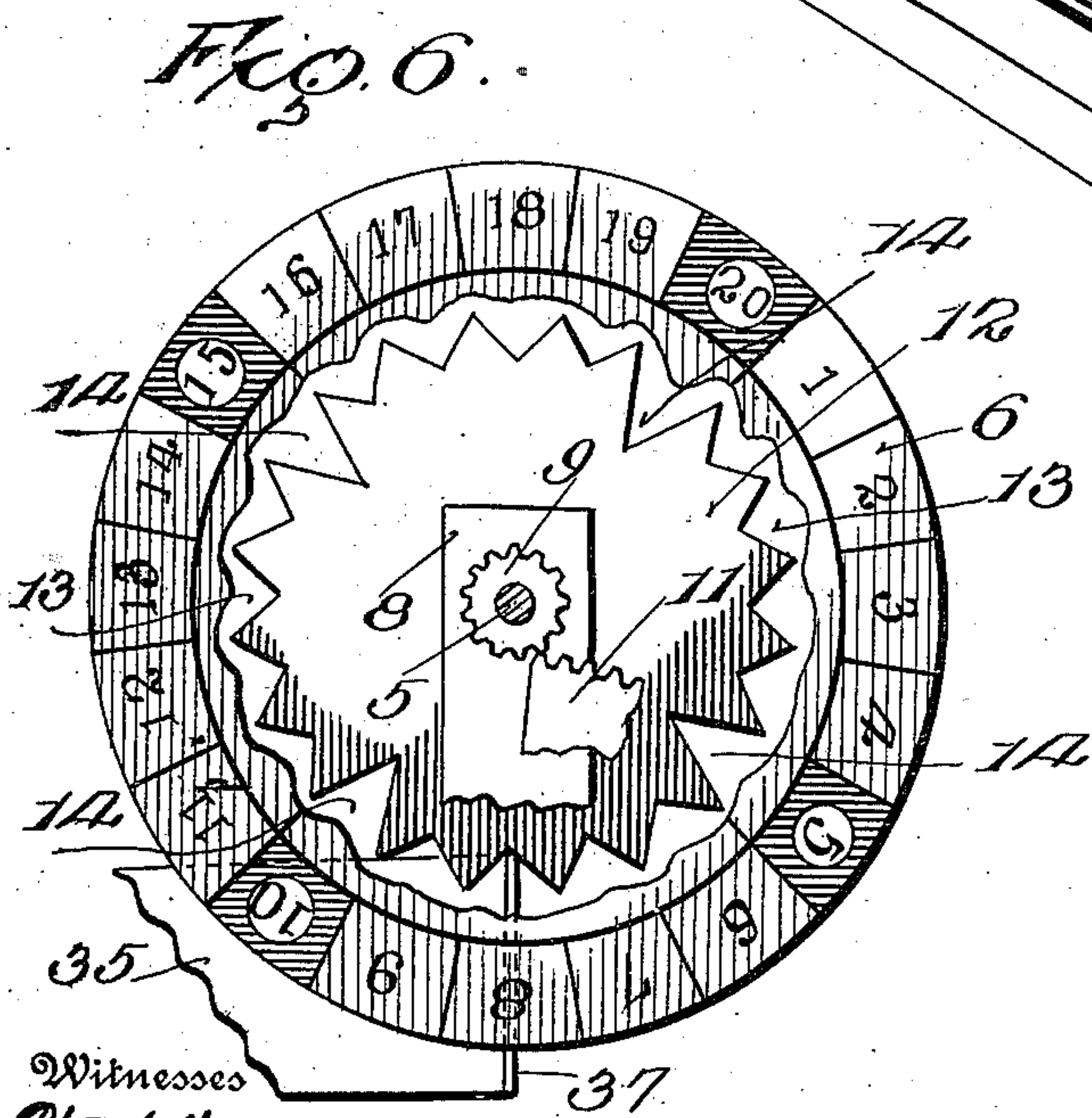
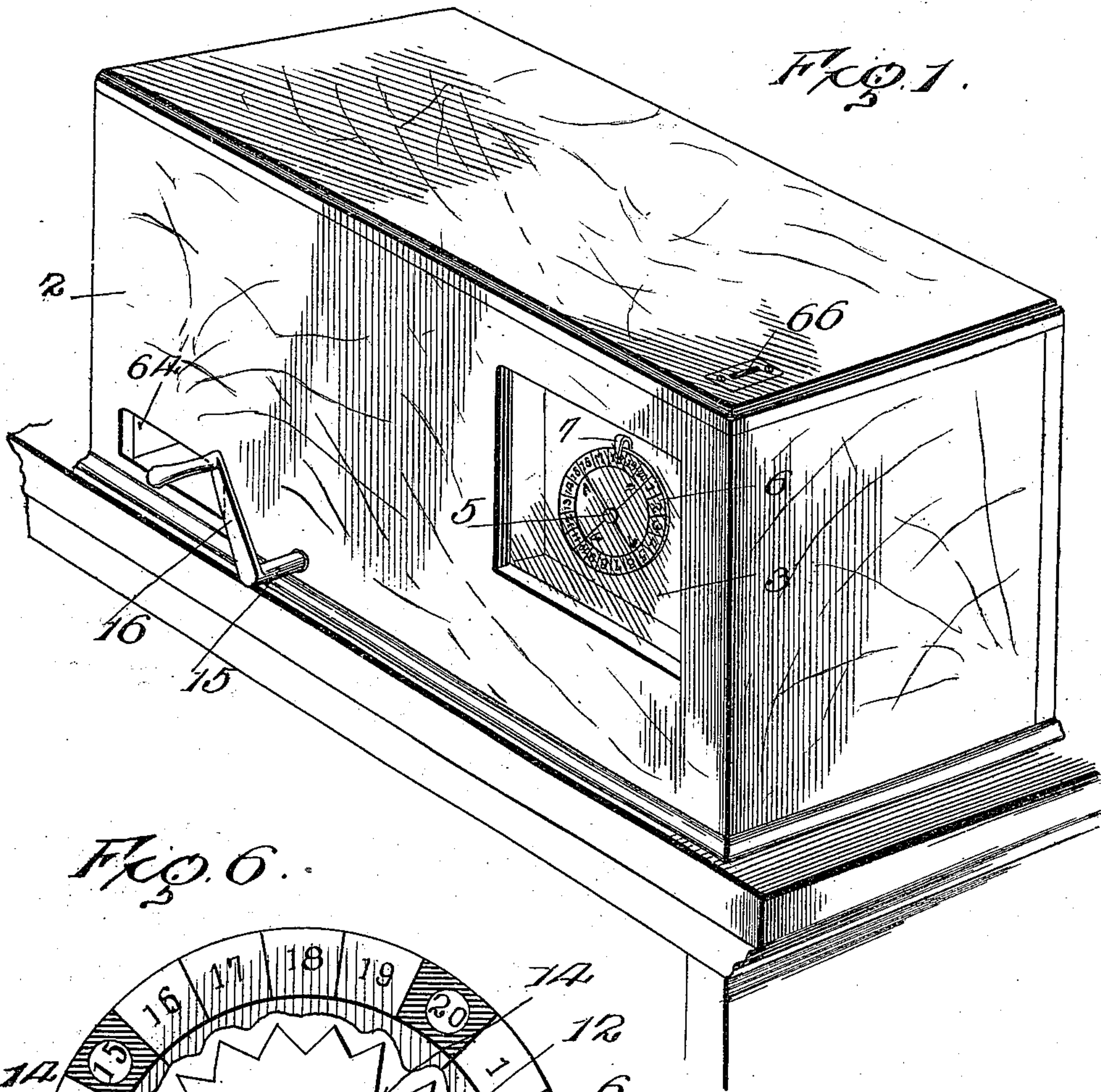


G. F. BAKER.  
VENDING MACHINE.  
APPLICATION FILED MAR. 18, 1910.

989,318.

Patented Apr. 11, 1911.

4 SHEETS-SHEET 1.



Witnesses  
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Juana M. Fallin

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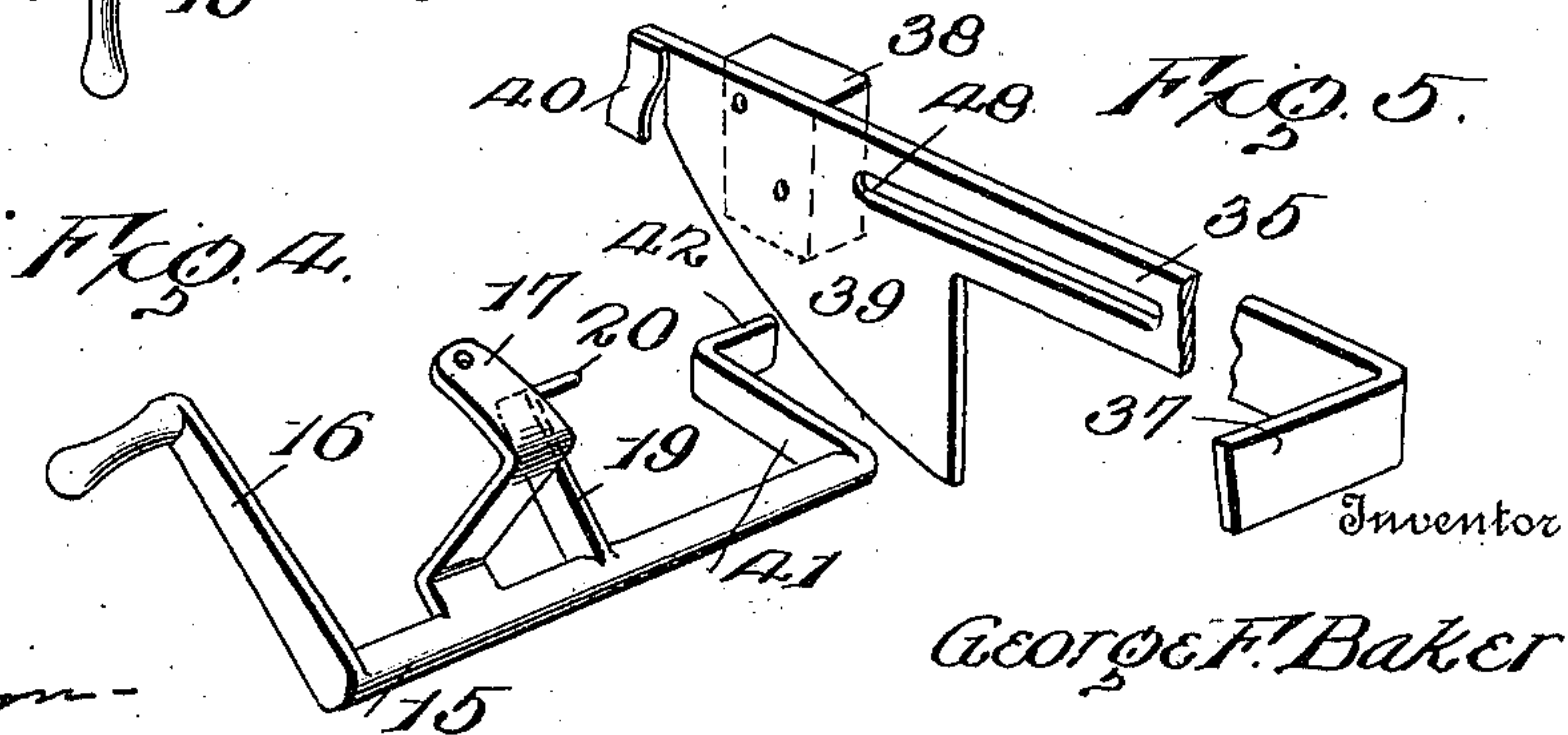
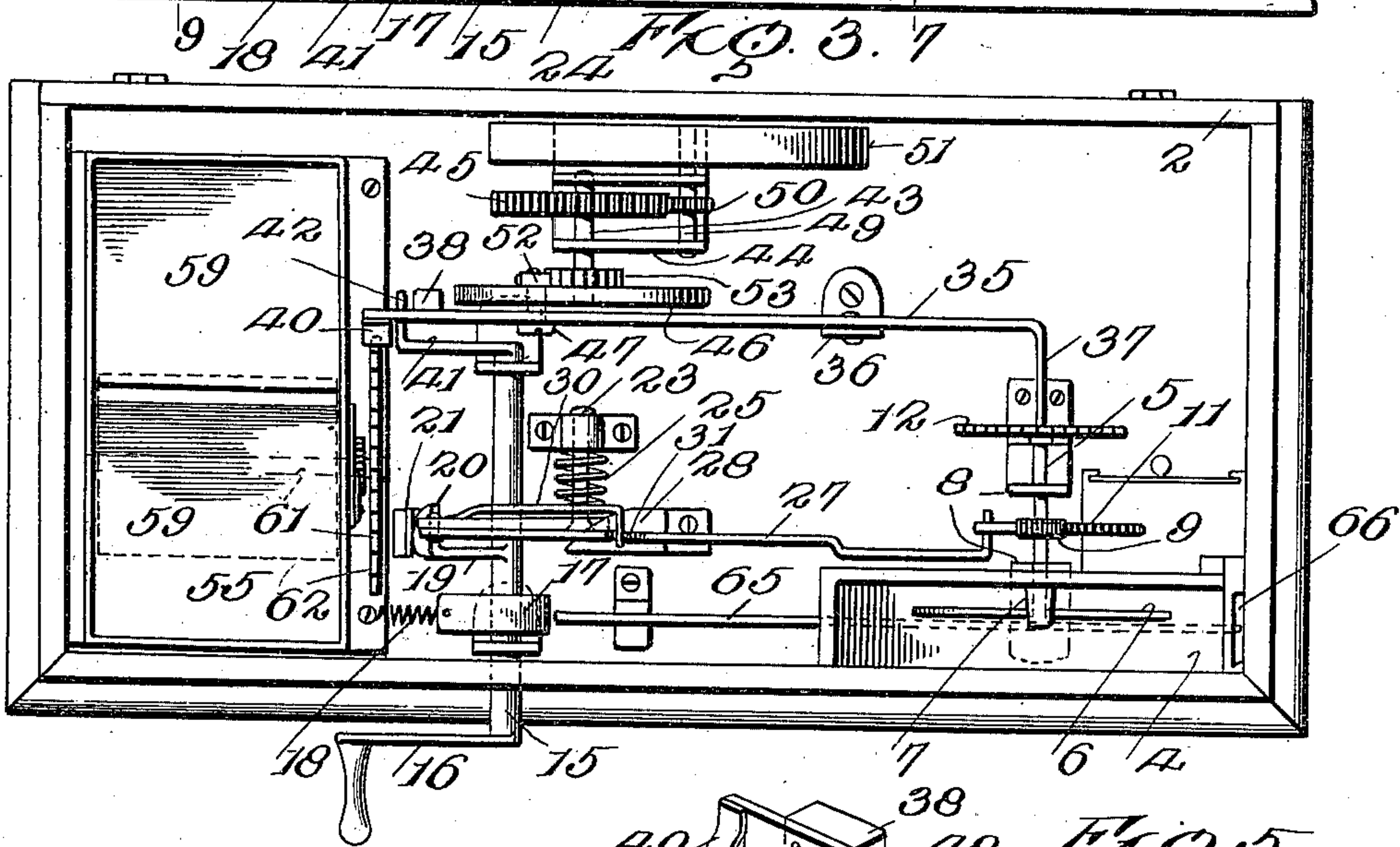
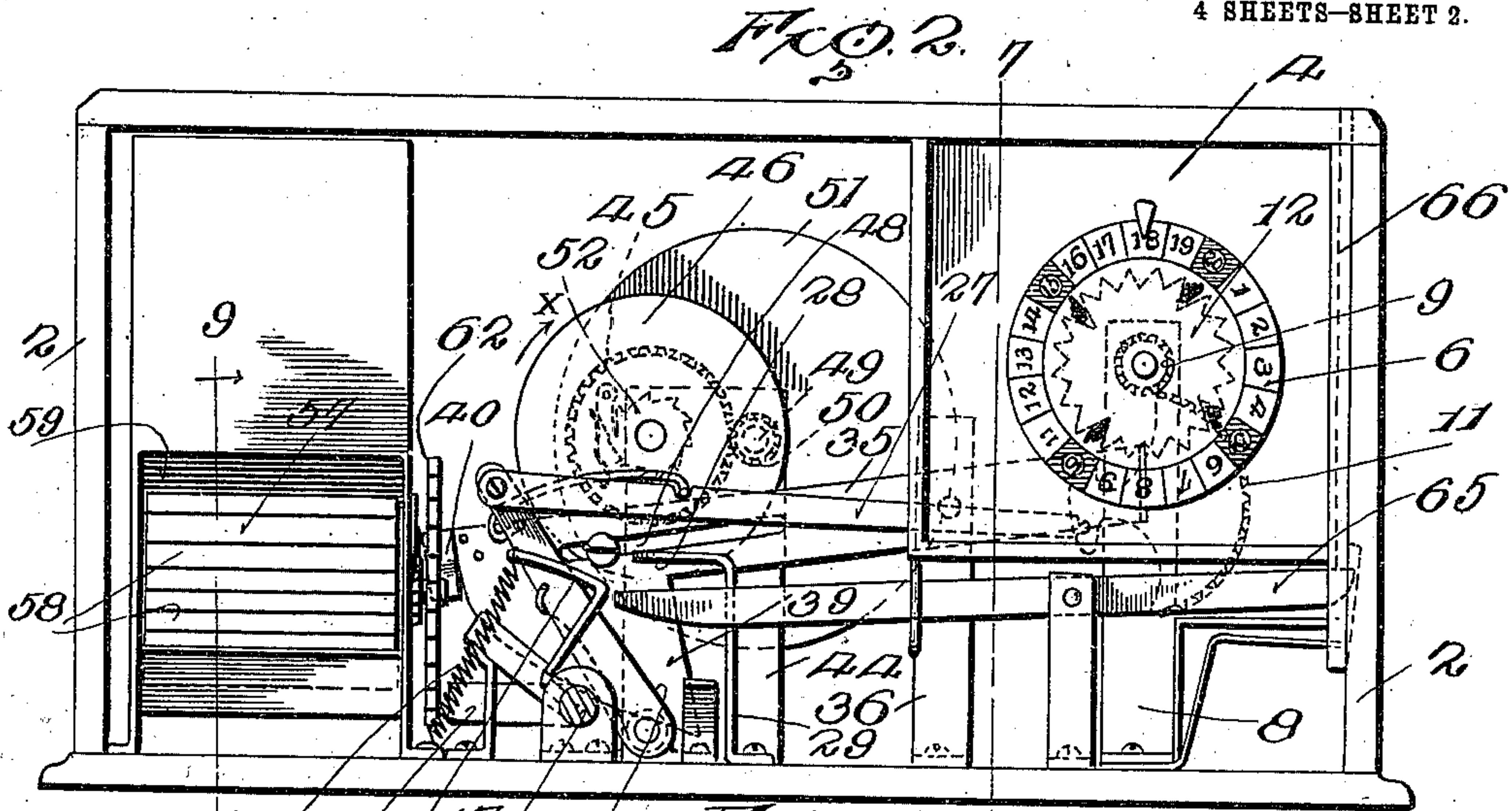


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4 SHEETS—SHEET 2.



Witnesses  
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4 SHEETS-SHEET 3.

FIG. 7.

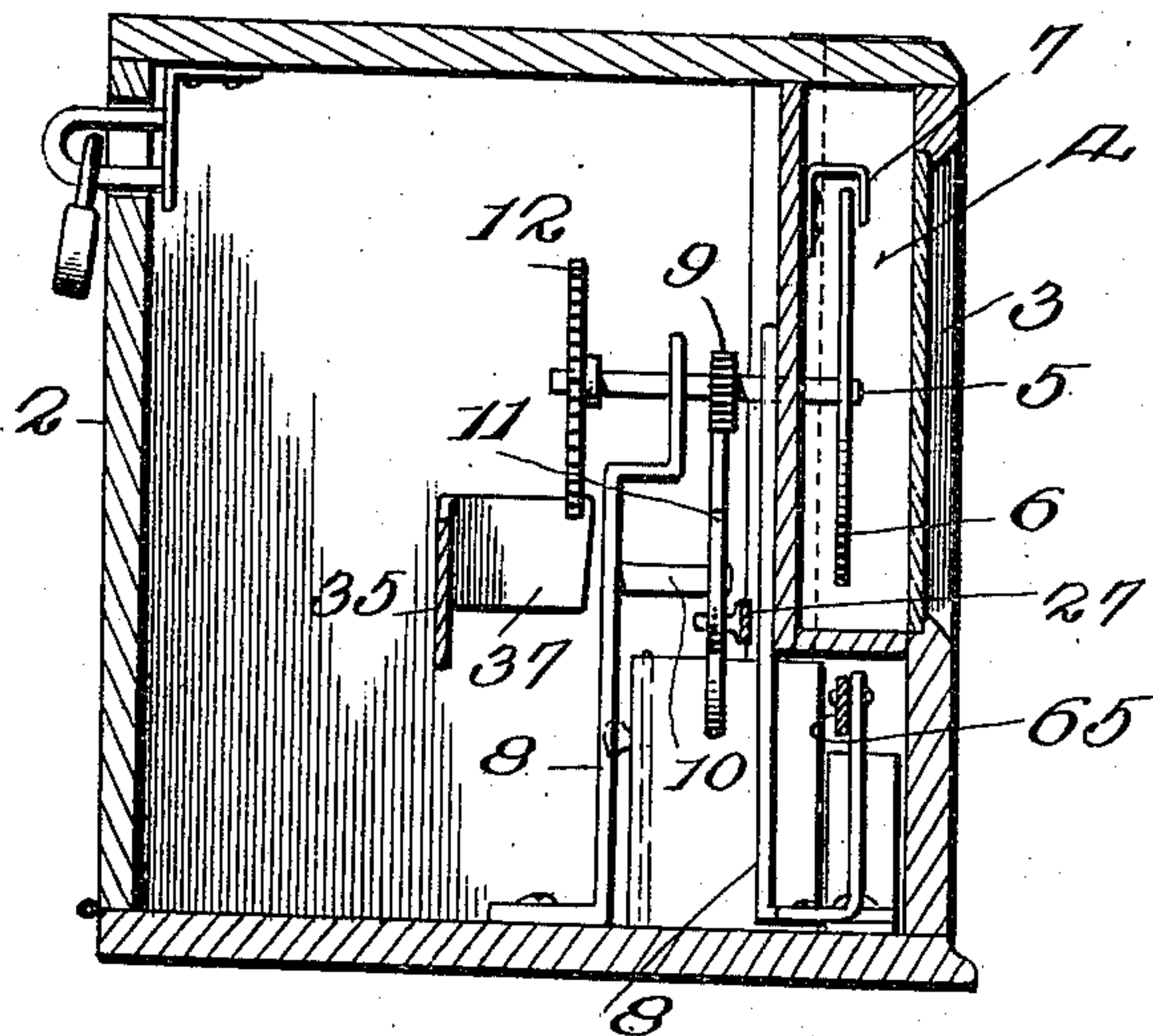


FIG. 8.

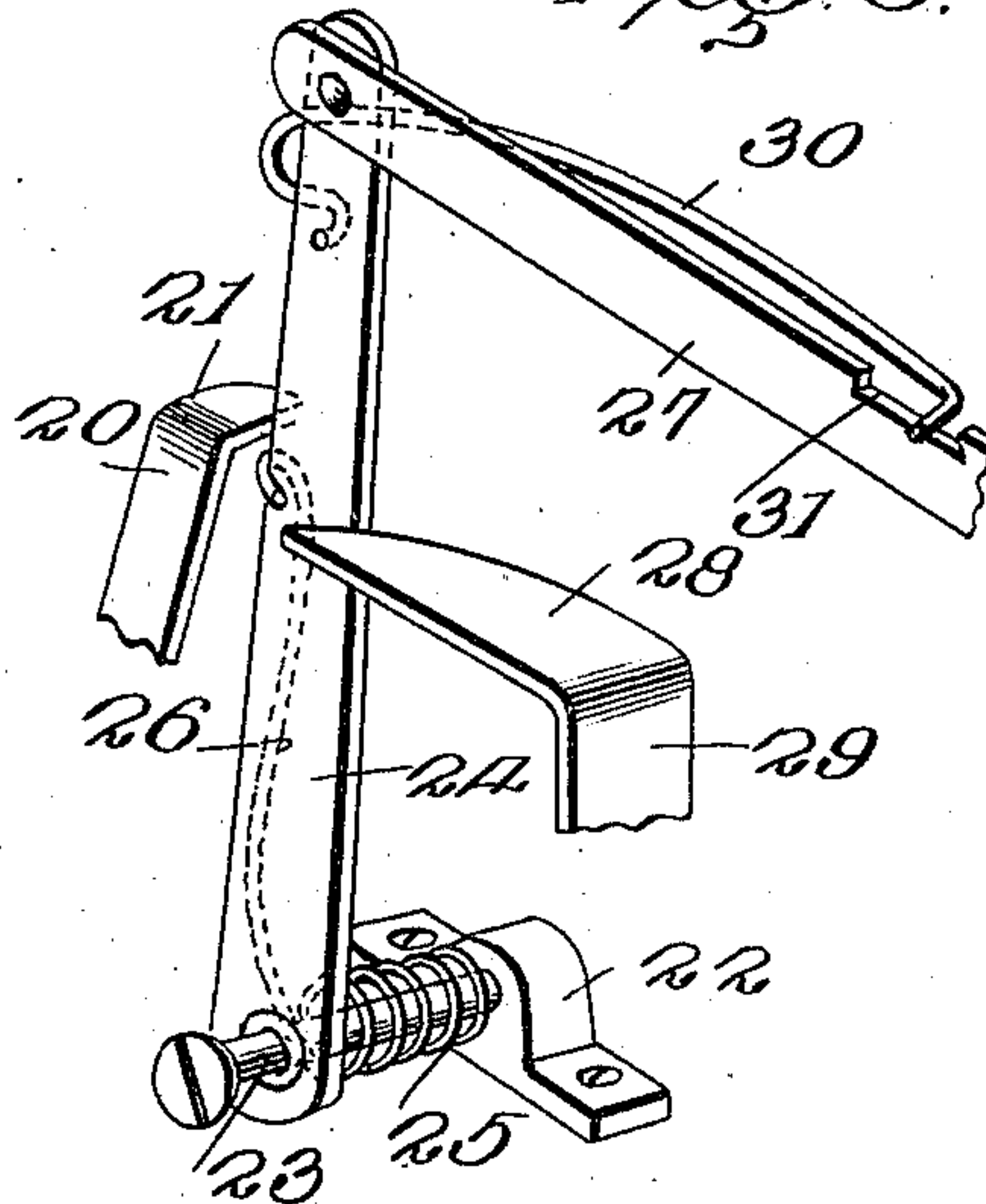
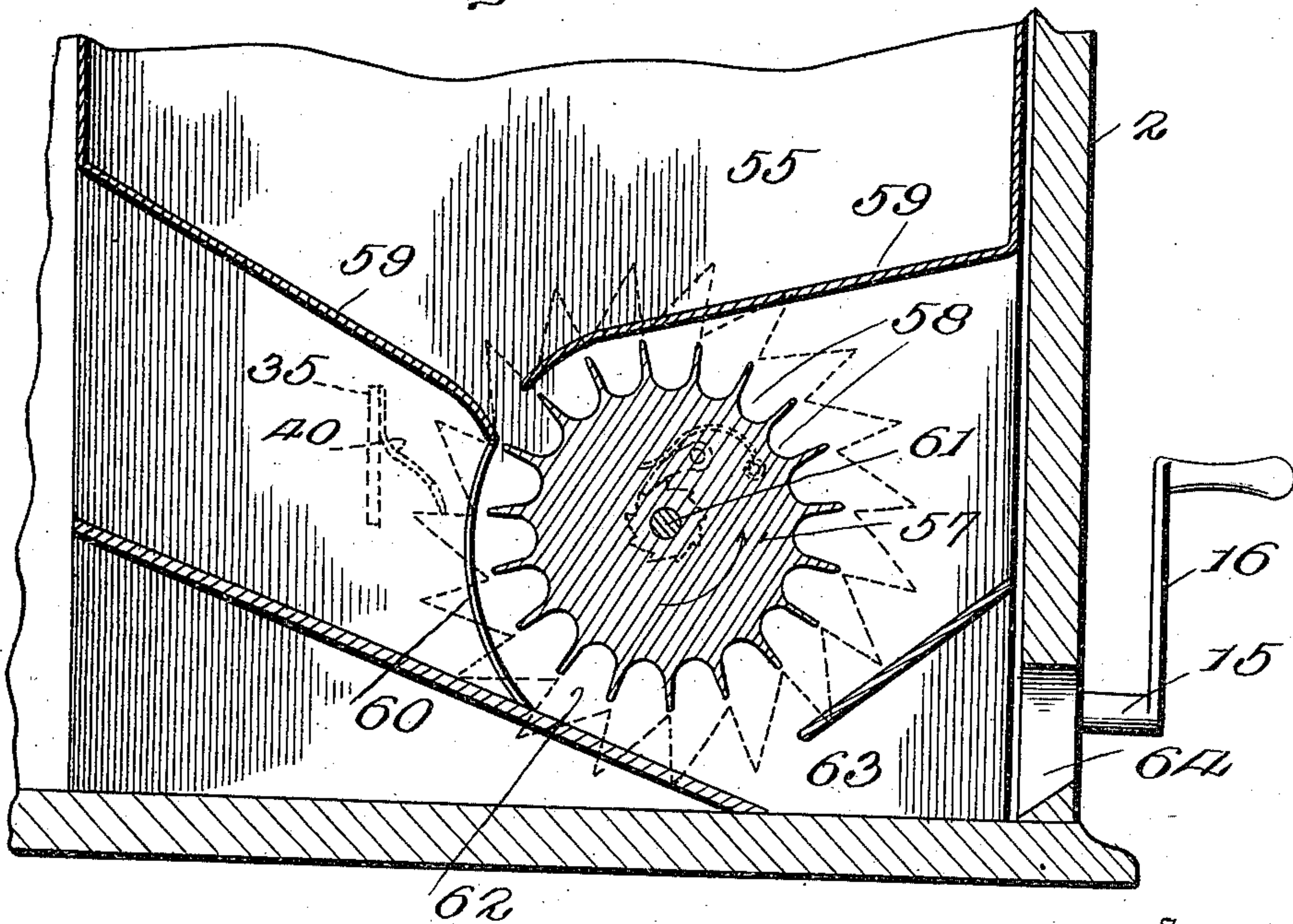


FIG. 9.



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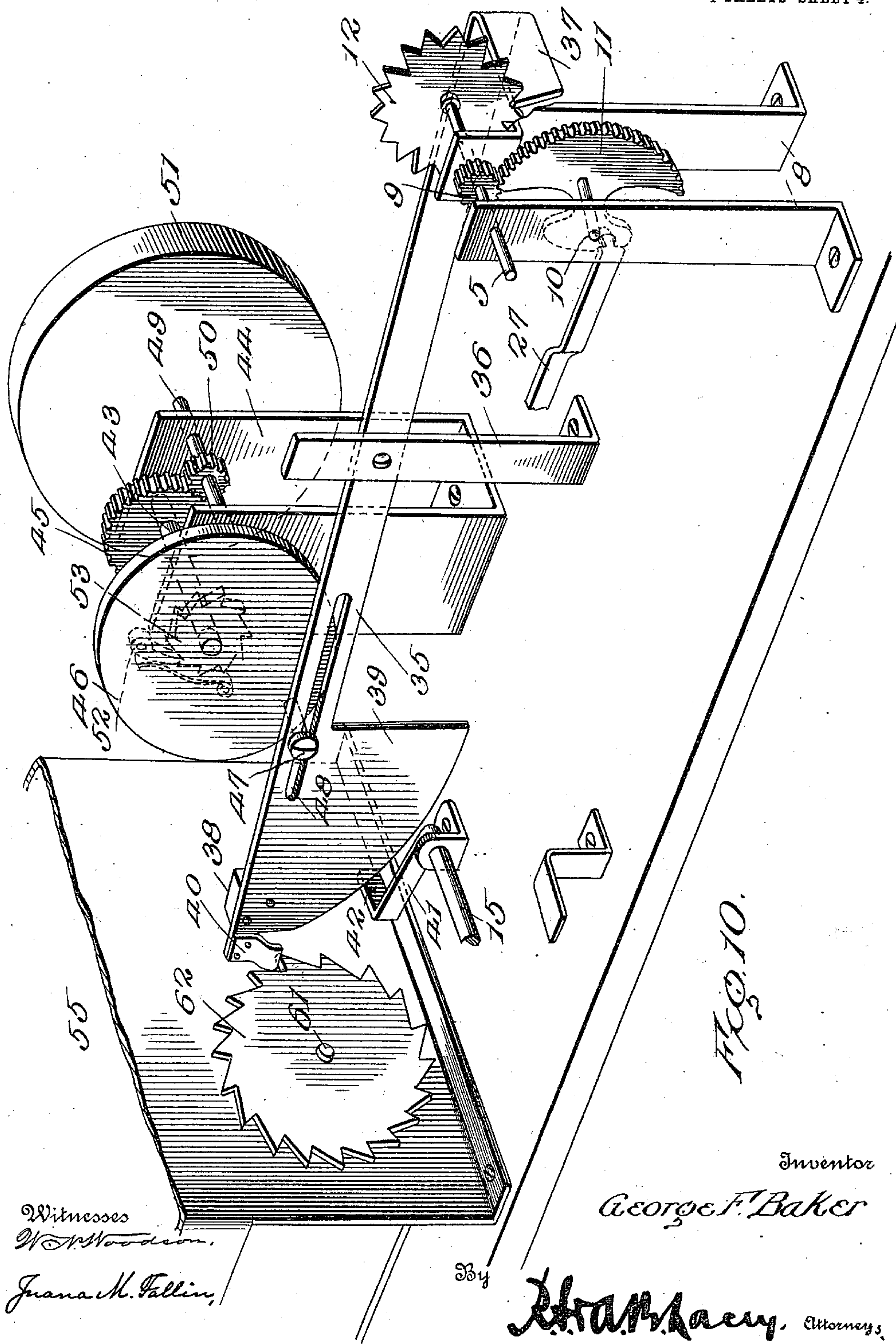


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989,318.

Patented Apr. 11, 1911.

4 SHEETS—SHEET 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE F. BAKER, OF SHARPSBURG, MARYLAND.

## VENDING-MACHINE.

989,318.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed March 18, 1910. Serial No. 550,227.

*To all whom it may concern:*

Be it known that I, GEORGE F. BAKER, citizen of the United States, residing at Sharpsburg, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

My invention relates to the class of coin operated devices and particularly those devices which when actuated by a coin will vend articles of merchandise, my invention being designed for the purpose of vending cigars, though not limited to this purpose.

The invention includes, in its general features, a freely spinning dial, having numbers upon its face, certain numbers being marked to designate them as prize winning numbers. This dial is mounted on a shaft which carries upon it a star wheel having serrations cut in its edge of different depths, said wheel acting as a means for stopping the rotation of the indicator disk and also limiting the movement of the article-feeding devices. Extending through the face of the casing is a shaft connected with a spring acting against the rotation of the shaft in one direction. Mechanism is interposed between said shaft and the dial shaft, whereby the latter may be given a free rotative movement upon an actuation of the first named shaft. Engaging with the star wheel on the dial shaft or indicator shaft, is a lever which at the other end engages with the article-feeding mechanism and which moves and is moved by a fly wheel. This lever is given an initial actuation or impulse by the operation of the handle of the machine and is then left free so that it will be reciprocated by the power wheel until the extremity of the lever engages one of the notches in the star wheel when the reciprocation of the lever is stopped. If the lever engages in any one of certain notches, its vending movement is limited so that only one article, for example, is vended, while if it engages in any one of certain other notches it is allowed a larger scope of movement and a plurality of articles are vended. It will thus be seen that upon an actuation of the handle of the mechanism, that the dial will be spun around at a speed depending upon the energy with which the handle has been actuated, the locking lever will be raised to permit the actuation of the dial and will then be moved after a predetermined time to engage the

dial shaft to prevent its further movement, the locking lever as it moves down vending the article.

One form of my invention is shown in the accompanying drawings, wherein:

Figure 1 is a perspective view of my vending machine; Fig. 2 is a longitudinal elevation thereof, with the front removed; Fig. 3 is a plan view thereof with the top of the casing removed; Fig. 4 is a detail perspective view of the actuating shaft and its arms; Fig. 5 is a detail perspective view of the controlling lever; Fig. 6 is a face view of the dial broken away to show a face view of the star wheel; Fig. 7 is a transverse section on the line 7—7 of Fig. 2; Fig. 8 is a perspective fragmentary view of the connection between the operating lever arm and the sector gear; Fig. 9 is a transverse section on the line 9—9 of Fig. 2; Fig. 10 is a perspective view of the main operating member of the device, the casing being removed.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to these drawings, 2 designates a casing of any suitable character and having in its front the opening 3 preferably covered by a plate of glass. Behind the opening 3 is a dial compartment 4 through which passes a dial shaft 5 carrying upon it the dial 6. This dial is marked upon its circumference with a series of numbers in a progressive order, certain of the numbers being so distinguished by pointers or otherwise as to be indicated as prize numbers. Extending over the circumference of the dial is the pointer or indicator 7 which is, of course, fixed.

The shaft 5 is supported in standards 8 extending up from the bottom of the machine and is provided with a small pinion 9. Mounted on a stub shaft 10 is a sector gear 11 which in the course of its rotation engages with the pinion 9 to rotate it. It will, of course, be seen that it will only engage the pinion 9 during a portion of its movement and that when it has passed the pinion 9, the shaft 5 will be free to revolve, until stopped by inertia or other cause. Mounted upon the inner extremity of the shaft 5 is the star wheel or chancery wheel 12 which is notched upon its periphery, the notches corresponding with the number of



numbered spaces on the dial 6. While the majority of these notches 13 are of like depth, there are a plurality of the notches, namely 14, which are deeper than the notches 13, these notches 14 corresponding in number and position with the prize numbers indicated upon the dial. Thus when one of the prize numbers arrives beneath the pointer 7, a notch 14 will also be at the lowest portion of the star wheel and in position to be engaged by the locking or detent lever to be hereafter described. It will be seen that the wheel 12 constitutes a stop wheel for variably limiting the extent of movement of the detent lever 35.

In order to operate my mechanism I provide a shaft 15 which extends through the front of the casing and is provided on its end with a crank handle 16. This shaft has projecting from it the S-shaped arm 17 which is connected to a retractile spring 18, whereby after the shaft has been moved in one direction and released it will be returned to its original position. In order to operate the sector gear 11, the shaft 15 is provided with the outwardly extending arm 19 which at its extremity is angularly bent, as at 20, the outer edge of this angularly bent portion being rounded, as at 21. Mounted in a suitable support 22 upon the base of the casing, is the projecting stub shaft 23 having extending from it the upwardly projecting arm 24. A spring 25 surrounds the shaft 23 and is fixed at one end to the support 22, while the other end of the spring is extended, as at 26, and engages with the arm 24 so as to hold the arm in its normal position. When the shaft 15 is operated, the elongated end of the arm 19 will engage the arm 24 and push it over. When the shaft is released the spring 25 will retract the arm 24 to its original position. It is also to be noted that the arm 24 is free to move inward or toward the support 22 for a purpose to be hereinafter indicated. Connected to the upper end of the arm 24 is the connecting rod 27 which at its other end has pivotal engagement with the sector gear 11. Thus when the arm 24 is moved by an actuation of the operating handle, the sector gear will be moved and its rack will engage with its pinion on the dial shaft and thus the dial shaft will be rotated. It will be seen that a movement of the arm 24 by an actuation of the operating handle will give the sector gear 11 a complete rotation, and that during about half of this rotation the sector gear will be engaged with the dial shaft, while during the remainder of the rotation, the sector gear will be disengaged therefrom while the dial shaft will rotate freely.

For the purpose of automatically releasing the arm 24 from its engagement with the angular end of the arm 19, I have made the arm 24 so that it will yield laterally and pro-

vide a fixed cam 28 mounted on the post 29 directly in front of the arm 24. As the arm 24 is moved over or in the direction of the dial, it will in its travel contact with the inclined edge 28 of the cam which will force the arm 24 laterally therefrom and disengage it from the angular end 20 of the arm 19, whereupon the spring 25 will return the arm 24 to its initial position. Attached to the upper end of the arm 24 is a spring 30 which at its end is angularly bent to engage in an elongated notch 31 in the connecting rod 27. This spring acts to force the connecting rod below the level of the center, on which the sector gear turns.

It is necessary to provide means for stopping the dial after its inertia has been exhausted, and so stopping it that one of its numbers will come immediately below the pointer 7. It is further necessary to provide means whereby the actuation of the handle 16 shall act to deliver the articles to be vended and whereby the number of these articles to be delivered shall depend upon the position taken by the dial when it comes to rest. For this purpose I provide the controlling and locking lever 35. This lever is pivoted intermediate of its length upon a vertical post 36 and is provided at one end with the inwardly turned detent tooth 37 and at its other end with the weight or weights 38. The detent tooth 37 has an upwardly beveled edge and the upper edge of the detent tooth is adapted to engage in the notches in the stop wheel 12. The weighted end of the lever is provided with the depending plate 39 which may be attached to the lever by bolts or other suitable means, the lower edge of this plate being rounded. The weighted extremity of the lever is formed with a projecting and downwardly inclined detent tooth 40 which is adapted to engage with a delivery mechanism, as will be later described. The extremity of the operating shaft 15 is provided with an arm 41 having the angularly bent end 42 which engages beneath the extremity of the controlling lever 35 and specifically beneath the member 39, so that as the handle 16 is operated, the arm 41 will raise the extremity of the lever, thus releasing the tooth 37 from its engagement with the star wheel 12.

In order to provide means for slowly returning the lever to its original position and preventing it immediately falling back to its original position, I provide a crank disk having a crank pin which engages with the lever, this crank disk being connected in any suitable manner to a fly wheel, this fly wheel moving relatively slowly and thus permitting a slow elevation of the lever 35 and a slow lowering of the weighted end of the lever until the tooth 37 again engages with one of the notches in the chancery wheel or star wheel 12. The mechanism for this pur-



pose comprises a shaft 43 mounted in spaced standards 44 and carrying upon it the relatively large toothed gear wheel 45. Also mounted upon the shaft is the crank disk 46 which has projecting from it the wrist pin 47 which engages in a slot 48 extending longitudinally along the controlling lever 35. It will thus be seen that as the crank disk is rotated the lever will be reciprocated. Mounted parallel to the shaft 43 is the shaft 49 carrying the pinion 50 which gears with the gear wheel 45, this pinion being relatively small to the gear wheel 45. Carried upon the end of the shaft 49 is the fly wheel 51, which by the force of its inertia will act to rotate the shaft 49 a number of times and to rotate the shaft 43 one complete revolution each time the machine is actuated. The crank disk 46 is preferably loosely mounted upon the shaft 43 and provided with pawls 52 which engage with ratchets 53 on the shaft, so that the crank disk can move freely in one direction, but in the other direction will engage the shaft. Thus when the controlling lever 35 is lifted and the crank disk is turned in the direction indicated by the arrow X in Fig. 2, the shaft 43 will not be rotated, but upon a reverse movement of the controlling lever 35, as when the handle is released, the shaft will be actuated to start the motion of the fly wheel, which through its inertia will continue to rotate until the disk has made one complete revolution. In other words, the fly wheel it will be seen is a motor energized upon each actuation of the machine, which motor acts to turn the crank disk through one revolution and thus reciprocate the controlling lever 35. It will be seen that the extent of this reciprocation of the controlling lever depends upon the depth of the particular notch in the stop wheel 12 with which the tooth 37 happens to engage. Thus if on an upward movement of the toothed end of the lever 35 it engages with a shallow notch, the other end of the controlling lever will have a relatively small movement, whereas if it engages with one of the deep notches, the other end of the lever will have a movement twice the amplitude of the first movement. This is so for the purpose of vending two or more articles when the dial happens to stop at one of the prize numbers.

I have particularly designed my mechanism for the purpose of vending cigars, but I do not wish to be limited to this, as it is obvious that the mechanism might be applied for vending other articles. For the purpose of vending cigars I have provided a magazine 55 in which the cigars are placed, the cigars extending transversely of the magazine, said magazine having a hopper or other conducting passage leading to a casing 56 in which is mounted a roller 57 formed upon its circumference with a plu-

rality of longitudinally extending recesses 58, each recess being adapted to contain, or partly contain, a cigar. Partition walls 59 extend down from the casing and into proximity to the edge of the hopper so as to prevent more than one cigar being carried around the roller at a time, a partly cylindrical casing 60 being also spaced from the roller so as to hold the cigars in place. The roller 57 is mounted upon a shaft 61 having thereon a ratchet wheel 62, the teeth of this ratchet wheel projecting outward in such position as to be engaged by the tooth 40 on the extremity of the controlling lever. The teeth of the ratchet wheel are so inclined that as the controlling lever 37 rises it will pass over the teeth, but that upon the fall of the controlling lever it will engage the teeth and rotate the shaft 61 a certain distance dependent upon the notch with which the other extremity of the controlling lever engages. Thus if the tooth 37 engages with the shallow notches, the other end of the lever will only move downward a distance sufficient to return the ratchet wheel 62 one tooth, but if the tooth 37 engages with one of the deeper notches, the other end of the lever will move downward a distance equivalent to two teeth, and thus the roller 57 will be rotated a distance sufficient to deliver two cigars. The cigars drop downward into a cup or delivery plate 63 which opens upon the outer face of the machine by the opening 64.

In order to prevent the actuation of the mechanism except upon a dropping of a coin, I provide a locking lever 65 which is pivoted to the casing 2, in any suitable manner, and which extends beneath a coin chute 66 which opens upon the face of the machine. This locking lever is arranged in any suitable manner so that it will not be operated except upon the dropping of a proper coin within the chute and at its inner end the lever engages with the arm 17, so that when the other end of the lever is raised, which it would be under normal circumstances, the arm engaging end will be depressed and will prevent any movement of the arm and consequently prevent rotation of the shaft. Upon a dropping of the coin, however, the detent end of the arm will be lifted whereupon the shaft may be actuated.

The operation of my invention is plain from what has gone before. Upon the dropping of a coin, the locking mechanism is disengaged and the shaft 15 may then be rotated by means of the handle 16. As the shaft is rotated the arm 24 will be moved over, thus rotating the sector gear 11 until said arm 24 is disengaged from the arm 19, whereupon the spring 25 will throw the arm 24 back to its original position. The dial will thus be spun. It will be seen that upon the initial movement of the shaft 15



that the lever 35 will be lifted at one end by the arm 41 and that the other end of the lever will be released from the stop wheel 12, so that when the device is spun, the controlling lever will be free from engagement with the star wheel 12. Upon the release of the handle, the weight 38 on the controlling lever will act to move it downward which will rotate the fly wheel 51. This fly wheel being relatively heavy will move slowly and hence the crank disk will be rotated slowly and the lever 35 will be controlled thereby so that it will permit a number of revolutions of the dial before the lever 35 will again engage with any of the notches on the wheel 12. As the crank pin, however, comes to its lowest position, the detent end of the lever 35 will engage in one or the other of the notches in the periphery of the star wheel 12. It will be seen that when thus engaged the dial will be stopped and held from further movement until a further actuation and that at the same time the notched edge of the star wheel acts to limit the movement of the lever so that as before explained either one or two cigars or other articles will be vended. It will be obvious that the device can not again be actuated until the handle has been pulled over and then released, and that as soon as it is moved back to its original position it is caught by the locking lever 65.

My invention provides a vending machine in which the element of chance is present, but in which an article is always vended under all circumstances no matter what number is indicated on the dial. It may chance, however, that two cigars may be vended in place of one if the operator happens to spin the dial so that a lucky number is brought around to a position beneath the indicator. It will be obvious that the mechanism might easily be arranged to vend three or even more cigars for certain numbers. The number of cigars or other articles vended will be determined by the relation of the notches in the star wheel 12 to each other and to the movement of the lever 35.

Having thus described the invention, what is claimed as new is:

1. In a vending machine, the combination with a delivery mechanism, and actuating mechanism therefor, of a freely spinning stop wheel receiving its initial rotative impulse from the operation of the actuating mechanism, said stop wheel variably limiting the delivery movement of the mechanism.

2. In a vending machine, the combination with a delivery mechanism, and actuating mechanism therefor, of a freely spinning stop wheel receiving its initial rotative impulse from the operation of the actuating mechanism, said stop wheel acting to variably limit the delivering movement of the delivery mechanism, and a dial mounted to

rotate with the freely spinning stop wheel and indicating the position of the stop wheel relative to a fixed point.

3. In a vending machine, a delivery mechanism, a member operatively engaged with the delivery mechanism to operate the latter upon a movement of the former in one direction, an actuating shaft, means thereon engaging with the said member upon a movement of the shaft in one direction to move the member in an inoperative direction, means acting to move the member in the other direction, a freely rotatable shaft, and means carried by said shaft for variably limiting the movement of the said member.

4. In a vending machine, a delivery mechanism, an actuating shaft having a handle, a lever operated by the actuating shaft for operating the delivery mechanism, freely rotatable means set into free rotation by the actuating shaft for variably limiting the movement of the delivery mechanism, and a fly wheel engaging with said lever for causing its complete reciprocation.

5. In a vending machine, a delivery mechanism, a lever acting to operate the delivery mechanism upon a movement in one direction, but disengaging from the delivery mechanism upon a movement in the other direction, a freely rotatable fly wheel operatively connected to the lever to reciprocate the same, means for giving said fly wheel an impulse of rotation, and freely movable means for variably limiting the delivery movement of the lever, said limiting means being variably moved by the actuating mechanism.

6. In a vending machine, a delivery mechanism, a lever operatively engaging the delivery mechanism upon a movement in one direction, a freely rotatable fly wheel operatively connected to the lever to rotate with a reciprocation of the same and acting by its rotation to completely reciprocate the lever, an actuating mechanism operatively connected to the lever to partially reciprocate the same and thereby give an impulse of rotation to the fly wheel and freely movable means for variably limiting the delivery movement of the lever, and means for giving a variable movement to said limiting means.

7. In a vending machine, delivery mechanism, a lever operatively engaging the delivery mechanism upon a movement in one direction, but disengaging from the delivery mechanism upon a movement in the other direction, a freely rotatable fly wheel operatively connected to the lever to be rotated by a movement of the same and acting to give the lever a complete reciprocation, a handle, a shaft, means projecting from the shaft engaging with the lever to partly reciprocate it upon a movement of the handle in one direction, and freely movable means initially impelled by a movement of the handle



adapted to engage with the lever and to variably limit its delivery movement.

8. In a vending machine, a delivery mechanism, a ratchet wheel connected thereto, a lever engaging the ratchet wheel to rotate the same upon a movement of the lever in one direction, a freely rotatable wheel having peripheral notches of different depths with which the other end of said lever is engageable, means for causing a reciprocation of said lever to move it out of engagement with the notched wheel and then into engagement therewith and for simultaneously causing a free rotation of the notched wheel until it is again engaged by said lever.

9. In a vending machine, a delivery mechanism, a ratchet wheel connected thereto and adapted to operate the delivery mechanism upon a rotation of the ratchet wheel, a lever engaging the ratchet wheel upon a movement in one direction to rotate the same and deliver the articles to be vended, a freely rotatable wheel having notches of different depths with which the other end of said lever is engageable and by which the extent of its delivery movement is variably limited, means for causing a reciprocation of said lever out of engagement with the notched wheel and for simultaneously causing a free rotation of the notched wheel, and means for causing a reversible movement of the lever to actuate the delivery ratchet wheel and bring the lever again into engagement with the notched wheel.

10. In a vending machine, a delivery mechanism, a ratchet wheel connected thereto to operate the same, a lever, one end of which engages the ratchet wheel to rotate the same upon a downward movement of the lever, a freely rotatable wheel having notches of different depths with which the other end of said lever is engaged, said wheel limiting the downward movement of that end of the lever which engages with the ratchet wheel, and means for causing a reciprocation of said lever out of engagement with the notched wheel and for causing a free rotation of the notched wheel.

11. In a vending machine, a delivery mechanism, a lever operating the delivery mechanism upon a downward movement of the adjacent end of the lever, a freely rotatable wheel having notches of differing depth upon its periphery with which said lever is normally in engagement and by which the delivery movement of the lever is limited, and means for causing a reciprocation of said lever to take it out of engagement with the notched wheel and for simultaneously causing a free rotation of the notched wheel.

12. In a vending machine, a delivery mechanism, a ratchet wheel connected thereto, a lever weighted at one end and engaging

the ratchet wheel upon a movement in one direction to rotate the ratchet wheel, a freely rotatable wheel having notches of different depths with which the other end of said lever is normally in engagement and by which a delivery movement of the lever is controlled and actuating the shaft, a fly wheel engaging with the lever to cause a complete reciprocation of the same, and means carried by said actuating shaft for causing an initial reciprocatory impulse to be given to said lever and for simultaneously causing a free rotation of the notched wheel.

13. In a vending machine, a delivery mechanism, a ratchet wheel connected thereto, a lever having a tooth at one end and engaged with the ratchet wheel upon a movement of the lever in one direction, a dial shaft, a dial thereon, a wheel having notches of various depth upon its periphery and rotatable with said dial shaft, said wheel being normally in engagement with the lever, a crank shaft, a crank disk thereon engaging with the lever, a fly wheel operatively engaged with the crank shaft, an actuating shaft, means connected to the actuating shaft for giving a free rotation to the dial shaft and means on the actuating shaft for giving a partial reciprocation to the lever to move it out of engagement with the dial shaft.

14. In a vending machine, a delivery shaft, a ratchet wheel on the shaft, a lever having a tooth at one end engaging with the ratchet wheel upon a movement of the lever in one direction, a dial shaft, a wheel thereon with which the other end of said lever engages, said wheel having peripheral notches of various depths, a crank shaft engaging with the lever, a freely rotatable fly wheel engaging with the crank shaft, a sector gear engaging with the dial shaft, but movable out of engagement therewith, an actuating handle, and means operatively engaging between the handle and the lever and between the handle and the sector gear for simultaneously reciprocating the sector gear and the lever.

15. In a vending machine, a freely rotatable shaft having a dial thereon, a pinion on the shaft, a sector gear engaging with the pinion, but rotatable out of engagement therewith, an actuating shaft having a handle, a connection between the actuating shaft and the sector gear, whereby the latter may be given a complete rotation upon an actuation of the handle, a delivery mechanism, a lever actuating the delivery mechanism upon a movement in one direction, a wheel rotated by the dial shaft with which said lever normally engages, having peripheral notches of various depths, a fly wheel operatively engaged with said lever to be rotated upon a reciprocation of the lever, and means on the actuating shaft for giving a partial reciproc-



cation of the lever upon a movement of the actuating shaft.

16. In a vending machine, a delivery mechanism, a ratchet wheel for actuating the same, a lever engaging at one end with said ratchet wheel, a freely rotatable shaft, a dial thereon, a wheel on said shaft with which the other end of the lever engages, said wheel having peripheral notches of various depths, said wheel acting to limit the actuating movement of the lever, a fly wheel connected to said lever to be rotated upon a reciprocation thereof, a sector gear engaging the dial shaft to rotate the same, but movable out of engagement with the dial shaft, and arms projecting from the actuating shaft in engagement upon a movement of the actuating shaft in one direction to rotate the sector gear and to lift said lever, said arms disengaging from said mechanism upon a reverse movement of the actuating shaft.

17. In a vending machine, a delivery mechanism, a ratchet wheel operating the same, a lever weighted at one end, the weighted end of the said lever engaging the ratchet wheel upon a downward movement of the weighted end of the lever, a freely rotatable dial shaft, a notched wheel carried on the dial shaft with which the other end of the lever is adapted to be engaged when the weighted end of the lever is depressed, a sector gear engaging with the dial shaft to rotate the latter, but movable out of engagement with the dial shaft, a crank wheel engaging the lever to be rotated upon a reciprocation of the latter, a fly wheel rotatable by a rotation of the crank wheel, an actuating shaft, a spring normally holding said shaft in an inoperative position, arms projecting from said shaft, one of said arms engaging with the weighted end of the lever to raise it as the actuating shaft is moved in

one direction, a mechanism engaging with the other of said arms for giving the sector a complete rotation when the shaft is moved.

18. In a vending machine, an outer casing, a delivery mechanism, a ratchet wheel operating the delivery mechanism, a lever weighted at one end and engaging with said ratchet wheel upon a downward movement of the weighted end to rotate the ratchet wheel, and effect a delivery of the articles vended, a dial shaft, a dial thereon observable through the casing, a pinion on the dial shaft, a wheel on the dial shaft with which said lever engages when the weighted end thereof is fully depressed, having notches of various depths on its periphery, a crank wheel having a crank pin engaging with the lever, a fly wheel engaged with the crank wheel to rotate with the same, a sector gear engaging with the pinion on the dial shaft, a lever pivoted at one end to a suitable base, a connecting rod between the free end of the lever and said sector gear, a spring for moving said lever in one direction, an actuating shaft having a handle projecting out of the casing, a spring for retracting the actuating shaft, an arm on the actuating shaft engaging beneath the first named lever to raise the latter upon a movement of the actuating shaft in one direction, an arm on the actuating shaft engaging with the lever connected to the sector gear, and means engaged by said lever for moving the lever laterally out of engagement with the arm projecting from the actuating shaft after the actuating shaft has completed its movement.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE F. BAKER. [L. S.]

Witnesses:

JOHN CORBY,  
FRANK PRYOR.