No. 883,886. PATENTED APR. 7, 1908.

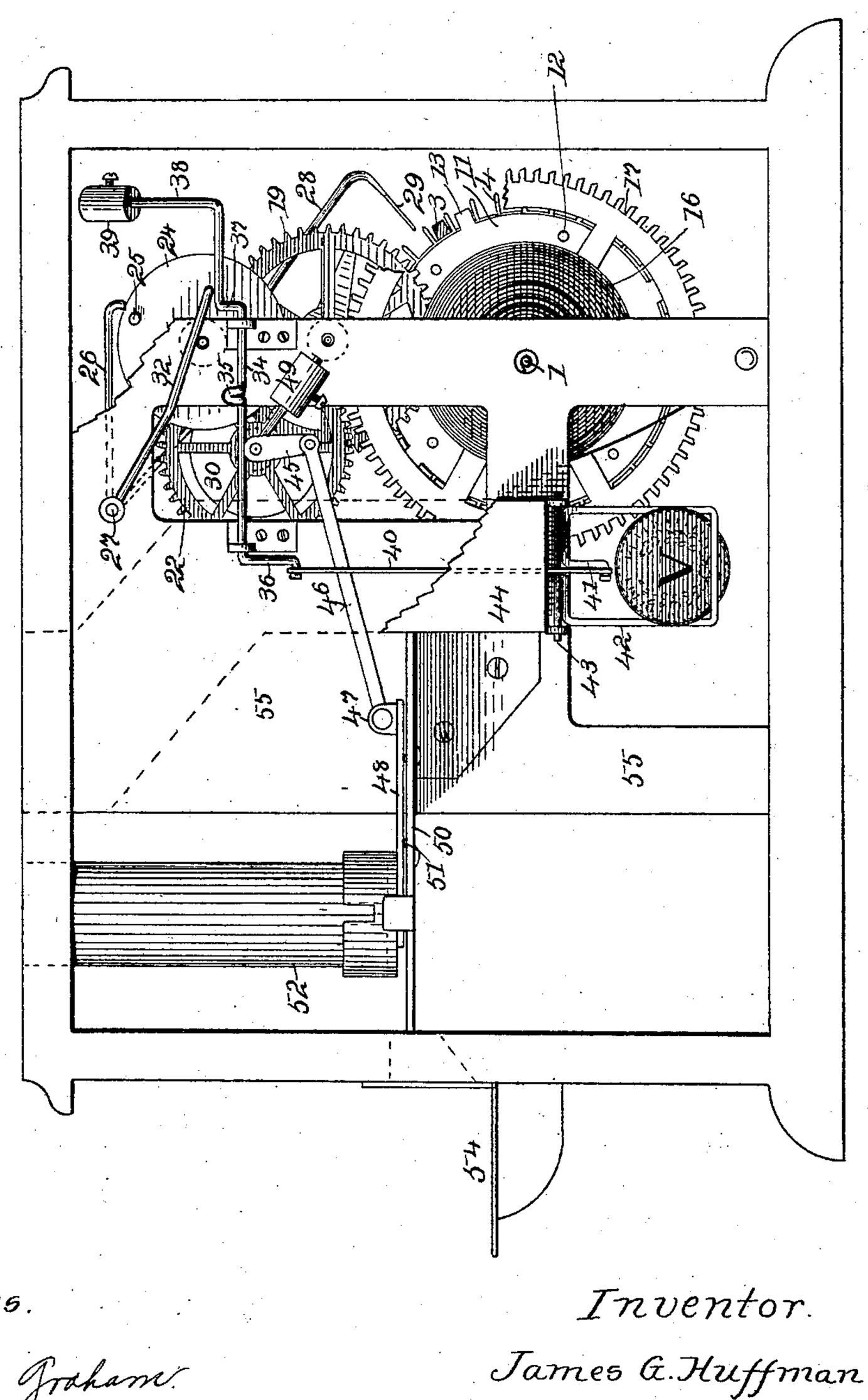
J. G. HUFFMAN.

VENDING MACHINE.

APPLICATION FILED MAY 7, 1906.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

Ira C. Graham.

Nora Graham.

Inventor.

James G. Huffman.

by L. P. Graham

his attorney

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3 SHEETS—SHEET 2.

Fig. 2.

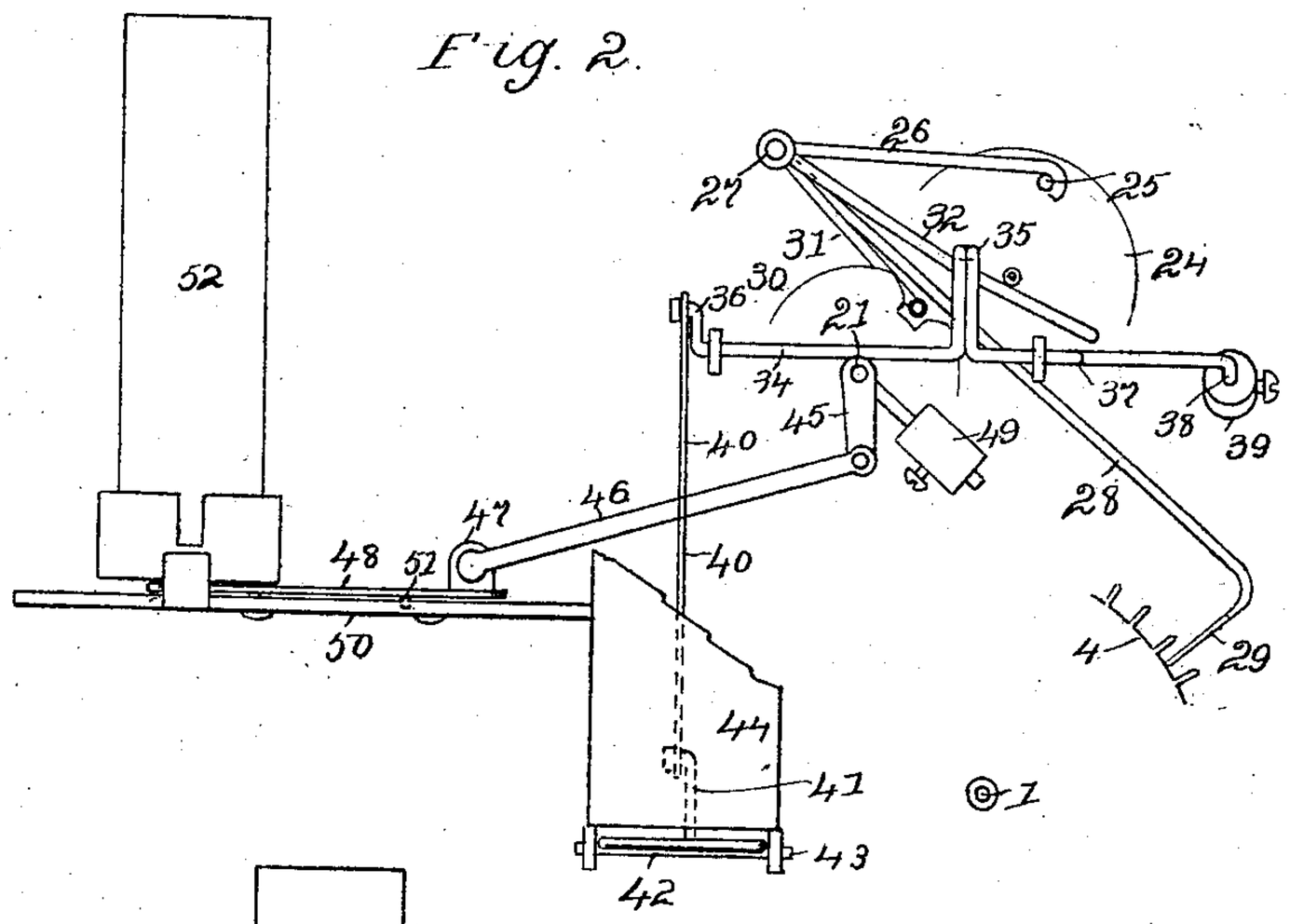


Fig. 3.

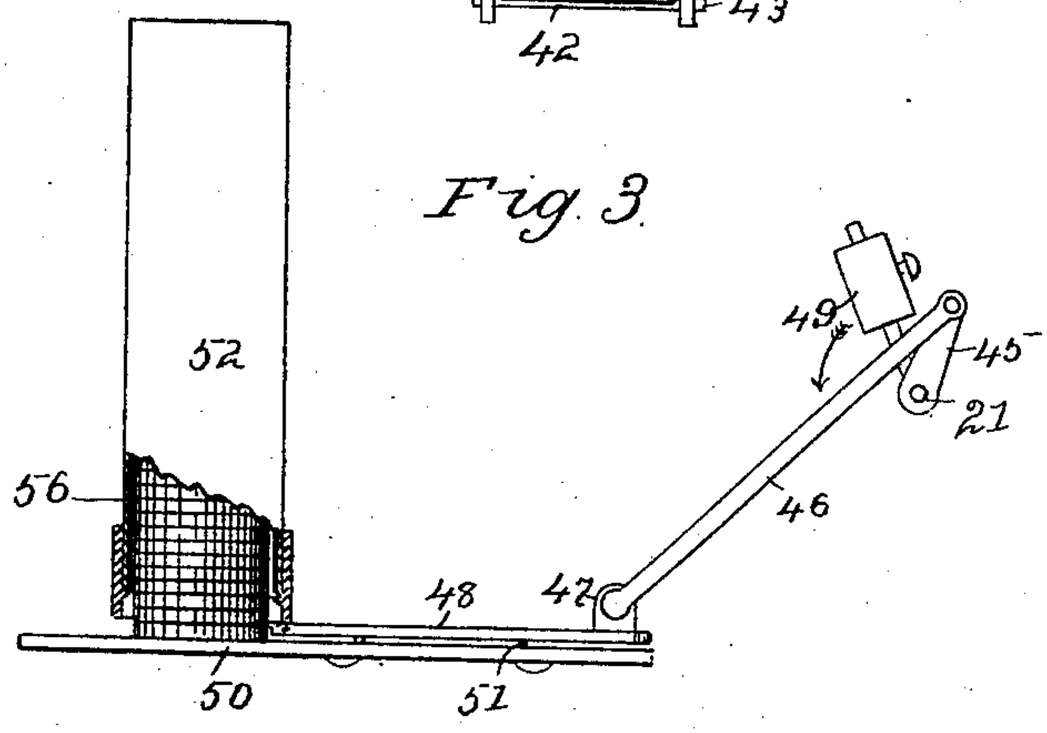
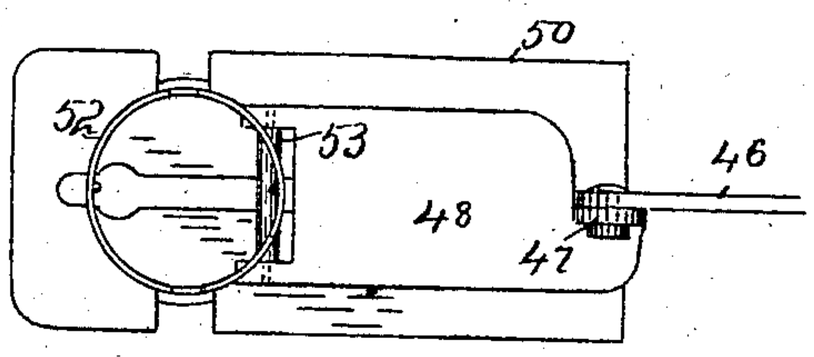


Fig. 4.



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3 SHEETS—SHEET 3.

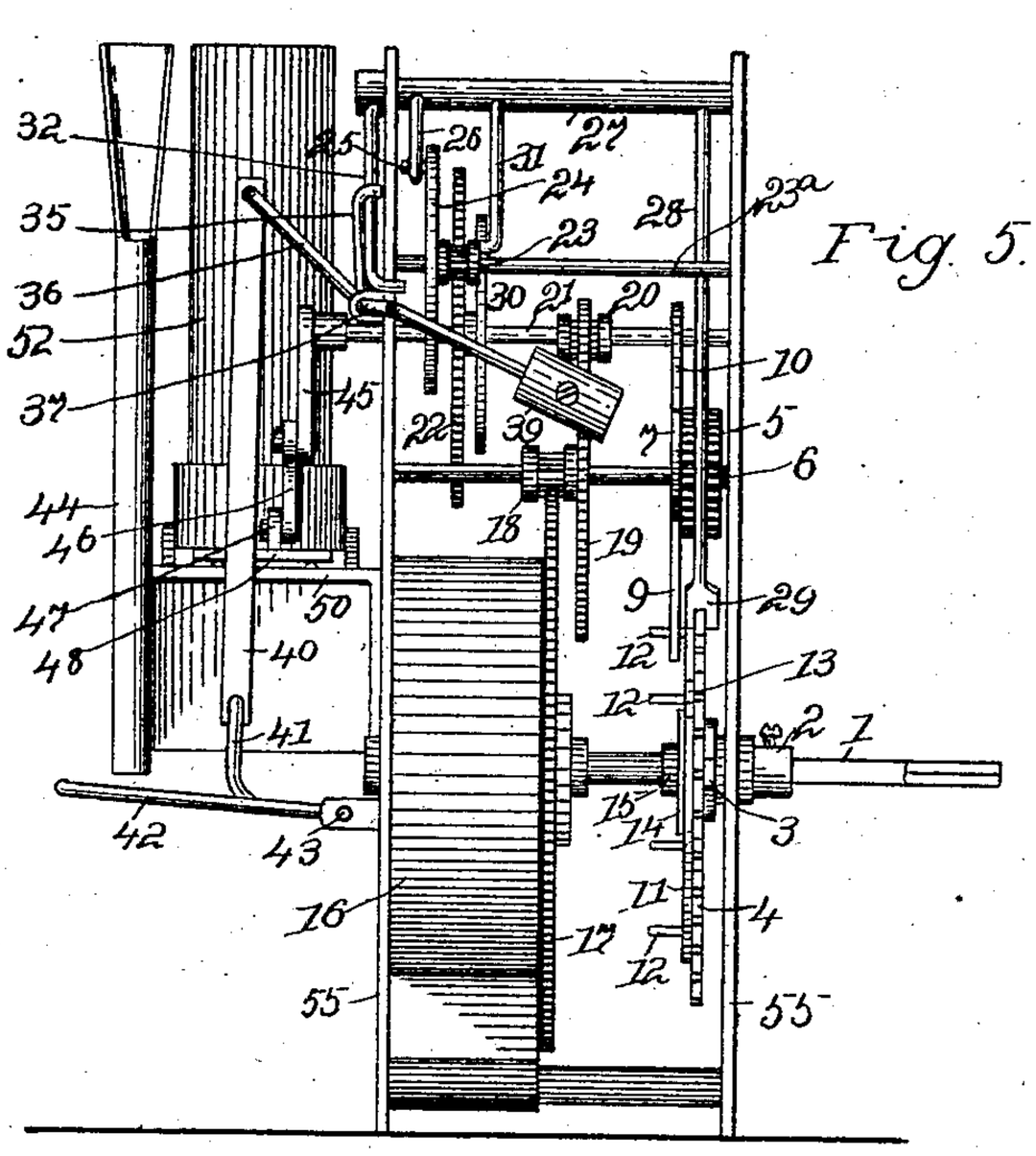


Fig. 5.

Fig. 6.

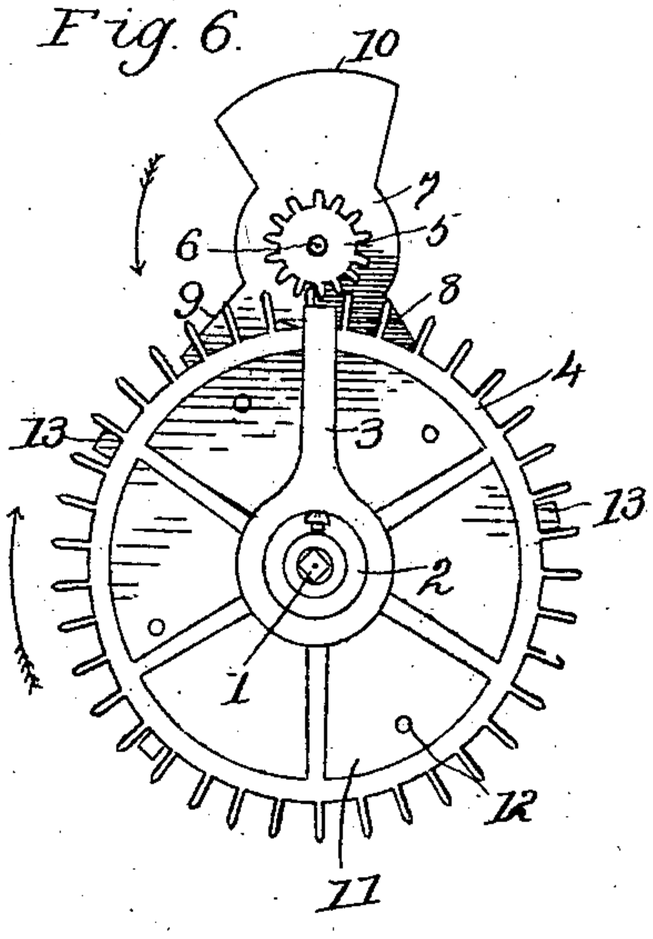
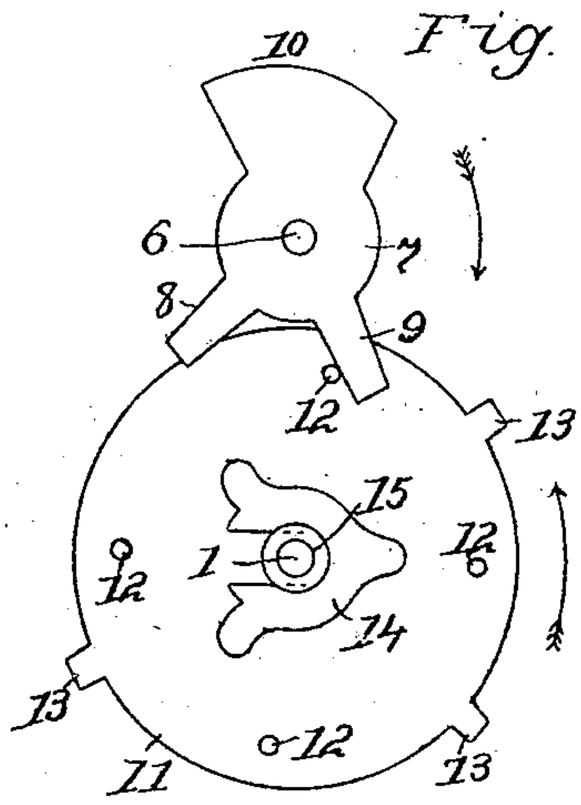


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES G. HUFFMAN, OF DECATUR, ILLINOIS.

VENDING-MACHINE.

No. 883,886. Specification of Letters Patent. Patented April 7, 1908.

Application filed May 7, 1906. Serial No. 315,680.

To all whom it may concern:

Be it known that I, JAMES G. HUFFMAN, a resident of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to vending machines in which the delivery mechanism is set in motion by use of a trip (herein shown as a check) and in which one or more commodities, or checks for commodities or values, are discharged at each operation of the delivery mechanism.

The principal object of the invention is to deliver the extra or gratuitous checks in an irregular, uncertain and indeterminate manner, so that the relative time of discharge of such checks can not be anticipated by watching the operations of the machine and keeping count of the intervals between the discharges of the gratuitous checks.

Another object is to improve certain details of construction of the machine, as will hereinafter appear.

In the drawings forming part of this specification Figure 1 is an elevation of the rear of a machine embodying my invention, the rear wall of the casing being removed to expose the mechanism. Fig. 2 is a detail in elevation of the starting and stopping mechanism used to control the check delivery mechanism by the descent of the trip; or, as herein shown, by the weight of a coin. Fig. 3 is a detail showing how the force used to deliver a check is augmented by power stored while the delivery slide is assuming a position behind the check to be delivered. Fig. 4 is a detail plan of the delivery slide and the adjuncts thereof. Fig. 5 is an end elevation of the mechanism of the machine. Fig. 6 is a detail in elevation of one side of the mechanism used to introduce an erratic, hit-and-miss element into the delivery of the gratuitous checks; and Fig. 7 is an elevation of the opposite side of certain members of the delivery-controlling mechanism shown in Fig. 6. The last two views show more particularly the chance elements.

The main shaft 1 is provided with a spring 16, a gear wheel 17, another gear wheel 4 of special construction, a controlling arm 3 and a disk 11 having the delivery-controlling extensions 13 and the laterally extending pins 12. The arm 3 is secured to the shaft by frictional contact, so as to rotate with the shaft, the wheel 4 is mounted loosely on shaft 1 and the disk 11 is secured to wheel 4 by means of a friction plate 14 which engages a groove in the hub 15 of the wheel and presses elastically against the disk. The frictional contact between the disk 11 and the wheel 4 is strong enough to cause the disk to rotate with the wheel except when an obstacle is interposed or the disk is hastened by outside means.

The gear wheel 17 meshes with the lantern wheel 18 on the counter shaft 6 and a pinion 5 secured to shaft 6 meshes with the teeth of wheel 4. The construction of wheel 4 is as if each alternate tooth were omitted and the spaces between teeth were considerably deepened, and each alternate space of pinion 5 engages a tooth of wheel 4. The disk 7 is fastened to shaft 6 and it is provided with fingers as 8 and 9 and with the cam extension 10, which fingers and cam are adapted to act on pins 12 of disk 11 in a manner to be hereinafter explained.

A gear wheel 19 on counter shaft 6 meshes with a lantern wheel 20 on crank shaft 21. A crank arm 45 on a projecting end of shaft 21 provides means for transmitting the action of spring 16 to the check-delivery slide and a notched disk 30 on the same shaft coacts with rod 31 to hold the mechanism in operation during the discharge of a check. Gear wheel 22 on crank shaft 21 meshes with lantern wheel 23 on stop shaft 23^a, and the disk 24 on shaft 23^a has a laterally-extending stop pin 25. A rock shaft 27 carries the lock rod 26, which hooks over pin 25 to stop the action of the machine, and the rods 31, 32 and 28 are also attached to the rock shaft 27. The start rod 31 has a bent end that rests on disk 30 during a rotation thereof, the rod 28 has a blade 29 which is presented in a direction to enter the spaces between teeth of wheel 4, and the start rod 32 has a bent end which is raised by the trip to start the check-delivery mechanism.

A trip shaft 34 is journaled in lugs secured to a side of the frame 55. Arm 36 is formed on one end of shaft 34 and it connects with the coin trip 42 through a pitman bar 40. The coin trip as here shown comprises a rectangular frame adapted to receive a coin, as a nickel, the inner end of the trip frame is pivoted at 43 and has an arm 41 which forms a connection for pitman 40. An arm 38 is formed on the end of the trip shaft 34 opposite arm 36. A weight 39 on arm 38 tends to

hold the coin trip raised. A hook 35 is formed on shaft 34 between the ends thereof, and said hook is adapted to engage rod 32 and hold the machine locked against the starting effects of an ordinary jar. A jog or lift extension 37 in shaft 34 forms a lift lever adapted to raise start rod 32 and start the machine when the trip 42 is depressed, as shown in Fig. 1.

A plate 50 sustains a check magazine 52, a slide 48 has roller bearings on plate 50 and a pitman 46 connects a lug 47 of slide 48 with the crank arm 45. The magazine stands above the plate 50 far enough to permit a check to be slid from the bottom of the stack shown at 56 in Fig. 3, and the nose of slide 48 is provided with a transverse roller 53, shown in Fig. 4. A weight 49 is carried on an arm projecting from shaft 21 and when the nose of the slide 48 engages a check preparatory to discharging it from the magazine the weight aids the spring 16 in discharging the check; see Fig. 3.

When a nickel, or other suitable coin, is fed to the machine through a slot leading to chute 44, it strikes the trip frame 42, lowers the frame as shown in Fig. 1 and drops off. The lowering of the trip frame rocks shaft 34, carrying the lock hook 35 out of engagement with rod 32, raising rod 32 through lift jog 37, raising blade 29 out from between teeth on wheel 4, and raising the hooked ends of rod 26 out of engagement with pin 25. The spring then starts the gearing to moving and the bent end of rod 31 rests on the perimeter of disk 30 until a rotation of said disk is completed. The gearing is so timed that the wheel 4 will move one space while disk 30 is making a rotation and ordinarily the blade 29 of rod 28 will enter a space of wheel 4 as the bent end of rod 31 reaches the notch in disk 30 and the hook of rod 26 will engage pin 25 and stop the movement. The crank arm 45 rotates once with the disk 30 and in ordinary operation, as above described, the slide will move back and forth delivering one check of the purchasing value of the coin inserted into the slot, depositing the check in the receptacle 54, shown in Fig. 1. When the blade 29 is prevented from moving to the bottom of a space in wheel 4 the hook of rod 26 will fail to catch pin 25 and the machine will continue to move until a check, or checks, have been added to the normal discharge of the machine. These extra checks have the same purchasing value as those normally discharged, they are in the nature of a gratuity or bonus for the purpose of encouraging traffic and it is necessary that the relative times of their discharge shall be uncertain and practically indeterminable in order that one person may have the same chance at a gratuitous delivery as another.

The arm 3 has its end extended in position to act as a stop to prevent the blade 29 from moving to the bottom of a space in wheel 4, when it points toward the blade, and the disk 11 has a number of stop extensions 13 which are adapted to produce the same result. The arm 3 travels in the same direction as the wheel 4 but at a slower rate of speed, it being carried by shaft 1 while the wheel is driven by pinion 5, and so the arm reaches blade 29 in time with first one and then another of the spaces of wheel 4, thus making it quite difficult to keep count of the gratuitous deliveries attributable to it alone. The disk 11 travels ordinarily with wheel 4 but when an arm 8 or 9 of disk 7 strikes a pin 12 the travel of disk 11 is hastened more or less, depending on the inclination of the arms, and when the cam 10 is presented to a pin the motion of the disk 11 is first arrested and then reversed.

The motion of arm 3 is regular but different from that of the wheel 4, while the motion of disk 11 is irregular, spasmodic or erratic and the different stops of the disk and the arm distribute the gratuitous checks in a manner quite impossible to anticipate by observation and calculation.

While the slide 48 is under the stack of checks the weight of the checks rests on roller 53 and the slide is sustained by the ball bearings. This makes withdrawal of the slide easy of accomplishment and during such withdrawal the weight 49 is raised so that it may be utilized to assist the spring when the real work of discharging a check begins.

While the invention is particularly applicable to the delivery of checks representing commodities or values, it is obvious that its principal features may be applied to a machine adapted to make actual delivery of a commodity, as cigars for instance.

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

1. In a vending machine, the combination with spring-actuated delivery mechanism, of a shaft adapted to be turned by the spring, a toothed wheel journaled loosely on the shaft, means for driving the wheel at a speed different from that of the shaft, starting and stopping mechanism including a blade adapted to enter a space of the toothed wheel when a stop is made, and an arm carried by the shaft with its end occasionally presented to the blade to prevent the entrance of the blade into a space of the wheel and compel the repetition of a delivery action.

2. In a vending machine, the combination with a spring-actuated delivery mechanism, of a main shaft adapted to be turned by the spring, a toothed wheel journaled loosely on the main shaft, a counter-shaft driven from the main shaft, a pinion on the counter-shaft meshing with the toothed wheel on the main shaft and driving said wheel at a speed different from that of the main shaft, starting and stopping mechanism including a blade

adapted to enter a space of the toothed wheel when a stop is made, and an arm carried by the main shaft and occasionally presenting its end to the blade as a barrier to the entrance of the blade into a space of the toothed wheel.

3. In a vending machine, the combination with spring-actuated delivery mechanism, of a main shaft adapted to be actuated by the spring, a toothed wheel journaled loosely on the main shaft, a counter-shaft driven from the main shaft, a pinion on the counter-shaft meshing with the toothed wheel on the main shaft and driving said wheel at a speed different from that of the main shaft, starting and stopping mechanism including a blade adapted to enter a space of the toothed wheel when a stop is made, an arm carried by the main shaft at one side of the toothed wheel, with its end adapted to occasionally bar the entrance of the blade to a space of the toothed wheel, a disk frictionally connected with the toothed wheel on the side opposite the arm, barrier extensions for the blade formed on the perimeter of the disk, and an irregular-shaped wheel on the counter-shaft adapted to give erratic motion to the disk.

4. In a vending machine, the combination with spring-actuated delivery mechanism, of a main shaft adapted to be actuated by the spring, a toothed wheel journaled loosely on the main shaft, a counter-shaft driven from the main shaft, a pinion on the counter-shaft meshing with the toothed wheel on the main shaft and driving said wheel at a speed different from that of the main shaft, starting and stopping mechanism including a blade adapted to enter a space of the toothed wheel when a stop is made, a disk frictionally connected with the toothed wheel, barrier extensions for the blade formed on the perimeter of the disk, and an irregular-shaped wheel on the counter shaft to give erratic motion to the disk.

5. In a vending machine, the combination with spring actuated delivery mechanism, of a shaft adapted to be turned by the spring, a toothed wheel journaled loosely on the shaft, starting and stopping mechanism including a blade adapted to enter a space of the toothed wheel when a stop is made, a disk frictionally connected with the toothed wheel, barrier extensions for the blade on the perimeter of the disk, and means actuated from the shaft for giving the disk an erratic or irregular motion.

6. A starting and stopping device for a spring-actuated vending machine, comprising a stop wheel in the delivery gearing; a detent to stop the wheel, a start-rod connected with the detent, a trip shaft having a lift extension for the start-rod and a lock hook therefor, and a trip adapted to rock the shaft in a direction to first unhook the start-rod and then raise it.

7. In a vending machine, the combination with the delivery mechanism, the power for actuating it, a stop for said power, and a trip for releasing the stop; of a toothed wheel loose on the power shaft, a blade connected with the stop and adapted to enter between the teeth of said wheel, chance elements mounted on the power shaft at each side of said wheel and including barrier extensions adapted to be struck by the blade, a counter shaft driven by the power shaft, and means actuated by the counter shaft for giving the chance elements an erratic or irregular motion.

8. In a vending machine, the combination with the delivery mechanism, the power for actuating it, a stop for said power, and a trip for releasing the stop; of a toothed wheel loose on the power shaft, a blade connected with the stop and adapted to enter between the teeth of said wheel, chance elements mounted on the power shaft and including barrier extensions adapted to be struck by the blade, and means for giving the chance elements an erratic or irregular motion.

9. In a vending machine, the combination with the delivery mechanism, the power for actuating it, a stop for said power, and a trip for releasing the stop; of a toothed wheel loose on the power shaft, a blade connected with the stop and adapted to enter between the teeth of said wheel, a chance element frictionally connected with said wheel and having barrier extensions adapted to be struck by said blade, pins on said element, a counter-shaft driven by the power shaft a disk, arms on the disk adapted to engage said pins at irregular times and give said element an accelerated motion, and a cam on the disk adapted at times to arrest and reverse the motion of said element.

10. In a vending machine, the combination with the delivery mechanism, the power for actuating it, a stop for said power, and a trip for releasing the stop; of a toothed wheel loose on the power shaft, a blade connected with the stop and adapted to enter between the teeth of said wheel, a chance element frictionally connected with said wheel and having barrier extensions adapted to be struck by said blade, pins on said element, a counter-shaft driven by the power shaft, a disk, and arms on the disk adapted to engage said pins at irregular times and give said element an accelerated motion.

11. In a vending machine, the combination with the delivery mechanism, the power for actuating it, a stop for said power, and a trip for releasing the stop; of a toothed wheel loose on the power shaft, a blade connected with the stop and adapted to enter between the teeth of said wheel, a chance element frictionally connected with said wheel and having barrier extensions adapted to be struck by said blade, pins on said element, a

counter shaft driven by the power shaft, a disk, and a cam on the disk adapted at times to arrest and reverse the motion of said element.

12. In a vending machine, the combination with the delivery mechanism, the power for actuating it, a stop for said power, and a trip for releasing the stop; of a toothed wheel loose on the power shaft, a blade connected with the stop and adapted to enter between the teeth of said wheel, a chance element frictionally connected with said wheel and having barrier extensions adapted to be struck by said blade, pins on said element, a disk, arms on the disk adapted to engage said pins at irregular times and give said element an accelerated motion, and a cam on the disk adapted at times to arrest the motion of said element.

13. In a vending machine, the combination with the delivery mechanism, the power for actuating it, a stop for said power, and a trip for releasing the stop; of a toothed wheel loose on the power shaft, a blade connected with the stop and adapted to enter between the teeth of said wheel, a chance element frictionally connected with said wheel and having barrier extensions adapted to be struck by said blade, pins on said elements, a disk, and a cam on the disk adapted at times to arrest the motion of said element.

14. In a check-discharging mechanism for vending machines, the combination of a check magazine, a slide beneath the magazine to discharge checks therefrom, a crank arm, a pitman connecting the crank arm with the slide, driving mechanism for the crank arm, and a weight carried by the shaft of the crank arm in position to be raised when the slide engages a check and by its descent to aid in the delivery of the check.

15. In check-discharging mechanism for vending machines, the combination of a check magazine, a slide beneath the magazine to discharge checks therefrom, a crank arm, a pitman connecting the crank arm with the slide, a roller in the nose of the slide, driving mechanism for the crank arm, and a weight carried by the shaft of the crank arm in position to be raised when the slide engages a check, substantially as and for the purpose described.

16. In check-discharging mechanism for vending machines, the combination of a check magazine, a slide beneath the magazine to discharge checks therefrom, a crank arm, a pitman connecting the crank arm with the slide, a ball-bearing support for the slide, driving mechanism for the crank arm, and a weight carried by the shaft of the crank arm in position to be raised when the slide engages a check, substantially as and for the purpose described.

17. In check-discharging mechanism for vending machines, the combination of a check magazine, a slide beneath the magazine to discharge checks therefrom, a crank arm, a pitman connecting the crank arm with the slide, a ball-bearing support for the slide, a roller in the nose of the slide, driving mechanism for the crank arm, and a weight carried by the shaft of the crank arm in position to be raised when the slide engages a check, substantially as and for the purpose described.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

JAMES G. HUFFMAN.

Witnesses:
E. S. McDONALD,
ROSA VOELCKER.