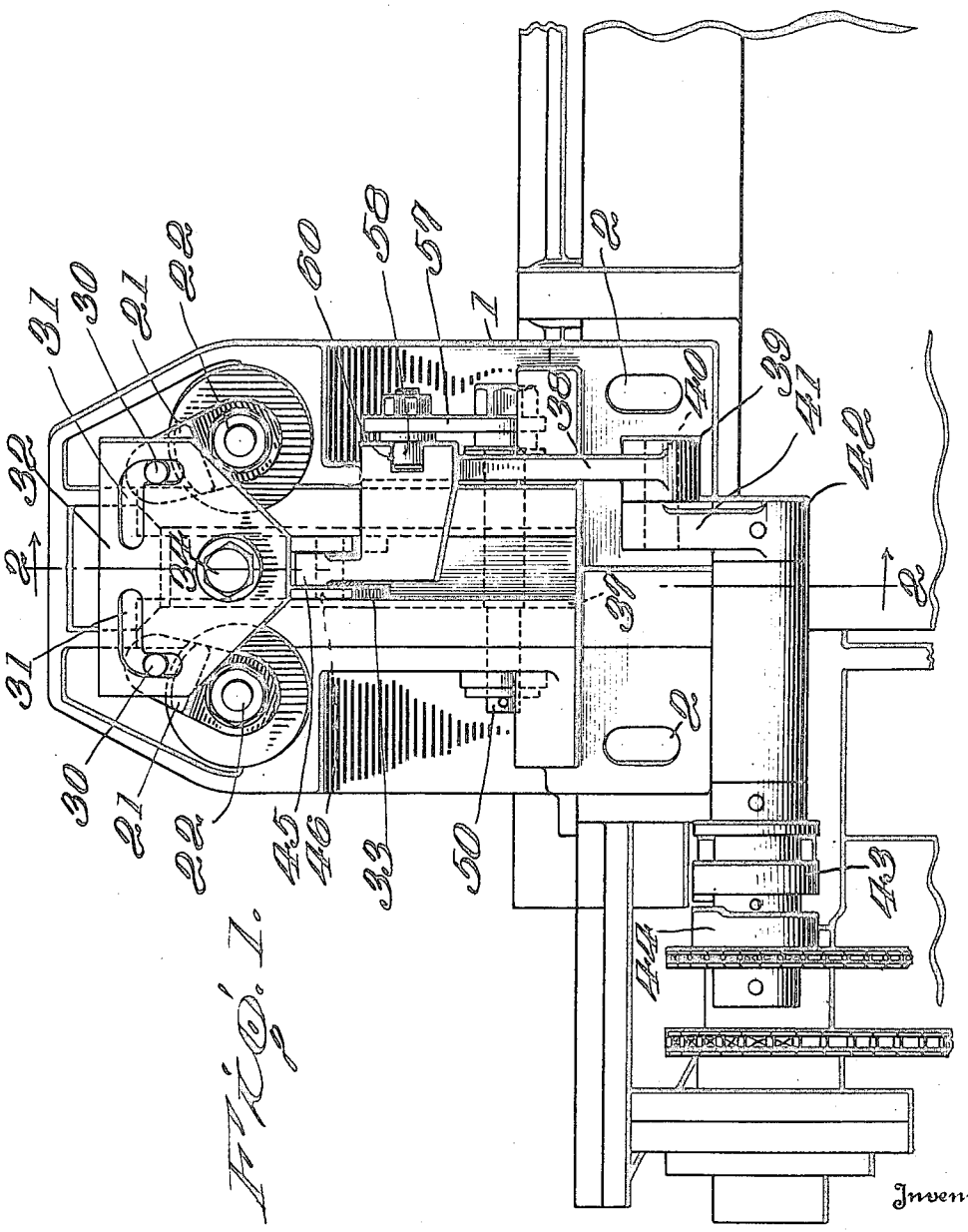


Fig. 1.

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STACK HOLDER AND CAN END FEED THEREFOR

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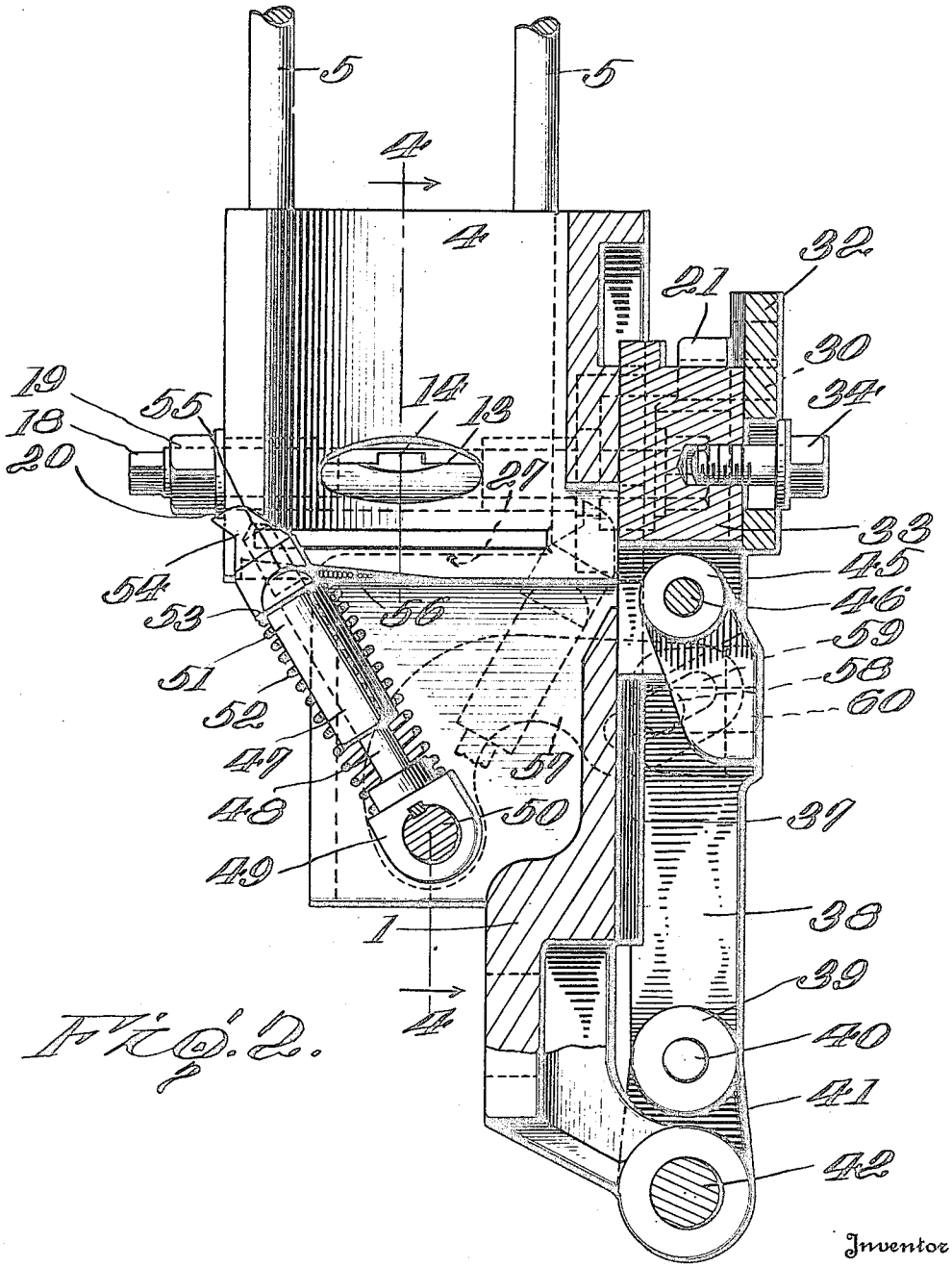


Fig. 2.

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STACK HOLDER AND CAN END FEED THEREFOR

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FIG. 3.

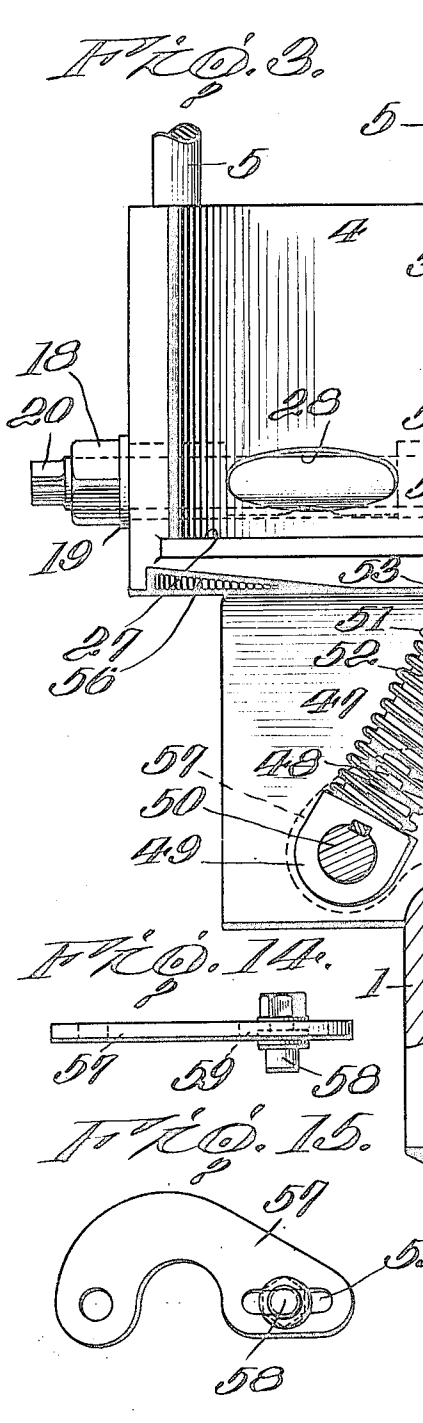


FIG. 6.

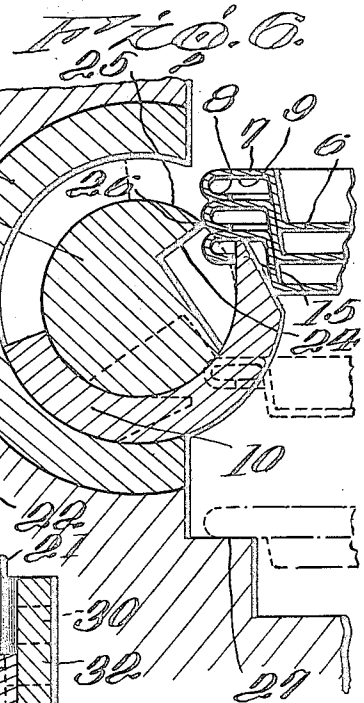


FIG. 14.

FIG. 15.

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STACK HOLDER AND CAN END FEED THEREFOR

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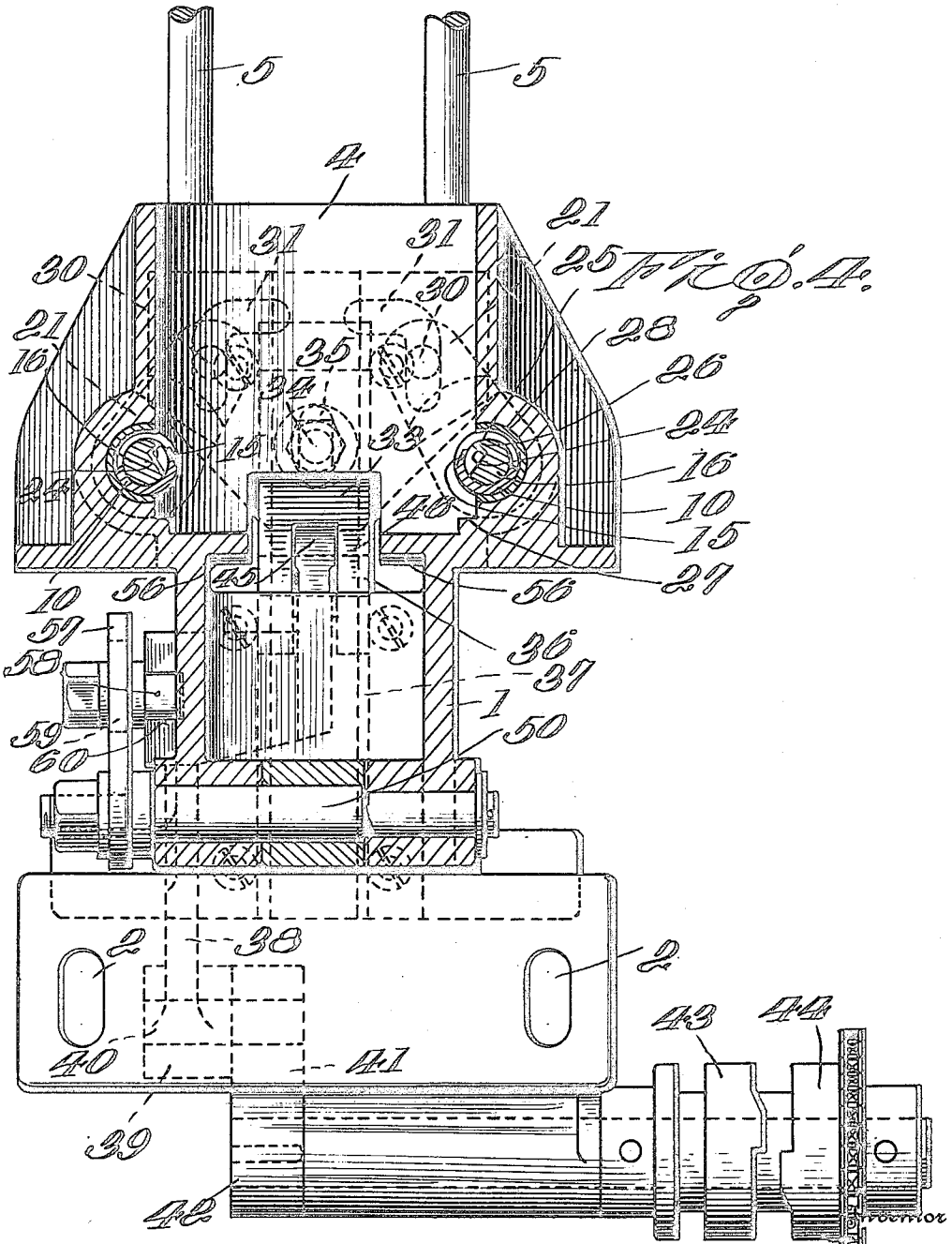


FIG. 4.

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STACK HOLDER AND CAN END FEED THEREFOR

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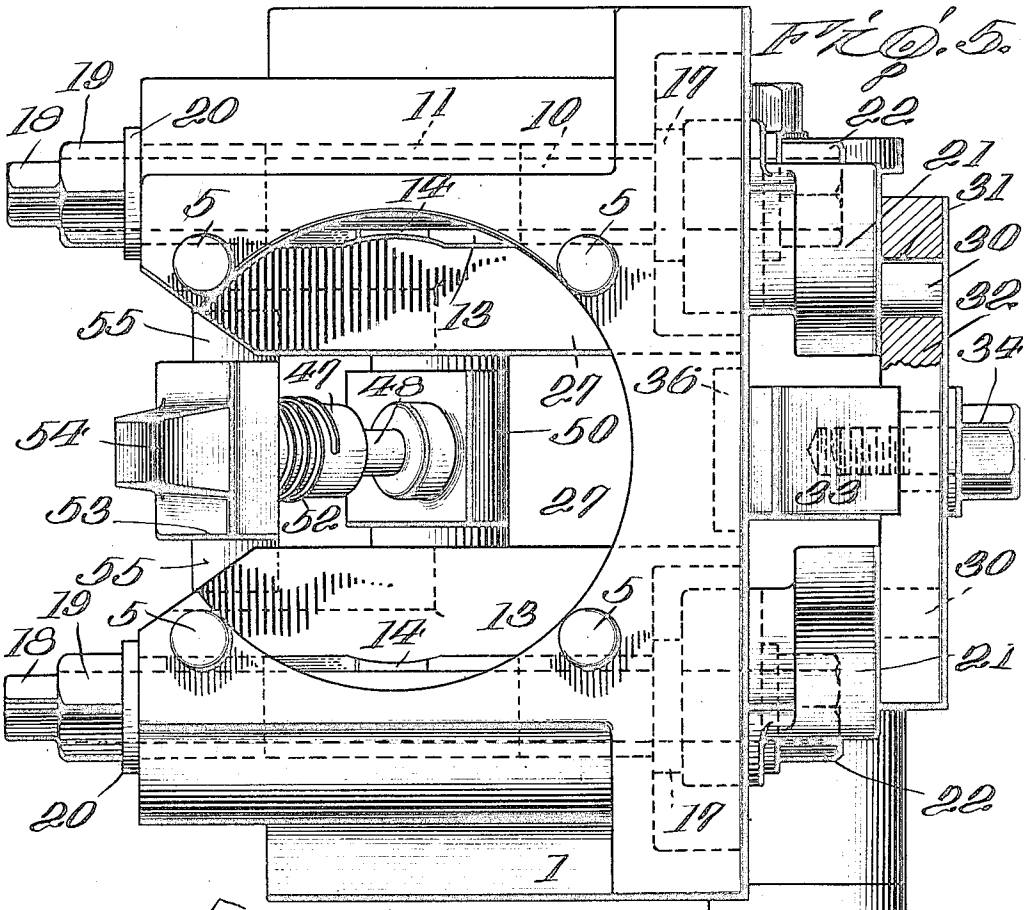


FIG. 5.

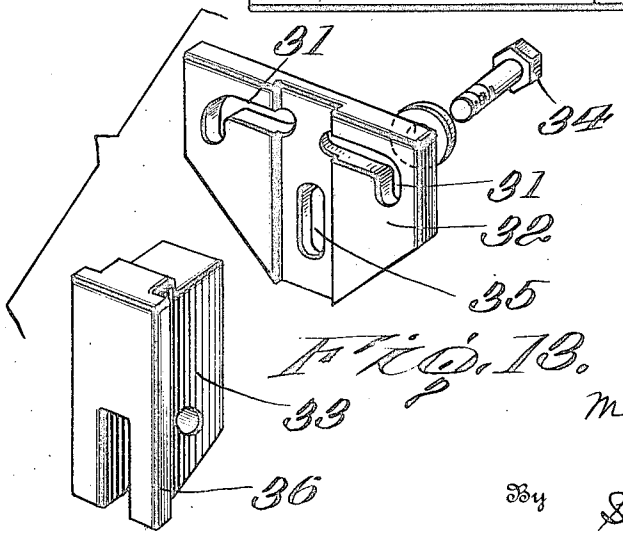


FIG. 13.

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FIG. 7.

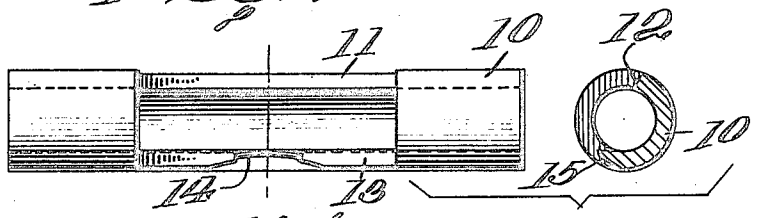


FIG. 8.

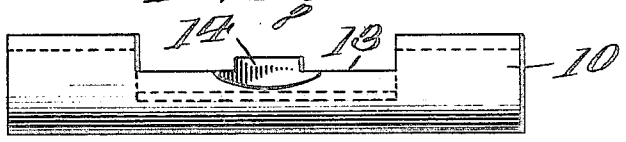


FIG. 9.

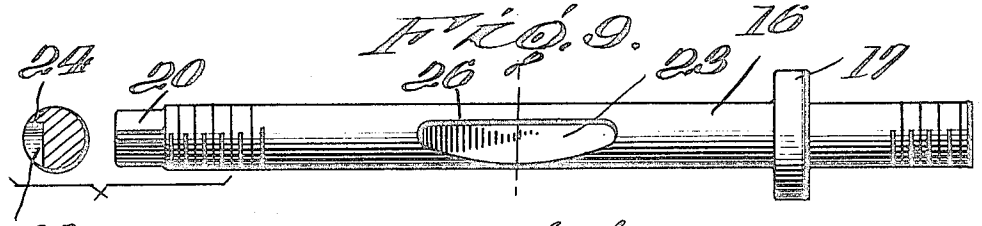
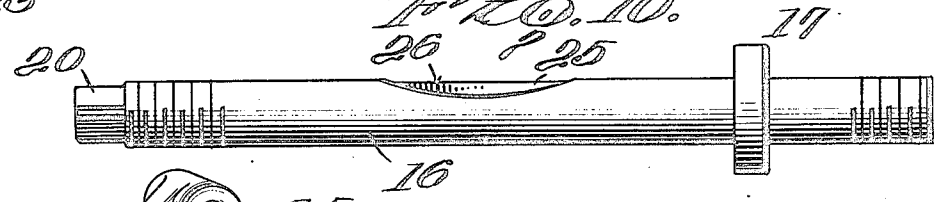


FIG. 10.



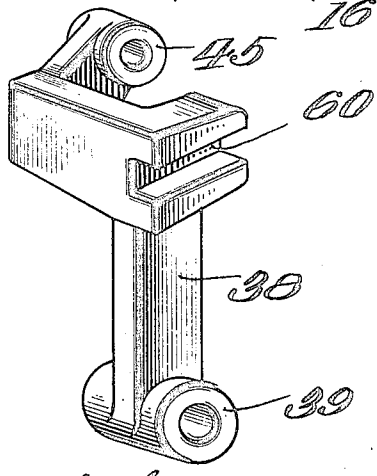


FIG. 11.

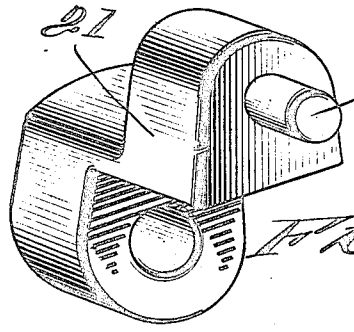


FIG. 12.

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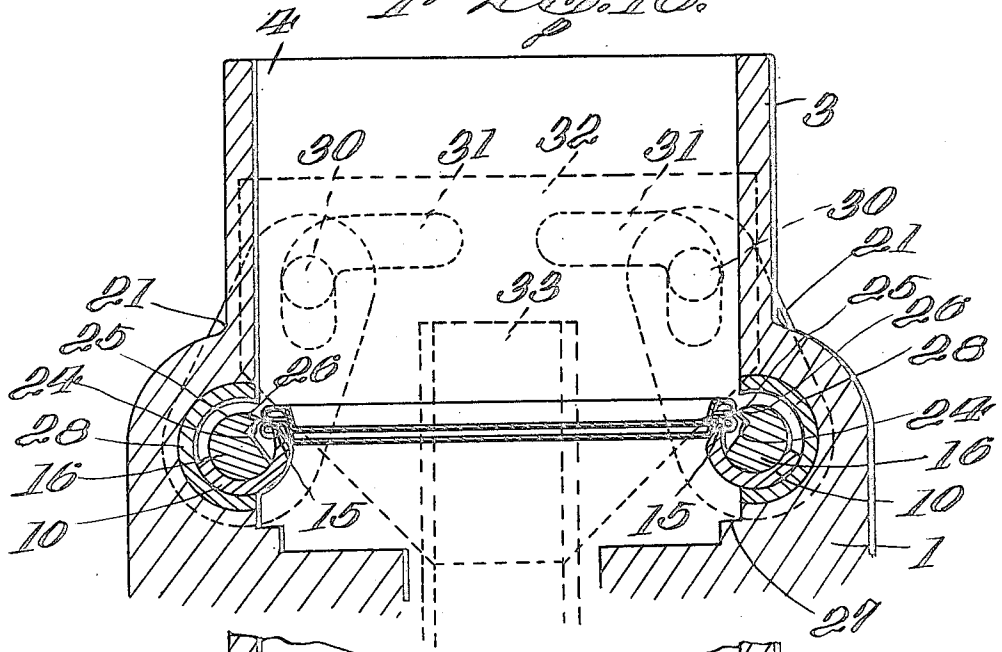
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STACK HOLDER AND CAN END FEED THEREFOR

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FIG. 16.



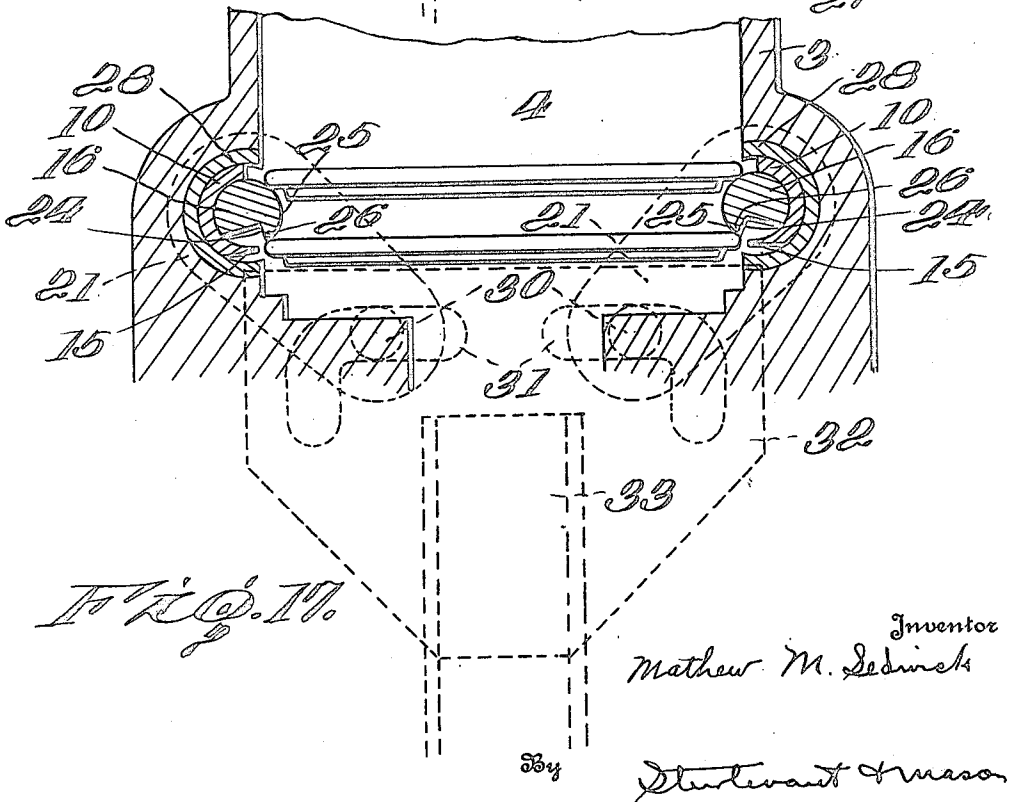


FIG. 17.

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Patented Apr. 2, 1929. 1,707,928

UNITED STATES PATENT OFFICE.

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STACK HOLDER AND CAN-END FEED THEREFOR.

Application filed July 22, 1925. Serial No. 45,260.

The invention relates to new and useful improvements in stack holders and mechanism for sustaining the can ends in the stack, and feeding the same, one at a time, to an operating mechanism for making or closing cans.

A sanitary can is made by attaching the ends thereof to the body portion of the can by means of rolling the metal into a seam. The ends for forming the bottom and for closing such a can are provided with a curl extending circumferentially about the edge thereof, which curl aids the seaming rollers in the rolling of the metal into a seam. Ends of this type are laid one on the other in a stack and are fed from the bottom end of the stack, one at a time, to the machine for making or closing the cans. The can ends are supported one on another by the curled edge of the end. Therefore, the distance between the support for the lowermost end, which is the support for the stacked ends, and the lower face of the can end next to the lowermost end, is determined by the amount of curl in the edge of the lowermost can end. The usual method of feeding can ends of this type is by supporting the entire stack upon movable members which support the stack by the curled edge of the end resting on the movable member. At predetermined times, these members are moved from beneath the curled edge, but prior to moving said members to release the lowermost end, a combined separator and stack support is forced in between the lowermost end and the end next above, so as to temporarily support the stack while the lowermost end is being released. This separator and preliminary support for the stack, is of course, a fixed distance above the movable member which supports the entire stack before the parts are moved to release the lowermost end. The curled edge portion of the end varies. This variation is usually very slight, but once in a while, there is an end wherein the curled edge varies considerably from the standard curl; also the ends are sometimes warped in handling, so that the lower face of the curled edge does not lie in a true plane. These and other causes will sometimes hold the can end which is next to the lowermost end supporting the stack, at such a varying distance from the support for the stack, that the separators instead of moving between the two lowermost ends, will strike one or the other, and cause a jamming of the can end feed.

An object of the invention is to provide a can end feed for a stack holder wherein the can ends are supported by movable members which contact with the can end inside of the curled edge so that the space between the two lowermost ends, is always a predetermined distance above the movable can end supporting member, which distance is determined by the thickness of the metal, plus in certain instances, the thickness of the gasket, and this distance is much more uniform than the curling of the edge of the can end.

A further object of the invention is to provide a can end feed of the above type with means located beneath the stack holder and moving in a vertical plane about a pivotal axis for engaging the can end and moving it from beneath the stack holder, so that it may be carried into the machine which forms or closes the can.

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

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

Figure 1 is a side view of a portion of a stack holder and the can end releasing and feeding mechanism associated therewith;

Fig. 2 is a sectional view through the same on the line 2—2 of Fig. 1;

Fig. 3 is a view similar to Fig. 2, but showing the feeding arm for the can ends in its retracted position;

Fig. 4 is a sectional view through the stack holder and the releasing and feeding means on the line 4—4 of Fig. 2;

Fig. 5 is a plan view of the improved stack holder and feeding means associated therewith;

Fig. 6 is a sectional view on an enlarged scale through a portion of the stack holder showing the supporting means for the can ends and the separating device which cooperates therewith;

Fig. 7 is a detail view in side elevation and in section showing the outer sleeve on which the supporting finger for the can ends is formed;

Fig. 8 is a side view of the sleeve shown in Fig. 7;

Fig. 9 is a detail showing in side view and

also in section, the preliminary supporting and separating member;

Fig. 10 is a side view of this separating member shown in Fig. 9;

Fig. 11 is a perspective view showing the reciprocating slide which operates both the can end separating and releasing mechanism and also the feeding arm for moving the ends;

Fig. 12 is a perspective view of the operating crank for moving said slide up and down;

Fig. 13 is a perspective view of the upper part of the slide with the members thereof detached and separated for the sake of clearness;

Fig. 14 is a top plan view of the operating arm for moving the feed arm which moves the ends from beneath the stack holder;

Fig. 15 is a side view of the same;

Fig. 16 is a view showing more or less diagrammatically the stack holder, some of the ends of the stack, with the supporting fingers in position for supporting the stack, and

Fig. 17 is a similar view, but showing the supporting fingers as moved to a position to release the can end and the separating members and preliminary supporting devices as having moved to separate the ends, forcing the released end downward away from the stack, and supporting the stack until the fingers are returned so that they may become the supporting means therefor.

The invention is directed broadly to a stack holder for can ends, and more particularly to a stack holder which may be used for feeding a can end to a machine for closing the open top or sanitary can after said can has been filled. This stack holder and feeding mechanism for the can ends includes two combined stack holders and separating devices located at opposite sides of the stack. These devices are mounted to oscillate about axes which are parallel with each other. Each device includes an oscillating sleeve having a supporting finger, which, at certain times in the cycle of operation, are so positioned as to engage the lowermost can end in the stack at points inside of the curled edge thereof, and preferably in a channel formed in a can end which is supplied with a sealing material or gasket. Associated with this sleeve with the supporting finger is a preliminary supporting and separating member, which is capable of oscillation with said sleeve, and said supporting and separating member is in the form of a cylindrical rod having a portion cut away so as to form a substantially radial face, which, together with the curved cylindrical surface of the rod, forms the separating lip. This separating lip is adapted to move in between the two lowermost can ends, and the curved surface will engage the lower portion of the curl on the next to the lowest can and force its way in between said can end and the lowermost can end, so as to forcibly separate the same and form a preliminary support for the stacked can ends when this lowermost end is removed therefrom. The stack is supported on the upper curved face of the rods. The fingers which support the stack before the end is separated therefrom, are of course, spaced a certain predetermined distance from this lip on the rod. This distance may be adjusted to suit the conditions of the can ends worked upon, but when once adjusted, it is a fixed distance. The fingers which support the stacked can ends before the lowermost end is separated and released, engage the can ends as above noted, back from the curled edge, and therefore, the distance between the lowermost can end support and the curled under portion of the edge of the next higher can end, is determined by the thickness of the metal of the can end, plus the thickness of the sealing material or gasket, and not by the amount of curl formed in the can end. Means is provided for oscillating these devices just described, which gives a dwell to the device so as to allow the stack to settle on to the supporting fingers before any movement of the devices takes place to separate the lowermost end from the stack of can ends, and also, to give a dwell to said devices when the lowermost end is separated and forced downwardly away from the stack so as to give said released end ample time to drop clear of the supporting fingers when they return to support the stack. Also located beneath the stack holder and oscillating in a vertical plane about the pivotal axis, is a swinging arm for moving the can ends released from the stack from beneath the stack holder, and out into a position where they may be either placed on the can moving into the closing machine, or fed into the closing machine to be placed on the can therein.

Referring more in detail to the drawings, my improved stack holder and can end feeding mechanism includes a supporting bracket 1 which may be attached to the side of a can making machine or can closing machine. Said bracket is provided with slots 2—2, through which bolts may be passed for clamping the same to the frame of the machine. This bracket extends upwardly from a part attached to the machine, and is provided with a base portion 3 of a stack holder. Said base portion 3 is formed with a cylindrical chamber 4 which is of substantially the same diameter as the can ends which are to be supported and fed from the stack holder. Associated with this base portion 3 are rods 5, 5 which are preferably four in number, and so arranged in the stack holder as clearly shown in Fig. 5, as to maintain the can ends stacked one upon the other. Can ends for forming sanitary cans or for closing open end cans are formed with a central

depressed portion 6 which provides a flange 7, and this flange is provided with a curled back portion 8. Between this curled back portion and the central depressed portion, there is formed a channel 9 in which is placed the sealing material or a gasket. These can ends are of the usual construction and have been shown more or less diagrammatically in Fig. 6. When said can ends are stacked one upon another, the central depressed portion of one nests in the recess formed by the central depressed portion of the next adjacent can end, and thus the can ends are held in the stack one upon the other. The depression is of a greater depth than the curl, but on account of taper, one end goes down into the other and rests upon the curled edge portion 8 of the can end as clearly shown in Figures 6 and 16, of the drawings.

Prior to the present invention, it has been customary to support a stack in a stack holder by the movable member which moves in a horizontal plane underneath the curled edge of the lowermost can end, and said flange will rest on said movable member, and thus the stack is supported. Associated with this movable member is a can end separating device and preliminary support for the stack. When the movable member is moved to release the lowermost end, the separator will move in between the two lowermost ends of the stack, separate the lowermost end from the stack, and act as a preliminary support for the stack, while the lowermost end is being discharged from the stack holder, after which the movable member returns beneath what then becomes the lowermost end, so that the stack may settle down on to the same. It will thus be seen that the separator for separating the two lowermost ends should move in between the curled edge of the second end from the bottom, and the upper or outer face of the flange of the lowermost end. The movable member and the separating member are always a fixed distance part, determined by the manufacturing of these parts, and the adjustment given to the same. If, as sometimes happens, the curled under portion of the end is not of the standard uniform shape so that the under-surface of the curled under edge and the upper surface of the flange, is not the same distance as the distance between the movable member and the separator of the end feeding mechanism, there are times when the separator will strike the curled edge and cause a jamming of the can ends, as has already been mentioned.

The present invention is directed to the construction of a supporting means for the stack, and a releasing means for the lowermost can end, which is so formed that the separating means will always pass between the two lowermost ends and separate the same, regardless of whether the curl in the edge is uniform or not. To this end, I have provided two supporting members for the stack, each of which is in the form of a sleeve 10. This sleeve 10 is a hollow sleeve and has a central cut-out portion 11. This cut-out portion of the sleeve forms two edges 12 and 13. Edge 13 is provided with an upstanding finger 14 which is preferably tapered to a dull edge 15 as clearly shown in Figures 7 and 8 of the drawings. It is this edge 15 which functions to support the stacked can ends as will be more clearly pointed out. Associated with this sleeve carrying the supporting finger for the stacked ends is a separating device which is in the form of a rod, indicated at 16 in Figures 9 and 10 of the drawings. Said rod is provided with a flange 17 adjacent one end thereof, and the sleeve 10 slides on the rod until it butts against this flange. Said sleeve is rigidly secured to the rod by means of a nut 18 which bears against a washer 19 which in turn bears on the end of the sleeve, and thus it is that the sleeve is clamped between the washer 19 and the flange 17. This rod 16 is also provided with a square end 20 to which a suitable implement may be applied for turning the rod for setting the same. This rod is in turn secured to an arm 21 by means of a nut 22 (see Figures 1 and 3). This nut 22 may be loosened and the rod turned by the implement applied to the end 20 thereof, so that the rod may be given the desired setting on the arm 21. By loosening the nut 18, the sleeve may be rotatively adjusted on the rod. The rod 16 is provided with a recess 23 which forms an angular face 24. This angular face 24 with the curved outer surface 25 of the rod 16 adjacent said face form a separating lip 26. Referring to Fig. 6 of the drawings, it will be noted that the sleeve 10 can be adjusted on the rod 16 so as to position said separating lip 26 a predetermined distance from the finger 15 which supports the stack. It will also be seen from this figure, that this finger will engage the stacked ends inside the curled edge 8 and in the channel of the end. These supporting fingers move in a vertical plane, that is, a plane parallel to the longitudinal axis of the stacked ends. When the finger moves from the position shown in full lines in Fig. 6 to the dotted line position therein, the lowermost end will move downward therewith, until said finger has retracted a sufficient distance to release the end which is stripped from the stack, and the end will fall by gravity on to a supporting ledge 27 in the base portion of the stack holder. When the fingers move downwardly to release the lowermost can end, the lip 26 will move in between the two lowermost ends before said lowermost end is moved downwardly any appreciable distance, and said lips will thus pass in between the two lowermost ends and operate to support the stacked ends above the lowermost end, so that it may be removed

from the stack. The curved portion of the rod adjacent the lip 26 serves as a temporary support for the stack. The lip will also forcibly separate the lowermost end from the remainder of the stack, pushing it downwardly with a downward movement of the fingers 15. The rod, together with the sleeve which forms these supporting fingers and separating lips, is located as above noted, at opposite sides of the stack holder (see Fig. 4). Each stack holder is provided with a recess in the base portion thereof, in which is a sleeve bearing 28 which is of proper size to receive the sleeve 10. This sleeve bearing is cut away at 29 (see Fig. 3) so as to permit the fingers and lips to extend into the cylindrical chamber in the base portion of the stack holder and operate as a support for the stacked can ends (see Fig. 5.)

Each rod and sleeve at the sides of the stack holder are secured to arms 21. These arms 21 are each provided with a pin 30 which cooperates respectively with right-angled slots 31 formed in a reciprocating slide 32. The slide 32 is adjustably secured to the upper end of a reciprocating member 33 by means of a bolt 34 which passes through an elongated slot 35 and is threaded into said member 33. The member 33 is provided with a dove-tailed portion 36 which slides in a suitable groove 37 in the bracket 1. The member 33 is moved up and down by means of a link 38. This link is shown in perspective in Fig. 11 of the drawings. Said link has a sleeve 39 at its lower end, which engages a crank pin 40 carried by a crank sleeve 41 shown in Fig. 4 of the drawings. This crank sleeve 41 is rigidly secured to a shaft 42. The shaft 42, as clearly shown in Fig. 1, is provided with a clutch member 43 which is keyed to the shaft, but which is capable of sliding endwise on the shaft. Loosely mounted on this shaft is a clutch collar 44 which is operated from some suitable connection with the machine to which the can end feeding mechanism has been applied. The purpose of these clutch members 43 and 44 is to create a feeding mechanism for stacked can ends which will only be operated to feed the can ends when there is a can to have a can end attached thereto, and therefore, as the cans move into a machine, they operate said clutch members to connect up the parts of the clutch and cause a rotation of the shaft 42 to feed an end, said clutch members being normally disconnected from each other. The link 38 is provided with a sleeve 45 which engages a pin 46 on the member 33. When the shaft 42 rotates, it will move the link 38 up and down, and this in turn will reciprocate the member 33 and the slide 32. As the slide 32 reciprocates, it will oscillate the arm 21, which in turn oscillates the rod 16 and sleeve 10. Referring to Figures 16 and 17 of the drawings, it will be noted that in Fig. 16, the slide 32 is in raised position, and the pins 30 are in the vertical portions of these slots. Said slots are formed at right angles to each other and joined by the curved portion, so that when the slide is moved up and down, the pins will freely pass from the vertical portion to a horizontal portion, and vice versa. Starting with the parts as in Fig. 16, the arms 21 are so positioned that the stack is supported by the supporting fingers 15 formed on the sleeves 10. When the slide moves downwardly to the position shown in Fig. 17, then these arms 21 will be oscillated, and will turn the supporting fingers so as to release the lowermost can end, and at the same time, will turn the separating lips on the rod 16 so that it will pass between the two lowermost ends, forcibly separating the lowermost end from the end directly thereabove, and forcing said released end so that it will drop by gravity down on to the supporting ledges beneath the stack holder. The slots 31 on the reciprocating member 32 are provided with vertical sections, and therefore, when the slide 32 oscillates, there will be a substantial dwell in the arms at the high point of the stroke. The purpose of this dwell is to allow the stacks to settle down on to the supporting fingers when released from their temporary supports as clearly shown in Fig. 16. By allowing enough stroke, sufficient time will be given to permit the released end to pass the supporting fingers at the bottom of the stroke, as clearly shown in Fig. 17. It will readily be understood that the sleeves may be adjusted on their supporting rods, and the rods adjusted relative to the arms 21, so that the distance between the supporting fingers and the separating lips may be varied to accommodate the type of cover being fed, but when once adjusted, there will be no question but what the separating devices will pass between the two lowermost can ends, and will not engage the curled edge of the can end above the one which is to be released and cause a jamming of the parts. The distance between these fingers and the separating lips is fixed and the distance between the supported can end and the curled edge of the one thereabove, is determined by the thickness of the metal in the can end which is uniform and constant.

As has been stated, the can ends when they are released from the stack may drop on to supporting ledges 27. These supporting ledges are spaced from each other as shown in plan view in Fig. 5, and the base of the stack holder is cut away at the left-hand side thereof as shown in Figures 3 and 5, so as to permit the ends to be fed out from beneath the stack holder, and either on top of a can traveling alongside of the stack holder, or on to devices for conveying the can end to the closing machine. In order to move the can end from beneath the stack holder, I have provided an oscillating member 47.

This member 47 is formed in two sections, an inner member 48 attached to a collar portion 49, which is keyed to a supporting shaft 50, and a sleeved outer portion 51 which is capable of sliding on the inner member 48. A spring 52 is coiled about these two members and rests at its lower end on the collar 49 and at its upper end against a shoulder 53 formed at the base of the sleeve 51. At the upper end of this sleeve 51 is the head 54, which is adapted to engage a can end and move it along the supporting ledges 27 from beneath the stack holder. This head 54 has laterally projecting rounded portions 55. These rounded portions bear against the lower face of the supporting ledges 27. The lower face of this supporting ledge 27 is provided with a cam section 56. This arm for feeding the can ends moves from the position shown in full lines in Fig. 3 to the position shown in full lines in Fig. 5. Said arm swings about the axis of the shaft 50. The rounded laterally projecting portions 55 will slide along said cam face 56, and this cam face is so shaped that the head of the swinging arm will be in proper position for engaging the can end when the can end drops on to the ledges 27 and will slide the can end along said ledges. As the head moves the can end along, it will be depressed by the cam 56. Therefore, although this arm swings about a pivot in a vertical plane, the head at the upper end of the arm will move in substantially a horizontal line as it conveys the can end from beneath the stack holder. This feed arm for the can ends is operated by means of a member 57 which is rigidly attached to the shaft 50. This member 57 carries a pin 58 which is mounted in the radial slot 59 therein so that it may be adjusted relative to the axis of the shaft 50. The pin 58 is adapted to engage a horizontal slot 60 formed in the link 38, so that as the link 38 moves up and down through the rotation of the crank 40, this slot 60 engaging the pin 58 will oscillate this member 57, and thus impart oscillations to the shaft 50 and the feed arm carried thereby. It is not thought necessary to describe the operation of this machine further, as said operation has been pointed out in connection with the detail description of the parts of the machine.

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

Having thus described the invention, what I claim as new and desire to secure by Letters-Patent, is—

1. A can end feeding mechanism including in combination, a stack holder for supporting stacked can ends having the edges thereof curled, and means associated therewith for supporting the stack and releasing the lowermost can end from the stack, said means including supporting fingers for the stack movable respectively in planes at right angles to the ends and adapted to engage the lowermost can end inside of the curled edge thereof, whereby the distance between the upper face of the supporting finger and the curled edge of the can end directly above the lowermost can end is determined by the thickness of the metal forming the can end.

2. A can end feeding mechanism including in combination, a stack holder for supporting stacked can ends having the edges thereof curled, means associated therewith for supporting the stack and releasing the lowermost can end from the stack, said means including supporting fingers for the stack movable respectively in planes at right angles to the ends and adapted to engage the lowermost can end inside of the curled edge thereof, whereby the distance between the upper face of the supporting finger and the curled edge of the can end directly above the lowermost can end is determined by the thickness of the metal forming the can end, separating and supporting devices associated with said fingers for separating the lowermost can end from the end directly above the same and for supporting said stack while said lowermost end is being released.

3. A can end feeding mechanism including in combination, a stack holder in which the stacked ends may be placed, means for releasing said can ends, one at a time, from the lower end of said stack comprising parallel rods, a sleeve rigidly secured to each rod, each sleeve being provided with a finger adapted to engage the can end inside of the curled edge for supporting the stack, said sleeve being cut away, and said rod having a separating and supporting lip working through an opening in the sleeve for separating the lowermost end from the stack and supporting said stack while said end is being released, and means for oscillating said rods and the fingers supported thereby.

4. A can end feeding mechanism including in combination, a stack holder in which the stacked ends may be placed, means for releasing said can ends, one at a time, from the lower end of said stack comprising parallel rods, a sleeve rigidly secured to each rod, each sleeve being provided with a finger adapted to engage the can end inside of the curled edge for supporting the stack, said sleeve being cut away, and said rod having a separating and supporting lip working through an opening in the sleeve for separating the lowermost end from the stack and supporting said stack while said end is being released, and means for oscillating said rods and the fingers supported thereby, said oscillating means for the rods including devices for giving a dwell to said fingers when in position for releasing the can end so

that said can end may be passed clear of the fingers before said fingers are returned for supporting the remainder of the stack.

5. A can end feeding mechanism including in combination, a stack holder in which the stacked ends may be placed, means for releasing said can ends, one at a time, from the lower end of said stack comprising parallel rods, a sleeve rigidly secured to each rod, each sleeve being provided with a finger adapted to engage the can end inside of the curled edge for supporting the stack, said sleeve being cut away, and said rod having a separating and supporting lip working through an opening in the sleeve for separating the lowermost end from the stack and supporting said stack while said end is being released, and means for oscillating said rods and the fingers supported thereby, said means for oscillating said supporting fingers including devices for giving a dwell to said fingers when in position for supporting the stack so that said stacked can ends may settle on to said fingers.

6. A can end feeding mechanism including in combination, a stack holder for supporting stacked can ends, means associated therewith for releasing the can ends one at a time, said means including spaced rods, each of which is provided with a lip terminating at the surface of the rod so as to form therewith a combined separating and supporting lip for separating the lowermost end from the stack and supporting said stack while said lowermost end is being released, and devices cooperating with said rods for supporting the stacked ends and releasing the lowermost end.

7. A can end feeding mechanism including in combination, a stack holder for supporting stacked can ends, means associated therewith for releasing the can ends one at a time, said means including spaced rods, each of which is provided with a lip terminating at the surface of the rod so as to form therewith a combined separating and supporting lip for separating the lowermost end from the stack and supporting said stack while said lowermost end is being released, a sleeve adjustably fixed to each rod and having a cut away section through which the separating and supporting lip operates, said sleeve having a finger adapted to engage the lowermost can end inside of the curled edge thereof for supporting the stack, said sleeve being fixed to the rod and oscillating therewith.

8. A can end feeding mechanism including in combination, a stack holder for supporting stacked can ends, means associated therewith for releasing the can ends one at a time, said means including spaced rods, each of which is provided with a lip terminating at the surface of the rod so as to form therewith a combined separating and supporting lip for separating the lowermost end from the stack and supporting said stack while the lowermost end is being released, a sleeve adjustably fixed to each rod and having a cut away section through which the separating and supporting lip operates, said sleeve having a finger adapted to engage the lowermost can end inside of the curled edge thereof for supporting the stack, said sleeve being fixed to the rod and oscillating therewith, and a reciprocating slide for oscillating said rods when it is desired to release the can end.

9. A can end feeding mechanism including in combination, a stack holder for supporting stacked can ends, means associated therewith for releasing the can ends one at a time, said means including spaced rods, each of which is provided with a lip terminating at the surface of the rod so as to form therewith a combined separating and supporting lip for separating the lowermost end from the stack and supporting said stack while the lowermost end is being released, a sleeve adjustably fixed to each rod and having a cut away section through which the separating and supporting lip operates, said sleeve having a finger adapted to engage the lowermost can end inside of the curled edge thereof for supporting the stack, said sleeve being fixed to the rod and oscillating therewith, and a reciprocating slide for oscillating said rods when it is desired to release the can end, said slide having L-shaped slots formed therein adapted to cooperate with crank arms connected to said rods, said slots being arranged so as to give a slight dwell to the rod in the high position of its oscillation.

10. A can end feeding mechanism including in combination a stack holder, means for releasing the can ends, one at a time, from the lower end of said stack holder, an oscillating arm located beneath the stack holder and oscillating in a vertical plane passing centrally through the stack holder for engaging a can end released from the stack and moving the same from beneath the stack, said oscillating arm being formed in sections arranged in alinement with each other, and a spring for moving the outermost section outwardly on the other, said stack holder having a cam plate adapted to bear on said outermost section of the arm for depressing said outermost section during the feed of the can end from beneath the stack.

11. A can end feeding mechanism including in combination, a stack holder, means for releasing the can ends one at a time from the lower end of said stack holder, an oscillating arm located beneath the stack holder and oscillating in a vertical plane passing centrally through the stack holder for engaging a can end released from the stack and moving the same from beneath the stack, said oscillating arm being formed in sections telescoping each other and having a spring for moving the

outermost section outwardly on the other section, said stack holder having a cam plate adapted to bear on said outermost section of the arm for depressing said outermost section during the feed of the can end from beneath the stack.

12. A can end feeding mechanism including in combination, a stack holder, means for releasing the can ends one at a time from the lower end of said stack holder, an oscillating arm located beneath the stack holder and oscillating in a vertical plane passing centrally through the stack holder for engaging a can end released from the stack and moving the same from beneath the stack, and a reciprocating slide for operating the can end releasing devices and for operating said arm.

13. A can end feeding mechanism including in combination, a stack holder in which can ends having the edges thereof curled may be placed with the curled edges facing downward, devices associated with said stack holder and movable in a plane cutting the can end substantially at right angles for engaging the under face of the can end inside of the curled edge thereof for supporting the stack, means for moving said devices for releasing the lowermost end, and means cooperating with said devices for separating the lowermost end from the stack and temporarily supporting said stack while the lowermost end is released.

In testimony whereof, I affix my signature.

MATHEW M. SEDWICK.