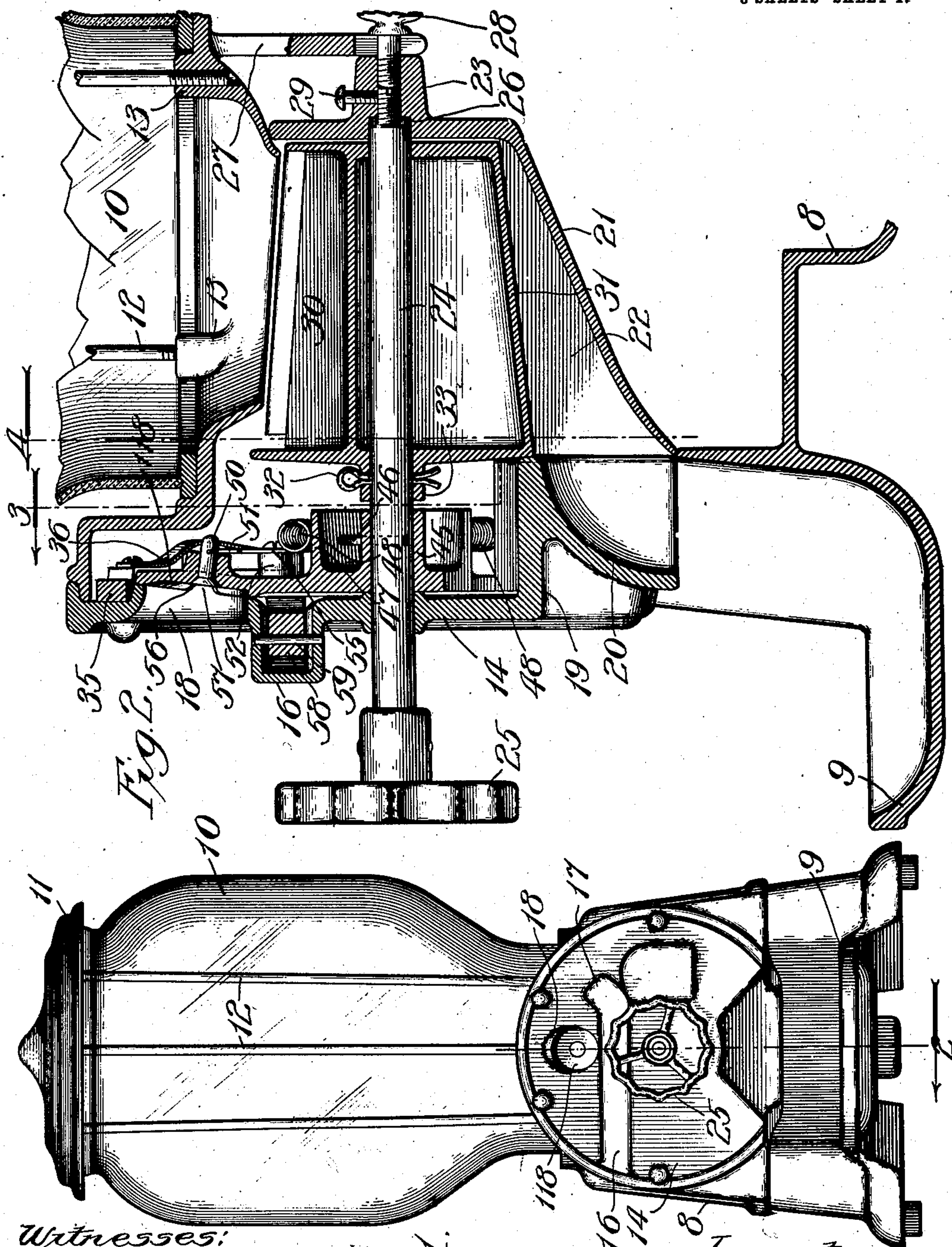


C. M. LINDE.
 COIN OPERATED VENDING MACHINE.
 APPLICATION FILED FEB. 1, 1909.

924,252.

Patented June 8, 1909.
 3 SHEETS—SHEET 1.



Witnesses:
 John Enders
 Chas. H. Buell

Fig. 1.

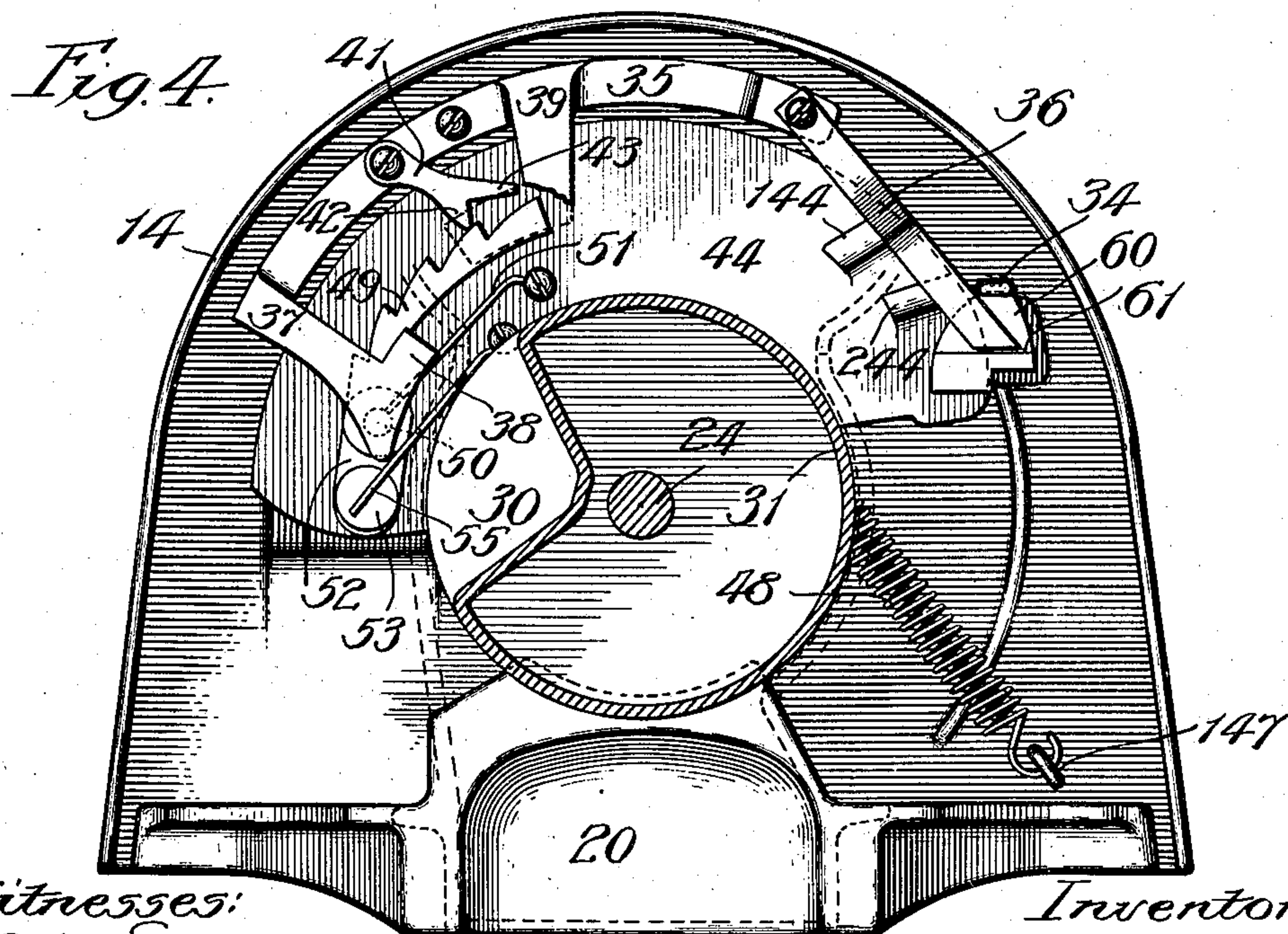
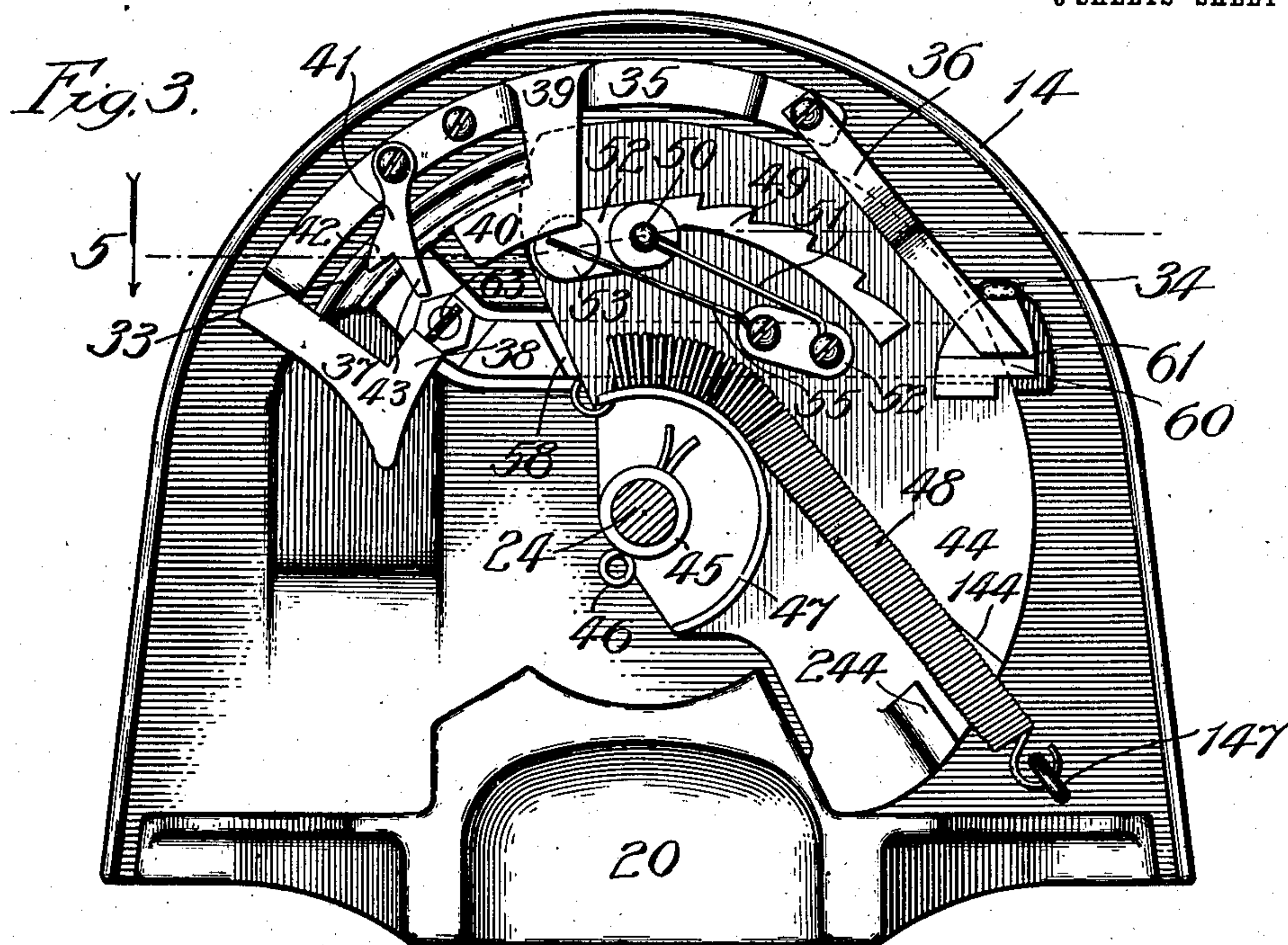
Inventor:
 Charles M. Linde
 By Dymally, Lee, Christman & Wiles
 Attys. #

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3 SHEETS—SHEET 2.



Witnesses:
 John Enders
 Chas. H. Buell.

Inventor:
 Charles M. Linde.
 By Sympson, Lee, Chittenden & Wiles
 Attys.

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3 SHEETS—SHEET 3.

Fig. 5.

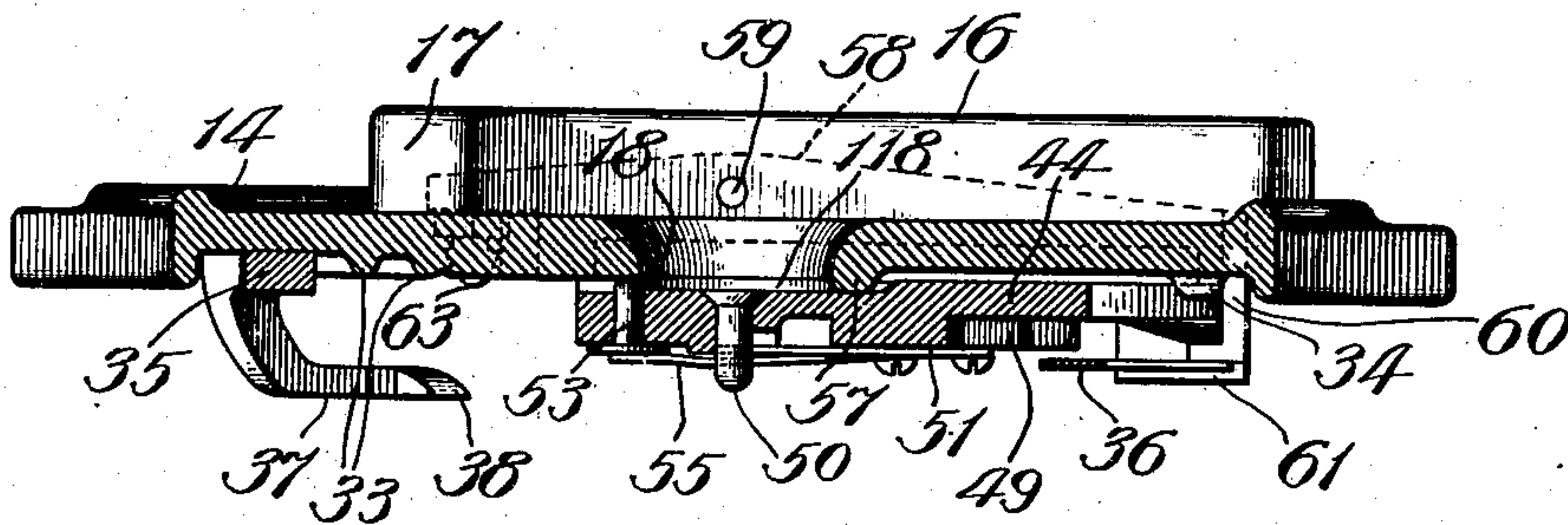


Fig. 6.

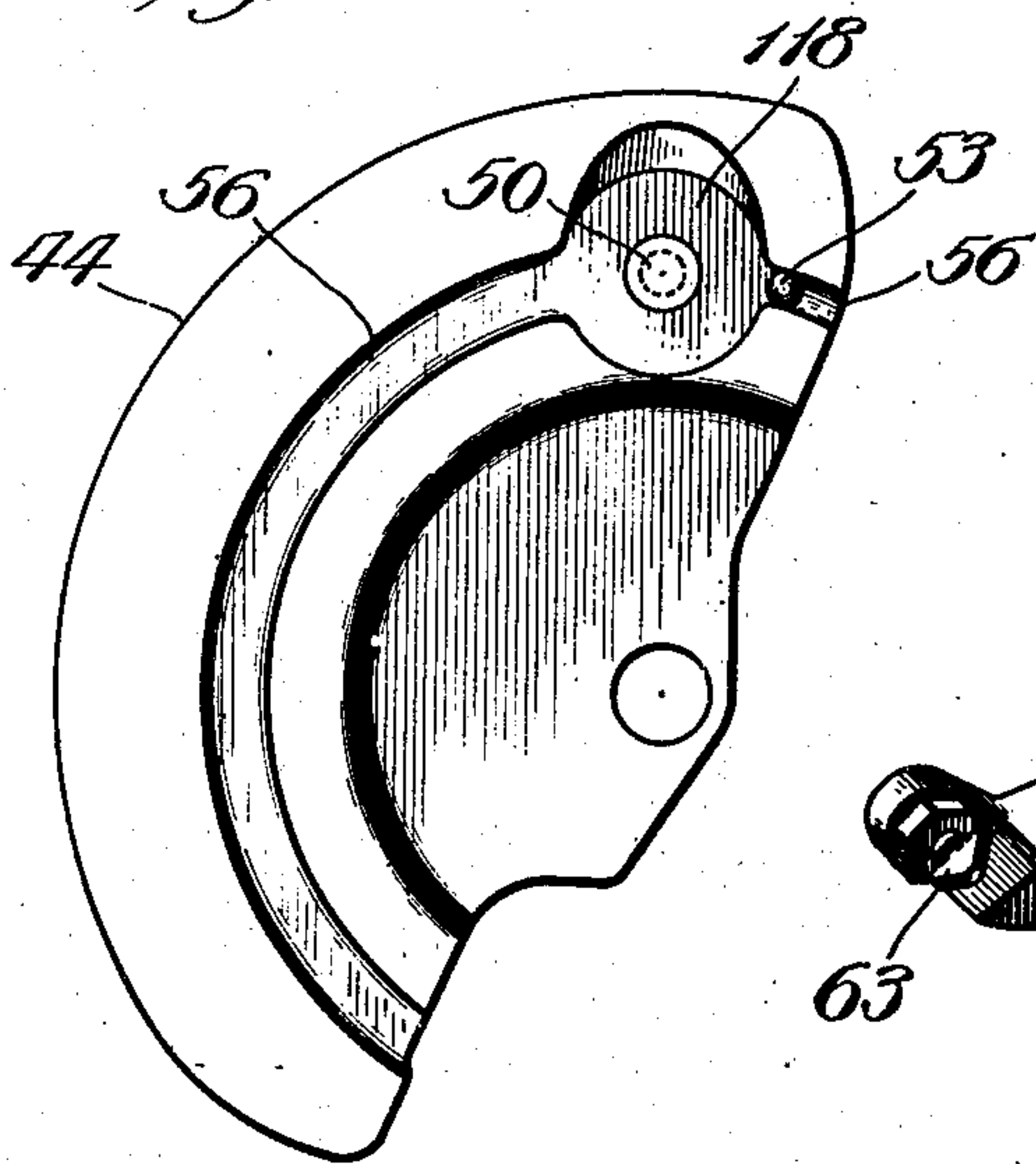
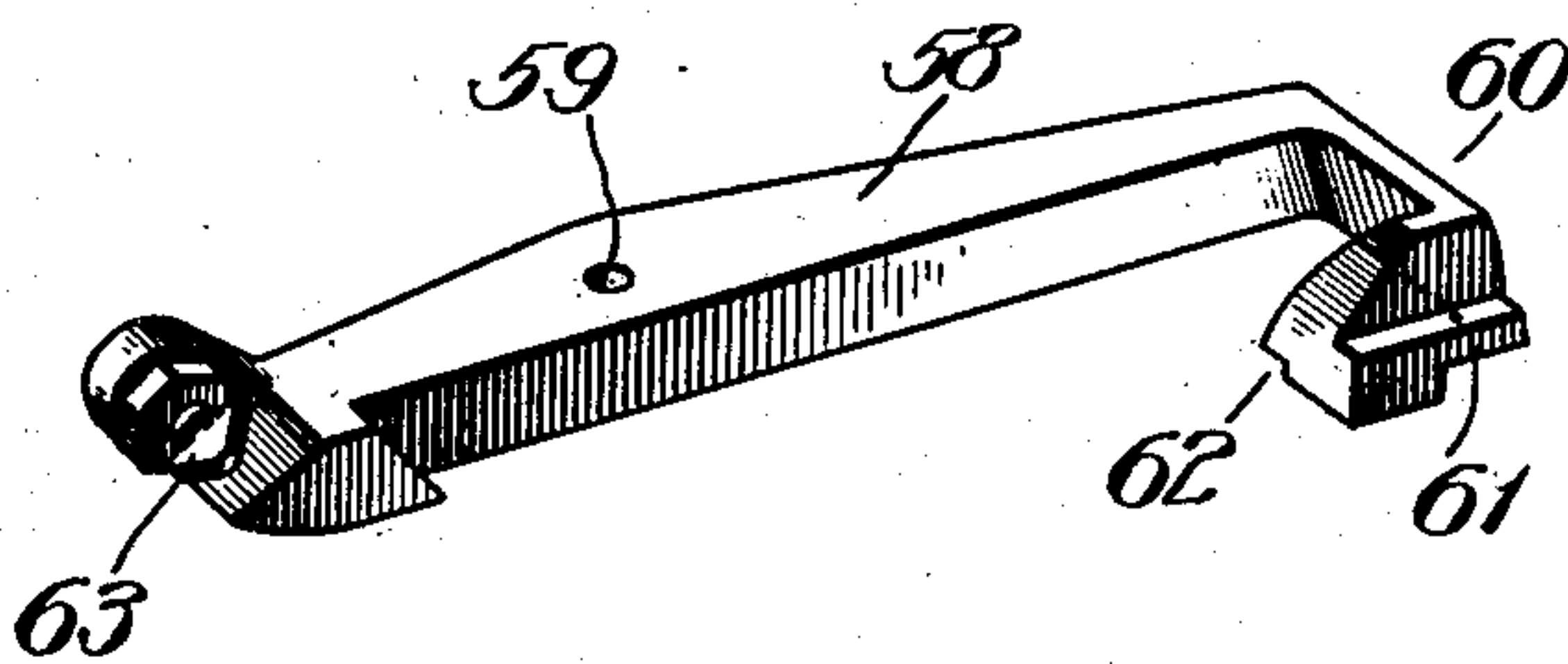


Fig. 7.



Witnesses:

John Enders
Chas. H. Quill.

Inventor:

Charles M. Linde.

By *degenforth, Lee, Chittou & Wiles*
Attys.

UNITED STATES PATENT OFFICE.

CHARLES M. LINDE, OF CHICAGO, ILLINOIS, ASSIGNOR TO HILO GUM COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COIN-OPERATED VENDING-MACHINE.

No. 924,252.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed February 1, 1909. Serial No. 475,491.

To all whom it may concern:

Be it known that I, CHARLES M. LINDE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Operated Vending-Machines, of which the following is a specification.

My invention relates to an improvement in the class of vending machines employing a rotatable measuring-cup normally registering with the outlet in the base of a magazine and filled from the contents thereof consisting of the supply, in bulk, of the article (peanuts, candies, and the like) to be vended, the cup being normally locked in that position against rotation to effect emptying it of its contents for delivery thereof, but adapted to be unlocked to permit such rotation through the medium of an inserted coin of proper denomination.

The object of my invention is to improve, in matters of detail, upon a certain vending machine in the class referred to, now on the market, to the end, more particularly, of protecting it against improper or fraudulent operation, and that of rendering its operation more reliable.

In the accompanying drawings, Figure 1 is a view in front elevation of the complete machine; Fig. 2 is an enlarged broken section on line 2, Fig. 1; Fig. 3 is a broken section on the irregular line 3, Fig. 2, viewed in the direction of the arrow, and showing the parts of the operating mechanism in their normal position; Fig. 4 is a similar view on line 4, Fig. 2, regarded in the direction of the arrow, but showing the parts of the operating mechanism in the position to which they are brought by a partial turn of the shaft and wherein the delivery-cup is in incomplete registration with the discharge-opening leading to it from the bottom of the magazine; Fig. 5 is a section on the line 5, Fig. 3, and Figs. 6 and 7 are perspective views, respectively, of the segmental head and lever cooperating therewith.

The base 8 of the machine is a hollow body, consisting, in practice, of a malleable casting with a dish 9 near the bottom of its front side, into which the contents of the cup are dumped for their delivery. The base, which is closed at its back by a key-locked door (not shown) is surmounted by a magazine of transparent glass, through which to dis-

play the supply of the commodity, seating about the open top of the base and closed at its top by a cap 11 secured in place by bolt-rods 12 screwing into sockets 13 disposed about the base-top, whereby the magazine is clamped between the latter and the cap.

All of the operating mechanism is secured on a flanged front-plate 14, which covers the front side of the opening through the base 8 and has formed on its face to extend transversely thereof an elongated lever-housing chamber 16 of rectangular cross-section, having one end deflected at 17, the chamber being open throughout its length at the inner face of the front-plate. A circular coin-insertion opening 18 is formed in the plate 14 above the chamber 16, and said plate also has formed upon its rear or inner side, near the bottom thereof, at an offset 19, an arch 20 to afford the lip of a discharge-chute, hereinafter described. A shield 21, of the general inwardly-tapering form represented, is rigidly fastened at its wider, open end to the back of the front-plate and forms at its lower part, with the arch 20, the discharge-chute 22 leading to the delivery-dish 9. The inner, closed end of the tapering shield carries, centrally, an internally-threaded nipple 23; and the top of the shield is open lengthwise and registers with the open top of the base 8. An operating shaft 24, provided on its outer end with a hand-wheel 25, by which to turn it, is journaled in the center of the front-plate and finds bearing at its inner end in a recess 26 in the corresponding end of the nipple 23, which abuts against a forked lug 27 depending from the roof of the base 8; and a thumb-screw 28 is passed through the bifurcation in the lug into the threaded end of the socket to bear against the rear face of the lug and afford a support for the shaft at that end, being secured against accidental turning by a set-screw 29. A cup 30 formed in a skeleton-frame 31 of the general tapering form illustrated, surrounds, at the disk-shaped heads on the frame-ends, the shaft 24 within the shield 21, being secured on the shaft, to turn with the same, by a cotter 32 passed through it and through a boss projecting centrally from the outermost-head of the cup-device. The cup normally registers fully with the opening in the top of the base in order that it may be filled by gravity from the magazine; and by turning the cup to empty its contents, as hereinafter described,

a side of its tapering frame is brought into registration with the said opening to close it and shut off the discharge from the magazine while the cup is out of its position of full registration.

On the rear face of the plate 14, above the plane of the chamber 16, is formed an arc-shaped protuberance 33, affording a bearing for the segmental head hereinafter described; and a stop-lug 34 is provided on the plate at one end of that bearing. Directly above the bearing 33 is rigidly secured on the back of the plate 14, below its flange, an arc-shaped bar 35 carrying a leaf-spring 36 on one end, a bent finger 37 on its opposite end terminating in a cam 38, and between its ends a finger 39 having a deflected end-section 40; and adjacent to the finger 40 a pawl 41 is loosely pivoted to hang on the bar 35 and is provided on its free end with two teeth 42 and 43. A segmental head 44 is secured through its hub 45 by a cotter 46 to the shaft 24 in position to extend at its outer edge below the bar 35, and be overlapped, for its confinement, by the fingers 39, 40. On the inner face of this head is formed to extend concentrically with the hub an open collar 47 which is connected from one end with a lug 147 on the back of the plate 14 by a coiled spring 48. This spring, by its connection with the shaft 24, tends to hold the cup 30 resiliently in registration with the opening in the top of the base. On the rear face of the head 44 is formed a segmental ratchet 49 into the path of which the pawl 41 depends. One end of this ratchet, at a point beyond its teeth, is penetrated by a pin 50, which extends entirely through the segmental head and, in the normal position of the latter, registers with the center of the coin-insertion opening 18, being resiliently held against protrusion beyond the base thereof by a spring 51 engaging the rear end of the pin and fastened at one end to a lug 52 on the back of the head 44. Adjacent to the pin 50 another, headed, pin 53 reciprocally penetrates the segmental head, and is engaged at the head on its inner end by the free end of a spring 55 extending from the lug 52. An arc-shaped groove 56 is formed in the outer face of the head 44 concentric with its axis and intersects a circular coin-recess 118 therein which registers with the opening 18 when the head is in its normal position. The pin 53 projects into the groove 56 at one side of the circular recess and the cam 38 extends into the path of the inner end of the pin. At the opposite side of the circular recess 118 a tongue 57 (Fig. 2) projects into the groove 56 from the edge of the opening 18. In the chamber 16 and conforming to the general shape thereof is a lever 58 of the form most clearly illustrated in Fig. 7. It is fulcrumed between its ends on a vertical pin, at 59, extending transversely through the

chamber and terminates at one end in an angular section 60 presenting at its extremity a shoulder 61 into the path of which the free end of the spring 36 projects; and another shoulder 62 projects into the path of two successive teeth 144 and 244 projecting from the inner face of the segmental head 44 near one end thereof. Upward movement of this end of the lever is prevented by the lug 34. The opposite end of the lever is offset and extends at an angle to coincide with the deflected end of the chamber 16 and has projecting from its inner face a V-shaped stud 63 in the path of the groove 56.

In the normal condition of the parts, represented in Fig. 3, wherein the cup 30 is in full registration with the discharge from the magazine and so held by the spring 48, (while an end of the segmental head 44 bears against a side of the arch 20 which thus serves as an abutment to prevent undue rotation of the cup by the spring), a coin, as a penny, is required to be inserted through the opening 18 into the recess 118 to permit overturning of the cup for effecting delivery of its contents. With the coin in its recess in the segmental head 44, which is normally stopped against more than initial turning by the tooth 144 upon it encountering the end of the lever 58 in its path, turning the shaft 24, at the handle 25, to turn the cup-frame causes the coin carried by the head to encounter the stud 63 in its path, and by continued turning of the head the coin, in pressing against a cam-surface of the stud to force it outwardly, turns the lever on its fulcrum 59 in the direction to move its end 60 inwardly, thereby tripping it to take the shoulder 62 out of the path of the teeth 144 and 244 on the segmental head and permitting the latter to be freely turned, that is, until stopped by abutting against the side of the arch 20 opposite that against which it normally abuts. In the resultant position of the cup 30 its contents empty into the shield 21 and chute 22 and thence drop into the delivery-dish 9, from which the operator may gather them. In attaining this position the cup can not be returned to its normal position until its delivery-movement has been completed, being prevented by engagement of the pawl-tooth 43 with a ratchet-tooth. When the ratchet 49, in so forwardly turning the cup, clears the pawl, and the handle 25 is released to permit the spring 48 by its recoil, to retract the parts to normal position, the ratchet, in the return movement of the head 44, by engagement with the pawl-tooth 43, kicks and turns the pawl to extend in the direction of inclination represented in Fig. 4, wherein its tooth 42 is presented to the back of the ratchet-teeth, so that any attempt, while the parts are returning to normal position, to turn them meantime in the direction for operating the machine is pre-

vented by the obstruction of the pawl in engaging its tooth 42 with the back of a ratchet-tooth. When, in forwardly turning the shaft, the inner end of the pin 50 encounters the cam 38 in its path, the pin is thereby forced outwardly to dislodge the coin from the recess 18 and permit it to drop into the base 8 which is closed to access by unauthorized persons, usually by the key-locked door hereinbefore referred to, in the back of the base. Without provision, such as the pawl-and-ratchet mechanism, for locking the head 44 against reversal of its movement while being turned in either direction, fraudulent operation of the machine would be possible, since the operator, after emptying the cup as the result of using a coin, could return it to partially register with the discharge-opening from the magazine, thus to the position represented in Fig. 4, thereby permitting it to refill by holding it by the handle 25, in that position, and thereupon reversing the movement to empty the cup, and this fraudulent operation could be repeated until the magazine was emptied. Another means is provided, in the second tooth 244 on the head 44, for preventing fraudulent operation of the machine by the use of an annular washer instead of a coin. Such a washer, of proper size, would operate the same as a coin until, in passing the cam-stud 63, the latter registers with the hole in the washer, when the force of the spring 36 would turn the lever 58 to protrude the stud through the washer, thereby presenting the tooth 244 to engage with the adjacent end of the lever in the attempt to further turn the handle 25, and thus frustrating the operation.

It will be observed that in the movement of the segmental head, which moves in frictional contact, for steadying it, with the bearing 33, its groove 56 rides over the stud 63 and the pin 53, the latter being cleared by the stud in encountering it in either direction of the movement, since the cam-end of the stud operates, in turning the head 44, to force the pin out of the groove against the resistance of the spring 55. This, however, leaves the pin, in the normal position of the parts, as an obstruction in the groove against insertion, at the opening 18, of a wire or other instrument along the groove to engage the stud-equipped end of the lever 58 and turn it upon its fulcrum against the resistance of the spring 36 to free the segmental head and permit the shaft 24 to be turned, thereby to fraudulently operate the machine. The tongue 57 at the opposite side of the opening 18 the recovers the entrance to the groove to prevent insertion at that point therein of such an instrument to engage the lever-end 60 and force it, against the resistance of the spring 36, to take that end out of the path of the teeth 144 and 244 and thus

permit the machine to be operated without using a coin for the purpose.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a vending-machine of the character described, the combination with a hollow base provided with a delivery-dish and a magazine surmounting and discharging to said base, of a front-plate closing the base and containing a coin-insertion opening, a rotatable handle-equipped spring-retracted shaft journaled in said plate, a cup on said shaft in the base, normally registering with the magazine and discharging in its inverted position to said dish, a head on said shaft at the inner side of said plate and provided in its outer face with a coin-recess, a spring-retracted pin reciprocally extending through said head at the coin-recess therein, a cam on the plate in the path of said pin, and a spring-pressed lever fulcrumed on said plate to normally obstruct at one end movement of said head in one direction and projecting at its opposite end into the coin-path to be tripped by the action of the coin, for the purpose set forth.

2. In a vending-machine of the character described, the combination with a hollow base provided with a delivery-dish and a magazine surmounting and discharging to said base, of a front-plate closing the base and containing a coin-insertion opening, a rotatable handle-equipped spring-retracted shaft journaled in said plate, a cup on said shaft in the base, normally registering with the magazine and discharging in its inverted position to said dish, a head on said shaft at the inner side of said plate and provided in its outer face with a coin-recess, a spring-retracted pin reciprocally penetrating said head at the coin-recess therein, a bar secured on the inner face of the plate, an arm depending from said bar and terminating in a cam in the path of said pin, and a spring-pressed lever fulcrumed on said plate to normally obstruct at one end movement of said head in one direction and projecting at its opposite end into the coin-path to be tripped by the action of the coin, for the purpose set forth.

3. In a vending-machine of the character described, the combination with a hollow base provided with a delivery-dish and a magazine surmounting and discharging to said base, of a front plate closing the base and containing a coin-insertion opening, a rotatable handle-equipped spring-retracted shaft journaled in said plate, a cup on said shaft in the base normally registering with the magazine and discharging in its inverted position to said dish, a head on said shaft at the inner side of said plate and provided in its outer face with a coin-recess and with an arc-shaped groove intersecting the recess, a spring-pressed pin reciprocally penetrating

- the head and normally projecting into the groove at one side of said opening, and a spring-pressed lever fulcrumed on said plate to normally obstruct at one end movement of said head in one direction and provided at its opposite end with a cam-stud in the path of said groove to be engaged by the coin to trip said lever, for the purpose set forth.
- 10 4. In a vending-machine of the character described, the combination with a hollow base provided with a delivery-dish and a magazine surmounting and discharging to said base, of a front-plate closing the base and containing a coin-insertion opening, a rotatable handle-equipped spring-retracted shaft journaled in said plate, a cup on said shaft in the base normally registering with the magazine and discharging in its inverted position to said dish, a head on said shaft at the inner side of said plate and provided in its outer face with a coin-recess and with an arc-shaped groove intersecting the recess, a spring-pressed pin reciprocally penetrating the head and normally projecting into the groove at one side of said opening, a lip extending from the opposite side of said opening into the groove, and a spring-pressed lever fulcrumed on said plate to normally obstruct at one end movement of said head in one direction and provided at its opposite end with a cam-stud in the path of said groove to be engaged by the coin to trip said lever, for the purpose set forth.
- CHARLES M. LINDE.
- In presence of—
CHAS. E. GAYLORD,
L. KIRKLAND.