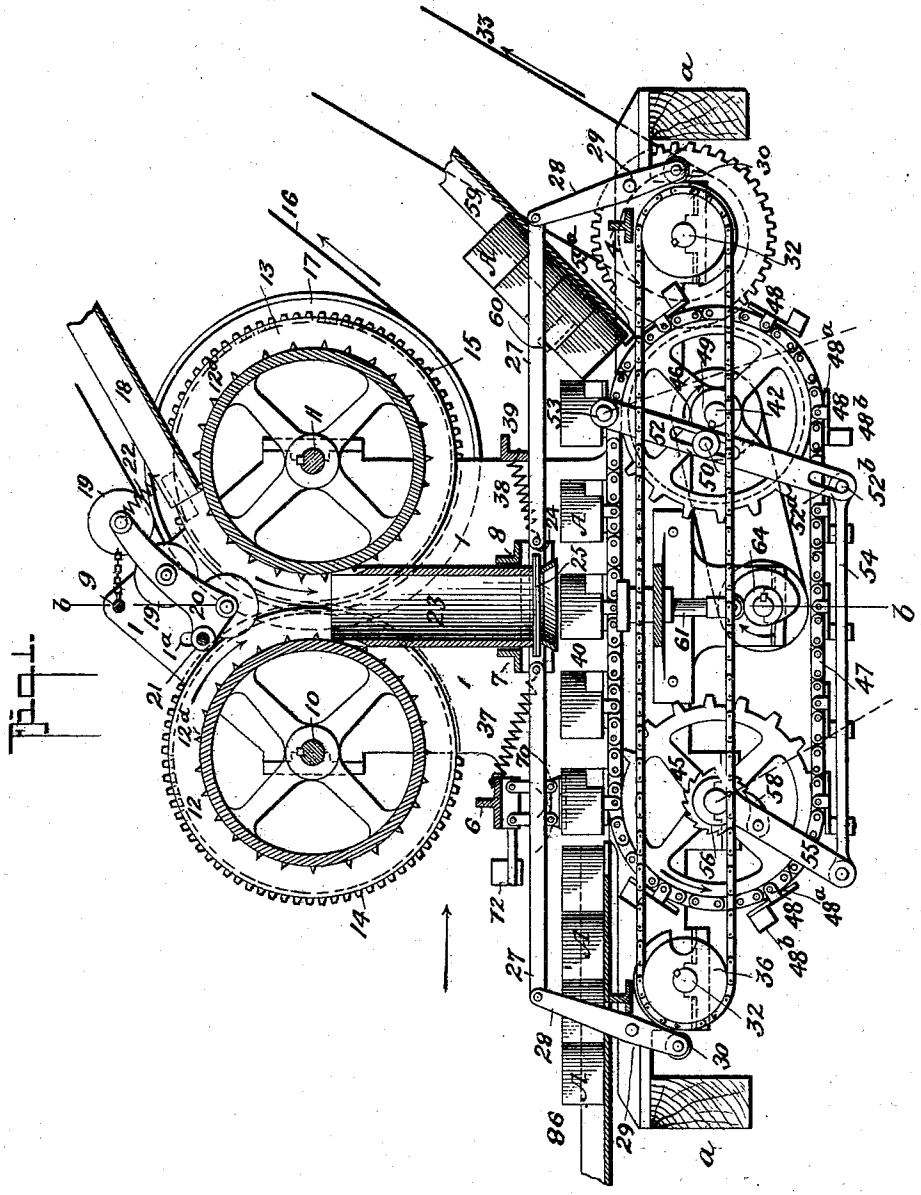
No. 653,063. Patented July 3, 1900.

J. R. BROWN.

CAN FILLING MACHINE.

(Application filed Aug. 8, 1899.)

(No Model.) 7 Sheets—Sheet 1.



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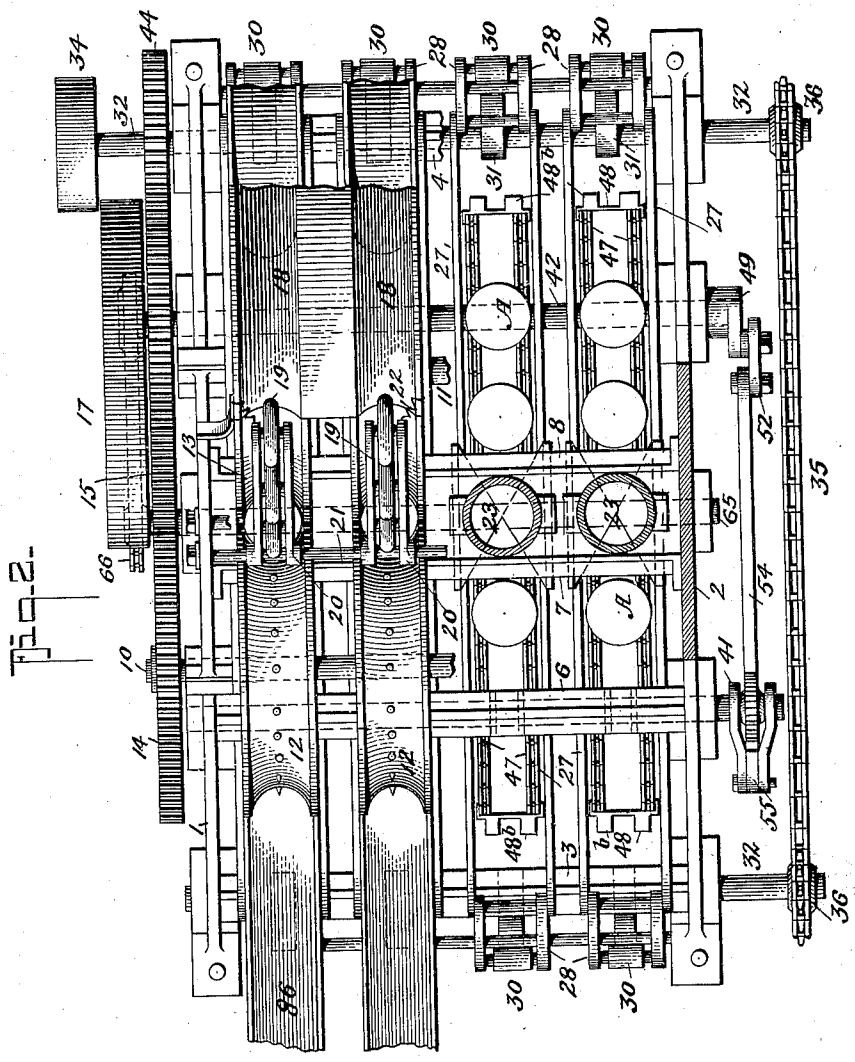


Fig. 2.

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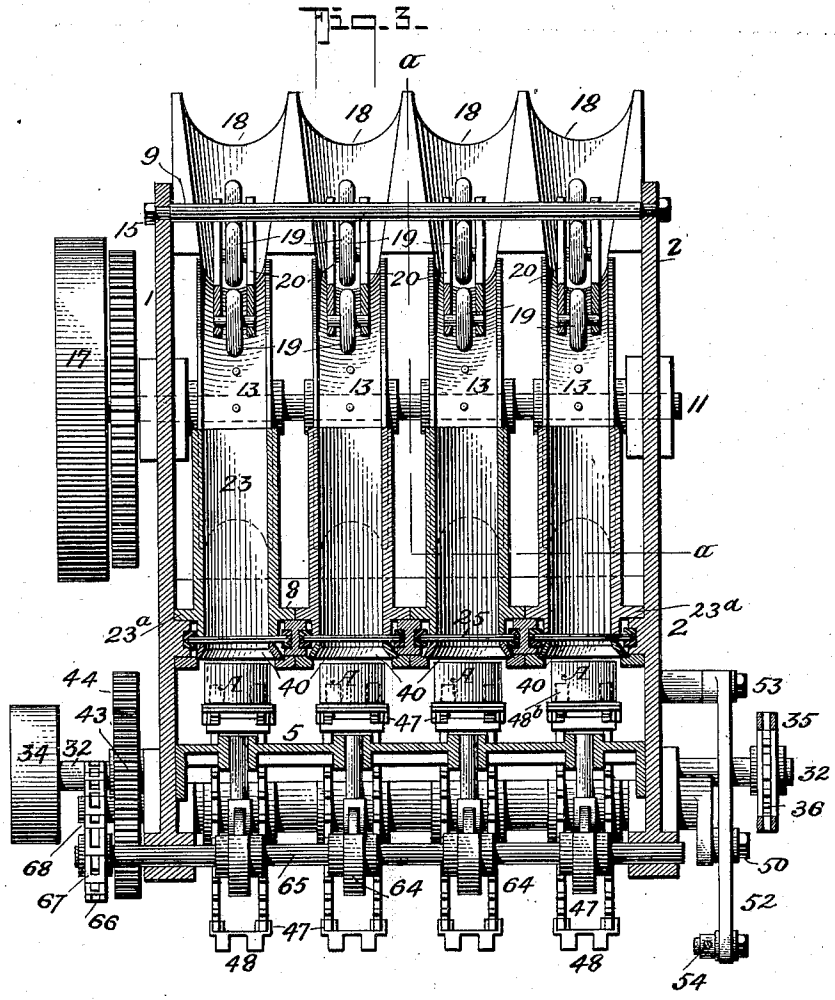
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(No Model.) 7 Sheets—Sheet 3.

Fig. 3.



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Fig. 4.

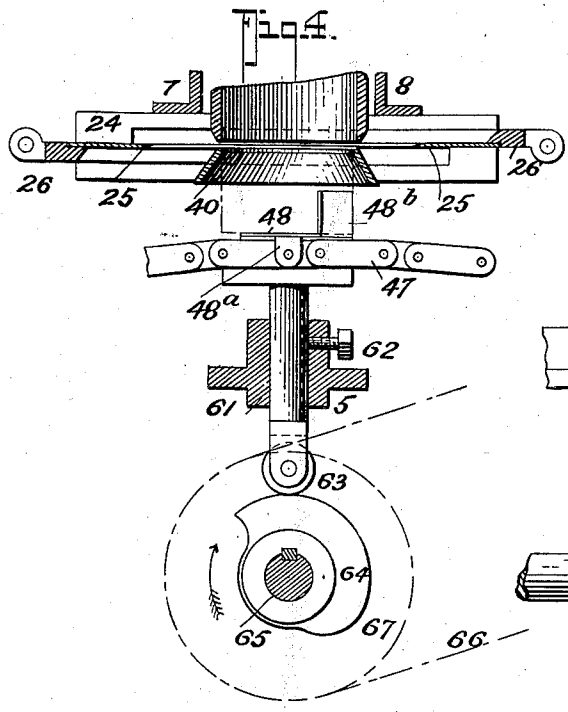


Fig. 5.

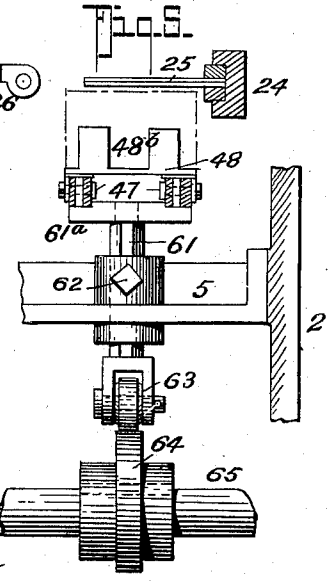


Fig. 6.

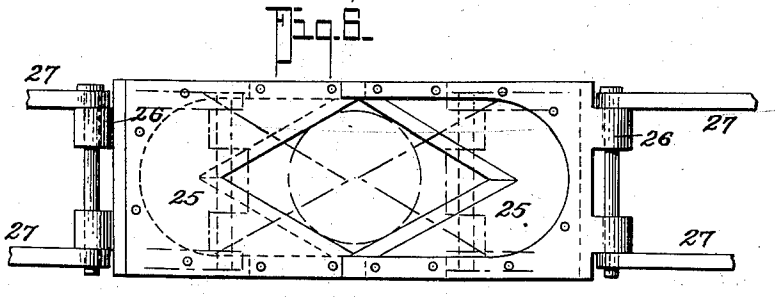


Fig. 7.

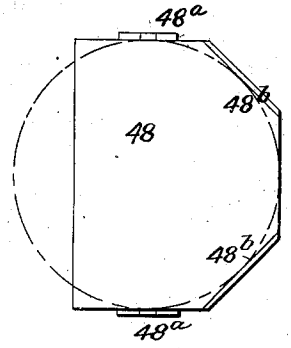
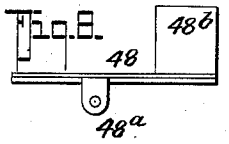


Fig. 8.



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Fig. 9.

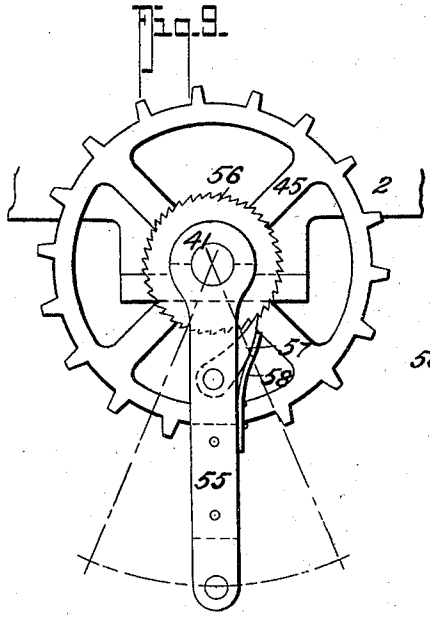


Fig. 10.

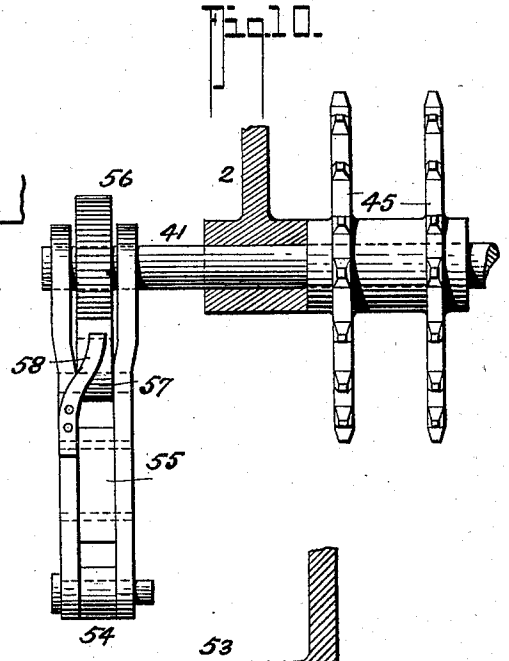


Fig. 11.

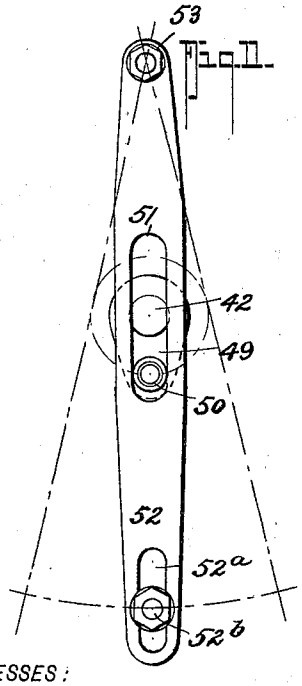
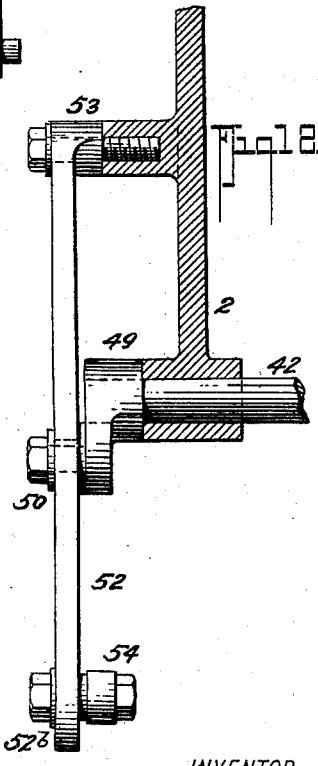


Fig. 12.



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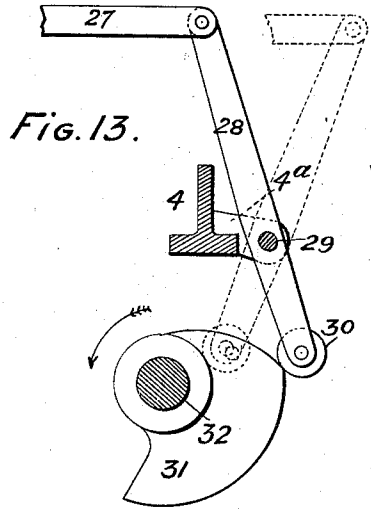


Fig. 13.

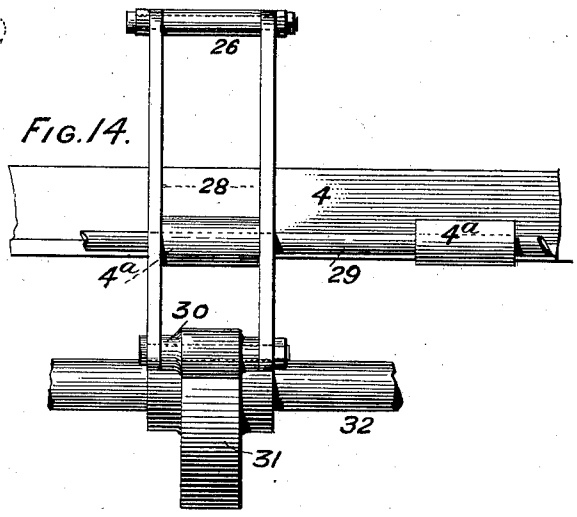


Fig. 14.

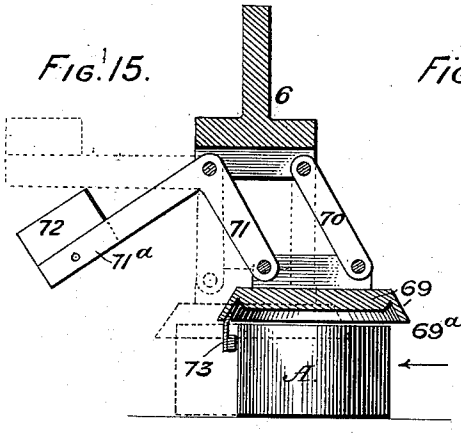


Fig. 15.

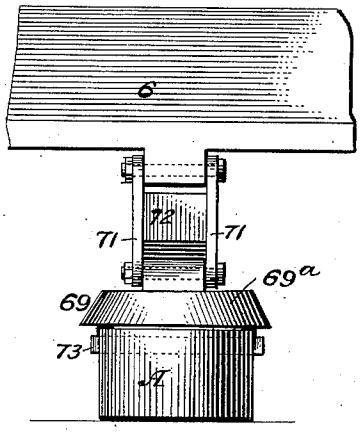


Fig. 16.

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(No Model.) 7 Sheets—Sheet 7.

Fig. 17.

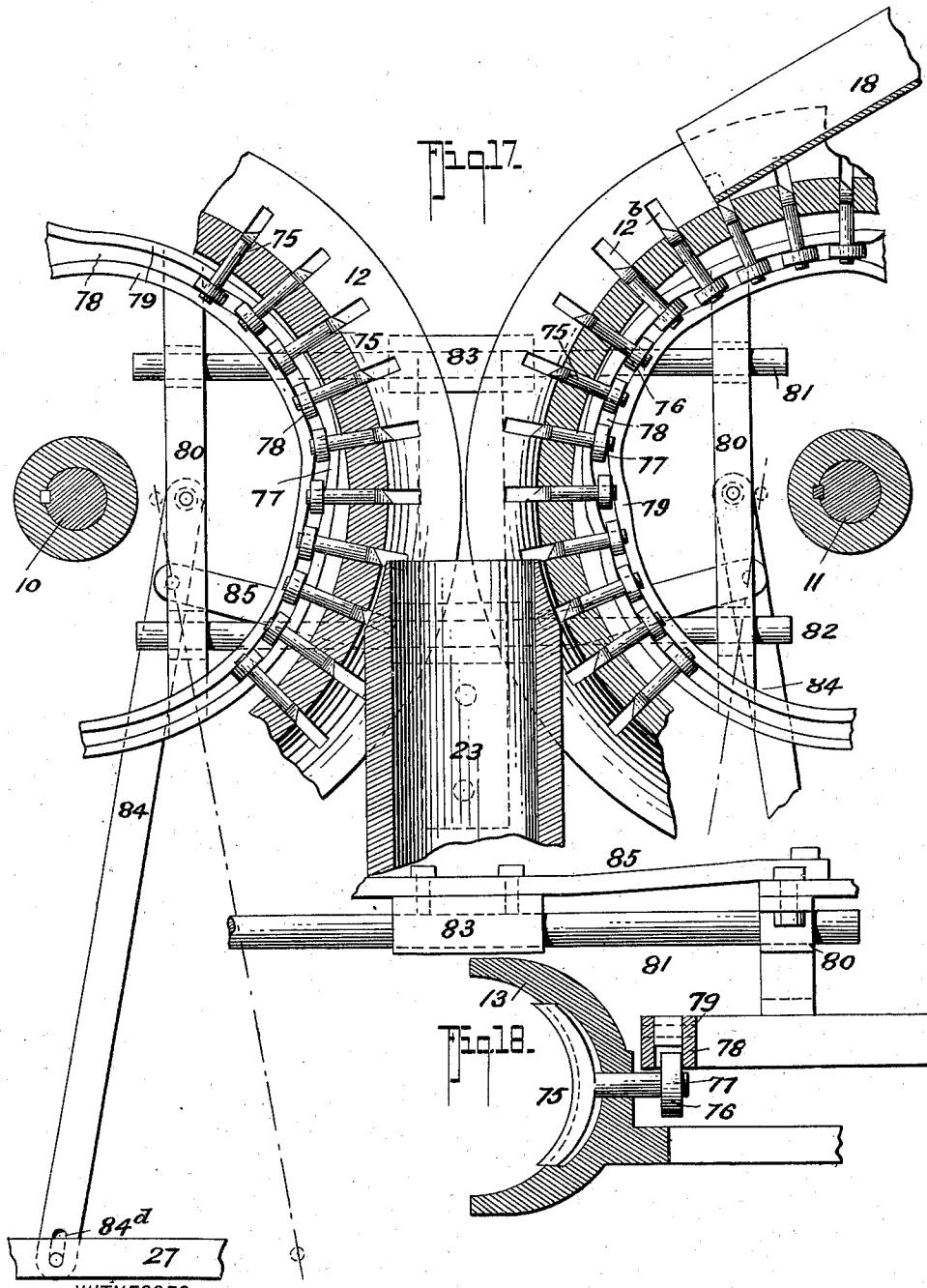


Fig. 18.

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UNITED STATES PATENT OFFICE.

JOHN REITTER BROWN, OF VANCOUVER, CANADA.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 653,063, dated July 3, 1900.

Application filed August 8, 1899. Serial No. 726,615. (No model.)

To all whom it may concern:

Be it known that I, JOHN REITTER BROWN, a citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Can-Filling Machines, of which the following is a specification.

My invention relates to improvements in machines especially adapted for filling raw fish into cans to be employed in the canning trade, in which I arrange receiving-rolls having fluted surfaces turning toward each other downward, a spout to receive the fish from the rolls, movable cut-off knives made to lie when at rest over the lower mouth of the spout, and an endless intermittently-moving carrier arranged to pass over wheels beneath the spout on a horizontal plane for moving the cans beneath the spout while being filled, levers actuated by cam-wheels having a connection with the knives for cutting off the fish as each can is moved up by a lifting-cam to the mouth of the chute, and a depressor for pressing down the fish into the can below the upper rim thereof as it is moved along.

The objects of this improvement are to shape the fish into the proper cylindrical form, with the skin outward, to be received into the spout, which is the approximate diameter of the can—a little smaller than the can to be filled—to press it down in such spout onto the cut-off knives, which act as a bottom to the spout until a can comes thereunder, and then to cause the knives to reciprocate over the mouth of the can and while drawn back allow the rolls to press the material downward and fill the can, when the return of the knives again closes the chute; second, to provide an intermittent carrier for the cans, having holders thereon which receive the cans from a delivery-chute and the movement of such carrier being so regulated that it moves a distance corresponding to the distance between the cans, so that when properly adjusted each can will stop beneath the spout closed by the knives and receive its portion, as indicated, which will be pressed down by a depressor ready for receiving a cover, and, third, to provide a chute that will deliver a can automatically to each holder on the carrier in a positive and simple manner. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, part section, of my machine with one side frame removed. Fig. 2 is a plan of the machine. Fig. 3 is a vertical cross-section on the line *b b* in Fig. 1 viewed in the direction of the arrow. Fig. 4 is a detail showing the can-lifting cam and fish cutting knives, and Fig. 5 is another view of the same. Fig. 6 is a plan of the fish-cutting knives. Fig. 7 is a plan of the can-holder, and Fig. 8 is a side elevation of the same. Fig. 9 is a side elevation of the ratchet-feed for the can-carrying chains. Fig. 10 is an end elevation of the same. Fig. 11 is a side elevation of the feed-lever, and Fig. 12 is another view thereof. Fig. 13 is a detail of one of the cams and levers for operating the fish-cutting knives, and Fig. 14 is another view of the same. Fig. 15 is a detail of the depressor for pressing the fish below the surface of the top edge of the can, and Fig. 16 is an end elevation of the same view. Fig. 17 is an enlarged detail of the rolls 12 and 13, showing a modification of the serrations for pressing down the fish into the spout 23, in this case there being segmental teeth curved to conform with the curve of the rolls movable with the movement of the same and the knives 25; and Fig. 18 is a section of one of the rolls, showing the means for operating these teeth.

Similar numerals and letters refer to similar parts throughout the several views.

The vertical side plates 1 and 2, the cross-bars 3, 4, 5, 6, 7, and 8, and the tie-rod 9 at the top constitute the main frame of the machine, and the oppositely-projecting ends of this are supported on the cross-timbers *a* or by other suitable means.

Suitably mounted on shafts 10 and 11, journaled in the upper opposite sides of the side plates 1 and 2, are semi-annular fluted rolls 12 and 13, which are caused to rotate downwardly toward each other by gear-wheels 14 and 15, fixed to said shafts 10 and 11, engaging each other, and a belt 16, taking around a pulley 17, fixed on the outer end of the shaft 11. (See Figs. 1, 2, and 3.) Although I may duplicate the forming-rolls 12 and 13, with their auxiliary mechanism, as many times as desired, ac-

cording to the capacity required, as shown in Figs. 2 and 3, I will here describe a single set of rolls only, with its consequent mechanism throughout the machine, as any increase is only a duplicate of the parts described.

Securely fixed to the small lugs forming part of plates 1 2 is an inclined chute 18, the lower end of which projects over the rolls 13 in such a manner as to deliver the fish-body upon the same on its downgoing side.

To press the fish-body down and assist in forming it into a proper shape, whereby it will the more readily pass between the rolls 12 and 13, I provide a series of depressor-rolls 19, loosely mounted in a frame 20, held spring-pressed toward the chute 18, said rolls being freely rotated by frictional contact with the fish-body as it is drawn down by the rolls 12 and 13, the lower end of the said frame 20 being pivoted on a cross-bar 21 and its upper end being held forward by the spring 22, as clearly shown in Fig. 1. The fish are cut flatwise longitudinally and placed into the chute 18 with the skin downward, and as the pieces pass beneath the rolls 19 they will be depressed in the center and pressed into the groove of the roll 13, which operation serves to hold the fish-body in a substantially-semi-cylindrical shape with the skin outward, and consequently the said fish-body will be received into the cans in that form, which is one of the important results to be attained.

Rigidly fixed in a vertical position between the cross-bars 7 and 8, with its upper mouth lying between the periphery of the rolls 12 and 13 at a point below the engaging rims thereof, is a spout 23, the bottom end of which is supported by a flange 23^a, resting on projections on the inner sides of the plates 1 and 2. (See Fig. 3.) The top of this spout is of the same diameter as the circle formed between the engaging peripheries of the rolls 12 and 13, the diameter being a little smaller than the diameter of the cans to be filled, so that the material will fall therein without obstruction.

24 24 indicate guides disposed lengthwise of the machine, one pair of which is employed for each chute 23, said guides being made fast to the cross-bars 7 8 of the main frame. Within the guides 24 are held to reciprocate in a horizontal plane closely under the discharge-mouth of the chutes 23 and over the can-guides 40, presently referred to, knives 25, one pair being employed for each chute, (see Figs. 4, 5, and 6,) the said guides having shear-like V-shaped cutting edges which lap each other, as best shown in Figs. 4 and 6. The knives 25 are fixed to frames 26, having links 11, connected by rods 27 to levers 28, fulcrumed upon rods 29, secured by lugs 4^a, projecting through the bars 3 4 at the opposite ends of the machine, and the pendent end of each lever 28 has a roller 30, which engages with a cam-wheel 31, fixedly held on an adjacent shaft 32, suitably journaled to the lower opposite ends of the machine, one of said shafts being at each end of the machine, as clearly shown in Figs. 1 and 2 of the drawings.

Movement is imparted to one of the shafts 32 by a belt 33, taking around a pulley 34 on the rear end thereof, and a like movement is imparted to the other shaft 32 by a sprocket-belt 35, taking over wheels 36, fixed to said shafts, as shown in Figs. 1, 2, and 3. Each time the shafts 32, having the cams 31 fixed thereto, make a revolution the connecting-rods 27, having the knives 25 attached thereto, will be thrust forward, and the same will be returned by springs 37 and 38, secured to the inner ends thereof and to the bar 6 and to a bar 39 on the opposite side of the spout 23, respectively, and owing to the said cams being of the same form and having the same relation to each other with respect to position on the shafts 32 and said shafts rotating at the same speed the knives 25 will move simultaneously, they being drawn apart and closed at intervals, while closed forming a bottom for the spout 23 and while open allowing the next can to be charged and cutting the material off by the closing movement.

Arranged beneath the knives 25 and fixed to the guides 24 is an inverted funnel 40, the contracted orifice of which alines with the spout 23. This is to guide each can to and hold it in its proper position while being filled.

Now as it is manifest that the movement of the rolls 10 and 11, carrying the fish downward, is continuous and the movement of the cut-off knives is at regular intervals in order to allow a can to be inserted in the funnel 40 while receiving its charge and to be removed and another one inserted while the knives are closed it is evident that the cans must be moved along with an intermittent movement and a regular distance each time, with each stop so positive and accurate that a can will lie at rest beneath the funnel 40 while the knives 25 are drawn back and returned, and it is also evident that such movement of the cans must be in relation to the movement of the said knives without any variation. Therefore I have adopted the following mechanism to produce such relative movement for the cans:

Suitably mounted in hangers depending from the side plates 1 and 2 are shafts 41 and 42, movement being communicated to the shaft 42 by a gear-wheel 43, fixed thereon, meshing with a like wheel 44, fixed on one of the shafts 32. (See Figs. 2 and 3.) Mounted on these shafts 41 and 42 are double sprocket-wheels 45 and 46, respectively, the wheel 45 being fixed to the said shaft 41 and the wheel 46 being loosely mounted on the shaft 42, and endless chains 47 pass over these sprocket-wheels with their upper horizontal plane at a suitable distance and directly beneath the spout 23. These chains 47 are yoked together at intervals by can-carriers 48, having oppositely-projecting lugs 48^a, which are bent downward and fixed to the outer sides of the chains, and for drawing the cans forward

upwardly-projecting guards 48[b] are provided. (See Figs. 1, 4, 5, 7, and 8.)

Secured to the forward end of the shaft 42 is a crank 49, the pin 50 of which lies in a slot 51, placed longitudinally in a lever 52, having its upper end fulcrumed on a bolt 53, which screws into a boss on the frame-plate 2, (see Figs. 1, 2, 11, and 12,) and pivoted to the lower end of this lever 52 is a rod 54, which connects with the depending end of the lever 55, having its opposite biforked end pivoted on the shaft 41, to which is rigidly fixed a ratchet-wheel 56 between the forks of the lever 55. As the shaft 42 is rotated by the gears 43 and 44 the fixed crank 49 will cause the lever 52 to swing or pendulate back and forth, and consequently the lever 55 on the shaft 41 will have a like movement, and a pawl 57, pivoted to the lever 56, engaging the ratchet and held in contact by a spring 58, will cause the shaft 41 to move around at intervals in the direction of the arrow, and by reason of the chains 47, having the carriers 48, passing over the fixed wheel 45 and the loose one 46 said carriers will be moved along and held at rest at the desired position beneath the funnel 40. To adjust the movement of the lever 55 so that the distance traveled by the carriers 48 will bring each carrier at rest beneath the funnel 40, I provide a slot 52[a] in the lower end of the lever 52, so that the stroke of the rod 54 may be regulated by moving the coupling-pin 52[b]. (See Figs. 1 and 11.)

As shown in Fig. 1, the cans A are delivered to the machine by a chute 59 on a sloping plane, which passes between the rods 27, and as each carrier 48 comes along a can is drawn from said chute by the guards 48[b]; but the adjacent can is held from lateral movement from the chute by a keeper-strap 60, passing over the chute, and an upwardly-turned tongue 59[a], that projects inward in the plane of the space between the members 48[b], that engage the can, said projection being on the bottom of the chute 59 and prevents the cans held thereon from passing below the desired point in the said chute 59. As the can is brought to the point of rest beneath the funnel 40 it is necessary to elevate it, so that its open end will be directly in the contracted opening thereof adjacent to the knives, so that the fish will drop therein while in such elevated position. This is done by a vertical movable stem 61 passing through a boss 5[a] in the bar 5, having a cap-piece 61[a], over which the chains 47 pass, and this is controlled in its proper position by a set-screw 62, passing through the wall of the boss and into a groove in the stem. The lower end of the stem 61 is provided with a small antifriction-roller 63, which engages a cam 64, fixed on the shaft 65, suitably journaled in hangers pendent from the side frames 1 and 2 at a plane beneath the spout 23, and regular momentum is imparted to the shaft 65 by a sprocket-belt 66, taking around wheels 67 and 68, fixed on the rear ends of the shafts 65 and 42, respectively. (See Figs. 2 and 3.) From the foregoing it is shown that the cans will be moved along with an intermittent movement and when brought beneath the funnel 40 will be elevated and their open ends held in a proper position to receive the fish by the major radius of the cam 64 pushing up the stem 61, and consequently elevating the carrier 48 at this point, and while such movement is taking place the rollers 30 will be traveling the minor radius of the cams 31, whereby the knives 25 will be drawn back, (see Figs. 1, 4, and 13,) and at this point of the operation the lever 55 will be returning for a second movement of the ratchet to move the carriers to another station.

69 indicates a depressor connected to and hung pendent from the bar 6 over the path of the cans by links 70 and 71, the links 71 having projecting bars 71[a] at right angles, to which is attached a weight 72 for the purpose of holding said depressor forward. (See Fig. 15.) As the can is passed along its rim engages a depending projection 73, fixed to the rear side of the depressor 69. This causes the depressor, which is slightly coned downwardly, to pass into the top of the can and move along therewith, the rim of the can being received in a groove, and by reason of the arc described the depressor will press the fish downward clear of the upper rim of said can and when released will return to its forward position by the weight 72. Owing to the projection 73 being wider than the can it is prevented from entering therein and dragging the fish as it returns to its forward position by the weight, (see Figs. 15 and 16,) and by reason of the downwardly-flaring flange 69[a] on the depressor the cans will be properly guided to engage with the depressor 69.

The forming-rolls 12 and 13 are provided with serrations or ribs 12[a] thereon for forcing the fish downward into the spout 23. The depressing-rolls 19 may be adjusted the proper distance over the roll 13 by moving the cross-bar 21 and setting it at any desired position in the slots 1[a] in the side plates 1 and 2 and by extending or shortening the supporting-chain 74.

As shown in the modified Figs. 17 and 18, the serrations are in the form of segmental teeth 75, let into recesses 12[b] at regular intervals around the flutes of the rolls and having stems 76 passing through the shells of such flutes, with collars 77 thereon taking in cam-grooves 78, arranged in movable frames 79. These frames 79 are curved around, forming segments of a circle on the inner sides of the engaging sides of the rolls 12 and 13, the arcs being tied together by yokes 80, which are slidably mounted on horizontal bars 81 and 82, rigidly fixed to an upright standard 83, bolted or otherwise fixed to one side of the spout 23.

As illustrated in Fig. 7, it will be seen the construction of the several parts is such that

owing to the irregularity of the cam-grooves 78 the teeth 75 will be forced out into the flute or peripheral channel of the roll 13 in the space between the chute 18 and the spout 23, the object of such arrangement being to grip the fish within the said space and release it as it passes into the chute, it also permitting the placing of the spout 23 close up to the chute 18, whereby to facilitate the operation of feeding the fish into the spout 23.

To prevent the fish from being crowded into the spout 23 while the knives 25 are forming a closure for the same, it is necessary to withdraw the teeth 75 from contact with the fish. Otherwise the outer surface of the same will be ragged and the excellence of their appearance more or less destroyed. This is effected by levers 84, pivoted at their upper ends to the centers of the yokes 80 and connected at their lower ends to the rods 27, which operate the knives 25, and fulcrumed to projecting arms 85, rigidly fixed to the standard 83, and to allow for the versed sine of the arc caused by the movement of the levers 84 slots 84^a are provided at the connection with the rods 27. Each time the knives 25 are pushed forward, forming the closure under the spout 23, the levers 84 will draw the teeth 75 back, so that they will not grip the fish and force it down, but when the knives are withdrawn the teeth are pushed out to engage the fish. From this it is obvious that although the movement of the rolls 12 and 13 is regular if the spout 23 is full the material will not be forced downward except when the teeth 75 are projected, as the material is invariably slippery and not susceptible of being gripped tightly by the rolls without serrations or teeth.

In the practical operation of my invention movement is imparted to the rolls 12 and 13 in the direction of the arrow-points, and movement is transmitted to the shaft 32 by the belt 33 in the direction of the arrow-point *b*, (see Fig. 1,) and by reason of the gear-wheels 43 and 44 movement is transmitted to the shaft 42, which, through the medium of the crank 49, the lever 52, the connecting-rod 54, and the lever 55, movement is imparted to the shaft 41, and consequently the chains 47, provided with the carriers 48, which move the cans along, and the shaft 65, carrying the lifting-cams 64, is turned by the chain belt 66 taking over the wheels 67 and 68 on said shaft 65 and the shaft 42, respectively. In the practical operation the fish is cut flatwise into strips, and the strips with the skin outermost are bent or curled in the direction of their length, so as to seat within the flute of the roll 13, which will tend to maintain the fish-body rolled or curled up to the diameter of a can, is placed in the chute 18 with the skin side downward, which chute is at the upper end a shallow fluted segment, but contracted and deepened toward the delivery end. (See Fig. 3.) This will assist in rolling the fish into tube-like bodies, and as it slides downward the depressing-rolls 19 will press it into the flute of the roll 13, thus turning the skin outward, and the flute of the roll 12 will then engage the surface of the body that has been pressed down by the rolls 19 and lapped over by the roll 13 and will pass it down the cylindrical spout 23, and each time the intermittently-moving knives are opened it will be delivered to a can beneath, and as the knives close the fish-body will be cut off, delivered to the cans, and said cans carried away on the carriers 48, and as said cans pass along they are engaged by the depressor 69, which presses the material down below the rims thereof. From this point the cans are passed to a table 86 or to a moving carrier, which takes them to the capping-machine.

By reason of the knives 25 being of **V** shape, the top one beveled from above and the under one beveled from below and having an equal reciprocal movement over the can A, (see Fig. 6,) the fish or other material will be cut off clean, so that there will be no ragged edges projecting to interfere with the introduction of the depressor 69 or the reception of the "guide," preparatory to applying the cap or top.

It is obvious that with slight adjustment and changes the machine may be used to fill cans of various sizes and diameters. For instance, for filling a can longer or shorter than the one illustrated the cross-bars 7 and 8, supporting the knife-guides 24, would be moved up or down, as the case might be, and secured at the proper position and a spout 23 of a proper length substituted for the one shown. For filling cans of various diameters it would be necessary to change the diameter of the spout 23, the inverted funnel 40, and to slightly modify the can-carrier 48.

Having now described my invention, what I claim as new, and desire to be protected in by Letters Patent, is—

1. In a machine for filling cans with fish, comprising a guide; means for withdrawing the fish-body from the guide and simultaneously bending it to the shape of the can and shoving it lengthwise into the can; an intermittently-operating can-conveyer adapted to bring and hold the cans at predetermined intervals into a position to receive the fish-body as it is drawn from the guide and bent up to enter the can; and intermittently-operating devices for simultaneously severing the fish-body and stopping further feed of the fish-body as the filled can passes off and another can moves into position, substantially as shown and for the purposes described.

2. In a can-filling machine, in combination with the forming-rolls 12 and 13, said rolls having fluted peripheries and held to turn in a suitable framing; of the spout 23, disposed directly between the said rolls; shafts 32 journaled at the opposite ends of the machine; cams 31, secured upon said shafts; levers 28, fulcrumed to cross-bars of the machine; roll-

ers 30, on the lower ends of said levers, said rollers engaging the cams 31, and having their opposite ends connected to rods 27; the knives 25, arranged in suitable slideways beneath and adjacent the depending mouth of the spout 23, and means for imparting movement to the shaft 32, as specified.

3. In a can-filling machine of the character described; the combination with the fluted rolls 12 and 13; the spout 23, disposed between the coacting surfaces of the rolls and means for cutting off the fish-body projecting below the spout; and the chute 18, for conveying the fish-body between the fluted rolls and spring-pressed devices for holding the fish-body against one of the rolls as set forth.

4. In a machine of the kind described having the forming-rolls 12 and 13 with serrations on their fluted surfaces, and the spout 23, disposed beneath the coacting fluted surfaces of the rolls 12 and 13 and having diameters and form corresponding with the space between the coacting surfaces of the rolls 12 and 13, said spout being arranged with its upper end between the lower sides of the rolls, and its lower end resting between cross-bars 7 and 8 secured to the opposite side frames of the machine, an inverted funnel 40 secured with its contracted orifice upward beneath the lower end of said spout, the reciprocating knives 25 arranged to close and open the said orifice and means for operating the said knives, in combination with shafts 41 and 42 suitably mounted in the frame of the machine on a horizontal plane below and on opposite sides of the funnel 40, a double sprocket-wheel 45 secured to the shaft 41 and a like sprocket 46 loosely mounted on the shaft 42, and a belt 47 having can-carriers 48 fixed thereto taking around said wheels, a crank 49 fixed on the front end of the shaft 42, a lever 52 fulcrumed to the frame of the machine, a slot in said lever receiving the pin of the crank 49, a lever 55 pivoted to the front end of the shaft 41 having a pawl 58 engaging a fixed rack 56 on such shaft and a connecting-rod 54 connecting the depending ends of the levers 55 and 52, and means for transmitting a uniform movement to the shafts 32 and 42, whereby an intermittent movement will be given to the carriers 48, and the knives 25 will be drawn back while said carriers are at rest and pushed forward before the onward movement of the carriers takes place.

5. In a machine for the purposes described having forming-rolls 12 and 13 arranged to turn in a suitable frame composed of side plates 1 and 2, secured together by cross-bars 3, 4, 5, 6, 7 and 8, a spout 23 arranged below and between the forming-rolls, an outwardly-flared funnel 40 fixed below the spout and reciprocating knives 25 arranged to pass between the spout and the funnel, means for operating the said knives, an intermittent traveling belt having carriers 48 fixed thereto arranged to pass on a horizontal plane beneath the funnel 40, means for delivering a can to each carrier, mechanism for stopping each carrier beneath the funnel 40 while the knives 25 are drawn back, a shaft 65 journaled directly beneath the funnel 40, a cam 64 on such shaft, a vertical movable stem 61 passing through the cross-bar 5, a roller 63 on the end of said stem engaging the cam, and a cap-piece 61^a engaging the lower side of the belt and means for imparting a uniform movement to the shaft 65, whereby the cam 64 will push upward each time a carrier is brought to rest beneath the funnel 40, substantially as and for the purposes set forth.

6. In a can-filling machine having can-forming rolls 12 and 13 with the spout 23 for delivering the material to the cans, a belt 47 passing over a sprocket-wheel 45 fixed to a shaft 41 and over a like sprocket 46 loosely mounted on a shaft 42 suitably journaled in the side frames of the machine, can-carriers 48 attached to the belt 47 at regular intervals, and said belt being made to pass on a horizontal plane, a lever 52 fulcrumed to the frame of the machine, a crank 49 fixed to the front end of the shaft 42, the pin of which takes into a slot 51 in the said lever 52, a lever 55 engaging a ratchet-and-pawl mechanism on the shaft 41, and a rod 54 connecting the levers 52 and 55, and means for imparting a regular movement to the shaft 42, whereby the carriers will be moved along at intervals and brought to rest beneath the spout 23, for the purposes specified.

7. In a can-filling machine having a frame with the parallel vertical sides 1 and 2, shafts 10 and 11 mounted on the opposite upper sides of said frame, rolls 12 and 13 having fluted engaging surfaces with serrations in said flutes, and movable depressing-rolls 19 mounted in a frame 20 poised over the roll 13, and a chute 18 of concave form for delivering strips of divided fish to the rolls 13, as specified.

8. In a machine for filling fish into cans, frame-plates 1 and 2 secured together by cross-bars 3, 4, 5, 6, 7 and 8, fluted rolls 12 and 13 mounted on a horizontal plane near the upper part and on opposite sides of the plates 1 and 2, a chute 18 for delivering the fish, and rolls 19 for pressing it down so that it will be curved into tubublar or cylindrical form, in combination with a spout 23 fixed beneath and between the rolls 12 and 13, a support for the spout and for an inverted funnel 40 beneath, reciprocating knives 25 arranged to move at regular intervals between the spout 23 and the funnel 40, means for operating the knives and means for holding a can-mouth in the funnel while the knives are drawn back, substantially as specified.

9. In combination with a spout 23 for receiving the material to be filled and an inverted funnel or opening 40 beneath for receiving the open end of a can, knives 25 of V-shaped form arranged in slideways between the spout and the funnel, cam-and-lever mechanism for driving the knives forward,

cutting off the material and closing the opening in the spout and funnel, and springs 37 and 38 for returning said knives, substantially as specified.

10. In combination with a frame having cross-bars 3, 4, 5, 6, 7 and 8, a spout 23, and an outwardly-flared opening 40 at its bottom, said spout being arranged between the cross-bars 7 and 8 and resting on guides 24 secured to the said cross-bars, means for feeding the material into the spout, knives 25 of V shape arranged to slide between the spout and the flared opening 40, cam-wheels 31 secured on shafts 32 mounted beneath the opposite ends of the machine, levers 28 fulcrumed on oppositely-projecting lugs on the cross-bars 3 and 4, rolls 30 on the lower ends of said levers engaging the said cams, rods 27 connecting the upper ends of the levers 28 with the frames of the said knives and means for imparting a uniform movement to the said shafts 32 whereby the knives will be reciprocated at intervals.

11. A machine for the purposes set forth having side frame-plates 1 and 2 secured together by the cross members 3, 4, 5, 6, 7 and 8, in combination with a spout 23, an inverted funnel 40 at its bottom, and a pair of oppositely-movable knives of V shape made to reciprocate between the spout and the inverted funnel, such reciprocation of the knives being a simultaneous moving backward and a like movement forward at regular intervals, a chain belt 47 having can-carriers 48 attached thereto at regular intervals, means for communicating a transmittent movement to the chain belt, such movement being so arranged that each carrier 48 will be brought to rest beneath the funnel 40, a chute 59 for delivering a can to each carrier, and a cam 64, a vertically-movable stem 61 engaging the cam 64, directly beneath the funnel 40, the movement of the cam arranged to coact with the movement of the carriers and drive each of the carriers upward when brought to rest beneath the funnel 40, as specified and for the purposes set forth.

12. In a can-filling machine having a suitable frame, fluted forming-rolls 12 and 13, having coacting surfaces, the spout disposed between and beneath said surfaces, a flared opening or funnel 40 inverted beneath the spout, cut-off knives 25 arranged to pass between the spout and the funnel, means for inserting a can-mouth in the funnel and simultaneously opening the knives, and a like means for closing the knives while said can is inserted, as specified.

13. In a machine of the class described having forming-rolls 12 and 13 mounted on a suitable frame and a spout 23 to receive the materials therefrom, the wheels 45 and 46, a belt 47 arranged to pass around the wheels 45 and 46 and horizontally beneath the spout, can-carriers fixed at regular intervals to the belt, a chute 59 placed on a declivity toward the travel of the carriers, means for stopping the carriers as each can is brought beneath the said spout 23, and a vertical movable stem for elevating the carrier so held beneath the spout and reciprocating knives for cutting off the material and closing the spout, as specified.

14. In a machine of the class described having a suitable frame composed of side plates 1 and 2 with cross members 3, 4, 5, 6, 7 and 8, fluted forming-rolls 12 and 13 mounted in the upper opposite sides of the plates 1 and 2, a spout 23 for receiving the material from said rolls, carriers for cans passing beneath the spout, means for pushing a can into the spout, and for moving it along intermittently, and a depressor 69 for pressing the material down within the can, substantially as specified.

15. In a can-filling machine, a depressor 69 suspended to a cross-bar 6 over the track of the cans, said depressor consisting of a cover for the cans having a groove therearound for the rim of the can to rest in, a member for entering the same, and an outwardly and downwardly flared flange 69^a for receiving the mouth of the cans, links 70 and 71 movably suspending the depressor, right-angled members 71^a on the links 71 and a weight 72 fixed to the same for normally holding the depressor forward, for the purposes set forth.

16. In combination with forming-rolls for pressing material the proper diameter of the can to be filled, a spout 23 for receiving the same and an inverted funnel 40 beneath the spout, intermittently-reciprocating knives 25 made to slide between the spout and the funnel 40, cams 31 secured to shafts 32 near each end of the machine, levers 28 fulcrumed on rods 29 fixed to the frame of the machine, rollers on the lower ends of the levers 28 engaging said cams, and connecting-rods 27 communicating between the levers 28 and the knives 25, and means for imparting uniform movement to the shafts 32, whereby the knives will be driven forward at intervals, and springs 37 and 38 for pulling the knives back.

17. In a machine for the purposes set forth having fluted forming-rolls 12 and 13 mounted in a suitable frame, said rolls having coacting surfaces, flutes on the coacting surfaces of the two rolls being formed the size or diameter of the cans to be filled, and a spout 23 having a diameter to correspond with the form of the engaging flutes of the rolls provided with a flange 23^a on its opposite sides forming its supports, reciprocating knives 25 arranged to move in suitable frames 24 in proximity with the lower mouth of the spout, an elevating-stem 61 beneath the said spout, a cam 64 on a shaft 65 for lifting said stem, and can-carriers 48 fixed at intervals to a belt 47 made to travel over the elevating-stems and beneath the spout, flared funnel 40, and mechanism for causing each of the carriers to lie at rest beneath the spout, and for lifting said can to a flared or funnel opening below said spout and for causing the said knives

25 to withdraw simultaneously with the rest movement of the resting elevated can, and to return the knives before the can drops to its normal moving plane, substantially as specified.

18. In a machine of the class described, cut-off knives 25 consisting of plates of steel having V-shaped edges beveled from opposite sides, and guides for holding the shearing edges to slide in close proximity to each other.

19. In a can-filling machine as described, the fluted rolls 12 13, having coacting surfaces; said surfaces having projected spurs; a receiver located below the coacting surfaces into which the said surfaces discharge; a can-conveyer for bringing the cans under the discharge-mouth of the receiver; cutting mechanism, and means for intermittently operating the said mechanism, all being arranged substantially as shown and described.

JOHN REITTER BROWN.

Witnesses:

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EDITH G. MACKERNOT.