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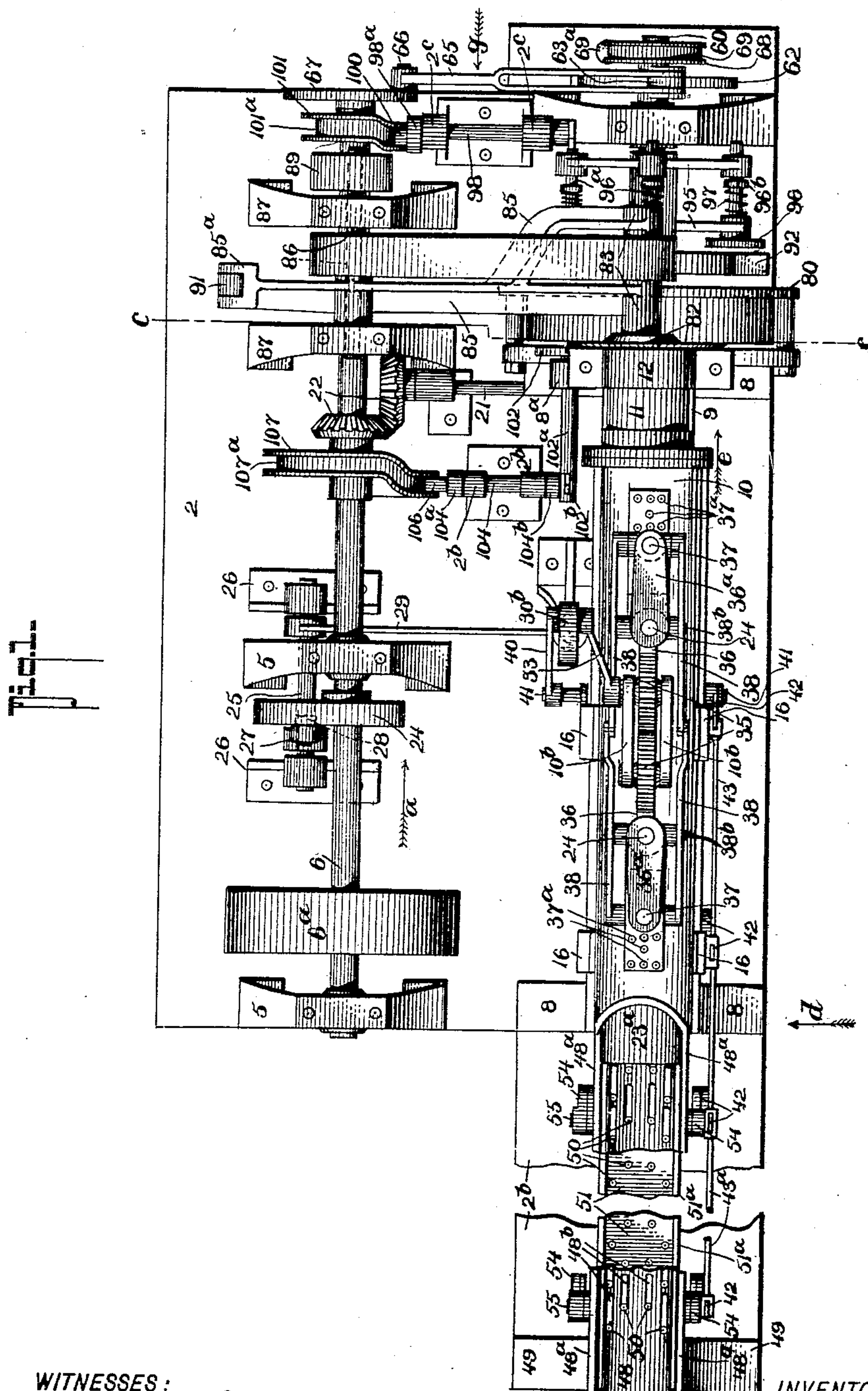
Patented Nov. 11, 1902.

J. R. BROWN.  
CAN FILLING MACHINE.

(Application filed Sept. 10, 1901.)

(No Model.)

5 Sheets—Sheet I.



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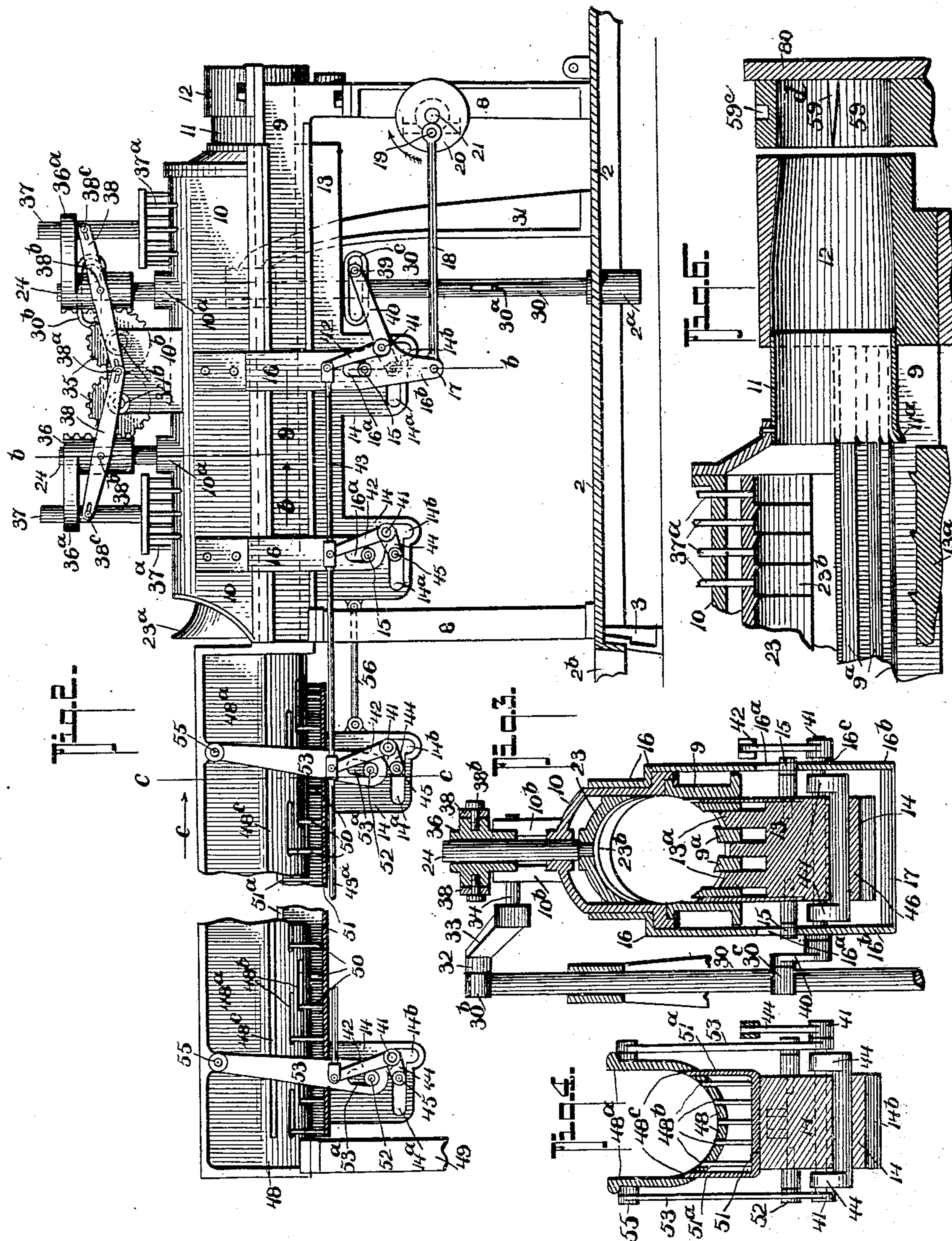
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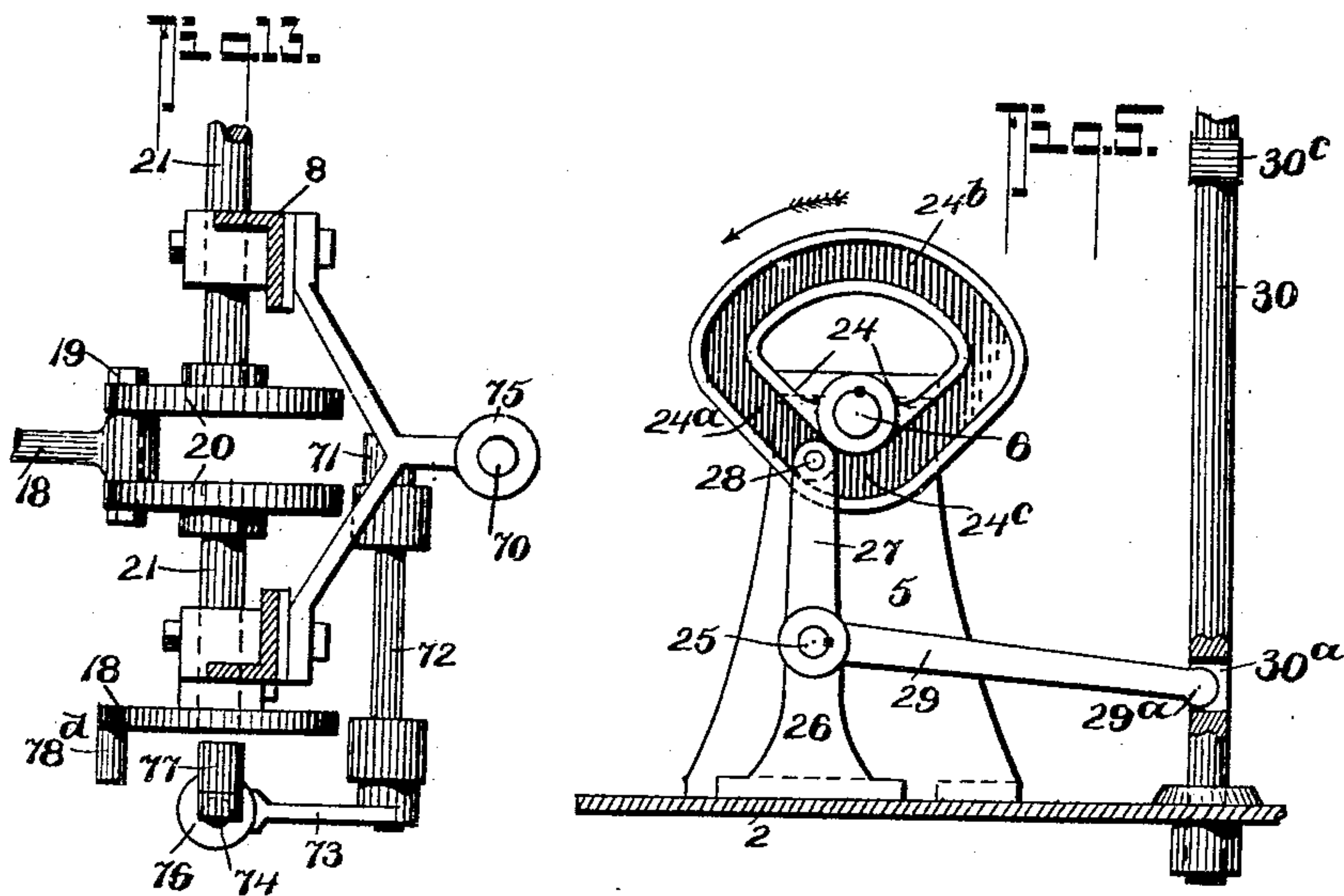
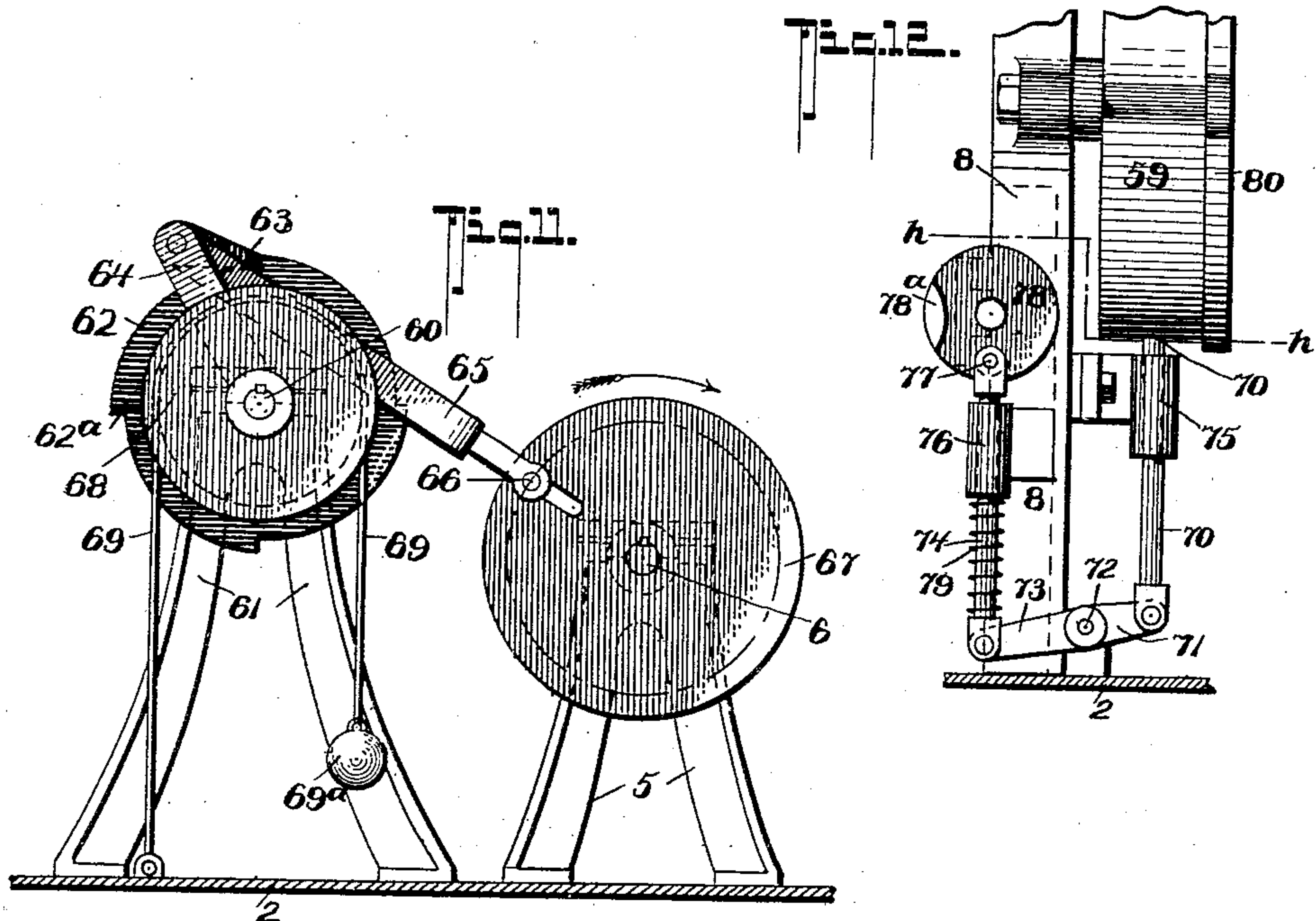
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5 Sheets—Sheet 3.



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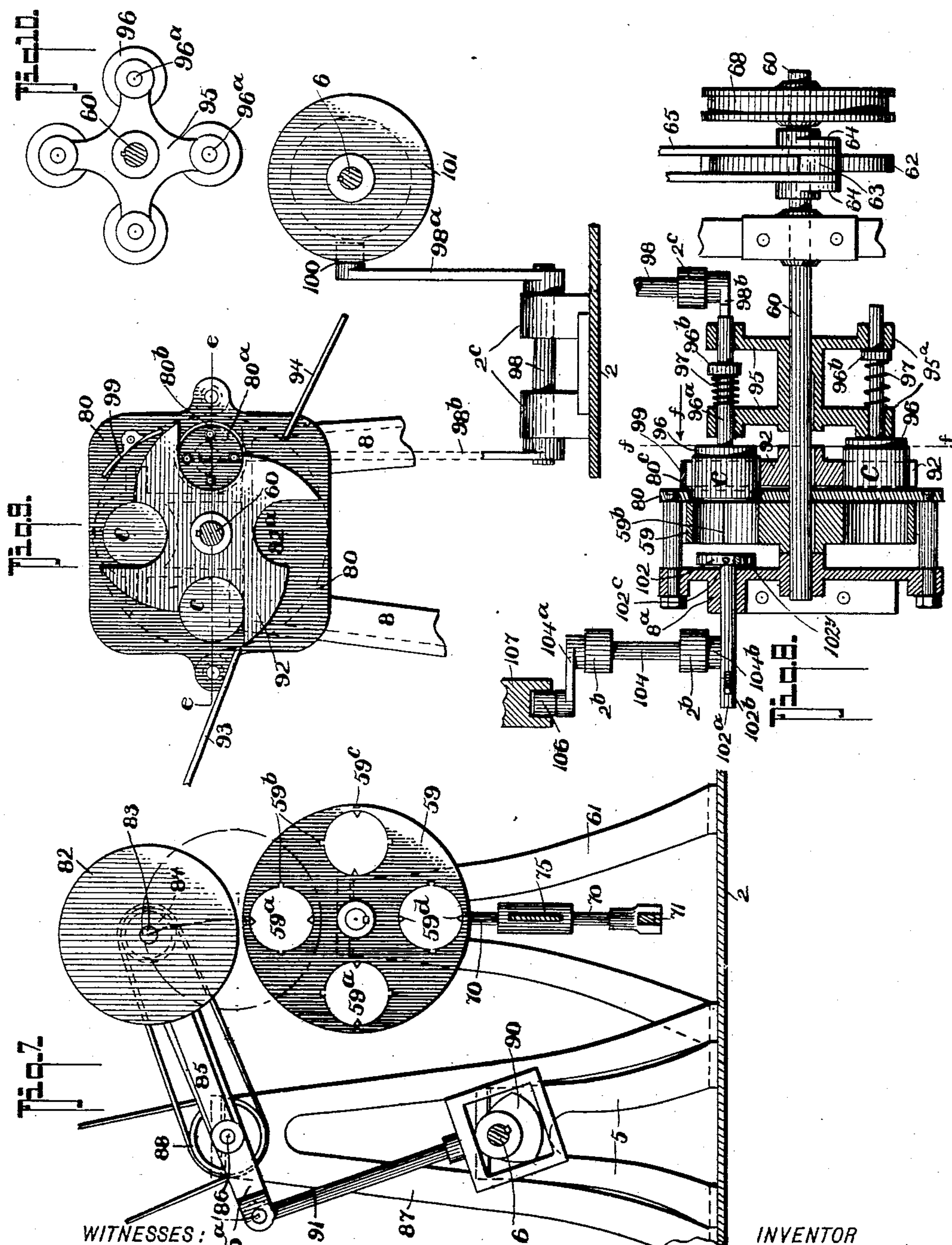
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**CAN FILLING MACHINE.**

(Application filed Sept. 10, 1901.)

(No Model.)

**5 Sheets—Sheet 4.**



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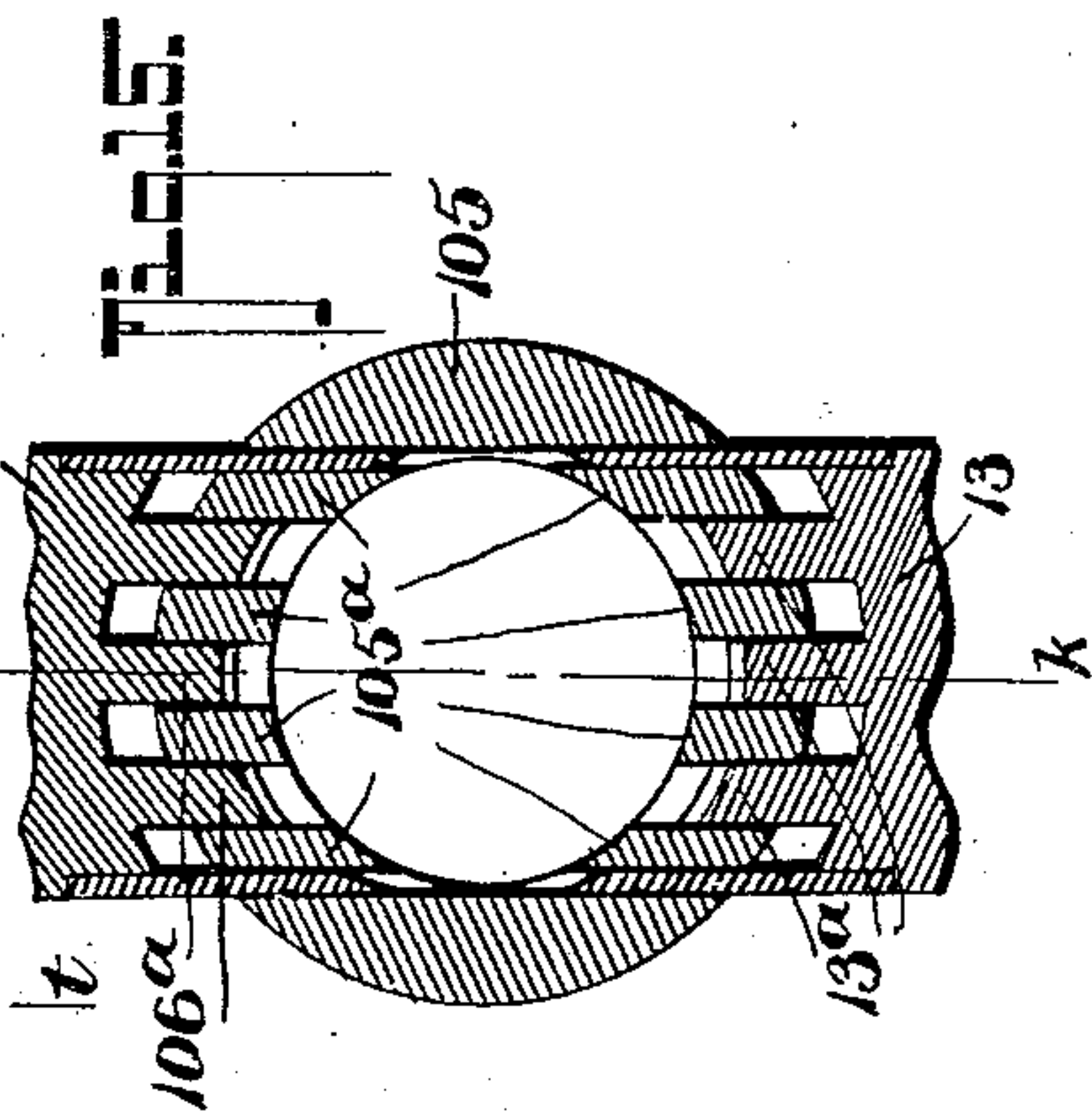
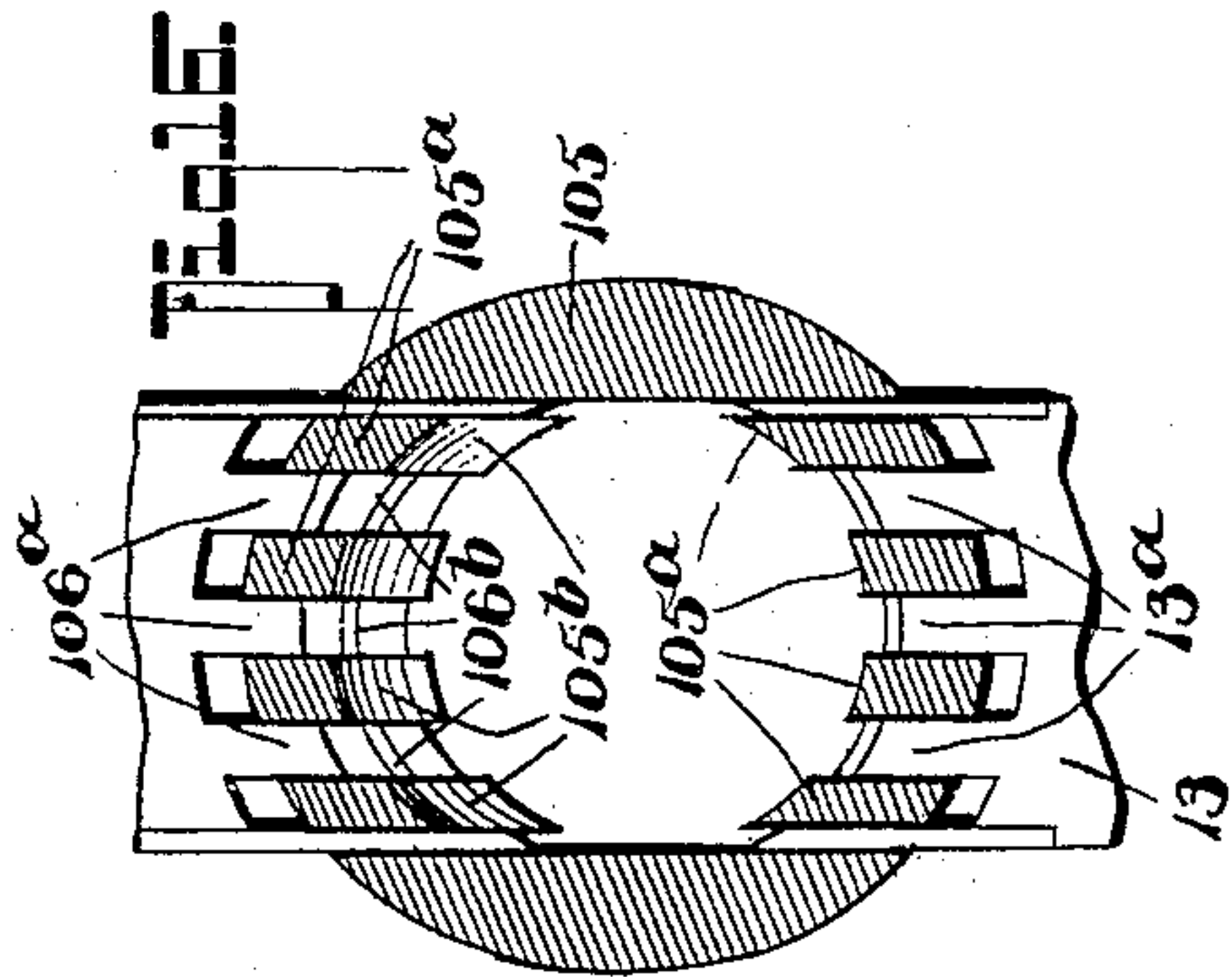
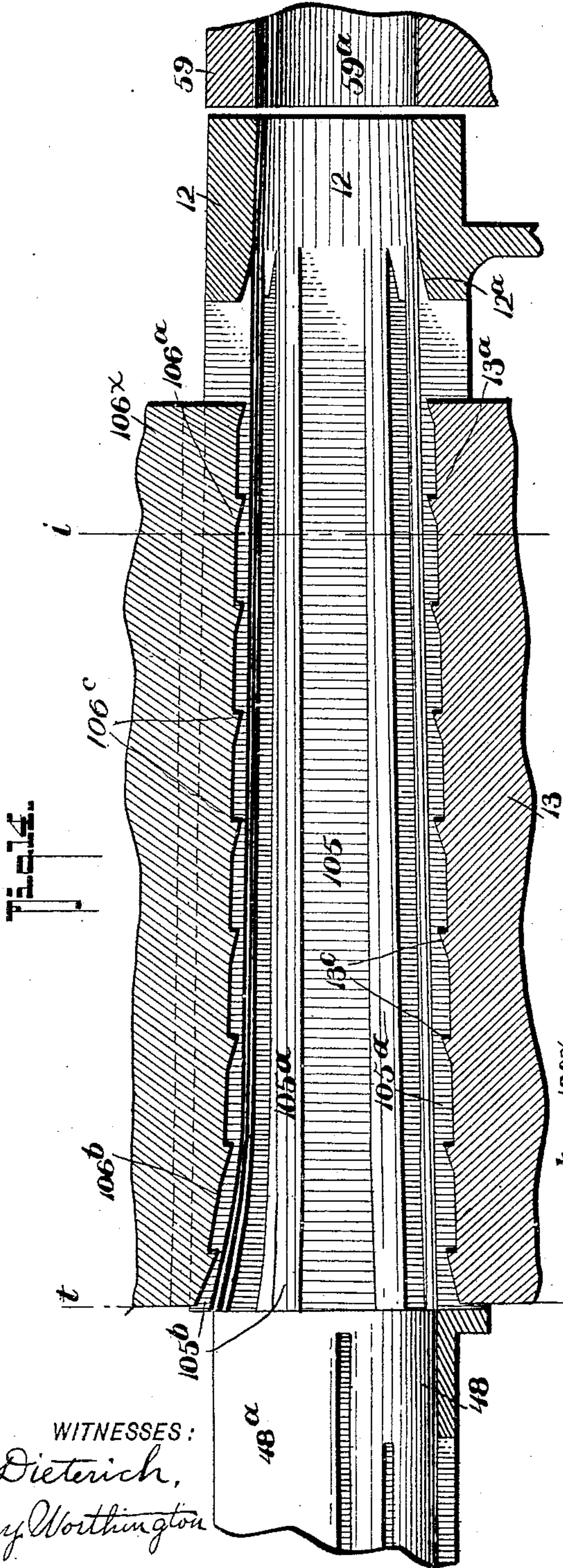
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5 Sheets—Sheet 5.



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# UNITED STATES PATENT OFFICE.

JOHN REITTER BROWN, OF VANCOUVER, CANADA.

## CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 713,554, dated November 11, 1902.

Application filed September 10, 1901. Serial No. 74,870. (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 a new and useful Can-Filling Machine, of which the following is a specification.

My invention relates to a machine for canning fish or similar material, and is intended to receive the fish when cleaned and, if necessary, split, feed it automatically forward, press it into the desired form to suit the cans to be filled, cross-cut it into sections to suit the depth of the cans, and press it into the same. I am thus enabled to dispense with a considerable amount of handling and to perform the work more uniformly and quickly. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a general plan of the machine; Fig. 2, a side elevation showing the feed-trough and grip and the mechanism directly connected therewith. Fig. 3 is a cross-section on the line *b b* in Fig. 2 looking in the direction of the arrow *b*. Fig. 4 is a cross-section on the line *c c* in Fig. 2 looking in the direction of the arrow *c*. Fig. 5 is a detail elevation of the grip-operating cam in the direction of the arrow *a* in Fig. 1. Fig. 6 is a detail section of the delivery-outlet from the grip to the revolver-chamber. Fig. 7 is an elevation of the face of the revolver, showing the circular cut-off knife and its operating mechanism looking in the direction of the arrow *e* in Fig. 1. Fig. 8 is a horizontal section through the revolver and its attendant gear on the line *e e* in Fig. 9. Fig. 9 is an end elevation of the can-carrier and stop-plate on the line *f f* in Fig. 8 and in the direction of the arrow *f*, showing also the operating-cam and packer-piston. Fig. 10 is an end view of the can-presser-carrying frame. Fig. 11 is an end elevation showing the mechanism for operating the revolver-shaft looking in the direction of the arrow *g* in Fig. 1. Fig. 12 is a side elevation of the revolver-locking gear. Fig. 13 is a plan of the same on the line *h h* in Fig. 12. Fig. 14 is a vertical longitudinal section of an alternative design of grip, and Figs. 15 and 16 are cross-sections of the same.

I will first generally describe the operation

of the machine, so that the detailed description of its mechanism may be more easily followed and understood.

The fish after being gutted and cleaned is, if too large, cut into strips to facilitate the desired arrangement of skin to the outer side and is laid in the feeding-trough 48. Along this trough it is automatically moved by pins which are at the beginning of the stroke projected up through elongated slots in the trough-bottom, travel lengthwise the desired amount, and are then lowered for the return stroke. The fish is thus moved forward with a regular intermittent motion into the forming-grip trough, of which the feeding-trough is an extension. In the grip-trough this same forward movement of the fish is continued, but in a more positive manner, as the semicylindrical bottom, forming part of the fixed frame of the machine, is composed of a series of longitudinal bars, between which is moved up a grip composed of similar bars, while an upper grip, forming a complementary semicylinder, is simultaneously forced down. The fish is thus gripped between the two and formed into a cylindrical shape, while to insure a more positive hold the gripping-surfaces are provided with cross serrations or ridges, and, further, the upper grip has a series of pins, which at the beginning of the forward movement are forced down into the body of the fish in the trough. The cylinder of fish thus formed and gripped is forced forward with the same regular intermittent motion before referred to and passing through the delivery-spout 12 enters and fills one of a series of chambers in the revolver 59, the further end of which is closed when opposite the spout 12 by the stopper-plate 80, fixed to the frame of the machine. The revolver is so mounted that the various chambers may successively be brought into exact alinement with the spout. Just above the joint between spout and revolver a rapidly-revolving circular knife is mounted on a swinging arm in such a manner that as soon as the forward movement of the grip ceases the knife descends and passing between the revolver and the spout cuts off what has been forced into the chamber 59<sup>a</sup> from the supply in the spout and grip. The revolver is then rotated through a fraction of its revolution, corresponding to



the number of chambers in it, by a pawl and pawl-plate and the full chamber brought opposite to a packer-piston and to an aperture in a corresponding position in the stop-plate and locked there. On the opposite side of the stop-plate the cans *c* to be filled are received from a chute on one side of the machine and are picked up in a carrier secured to the same shaft as the revolver and rotating with it. The receptacles in this carrier correspond in position with the chambers of the revolver, and when the full chamber is locked opposite the packer-piston the empty can is automatically pressed into a recess surrounding the aperture of the stop-plate and the fish is pushed from the revolver-chamber into the can, which is then restored to its place in the carrier and deposited by it in the delivery-chute 94 by the next movement. Thus each successive movement of the revolver takes in an empty can, delivers a full one, moves a full chamber opposite the packer-piston, and brings a chamber to be filled opposite the spout 12.

The several motions of the machine are derived from a shaft 6, driven by a belt on the pulley 6<sup>a</sup>, with the exception of the rotation of the circular knife, which is driven independently from a counter-shaft exterior to the machine.

The bed-plate 2 of the machine is sustained a short distance above the floor on the legs 3, and on this bed-plate, supported by the pedestals 5, is the main driving-shaft 6, from which the various motions of the several parts of the machine are derived.

Supported on the leg-frames 8 at a suitable height for operating is the grip-trough 9, forming part of the fixed frame of the machine. The bottom of this grip-trough is composed of a series of longitudinal bars 9<sup>a</sup>, the upper sides of which are shaped to a semicylindrical concave surface. (See Fig. 3.) Surmounting this trough and slidable endwise on its upper edges is the upper grip-case 10, the forward end of which is funnel-shaped and terminates in a thin sleeve junction-piece 11 slidable longitudinally within the delivery-spout 12. (See Fig. 6.)

Adapted to slide longitudinally and vertically between the bars 9<sup>a</sup> of the grip-trough are the bar members 13<sup>a</sup> of the lower grip 13, the upper surfaces of which conform to the cross-section of the trough 9 and if found necessary may be provided with pins and cross-serations to increase the grip. On the under side of this lower grip 13, fixed or integral with it, are the bearer-blocks 14, which are provided (at each side) with a stud and roller 15, adapted to move vertically in the elongated slot 16<sup>a</sup> in the pieces 16, fixed to and depending on each side from the upper grip-case 10. One pair of these side pieces 16 has downward prolongations 16<sup>b</sup>, between which on a pin 17 a rod 18 connects to a crank-pin 19, adjustable in slots in the disks 20, (see Fig. 13,) keyed on the shaft 21, which

is driven by means of the bevel-gears 22 from the main driving-shaft 6.

Within the upper grip-case 10 is the upper grip 23, the under surface of which is semicylindrical to correspond with the upper surfaces of the lower grip and trough-bars 13<sup>a</sup> and 9<sup>a</sup> and form a complete cylinder and being adapted to slide vertically in the case 10 is constrained to move longitudinally with it by the studs or stems 24, passing through bosses 10<sup>a</sup> in the top of the casing 10. A reciprocating longitudinal motion is thus imparted to the upper and lower grip members.

The upper grip member 23 is upwardly flared, as 23<sup>a</sup>, at the entering end and is provided with cross serations or ridges 23<sup>b</sup>, and it is necessary now to provide a means whereby the upper and lower gripping members 23 and 13<sup>a</sup> may be simultaneously forced together to grip the fish at the beginning of the forward stroke and similarly drawn apart and clear of the fish at the end for the return stroke. I accomplish this in the following manner, (see Fig. 5:) In a suitable position on the driving-shaft 6 I key a cam 24 of special contour, and adjacent to it is placed a rocker-shaft 25, carried in the bearing-standards 26. On the shaft 25 is keyed a lever 27, carrying a roller 28, which runs in the lateral grooves 24<sup>a</sup> of the cam, and on the same shaft is keyed the lever 29, the spherical shaped end 29<sup>a</sup> of which enters a slot 30<sup>a</sup> in the stem 30, slidable vertically in bearings 2<sup>a</sup> and 31<sup>a</sup> provided. The contour of the cam-groove is such as to raise the stem 30, maintain it while the lever-roller traverses the concentric portion 24<sup>b</sup>, then lower it, and constrain it to remain down while the roller traverses the concentric portion 24<sup>c</sup>. On the stem 30 are two elongated slots 30<sup>b</sup> and 30<sup>c</sup> for connection to the actuating-levers of the upper and lower grip mechanism.

The upper side of the grip-case 10 is provided with supports 10<sup>b</sup>, between which are the toothed pinions 35, keyed on the short axles 34<sup>b</sup>. One of these axles is prolonged and on it is keyed the lever 33, having at its end the roller 32, adapted to work within the slot 30<sup>b</sup>. The pinions 35 mesh together and at the outer sides mesh in short racks 36, secured to the stems 24 of the upper grip member 23.

Slidable vertically in a boss 36<sup>a</sup>, forming an extension of the rack member 36, is a stem 37, adapted at its lower end to have a series of pointed pins 37<sup>a</sup> secured to it, which pins are slidable through the grip-casing 10 and the upper grip 23, and the stem 37 is actuated by the side levers 38, which, pivoted together in elongated holes at 38<sup>a</sup>, are connected to the rack member 36 by pins at 38<sup>b</sup> and to the stems 37 by a pin connection at 38<sup>c</sup>. The object of the slots or elongated holes 38<sup>a</sup> at the inner ends of the levers 38 is that when in the operation of the machine the rack-sections 36 descend till the said levers are brought into a straight line their two ends, pivoted together, will be permitted to lap each other



in order that the said movement may be effected. The holes at the outer ends of the levers 38 should also be slightly elongated in obedience to the same general law. Thus the vertical movement of the stem 30 actuates the upper grip 23 down and up, and simultaneously the pins 37<sup>a</sup> are projected into or withdrawn from the fish in the machine with a multiplied movement.

To actuate the lower grip member 13, I provide short shafts 41, rockable in bearings 16<sup>c</sup> toward the lower end of the side plates 16 and extending between the same, and on an extension of one of these shafts is keyed the lever 40, having a roller 39, adapted to run in the slotted opening 30<sup>c</sup>. At the opposite ends of these shafts 41 are so keyed the levers 42 that they can be connected by the rod 43, while fixed on the shafts 41 between the side plates 16 and the bearing-blocks 14 are short levers 44, each pair of which are connected together by the pins 45, carrying the rollers 46, adapted to run in the elongated openings 14<sup>a</sup> in the bearing-blocks. The downward- and upward movement of the stem 30 derived from the cam 24 thus raises and lowers the lower grip member 13 simultaneously with the lowering and raising of the upper grip, and the elongated openings 30<sup>b</sup> and 30<sup>c</sup> permit the longitudinal movement of the reciprocating parts at their connection with the stem 30, through which the gripping movements are communicated, while the vertical movement of the grip members is permitted by the elongated openings 16<sup>a</sup> and 14<sup>b</sup>.

I have described the movements of the grip members before that of the feed members of the trough 48 because the movements of the latter are derived from the former.

The feed-trough 48, into which the fish is first placed, is an extension of the grip-trough 9, being attached thereto at one end and is at the other end supported by the leg 49 on the bed-plate extension 2<sup>b</sup>. The bottom of the feed-trough is semicylindrical, with vertical walls 48<sup>a</sup>, and in the bottom are longitudinally-elongated openings 48<sup>b</sup>, through which pointed pins 50 may be projected upward and moved along. The pins 50 are fixed in the feeder-plate 51, which has also side pieces 51<sup>a</sup>, (removed from the front in Fig. 2,) slidable in elongated slots 48<sup>c</sup> close to the walls 48<sup>a</sup> of the trough. These side pieces form a very important part of the feed mechanism, as on the feeder-plate being lifted the fish is removed from frictional contact with the sides 48<sup>a</sup> and is the reader carried forward with the movement of the feed-plate. Attached to or integral with the feeder-plate 51 are the bearer-blocks 14, and the feeder-plate and its connections are suspended by studs and rollers 52 in the vertically-elongated openings 53<sup>a</sup> in swinging links 53, hanging from pins 55 on the walls 48<sup>a</sup> of the feed-trough. The feeder-plate 51 is connected by the rod 56 to the lower grip member 13, so as to travel longitudinally with it, swinging on the links 53, and at the

lower end 53<sup>b</sup> of the swinging links 53 the same system of shafts, levers, and rollers is used to effect the lifting and lowering of the feeder-plate and pins, being connected by the rod 43<sup>a</sup> to the grip system. Means are thus provided for feeding the fish forward within the grips, which, positively gripping and forming it into a cylindrical shape, force it through the delivery-spout 12, between which and the grip-casing the junction-piece 11 forms a slidable connection. The innermost edge of this junction-piece is carefully rounded and depressed between the bars, as 11<sup>a</sup>, to prevent the fish catching. This delivery-spout 12 is choke-bored or reduced in its diameter by taper from the termination of the stroke of the junction-piece 11 to its outlet for a reason to be explained presently.

In the alternative design illustrated in Figs. 14, 15, and 16 I use an upper grip 106<sup>x</sup> of the same construction as the lower one, 13, and for the grip-trough 9, which formed a fixed portion of the frame, substitute an elongated tube 105, composed of bars 105<sup>a</sup>, between and through which the upwardly and downwardly projecting grip members 13<sup>a</sup> and 106<sup>a</sup> are slidable longitudinally and vertically. The combined interior surfaces of both grips and grip-tube thus form an elongated tube of a cross-section approximate to that of the cans it is desired to fill and tapered in a vertical line (see Fig. 16) on the upper side toward the entering end, terminating in a quickening curve, as 105<sup>b</sup> 106<sup>b</sup>. The grip-tube 105 merges into the choked delivery-spout 12, which in this construction may be integral with it, the ends of the bar-slots being rounded, as 12<sup>a</sup>, to prevent the passing fish catching on them. The upper surfaces of the grip members 13<sup>a</sup> and 106<sup>a</sup> are provided with cross-serrations, as 13<sup>c</sup> and 106<sup>c</sup>, to better grip and press forward the fish through the spout. Mounted on the shaft 60, rotatable in the pedestals 61, is the revolver 59, which contains a number of cylindrical open-ended chambers 59<sup>a</sup>, the dimensions of which correspond to the requirements of the cans to be filled, and the revolver is so mounted that the axes of the chambers are susceptible of exact alinement with that of the delivery-spout. Near the outer end of the shaft 60 is keyed the pawl-plate 62, the notches 62<sup>a</sup> of which correspond to the number of chambers in the revolver. The pawl 63 is carried between the radius-levers 64 and is actuated by the connecting-rod 65 from the pin 66 of the crank-disk 67 on the shaft 6. The stroke of the crank-pin is so proportioned as to pull the revolver through that fraction of its rotation corresponding to the number of chambers in the revolver. Keyed on the same shaft 60 is a brake-pulley 68, around which a strap 69 is passed, such strap being anchored to the bed of the machine at one end and at the other has a weight 69<sup>a</sup> or spring to maintain it in contact with the pulley and set up the desired friction to absorb the momentum of the revolver-shaft and its attachments.



At the under side of the revolver is a spring-actuated lock-bolt 70, which springs into the holes 59<sup>c</sup> provided and locks the revolver in the correct alinement of its chambers with the spout 12. The bolt 70 slides in a guide 75, attached to the leg-frame 8, and is connected to a lever 71, keyed to a shaft 72, rockable in bearings on the bed-plate 2. To the outer end of the rock-shaft 72 is keyed a lever 73, to which is connected a stem 74, which, slidable in the guide 76, fixed to the leg-frame 8, carries at its upper end a projecting roller 77. At the extreme end of the shaft 21 is a disk 78, having a projection 78<sup>a</sup>, adapted to engage and lift the stem 74 against the resistance of the spring 79. Thus at the proper time the bolt is withdrawn and the revolver free to rotate. The outer face of the revolver runs close against the face of the stop-plate 80, which is attached by studs to the fixed frame of the machine. This plate 80 thus forms a closure of the ends of the revolver-chambers opposite the spout and between that position and that of the packer-piston, which will be described later. Between the end of the delivery-spout and the revolver space is left for the passage of a rapidly-revolving circular knife 82, and it is to enable the cylinder of fish to pass this space without catching on the edge of the chamber and to further compress and form the fish that the bore of the spout is choked, as referred to previously. The knife 82 is rotatably mounted on a spindle 83 in a swinging arm or lever 85, pivoted on the shaft 86, carried in bearings on the pedestals 87, and is driven at a high rate of speed by a belt over the pulleys 84 and 88, while a pulley 89 derives its motion by a belt from an exterior source. The swinging arm 85 is controlled and actuated to throw the knife 82 in and out of action by a cam 90, keyed to the shaft 6, which cam imparts its motion by the connecting-rod 91, bridled over the cam and connected to a pin on the end 85<sup>a</sup> of the arm 85. The motion of this cam is designed to bring down the knife and return it while the grip is withdrawing for a return stroke, and during the latter part of this rest the pawl pulls the revolver around one space, which brings the full chamber of fish, severed from what is in the spout, opposite to the compressor and an empty chamber again opposite the spout 12. Secured to the shaft 60 of the revolver is the can-carrier 92, having spaces 92<sup>a</sup> opposite the revolver-chambers adapted to allow empty cans C to fall into them from the chute 93, carry them around, and deliver them when filled to the chute 94. A guard 99, fixed to the stop-plate 80, holds the cans in place until opposite the delivery-chute. In a frame 95 beyond the carrier are the can-pressers 96, opposite each can-space, the stems 96<sup>a</sup> of which are endwise slidable in the bosses 95<sup>a</sup>. These pressers are held back by the springs 97 between the inner faces of the bosses 95<sup>a</sup> and collars 96<sup>b</sup> on the stems. In the plate 80, opposite the packer-piston and in exact aline-

ment with its axis, is a circular aperture 80<sup>a</sup>, the diameter of which is slightly less than that of the can to be filled. In order that the open ends of the cans may be easily guided into this aperture, it is outwardly flared toward the can-carrier, whereby is provided a beveled face, against which the can may be pressed by the following means: On the bed of the machine bearings 2<sup>c</sup> carry a rocking shaft 98, on one end of which adjacent to the can-carrier a lever 98<sup>b</sup> is keyed in a position to bear against the stem 96<sup>a</sup> of the can-presser when such is opposite to the aperture 80<sup>a</sup>. At the other end of the rocker-shaft 98 an arm 98<sup>a</sup> is provided with a roller 100, adapted to travel in the groove 101<sup>a</sup> of the cam 101, keyed or otherwise fixed to the shaft 6. The groove of the cam is such as to cause the can to be pressed into the flared opening 80<sup>a</sup> and held tightly against the beveled face, while the packer-piston forces the fish from the chamber 59<sup>a</sup>. The pressure on the stem 96<sup>a</sup> is then relieved, so that the final part of the stroke of the packer-piston may force the can out of the aperture 80<sup>a</sup> and clear of the plate. The flared mouth to the aperture 80<sup>a</sup> not only centers the can, but rectifies the circle of its outline.

The packer-piston before referred to is opposite to the aperture 80<sup>a</sup> of the stop-plate and in exact alinement with the center of it and the axis of the revolver-chamber when locked, and consists of a piston 102, (see Fig. 8,) having a stem 102<sup>a</sup>, slidable axially in a bearing 8<sup>a</sup> on the frame of the machine. A slot 102<sup>b</sup> in the stem of the packer-piston receives the end of a lever 104<sup>b</sup>, keyed to a rocker-shaft 104, rockable in bearings 2<sup>b</sup>, while an arm 104<sup>a</sup>, carrying a roller 106, adapted to work in a groove 107<sup>a</sup> of the cam 107, receives motion from suitable inclines in the cam-groove. The inclines in the cam-groove 107<sup>a</sup> are such that as soon as the revolver is locked the packer-piston is moved forward and presses the fish from the chamber 59<sup>a</sup> into the can C, pressed into the aperture 80<sup>a</sup> to receive it, and withdrawn thereafter. Pins 102<sup>c</sup> in the packer-piston engage the edges of the can to move it back clear of the plate 80 toward the latter part of the packer-piston stroke, grooves 59<sup>b</sup> being provided to allow such. Through the thickness of the piston is a series of small holes 102<sup>d</sup>, having shallow countersinks on the face to prevent any sucker action on the withdrawal of it from contact with the fish in the can, and tapered V-shaped pieces 59<sup>d</sup> project into the bore of the chamber, which form depressions in the fish to allow the air to escape from the can as the fish is forced in. The fish being pressed into the can and the packer-piston withdrawn, the revolver is turned through the next space, the full can is discharged into the chute 94, a full chamber brought opposite the packer-piston, and a chamber to be filled opposite the spout 12.

Although the cross-section of the grip,



spout, and revolving chambers has been described and drawn throughout as for cylindrical cans, it is obvious that the shape is not material, as the same mechanism is equally applicable for oval or rectangular cans, if such are required.

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

1. In a machine of the class described, a feed-trough adapted to receive the fish when ready for canning, having through its bottom a series of longitudinally-elongated openings; a feeder-plate suitably supported beneath such trough, having a series of pointed pins spaced to enter through and be moved along the apertures provided in the trough-bottom; and means whereby such pins may be projected through, moved along and withdrawn within the apertures.

2. In a machine of the class described, a feed-trough in which the fish to be canned is placed; longitudinally-elongated openings in the bottom, and longitudinal slots or openings extending throughout the length of the trough adjacent to the side walls thereof; a feeder-plate beneath the trough; pointed pins on the upper side of the plate; upwardly-turned sides on the feeder-plate; links suspending such feeder-plate from the trough; means whereby the feeder-plate may be lifted and lowered to project and withdraw the pins and side plates in the openings provided in the bottom of the trough; and means whereby the feeder-plate may have an endwise-reciprocating motion imparted to it.

3. In a machine of the class described, a trough composed of longitudinal bars, and forming part of the fixed frame of the machine; suitably supported beneath the trough, a lower gripping member, having upwardly-projecting bars slidable vertically and longitudinally between the bars of the trough, and having serrations across their upper surfaces; slidably supported on the upper edges of the trough, so as to be susceptible of end motion thereon, an upper grip-casing; an upper grip having cross-serrations vertically slidable within the casing; means for pressing the lower and upper grip members together; means for imparting a longitudinal reciprocating motion to both grip members; a delivery-spout forming the termination and completion of the lower grip-trough; a thin junction-sleeve attached to the upper grip-casing and slidable within the delivery-spout, the entering edge of such being rounded and depressed between the bars of the lower grip-trough; and means for cutting off sections of the fish as it is pushed through the delivery-spout, and for filling such sections into cans.

4. In a machine as described, having a feed-trough into which the supply of fish is placed, and along which it is moved into a device for forming it into the desired shape; a frame or

frames carrying a number of pointed pins attached to and longitudinally movable with the forming and gripping device, and slidable vertically therethrough into the body of the fish; and means whereby such pins may be forced into and withdrawn from the fish with a movement simultaneous with that of the grip members, but greater than it.

5. In a machine for the purpose described, a receiving-trough, having elongated slots in its bottom; a series of pins cooperating with said slots; means for projecting the same up through the slots and moving them forward therein the desired distance, and returning them in position for a repetition of the operation; a forming device for the mass of fish, a delivery-spout having a tapered outlet; a junction-sleeve, slidable within the delivery-spout, a receiving-chamber adjacent to the spout, and in alinement therewith; a knife for severing between the chamber and the spout, and means for transferring the severed section of fish from the chamber to a can.

6. In a machine for the purpose specified, in combination with a feed-trough and grip-trough having an upper grip-casing and upper and lower grip members; suitably supported above the bed-plate of the machine, the shaft 6; bevel-gears 22, driving the cross-shaft 21; crank-disks 20; crank-pin 19 in such, of adjustable throw; the connecting-rod 18; side pieces 16 depending from the slidable grip-case 10, to a pin between which the rod 18 is connected; the studs and rollers 15 attached to the lower grip member and engaging in vertically-elongated openings 16<sup>a</sup> in the side plates; and the coupling-rod 56; by means of which mechanism reciprocating longitudinal motion may be imparted to the upper and lower grip members and the feed member of the machine.

7. In a can-filling machine of the class described, having a feeding, forming and gripping mechanism to which a reciprocating endwise motion may be imparted, and the upper and lower grip members of which are vertically slidable; in combination, the shaft 6; the cam 24 keyed to such having a lateral groove 24<sup>a</sup>; the rock-shaft 25 adjacent; the lever 27 on such carrying the roller 28, adapted to traverse the cam-groove 24<sup>a</sup>; the lever 29 fixed to the same shaft 25, the end of such lever being shaped to enter a slot-hole 30<sup>a</sup> in a vertical stem 30; the stem 30 slidable vertically in suitable guides, and having horizontally-elongated apertures 30<sup>b</sup> and 30<sup>c</sup> toward its upper end; the levers 33 and 40 carrying rollers adapted to move in the apertures 30<sup>b</sup> and 30<sup>c</sup>, respectively; the shafts 34, to one of which the lever 33 is keyed, working in suitable bearings on the upper grip-case 10; the gear-wheels 35 keyed to such shafts and meshing together; the short racks 36 meshing in the outer sides of the gear-wheels, and fixed to the stems 24, slidable vertically in the upper grip-case 10, and to which the upper grip



member 23 is attached; the shafts 41 working in the side plates 16 between each pair of which such shafts extend, and to an extension of one of which the lever 40 is fixed; the 5 levers 42 fixed to the opposite outer ends of the shafts 41; the coupling-rods 43, 43<sup>a</sup>; the short levers 44 fixed to the shafts 41, between the side plates 16, and a depending portion of the lower grip and feed-plate; the pins 45 10 between each pair of levers 44 carrying rollers; and elongated openings 14<sup>a</sup> in the depending portions of the lower grip member 13 and the feed-plate 51; by which vertical movement may be imparted to the grip and 15 feed mechanism, during the reciprocating movement of the same.

8. In a machine for the purpose specified, in which the fish or other material is formed into the desired shape and forced through a 20 delivery-spout having elongated openings, in its bottom, adapted to coöperate with a series of pins, having means by which they are projected upwardly therethrough, and move forward a predetermined distance and then with- 25 drawn for a repetition of the operation, whereby the mass of fish is moved forward at regular intermittent intervals; a series of chambers rotatably mounted in front of such spout so that each in succession may be locked in 30 alinement with it; a knife or knives susceptible of being actuated between spout and chamber during the pause in the forward movement of the fish; a packer-piston in axial alinement with one chamber while an- 35 other is in alinement with the spout; projecting pins on the edge of the piston; a stop-plate against which, on the opposite side to the spout, the chambers rotate, such plate being fixed to the machine frame and having an 40 aperture corresponding to the cross-section of the chambers; means whereby the revolver may be moved a fraction of its rotation corresponding to the number of its chambers; and means whereby an empty can may be 45 pressed against the rim of the aperture in the plate, and the packer-piston thereafter moved through the chamber and the aperture in the stop-plate to express the fish from the chamber to the can, the object of the pins on the 50 piston, being to engage the edges of the can and move its open end out of the aperture 80<sup>a</sup> of the stop-plate.

9. In a machine for filling cans, having a series of revoluble chambers for the trans- 55 ference of the sections of cut fish from the position of the spout to that of the packer-piston; and a stop-plate to close the outer ends of the chambers while opposite the spout and during such transference; an opening in 60 said plate for the passage of the fish-section through it from chamber to can, said opening being tapered outwardly toward the can to form a beveled guide-face against which the open end of the can is held while being filled; 65 a packer-piston for forcing the section of cut fish out of the revoluble chamber into the can, said piston having a portion adapted to en-

gage the can when filled and move it out of engagement with the stop-plate.

10. In a can-filling machine wherein the ma- 70 terial is cut off in sections, filling-chambers in a revolving cylinder, and having a stop-plate to close the ends of such chambers during transference from the position opposite 75 the supply-spout, to the position opposite the packing-piston; a can-carrier fixed to the same shaft as the revolver and rotating with it, adapted to pick up empty cans from the supply-chute and deliver them, after filling, 80 to the delivery-chute; a can-presser suitably held opposite each can-carrier space; means whereby such can-pressers may press the can against the rim of the aperture of the stop-plate; and springs to restore them to their 85 normal position for the reception and carrying of cans.

11. In a machine for filling cans, having a spout through which the formed fish is forced, in combination with a series of chambers adapted to receive such, and transfer it when 90 cut; a can-carrier and can-pressers keyed on the same shaft, the axes of carriers and pressers being in alinement with the chambers; the pawl-plate 62; pawl 63; pawl-carriers 64; connecting-rod 65; crank-pin 66 ad- 95 justable in crank-disk 67, keyed to the driving-shaft 6; keyed to the same shaft 60 as the revolving chambers, &c., the grooved pulley 68, having the friction-straps 69; the lock-bolt 70 suitably guided, adapted to enter the de- 100 tents 59<sup>c</sup>; the actuating-levers 71 and 73 and shaft 72; the spring 79 pressing the lock-bolt into action; and the suitably-guided rod 74 carrying the roller 77, adapted to be engaged and lifted by the projection 78<sup>a</sup> on the disk 78 105 keyed to the cross-shaft 21; whereby the lock-bolt is at proper time withdrawn from the detent 59<sup>c</sup>.

12. In a machine as described, having a series of cans in a carrier 92 rotating with a series of fish-transferring chambers 59<sup>a</sup> on oppo- 110 site sides of a stop-plate 80, having a suitable aperture 80<sup>a</sup>; the combination with a similar series of can-pressers 96 fixed to the same stem and rotating in the same axial aline- 115 ment as chambers and can-carriers; of the lever 98<sup>b</sup> adapted to bear against a can-presser stem, when the same is in alinement with the center of the aperture 80<sup>a</sup>; the shaft 98; the lever 98<sup>a</sup> carrying the roller 100 adapted 120 to be engaged in the groove 101<sup>a</sup> of the cam 101 fixed to the driving-shaft 6 of the machine, the incline of such cam-groove being designed to press the can edge within and against the rim of the aperture 80<sup>a</sup> at a suitable time, and 125 release it thereafter.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN REITTER BROWN.

In presence of—

ROWLAND BRITAIN,  
ELLICE WEBBER.