No. 657,303. Patented Sept. 4, 1900.

W. WEBBER.

COIN CONTROLLED GAS VENDING MACHINE.

(Application filed Sept. 6, 1899.)

(No Model.) 4 Sheets—Sheet 1.

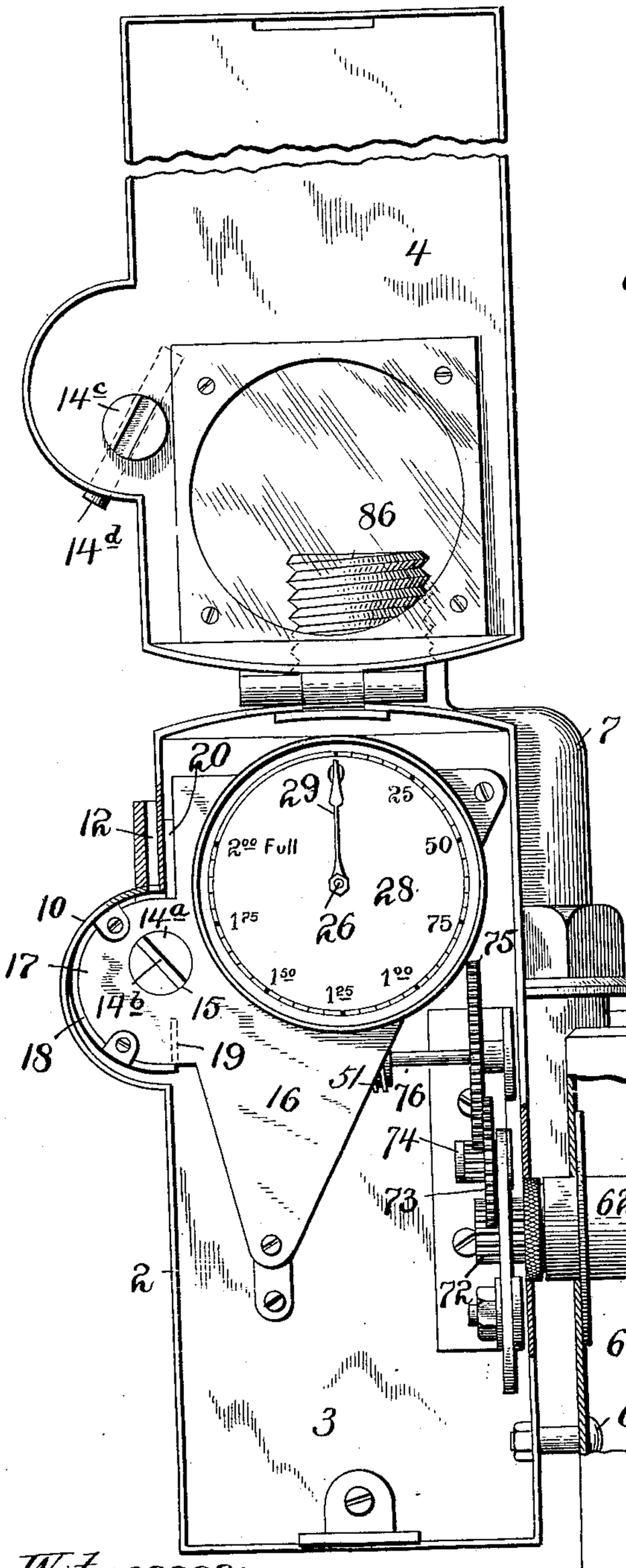

Fig. 1.

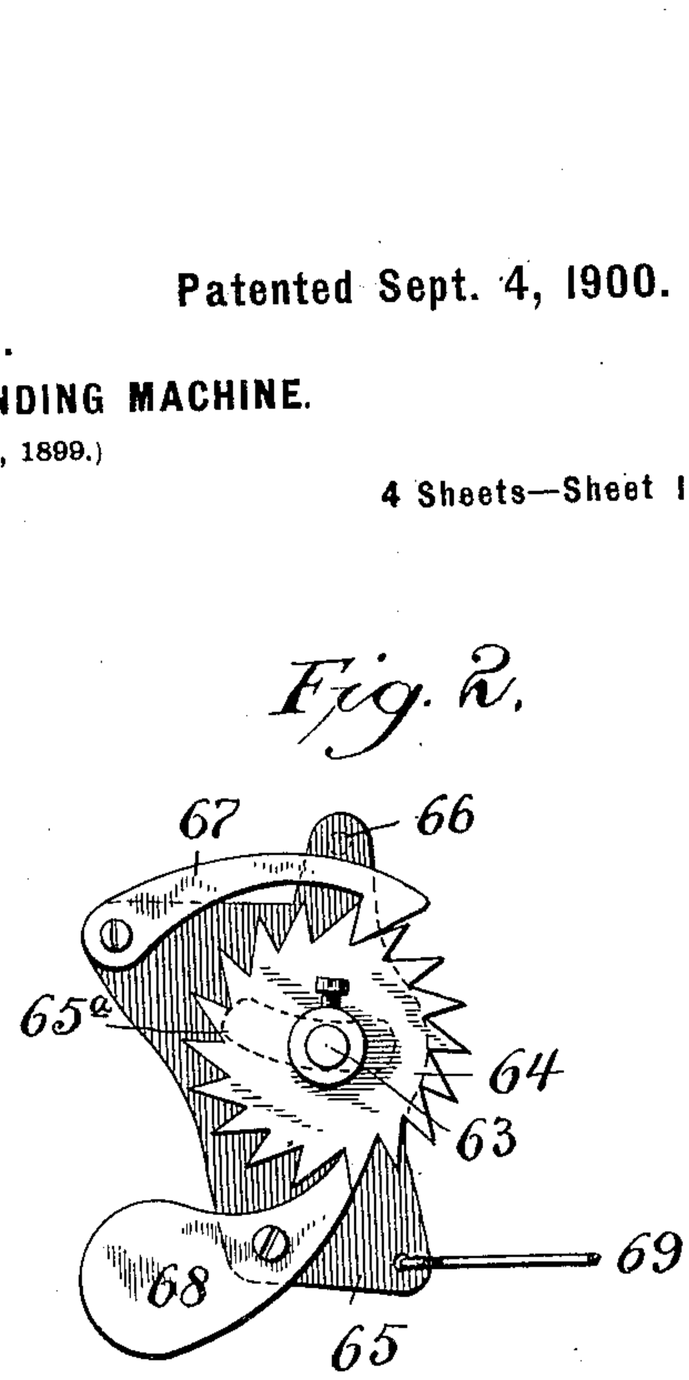

Fig. 2.

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(No Model.) 4 Sheets—Sheet 2.

Fig. 3.

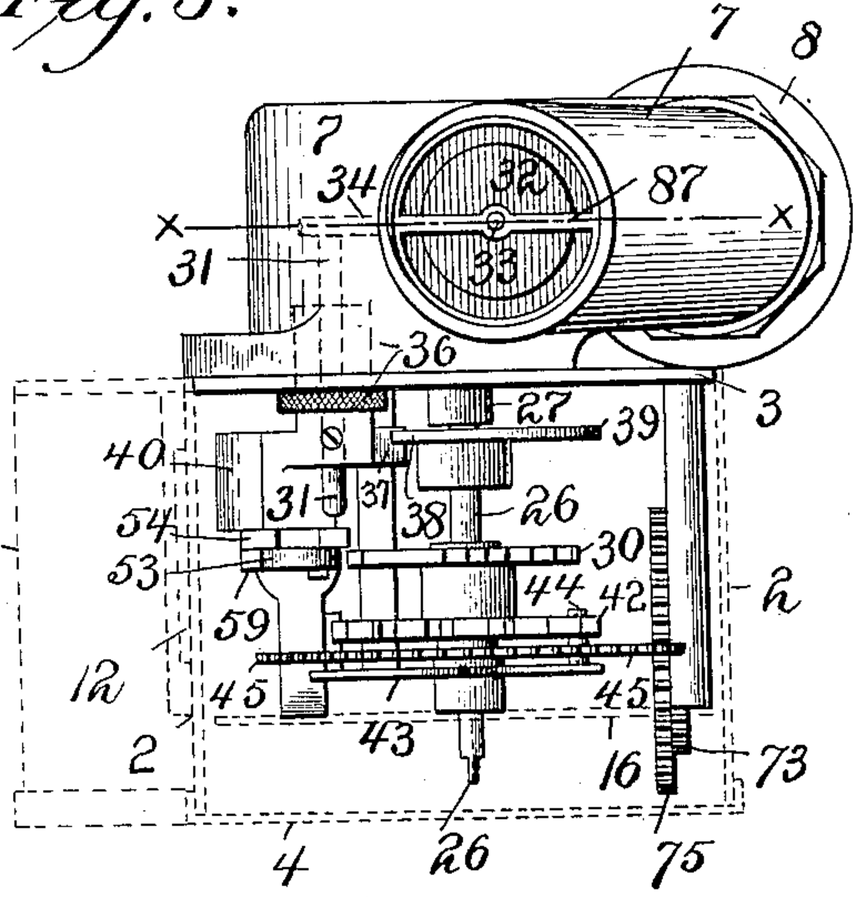


Fig. 4.

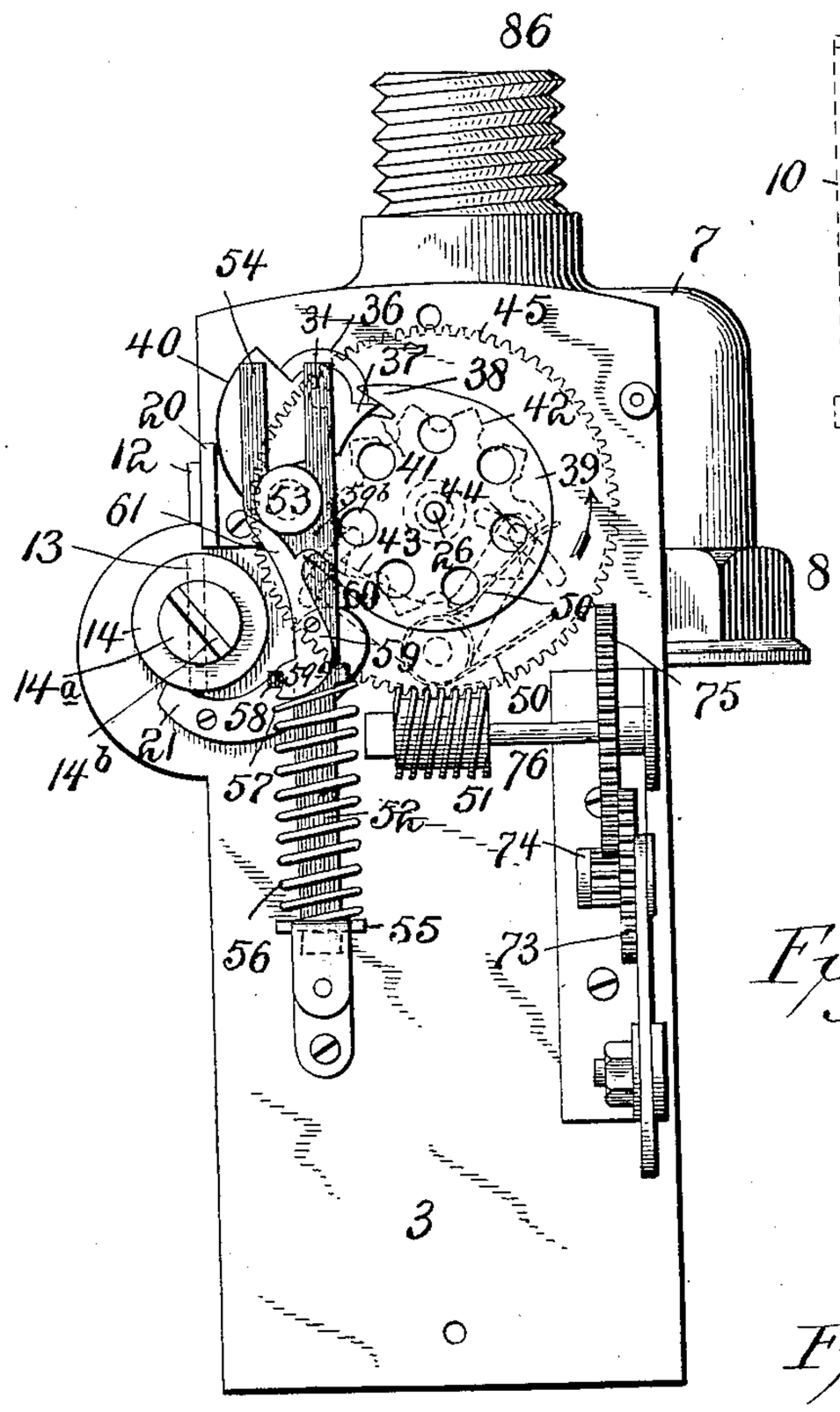


Fig. 6.

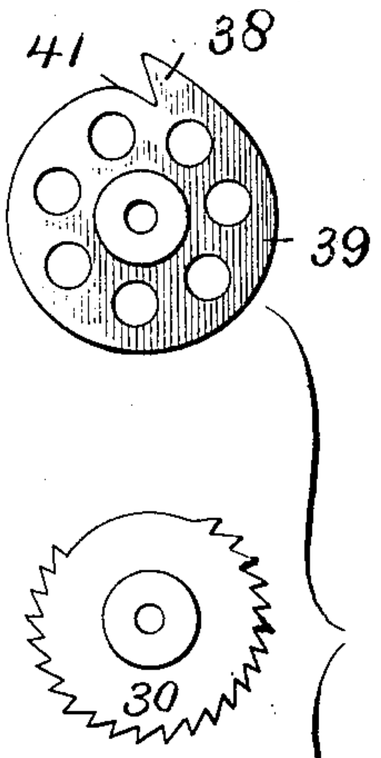
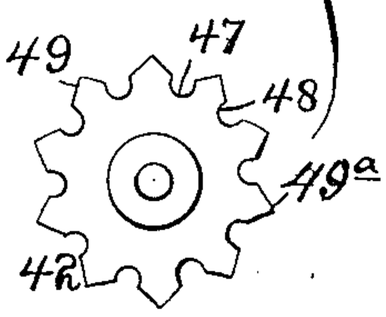
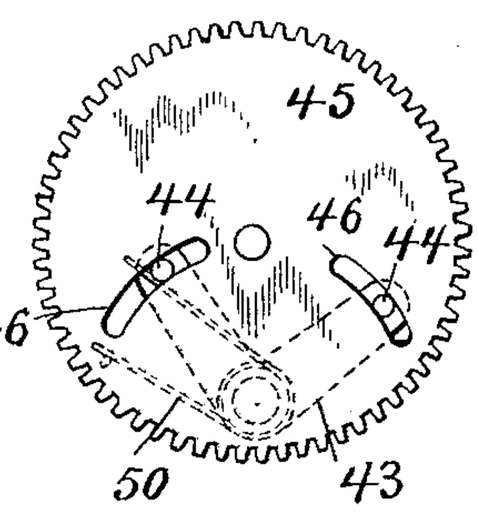


Fig. 5.





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(Application filed Sept. 6, 1899.)

(No Model.) 4 Sheets—Sheet 3.

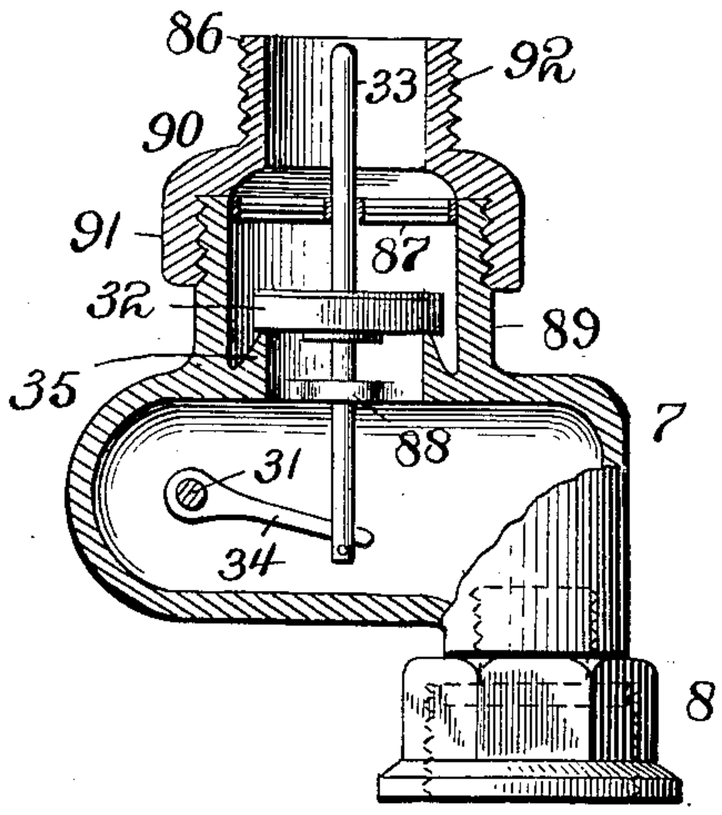


Fig. 7.

Fig. 8.

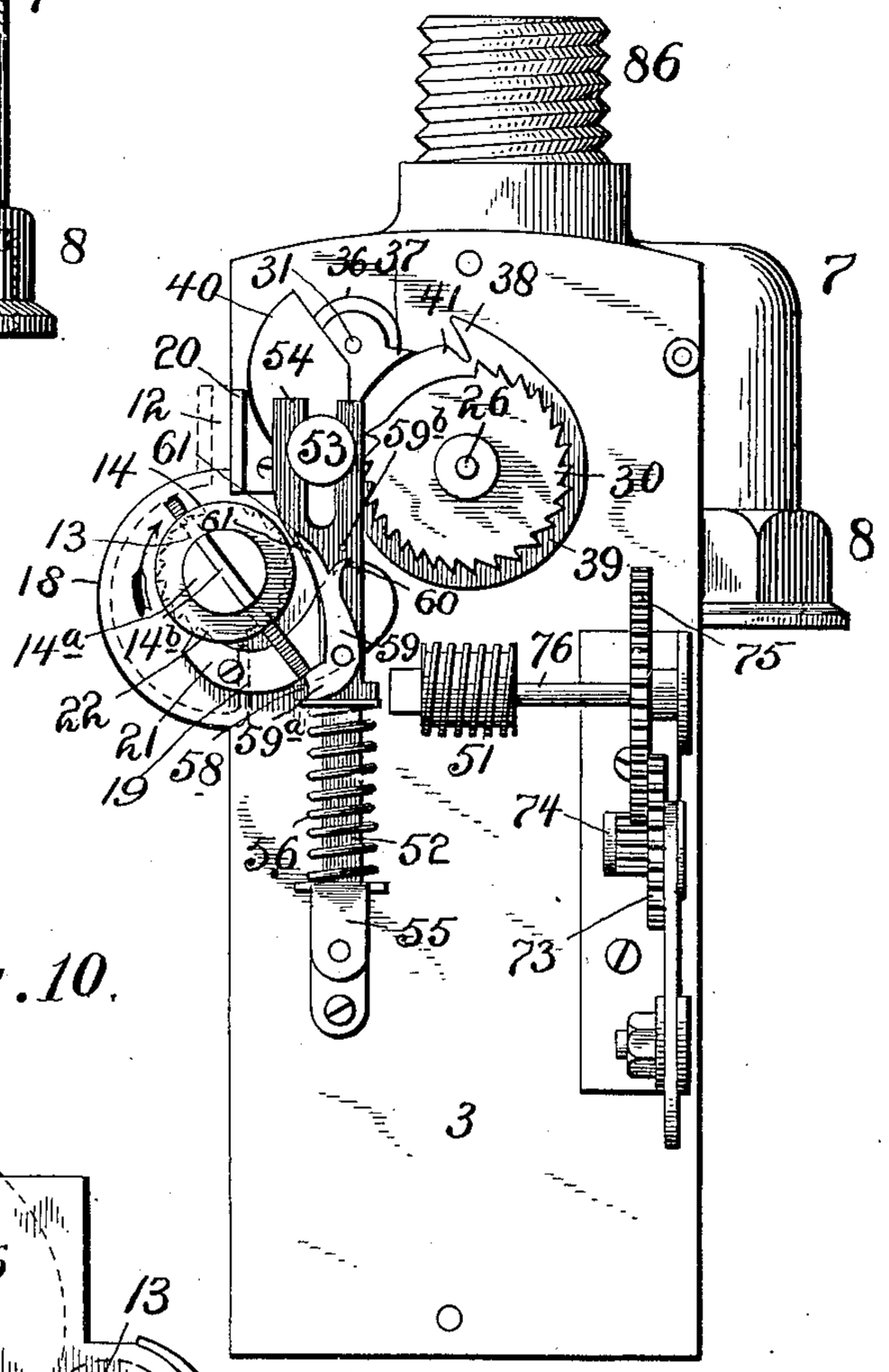


Fig. 9.

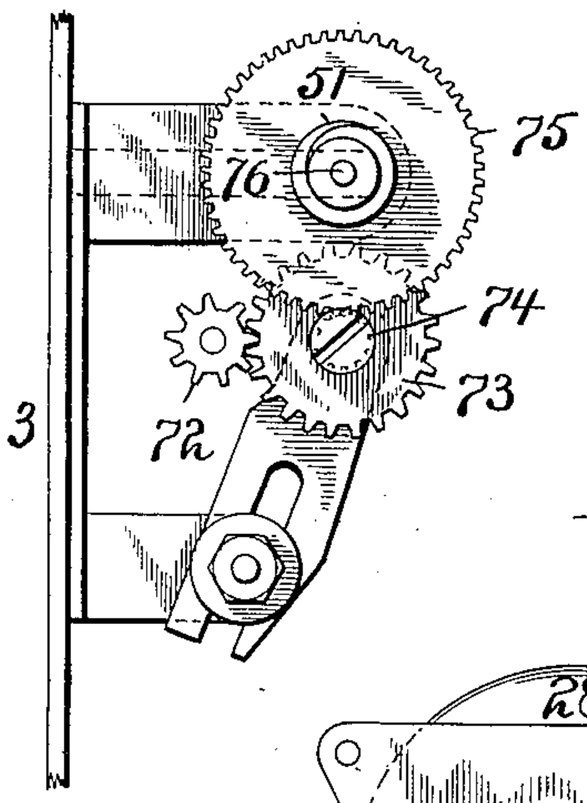
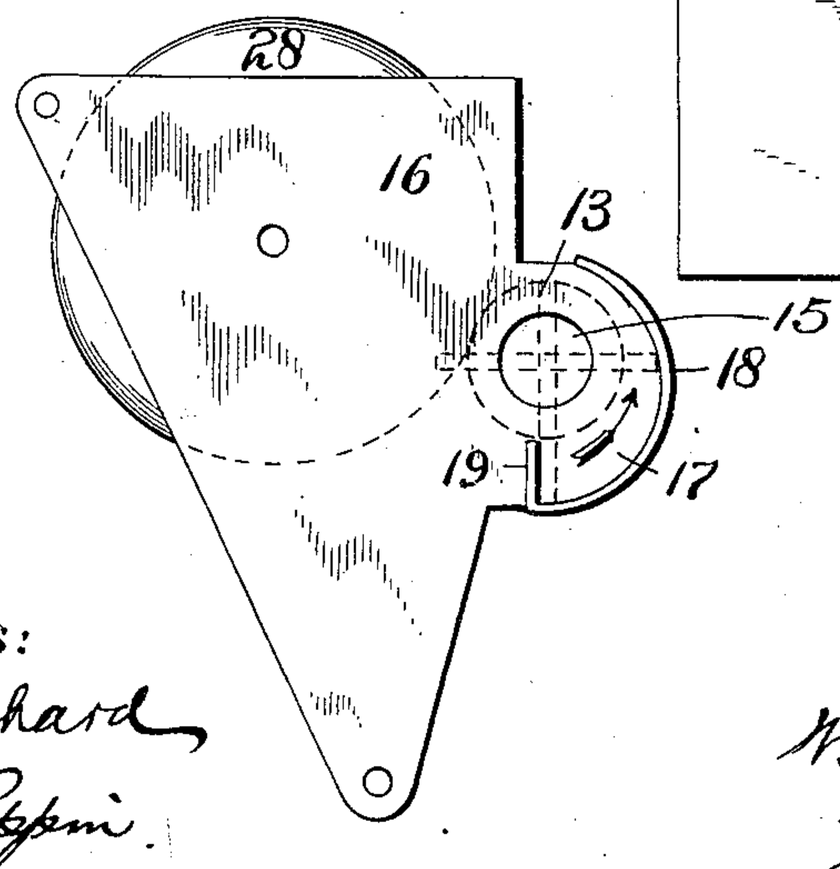


Fig. 10.



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COIN CONTROLLED GAS VENDING MACHINE.

(Application filed Sept. 6, 1899.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 11.

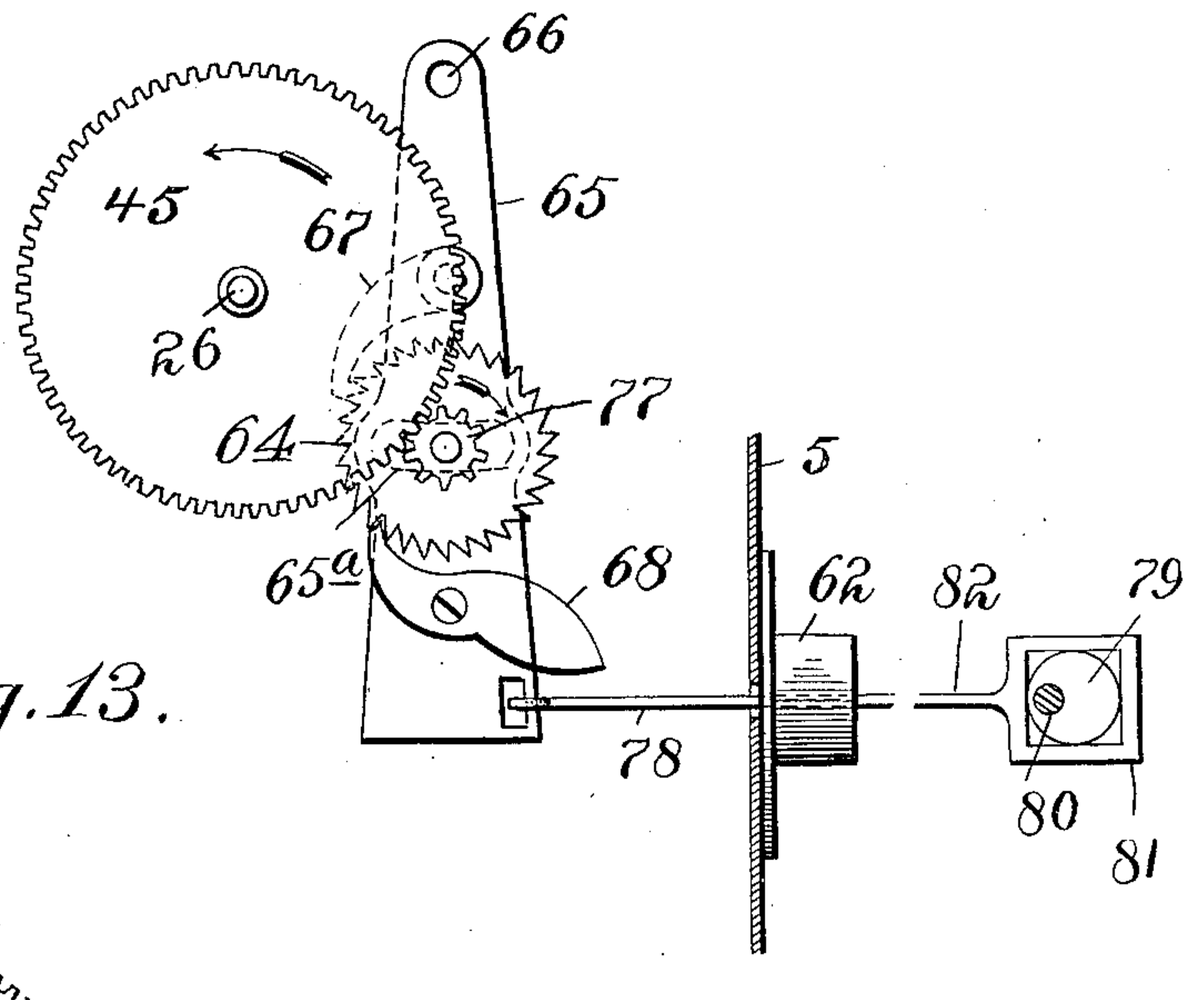

Fig. 13.

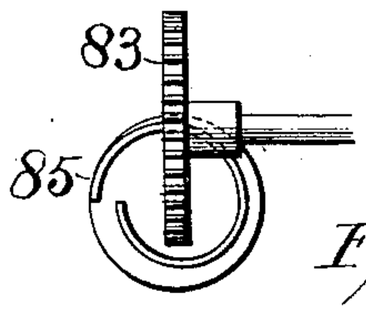

Fig. 12.

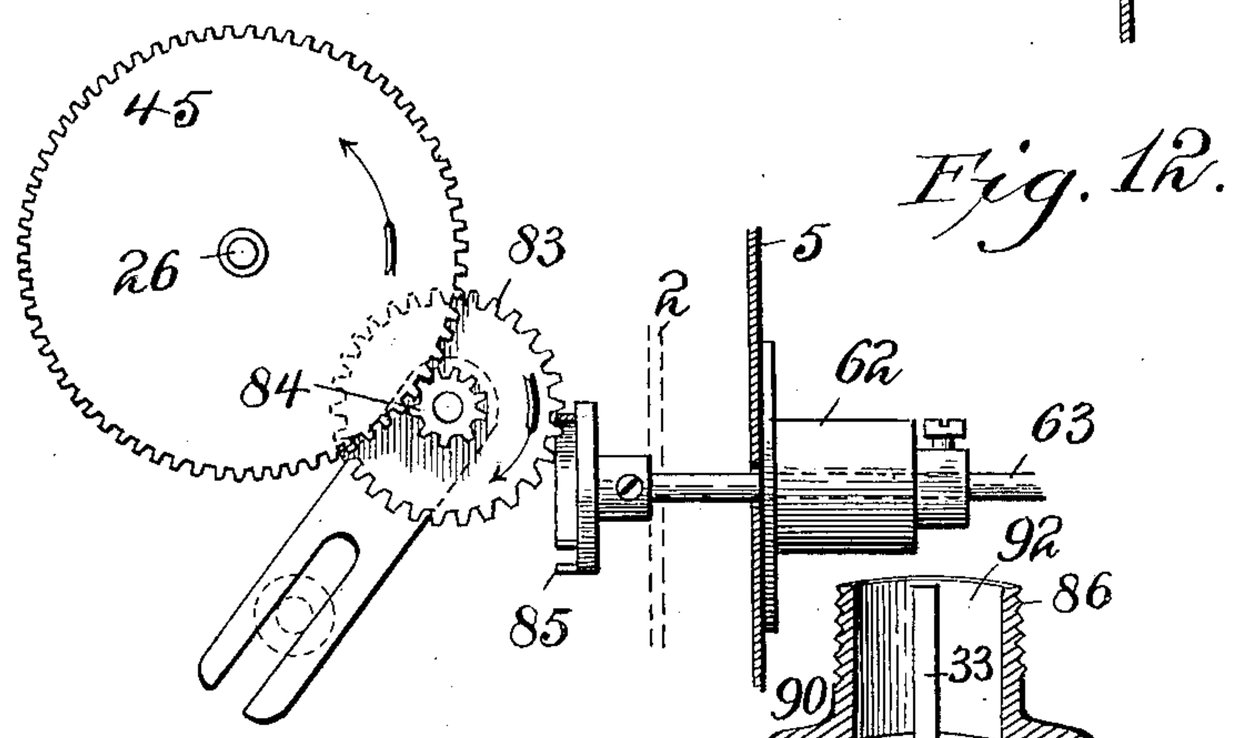

Fig. 14.

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UNITED STATES PATENT OFFICE.

WESLEY WEBBER, OF NEW YORK, N. Y.

COIN-CONTROLLED GAS-VENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,303, dated September 4, 1900.

Application filed September 6, 1899. Serial No. 729,580. (No model.)

To all whom it may concern:

Be it known that I, WESLEY WEBBER, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Coin-Controlled Gas-Vending Machines, of which the following is a specification.

My invention relates to improvements in coin-controlled gas-vending apparatus; and the invention consists in the construction, arrangement, and combination of parts, all as hereinafter described and claimed.

In the accompanying drawings, which form a part of this specification, Figure 1 is a front elevation of the coin-controlled gas-vending machine affixed to a meter, a portion of the latter being shown as broken away, the cover to the box being lifted open. Fig. 2 is a detail view, in side elevation, of one means for transmitting the motion of the meter to the coin-controlled mechanism. Fig. 3 is a plan view of a part of the coin-controlled mechanism, the back plate of the box or casing, and the gas-coupling with its valve. Fig. 4 is a front elevation of the same, showing the parts in the position they assume when beginning to close the valve. Fig. 5 is a detail view of the delivery-wheel. Fig. 6 shows the valve opening and closing device, a rear view of the notched purchasing-wheel, and the justifying-disk, respectively. Fig. 7 is a sectional elevation of the gas-coupling and valve on line *x x* of Fig. 3. Fig. 8 is a reproduction of Fig. 4, showing the parts in the position they assume after the insertion and complete operation of the first coin and just after the insertion and during the operation of the second coin. Fig. 9 is a side elevation of the train of gearing which transmits motion from the device shown in Fig. 2 to the delivery-wheel. Fig. 10 is a rear elevation of the dial-carrying plate and the partial eccentric casing for the coin-barrel, showing in broken lines two successive positions of the coin in the coin-barrel. Fig. 11 is a diagrammatic view of modified mechanism for transmitting motion to the coin-controlled mechanism. Fig. 12 is a like view of another modification. Fig. 13 is an end view of the cam or spiral hoop-gear employed in the modification illustrated in Fig. 12. Fig. 14 is a diagrammatic view, partially in section and partially in perspective, of the valve and means for opening and closing the same.

In the drawings, 2 represents the main body of the box or casing, which, together with the back plate 3 (to which it is secured by lugs and screws inside the box) and padlocked door or cover 4, incloses the coin-controlled mechanism and forms a till or coin-receptacle, or a till may be attached below. The casing 2 is attached to the meter 5 by a bolt 6 and nut, and by the gas-coupling 7 rigidly attached to the back plate 3, the union 8 of which gas-coupling screws firmly upon the usual gas-inlet pipe 9 of the meter. The side of the casing opposite the meter is formed with a bay or enlargement 10, fitting over a similar extension in the back plate, at the top of which is formed a coin-slot 12, with which a slot 13, extending diametrically through the coin-barrel 14, may be made to aline twice in each revolution of the coin-barrel. Slots 12 and 13 are each of sufficient size to allow a coin proper to the machine to drop easily through them. The coin-barrel is a cylinder whose diameter is less than that of a coin proper to the machine. It is journaled at one end in the back plate 3 and at the other in an opening 15 in the dial-bearing plate 16. (See Figs. 1 and 10.) The said dial-bearing plate is formed or provided with a side extension 17, which corresponds approximately in shape with the bay 10 of the casing and the extension of the back plate, and secured between these extensions is a partial inner casing 18 for the coin-barrel. This inner casing is formed beneath the coin-barrel with a lip or flange 19, which in connection with the coin serves first to prevent the coin-barrel from being turned in the wrong direction at the beginning of the mechanical service of the coin, and thus dropping the coin inoperatively into the till, and, second, to prevent the coin in the barrel from being carried and rotated farther after it has once performed its service, as hereinafter described, and to compel its discharge from the barrel into the till before the barrel can be further rotated or a new coin can be inserted.

The partial casing 18 is eccentric to the axis of the coin-barrel, the point of least eccentricity being at the top, and is arranged

at such a distance from the coin-barrel that its eccentric surface will operate to force the coin edgewise back through the slot as the coin-barrel is rotated till the coin protrudes therefrom, as shown in Fig. 10. The point of greatest eccentricity of the partial casing is below the coin-barrel, as shown clearly in Figs. 1 and 10, and is of sufficient depth relative to the diameter of the coin proper to the machine to cause the coin when dropped through the alined slots 12 and 13 to stand with its lower edge on the casing 18 at its point of greatest eccentricity and with its upper edge flush or below the upper surface or periphery of the coin-barrel, as shown in the vertical broken lines in Fig. 10, so that the coin at the beginning of its rotation will pass under the guard 20. The guard 20 is a metal plate or bar as here shown about half an inch wide and of a length equal to that of the coin-barrel, firmly secured at right angles to the back plate 3 by screws (one of which is shown in Fig. 8) which pass through a lateral flange of the guard and enter screw-caps in the said back plate 3. Instead of screws rivets may be used to fasten the guard to the back plate, or it may be soldered or brazed. The lower edge of the guard is held as close as possible to the periphery of the coin-barrel, thus effectually preventing the insertion of any strip, spring, wire, or other device by which the mechanism could be operated or the coin retained or withdrawn.

The proper direction of rotation of the coin-barrel is indicated by the arrow in Figs. 8 and 10, and it is prevented from backward rotation by a pawl 21 and ratchet 22; but these may be omitted, if desired, inasmuch as the pawl 59 or a shoulder 58 on the bar 52, or both, will overlie the coin and through it lock the coin-barrel from backward movement effectually in the interval between the point of purchase and the point of discharge of the coin from the coin-barrel into the till, as hereinafter more fully described, thus preventing more than one purchase by one coin. The coin-barrel 14 is formed at its front end with a boss 14^a, which reaches to the front of the dial-carrying plate 16. Across the diameter of the boss is formed a forwardly-projecting flange 14^b. In the door or cover 4 is journaled a diametrically or complementally slotted key 14^c, provided with a handle 14^d, by which the key 14^c may be turned for rotating the coin-barrel 14 and with it the coin when and as held in the slot thereof by the casing 18.

26 represents the main shaft of the coin-controlled mechanism, which reaches from a bearing 27, secured to or in the back plate 3 to the front of the dial 28, where it is provided with a pointer 29 to indicate at zero that the valve is closed and at other points on the scale the amount of money or money's worth in gas remaining from time to time to the consumer's credit, as representing gas paid for in advance, but not yet passed through the meter. On the shaft 26 is secured a notched wheel or rack 30, provided with teeth for a portion—for example, as shown, eight-tenths ($\frac{8}{10}$)—of its periphery, the blank portion serving to prevent the further operation of the apparatus in case more coins should be inserted at one time than the apparatus is constructed to receive.

31, Figs. 3, 7, 8, and 14, represents a valve-operating rod or shaft under the control of the shaft 26 for turning on and cutting off the gas by opening and closing a valve 32 in the gas-coupling 7. As here shown, the valve 32 is provided with a stem 33, guided by upper and lower guides, lugs, or spiders 87 88, which stem engages loosely with an arm 34, attached to the valve-operating rod 31, as shown in Figs. 7 and 14, so that when the arm 34 is elevated by the partial rotation of the rod 31 the valve will be lifted from its seat 35 and admit gas to the meter. The rotatory rod 31 is fitted gas-tight in a stuffing-box 36, which is inserted through the back plate 3 and screwed into the adjacent surface of the coupling 7 and receives adequate rotation from the shaft 26 through a lateral projection 37 on the said rod and a projection 38, rotated by or from the shaft 26. The projection 38 and the cam or shoulder 41, as here shown and by preference, are formed as parts of a disk 39, which, as here shown, is directly attached to the shaft 26; but they may be formed as part of or attached to one or two radial arms attached to said shaft. At or just before the "zero-point" the projection 38, rotated in the direction of the arrow, Fig. 4, and acting against the projection 37 by the power of the meter, transmitted as hereinafter described, partially rotates the rod or shaft 31 in the opposite direction, and so turns down and closes the valve 32 and cuts off the gas. At the time gas is purchased by the insertion of the first coin the projection 38 is carried from the position shown in Fig. 4 to the position shown in Fig. 8 and the projection 37 is elevated for turning on the gas by the counterweight 40 or by the projection, cam, or shoulder 41, or by the action of both said counterweight and said shoulder. While the disk 39 is not necessary if the counterweight be employed, its periphery serves to insure that the projection 37 shall be held continuously elevated and the valve continuously held open, so that if the continuous disk 39 be used the counterweight 40 might be omitted; but it is preferred to use the counterweight in order that the projection or lever 37 may not rest or bear upon the periphery of the disk during the rotation of the disk and that the power of the meter operating through the surface of contact of the projection 38 with the projection 37 may be positively relied upon in the "dimming" or gradual turning down of the gas during the last part of the consumption of the last coin's worth of gas in order to apprise the consumer that it is necessary to insert a new coin, and by the shape or slope of the

said contact-surface the period of dimming or "warning" may be made of shorter or longer duration. A spring or a friction device may be employed in addition to or in place of the counterweight to raise the valve or to hold it open, especially if the gasway is of large caliber and the valve 32 rather large and heavy.

The shaft 26 is provided with a justifying wheel or disk 42, which, through the action of a bell-crank 43 with pins 44 on each arm of the bell-crank, serves to justify the operative parts of the apparatus at each insertion of a coin, thus causing the operative parts of the apparatus always to bear a reliable and definite relation to the quantity of gas to be delivered in exchange for each coin inserted. This justification taking place at each insertion of a coin prevents any possible recurring inaccuracy in the delivery which might result from wear or imperfect construction or imperfect action of the coin-actuated parts of the apparatus and insures at each insertion of a coin the exact and positive purchase of a certain definite fraction or arc of the complete revolution of the delivery-wheel 45 (to be hereinafter described) and of the revolution of the valve-closing projection 38 and prevents the multiplication or commutation of recurring errors, which would cause the apparatus to deliver an increasing surplus or deficit of gas as compared with the total quantity paid for by a series of inserted coins. The said bell-crank 43 is pivoted to the gear-wheel 45, which I term the "delivery-wheel," and the said pins 44 in the members of said bell-crank act in the recesses of said justifying-wheel 42 somewhat after the manner of an anchor-escapement. The delivery-wheel 45 has a number of teeth which is a multiple of the number of recesses in the justifying-wheel 42 and is loosely mounted on the shaft 26, and by preference the bell-crank is applied to the front or remoter surface of the delivery-wheel, slots 46 being formed through the delivery-wheel to allow the pins 44 to protrude therethrough into the plane of the justifying-wheel, as clearly illustrated in Fig. 3. The justifying-wheel has formed in its edge equidistant recesses 47. The distance between any two adjacent recesses represents the fraction of a revolution—viz., the number of degrees of arc of rotation—of the valve-closing projection 38 and also the number of teeth on the delivery-wheel 45 and the number of revolutions of gear-wheel 75, shaft 76, and worm 51 purchased by the insertion of a coin proper to the machine. The metal between each two adjacent recesses is cut away to form two radial shoulders 48—say an eighth of an inch in radial length—so that each recess 47 lies between two oppositely-facing shoulders. Between each pair of recesses 47 the metal projecting to a greater radial distance than the shoulders 48 is tapered to a radial line drawn midway between said recesses 47, thus forming two oppositely-facing cams 49, terminating in a ray-shaped crest 49^a. These cams, shoulders, and recesses in connection with the bell-crank 43, pins 44, and spring 50 serve to justify each purchase of gas, as above stated, and also serve to lock the valve-closing projection 38 with the delivery-wheel 45 during the passage of gas through the meter, so that when the delivery-wheel 45 is rotated in the direction of the arrow, Fig. 4, by the power of the meter the justifying-wheel 42, the notched disk 30, the projection 38, and the pointer 29 will rotate together in the same direction—*i. e.*, toward closing the valve—but without any effect to close the valve till the projection 38 contacts with the projection or lever 37, after which contact the rod 31 is turned in the opposite direction of rotation to that of shaft 26 till the valve 32 is drawn to its seat and the supply of gas to the meter is cut off. The delivery-wheel 45 is held by the worm 51 against any other rotation than that transmitted to it by said worm, which is always in one direction, that of said arrow, so that in the purchase of gas the notched disk 30, projection 38, and justifying-wheel 42 operate independently of the delivery-wheel, moving step by step in a direction opposite to that indicated by the arrow, new complemental recesses 47 of the justifying-wheel being presented to each of the pins 44 at each insertion of a coin, as hereinafter described.

In case the valve should leak when closed and the meter still be drawn upon by the service it supplies, the slow action of the meter due to said leakage will force the delivery-wheel to rotate; but all danger of breakage of the parts is obviated by the formation of the recesses 47, shoulders 48, and cams 49 in the justifying-wheel, for when power applied to the delivery-wheel is thus resisted by the impingement of projection 38 against lever 37 the pin 44, which normally rests in one of the recesses 47 and which forms the connection or coupling by which the delivery-wheel returns the justifying-wheel and its connected parts to zero, is allowed by its spring 50 to ride over the adjacent crest 49^a into the next recess.

52 represents a bar adjacent to the coin-barrel 14, loosely held in the vertical grooves of a stud 53 by prongs 54 at its upper end and by a bracket 55 at its lower end, so as to be capable of vertical reciprocation. The bar 52 is normally held in elevated position, as shown in Fig. 4, by a spring 56, which operates between the bracket 55 and a small disk or washer 57, placed upon the said bar, a shoulder 58 serving to retain the said disk or washer. The bar 52, as clearly shown in the drawings, lies between the coin-barrel 14 and the notched rack or disk 30. A pawl 59 is pivoted to the bar 52 in such manner that while the said bar is being depressed against the tension of the spring 56 by a coin protruding from the coin-barrel and pressing on the shoulder 58 of the bar and heel 59^a of the

pawl, as illustrated in Fig. 8, the point 60 of the pawl will be held by the pressure of the coin away from the notched disk 30 and descend without touching it, and when the coin in the coin-barrel rotated in the direction of the arrow, Fig. 8, passes off from the lower end or heel 59[a] of the pawl 59 and the projection 58 of the bar 52, thus releasing the bar 52 and spring 56, the spring, acting through the washer 57 on the curved contour of the bottom of the pawl 59, will rock the pawl on its pivot, so that the upward return of the bar 52 will cause the point 60 of the pawl 59 to swing over and engage with the notched disk 30 and turn it and shaft 26, projection 38, justifying-wheel 42, and pointer 29 in the valve-opening direction—*i. e.*, in the direction opposite to that of the arrow in Fig. 4. The washer 57 on top of the spring 56 serves as a level or smooth base for the curved bottom of the pawl 59 to rock on without possible entanglement with the spring. The upper end 61 of the pawl 59 is so constructed and arranged with reference to the location of the stud 53 and the distance of movement of the bar 52 and the relation of the point 60 of the pawl with the notches of the wheel 30 that just before the bar 32 reaches the limit of its upward motion the upper extended end 61 of the pawl acts like a cam against the stud 53 and withdraws the point 60 of the pawl 59 from the wheel 30, leaving the bar free to be returned by the spring to its normal elevated position and the wheel 30 free to be gradually turned back by the power of the meter. The lower end or heel 59[a] of the pawl 59 reaches a short distance below the shoulder 58 on the bar 52 and is curved in contour, so that when the disk or washer 57 presses against it under the pressure of the spring 56 after the coin in the coin-barrel has depressed the bar 52 a sufficient distance to clear the upper end 61 of the pawl from the stud 53 and the edge of the coin has passed off of the heel 59[a] and is pressing only on the shoulder 58 the spring 56, acting against its curved contour, will rock the pawl on its pivot against the limit-pin 59[b] and cause the point 60 to engage with the teeth of the notched wheel 30 when the coin passes the shoulder 58 and releases the spring 56. The action of the bar, spring, and pawl advances the justifying-wheel 42 and the parts moving with it at least the space of a little more than one-half the distance between two adjacent recesses 47; but owing to the escapement-like action of the bell-crank lever 43 and its pins 44 they cannot be advanced the space of two recesses.

It is intended that the insertion of one coin shall, by depressing and releasing the bar 52, spring 56, and pawl 58, advance the justifying-wheel 42 and the parts moving therewith no more and no less than an amount measured by the distance between two adjacent recesses 47 on the justifying-wheel, which distance in the drawings is one-tenth ($\frac{1}{10}$) of a revolution or thirty-six degrees of revolution or one-tenth of the number of teeth on the delivery-wheel 45, which distance, as hereinafter to be described, will represent a certain prescribed definite number of revolutions of wheel 75 or of the meter or a certain number of cubic feet of gas; but as the action of the spring may vary or as the position of the teeth on the wheel 30 may in the course of the meter-impelled rotation of the wheel 30 vary as to the position of the point 60 the positive advance caused by the pawl and spring will likewise vary. The action of the justifying-wheel and its complemental pins eliminates with perfect accuracy all factors of variation and for each coin inserted adjusts the advance to exactly such a fraction or arc of a revolution (corresponding exactly to a certain prescribed number of teeth on the wheel 45) as is prescribed by the number of recesses 47 cut in the wheel, for if the crest 49[a] of the metal between the recesses just passes under one of the pins 44 the adjacent cam 49, acted upon by the spring-pressed pin 44 will cause the justifying-wheel to be moved forward until the pin settles into the center of the next recess 47; but if, on the contrary, the crest be passed somewhat beyond the said pin the latter acting against the opposite cam will move the justifying-wheel back or return it until the pin settles into the identical recess last mentioned. The pins 44 44 are so arranged with relation to the crests of the justifying-wheel that no matter how suddenly the purchaser may operate the coin-barrel or what relation the teeth on the wheel 30 may bear to the point 60 of the pawl at the time of purchase it will be impossible to advance the justifying-wheel 42 more than one recess for one coin inserted.

In a stuffing-box 62 in the meter 5 is journaled a shaft 63, which projects through the casing 2 of the apparatus. On this shaft, within the meter, is secured a ratchet-wheel 64, the number of whose teeth bears a relation to the amount of gas measured out by each revolution of the meter—*e. g.*, a multiple of nine if the meter measures out ninths of a cubic foot, of six if sixths, &c. A lever 65 is pivoted at 66 above the ratchet-wheel 64 and is slotted at 65[a], as shown in Fig. 2, to clear the shaft 63 and provided with a pawl 67 to engage with the teeth on the upper side of the ratchet-wheel and with another pawl 68 to engage with the teeth on the lower side of the ratchet-wheel. The lever 65 is connected by a rod 69 to an arm 70, which is oscillated back and forth by the flag-wire 71 or other oscillating part of the meter mechanism, so that the lever 65 is oscillated on the pivot 66 once for each oscillation of the arm 70. It will be seen that the pawls 67 68 both operate in the same direction, one through a short and the other through a longer arc, so that when the ratchet-wheel is advanced by the pawl 68 the pawl 67 will approach the point of the next tooth, and thus obviate all

danger of swinging the lever idly back and forth without advancing the wheel.

The end of the shaft 63 which projects into the casing 2 is provided with a pinion 72, which operates a train of gearing comprising gear-wheels 73, 74, and 75, which last is on a shaft 76, on which the worm 51 is mounted.

Instead of employing a shaft 63, to be rotated as just described, I may employ a rod, reciprocated through the stuffing-box 62, and omit the train of gearing, counter-shaft, and worm just described and locate the lever 65, pivoted at 66 with its ratchet-wheel 64 and pawls 67 68, inside of the casing of the apparatus, as shown in Fig. 11. The ratchet-wheel 64 in this case will be provided with a pinion 77, meshing directly with the delivery-wheel 45 and the lever 65, slotted at 65^a to clear the shaft of the pinion 77, as shown in the figures. The rod 78 in the stuffing-box will be reciprocated by an eccentric 79, secured on the "two-foot shaft" or proving shaft 80 of the meter mechanism, a frame 81 and a connecting-rod 82 serving to transmit the motion of the eccentric to the reciprocating rod 78. The ratchet-wheel in this case will be made removable and interchangeable, the number of its teeth varying according to the price of gas.

In the form of construction shown in Figs. 12 and 13 the rotary shaft 63 in the stuffing-box 62 transmits motion to the delivery-wheel 45 through the removable and interchangeable gear-wheel 83 and pinion 84 by means of a spiral hoop-gear 85, attached to the shaft 63, each revolution of the shaft 63 advancing the wheel 83 a single tooth and each revolution of the pinion 84 (or of the like pinion 77 in Fig. 11) advancing the delivery-wheel and its connected parts an arc equal to the arc between two adjacent recesses 47 on the justifying-wheel 42.

The gasway and valve-chamber 7 are formed with a neck 89 of such a size that the annular gasway around the valve 32 is of cross-sectional area equal to or greater than that of the pipe at the inlet-coupling at 8. In other words, the net gas-passing capacity of 7, with its included parts, is not less than that of the inlet-port of the meter. The neck 89 is screw-threaded to receive the lower part 91 of the reducing-coupling or double union 90, the upper part 92 of which is reduced and screw-threaded, so that the union or coupling ordinarily found on the inlet-port of the meter may be removed from the inlet-port and screwed on at 86, thus connecting the gas-pipe leading from the main. The valve-spindle 33 is guided by upper guide or spider 87 and by lower guide 88, which latter is preferably cast as part of 7.

In the operation of the apparatus the coin in the coin-barrel, acting against the eccentric 18, is forced by said eccentric at its opposite edge into the concavity of the pawl 59, so that it impinges against and upon the heel 59^a of the pawl, as shown in Fig. 8, and also impinges upon the shoulder 58 of the bar 52, by which latter the coin operates to depress the said bar 52 and by which former to hold the point 60 away from wheel 30 while so doing. The shoulder 58 projects outward past the heel 59^a of the pawl, thus causing the coin to pass off from and beyond the said heel 59^a before it passes off from the shoulder 58. As soon as the coin passes off from the heel 59^a of the pawl the spring 56, acting through its washer on the under surface of the pawl, rocks it on its pivot toward the toothed wheel 30 to and against the limit-pin 59^b, which brings the point 60 of the pawl in line beneath the teeth of the wheel 30. As the edge of the coin passes off of the shoulder 58 the spring 56 suddenly elevates the bar 52 and pawl 59 and causes the latter to set forward the toothed wheel 30, producing the action hereinbefore described, and, as stated, also withdraws the pawl 59, leaving the toothed wheel 30 and the parts connected therewith free to be turned back by the delivery-wheel 45, bell-crank lever 43, pin 44, justifying-wheel 42, and the gearing operated by the meter.

If more than one coin's worth of gas is to be purchased at a single time, the coins may be inserted one after another until the notched wheel 30 is turned around till the blank portion of its periphery is presented to the point 60 of the pawl 59, in which position the coin will compress and release the spring idly and drop into the till.

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

1. In a coin-controlled gas-vending machine, a justifying disk or wheel attached to a shaft capable of rotation in both directions, in combination with a delivery-wheel adapted to rotate in one direction only and a justifying device arranged to engage with the justifying disk or wheel; substantially as and for the purposes set forth.

2. In a coin-controlled gas-vending machine, a wheel capable of rotation in two directions, formed with equidistant recesses in its periphery, in combination with a wheel driven by the power of the meter and capable of rotation in only one direction and bearing on its surface means for connecting it with the first wheel and means for shifting said first wheel relatively to the said connection from recess to recess; substantially as described.

3. In a coin-controlled gas-vending machine, a wheel connected with a valve-controlling projection and connected with coin-operated mechanism capable of rotation in two directions formed with justifying-recesses in its periphery, in combination with a delivery-wheel capable of rotation in one direction only and a spring-pressed lever connecting the said delivery-wheel with said first-mentioned wheel; substantially as described.

4. In a coin-controlled gas-vending ma-

chine, a justifying-wheel formed with equidistant recesses 47, shoulders 48, and cams 49, in combination with a delivery-wheel and a spring-pressed lever connecting said delivery-wheel with the justifying-wheel; substantially as described.

5. In a coin-controlled gas-vending machine, a justifying-wheel formed with equidistant recesses in its periphery, in combination with a delivery-wheel and a spring-pressed escapement device adapted to engage with the recesses of the justifying-wheel; substantially as described.

6. In a coin-controlled gas-vending machine, a delivery-wheel and a spring-pressed escapement device pivoted thereto, in combination with a justifying-wheel having equidistant recesses in its periphery; substantially as described.

7. In a coin-controlled gas-vending machine, a sliding bar adapted to be depressed by the coin, a spring applied to said bar, and a pawl pivoted to said bar, in combination with a notched wheel applied to a shaft and means for causing the pawl to engage with said notched wheel during a portion of the return movement of the said bar; substantially as described.

8. In a coin-controlled gas-vending machine, a main shaft, a notched wheel affixed thereto, and a coin-barrel, in combination with a sliding bar located between said shaft and said coin-barrel, and constructed to be depressed by a coin in said coin-barrel, a spring applied to said bar, a pawl pivoted on said bar and means for causing the said pawl to engage with said notched wheel during a portion of the return movement of said bar; substantially as described.

9. In a coin-controlled gas-vending machine, a rotary coin-barrel and a fixed eccentric for forcing the coin through said barrel, in combination with a spring-actuated sliding bar held adjacent to said coin-barrel, a shoulder on said bar for contact with the coin, and a pawl pivoted on said bar, and a valve-controlling projection moved by means actuated by said pawl; substantially as described.

10. In a coin-controlled gas-vending machine, a coin-barrel, a fixed eccentric for forcing the coin through said barrel, a spring-actuated sliding bar held adjacent to said barrel, a shoulder on said bar for contact with the coin, and a pawl pivoted on said bar and formed with a heel for causing the coin to rock the pawl; substantially as described.

11. In a coin-controlled gas-vending machine, a coin-barrel, a fixed eccentric for forcing the coin through said barrel, a spring-actuated sliding bar held adjacent to said barrel, a shoulder on said bar for contact with the coin, and a pawl pivoted on said bar and formed with a heel for causing the spring to rock the pawl; substantially as described.

12. In a coin-controlled gas-vending machine, a notched wheel, a spring-actuated sliding bar adjacent to said wheel, a pawl pivoted on said bar adapted to be rocked in one direction by the contact of the coin and in the other direction by a spring, and means for withdrawing the pawl from contact with the notched wheel before the limit of return of the sliding bar; substantially as described.

13. In a coin-controlled gas-vending machine, a rotatory slotted coin-barrel of less diameter than a coin proper to the machine, in combination with a fixed eccentric for forcing the coin through the barrel; substantially as described.

14. In a coin-controlled gas-vending machine, a rotatable slotted coin-barrel of less diameter than a coin proper to the machine, in combination with an eccentric for forcing the coin through the barrel and a guard or flange arranged at the point of greatest eccentricity; substantially as described.

15. In a coin-controlled gas-vending machine, a slotted rotatory coin-barrel of less diameter than a coin proper to the machine, a fixed eccentric for forcing the coin through the barrel, and a guard or plate adjacent to the barrel at a point where the coin when passing it does not protrude from the barrel; substantially as described.

16. In a coin-controlled gas-vending machine, a rotatory coin-barrel of less diameter than a coin proper to the machine with a slot therethrough whose length exceeds the diameter of such coin and a casing or flange partially inclosing said coin-barrel; substantially as described.

17. In a coin-controlled gas-vending machine, a lever pivoted at or near one end, two pawls attached to said lever at the same side of said pivot, a ratchet-wheel located between said pawls and a shaft journaled in the wall of the meter for said ratchet-wheel, in combination with a rod connecting the free end of said lever with one of the flags of the meter for reciprocating the lever by the power of the meter and gearing for transmitting the intermittent motion of the ratchet-wheel to the coin-controlled mechanism; substantially as described.

18. In a coin-controlled gas-vending machine, a valve and a seat therefor in a gasway leading to or from a meter, a shaft penetrating into said gasway or valve-chamber and provided within the same with an arm connected with said valve and provided outside of the gasway or valve-chamber with a counterweighted lever, the counterweight being so arranged as to lift the valve away from its seat, in combination with a projection rotated by the power of the meter mechanism and adapted to engage with the non-weighted end of said lever and, by partially rotating said shaft, to draw the valve to its seat, and means operated by the insertion of a coin in the mechanism to disengage the said projection from the said lever and allow the valve to be withdrawn from its seat; substantially as described.

19. In a coin-controlled gas-vending ma-

chine, the gasway 7 formed with a neck 89, and containing valve-seat 35 and upper and lower valve-stem guides 87 and 88, and the union 90, the lower half 91 of which is adapted to be screwed upon the neck 89, in combination with the valve 32, valve-stem 33, shaft 31, arm 34, projection 37 attached to said shaft and projection 38 controlled by the main shaft of the machine; substantially as described.

20. In a coin-controlled gas-vending machine, the delivery-wheel 45, gear-wheel 83, and pinion 84, in combination with the shaft 63, the spiral hoop-gear attached to said shaft and meshing with said wheel 83, the stuffing-box 62, and means for turning said shaft by the power of the meter; substantially as described.

21. In a coin-controlled gas-vending machine, a valve and a seat therefor in a chamber in a gasway leading to or from a meter, a shaft penetrating into said valve-chamber or gasway and provided therewithin with an arm connected with said valve and provided outside of said gasway or valve-chamber with a lever, in combination with a main shaft connected with the meter mechanism so as to be rotated thereby in one direction and provided with means to be rotated in the other direction by the insertion of a coin into the machine and provided with two radial projections, separated by a space or recess, adapted to engage with said lever on opposite sides thereof, afford it clearance in said recess, and move it in either direction; substantially as described.

Signed at New York, in the county of New York and State of New York, this 5th day of September, A. D. 1899.

WESLEY WEBBER.

Witnesses:
LEWIS S. BURCHARD,
H. A. WEST.