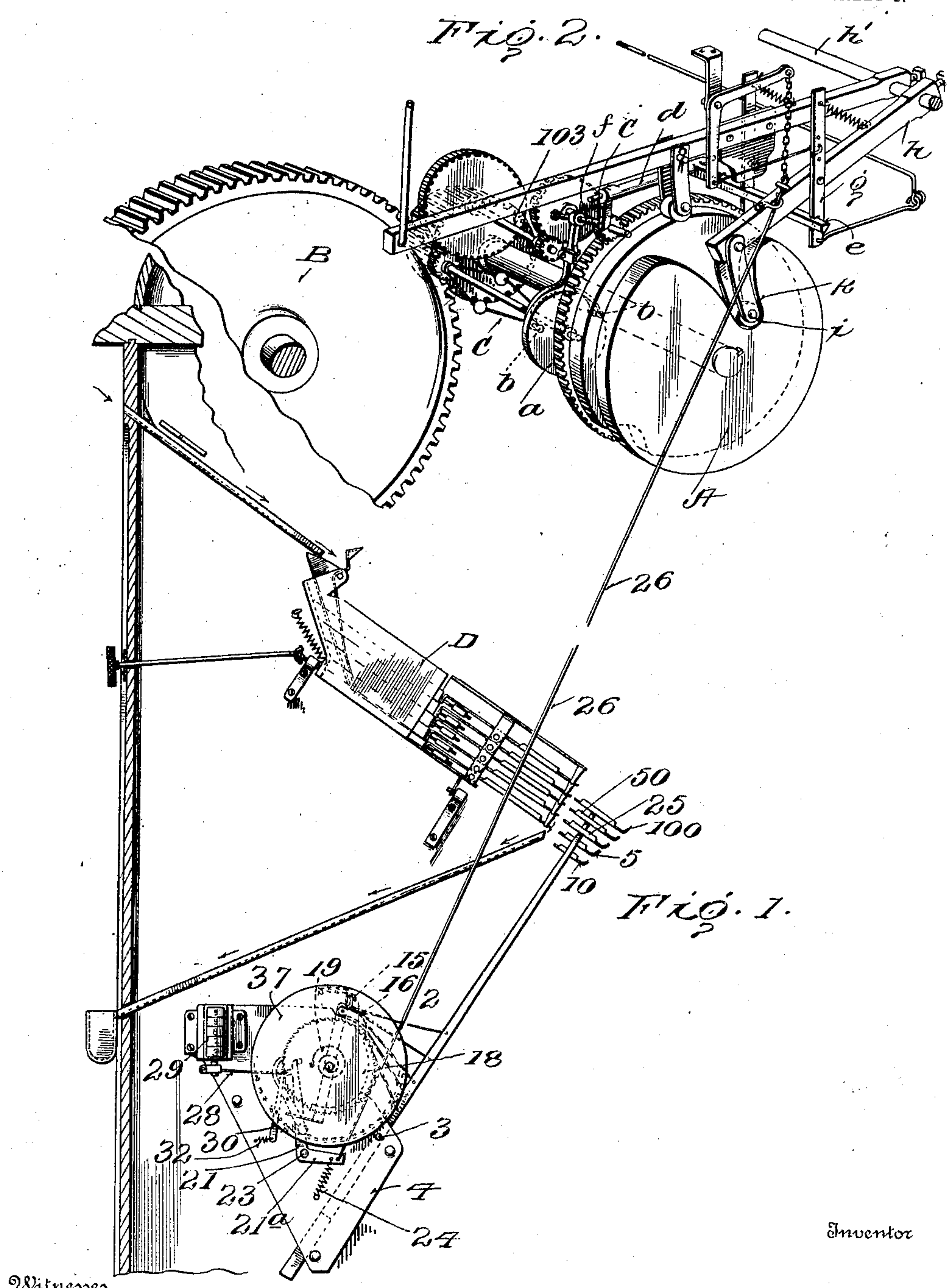


967,822.

L. M. NELSON.
CHECK OPERATED CONTROLLING MECHANISM.
APPLICATION FILED JAN. 18, 1909.

Patented Aug. 16, 1910.

3 SHEETS—SHEET 1.



Witnesses

[Signature]

[Signature]

By

L. M. Nelson.

[Signature] Attorneys

Inventor

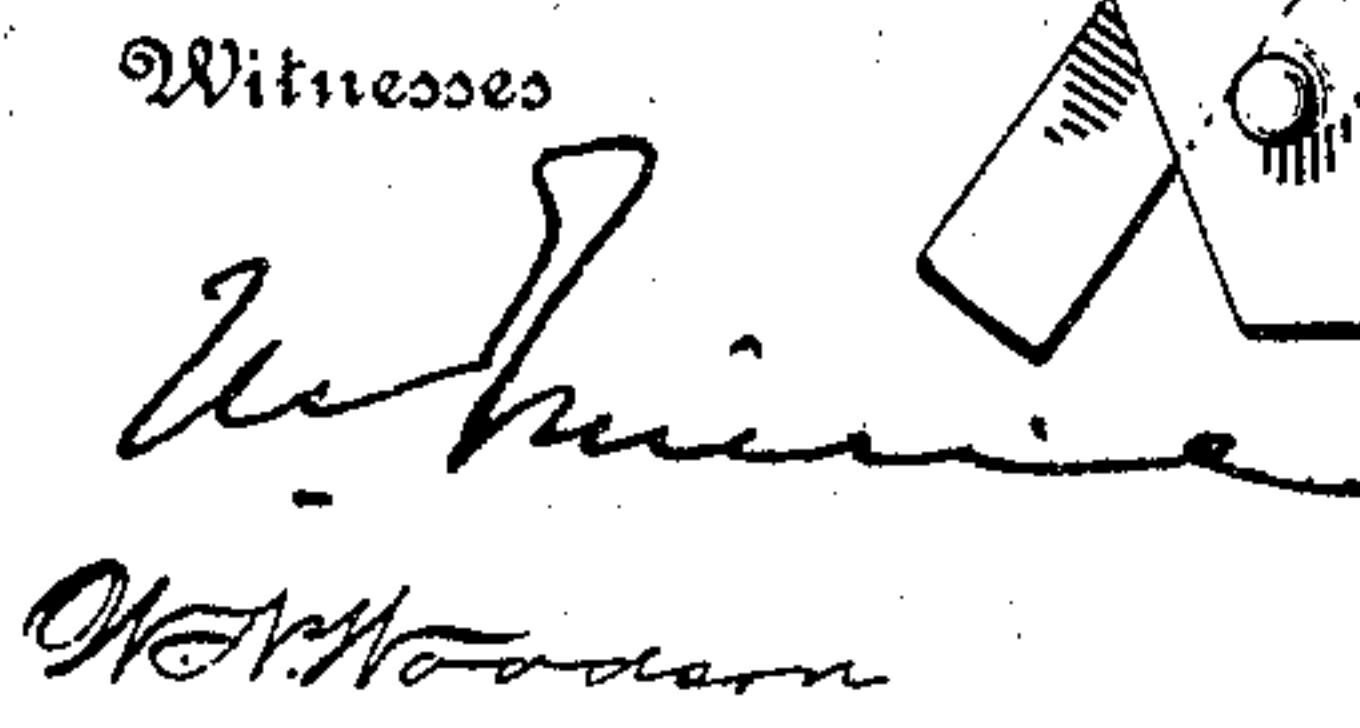
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3 SHEETS—SHEET 3.

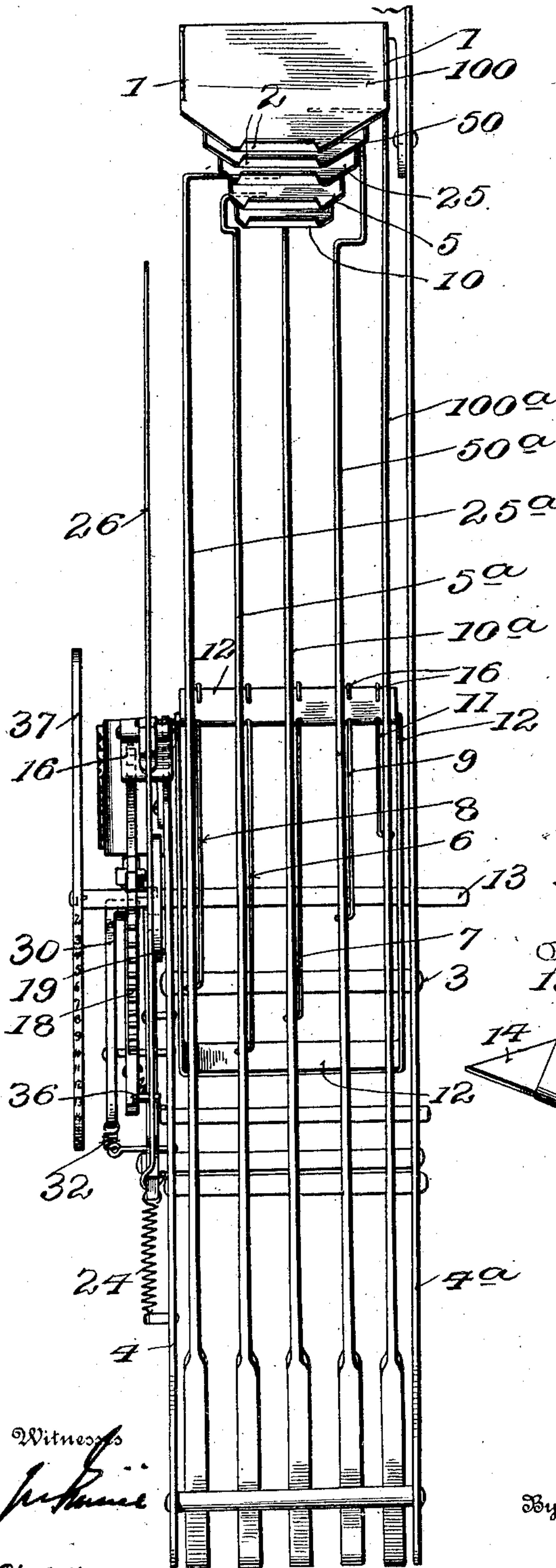


Fig. 5.

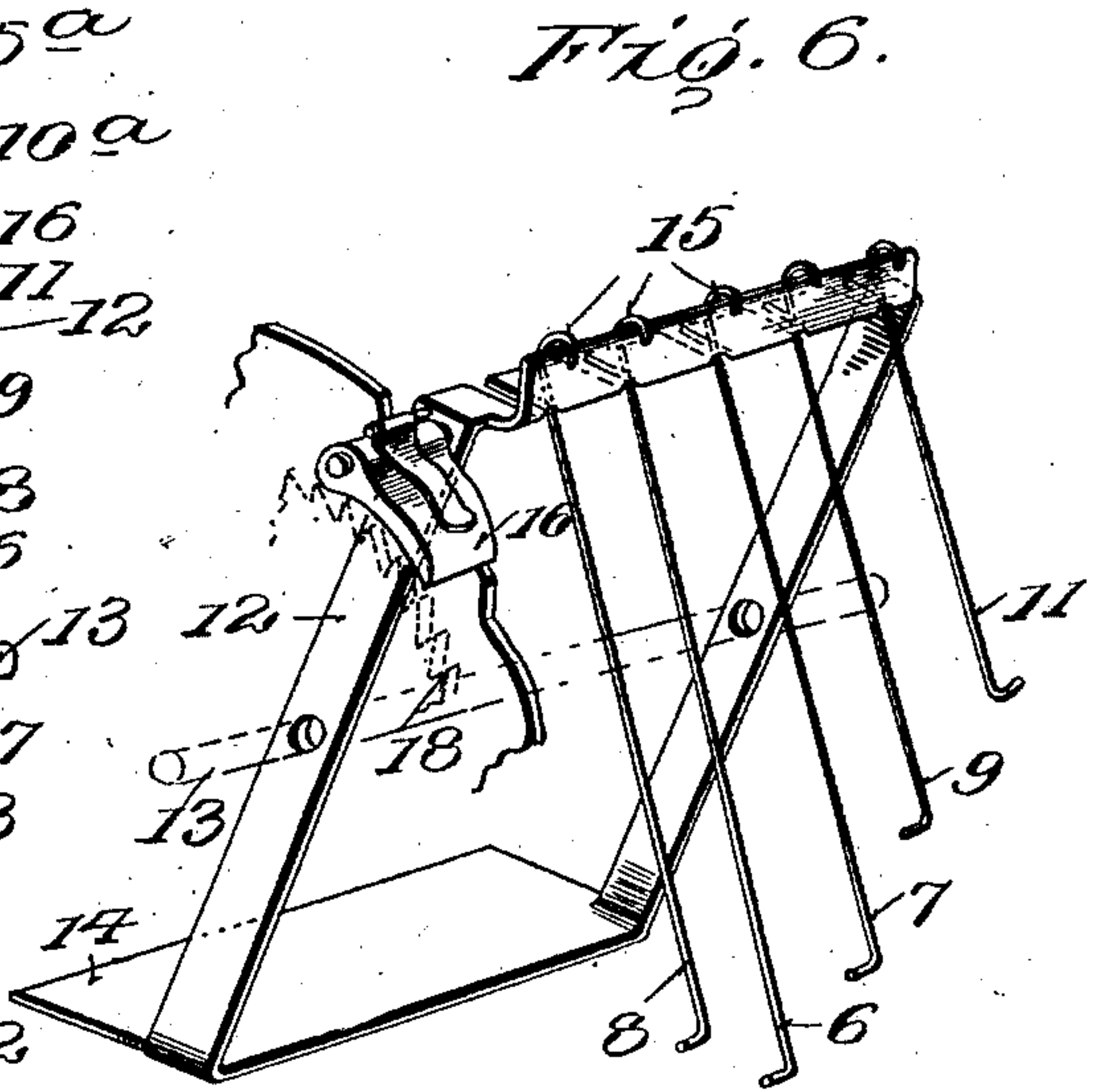


Fig. 6.

Inventor

L. M. Nelson.

By

W. H. Macy, Attorneys

Witnesses
J. H. Woodman

UNITED STATES PATENT OFFICE.

LOUIS M. NELSON, OF DOUGLAS, WYOMING.

CHECK-OPERATED CONTROLLING MECHANISM.

967,822.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed January 18, 1909. Serial No. 472,945.

To all whom it may concern:

Be it known that I, LOUIS M. NELSON, citizen of the United States, residing at Douglas, in the county of Converse and State of Wyoming, have invented certain new and useful Improvements in Check-Operated Controlling Mechanisms, of which the following is a specification.

This invention relates broadly to check controlled apparatus and particularly to automatic motor actuated mechanism arranged to be set in motion by the introduction of the proper check, such as a coin or other token.

My invention has for its primary object a novel check operated controlling apparatus for mechanism such as that above mentioned, which is so arranged as to operate the automatic motor actuated mechanism in different ways, or more specifically for a different number of times, according to the denomination or predetermined character of the coin or other token deposited in the coinway of the check operated controlling apparatus.

Another and more specific object of my invention is an improved time selecting check operated controlling apparatus for an automatic phonograph, such as that disclosed by my application for Letters Patent of the United States, Serial No. 471,688, filed the 11th day of January 1909, so arranged that the phonograph will operate any desired number of times according to the character or denomination of the token used in starting the apparatus, and will automatically stop at the conclusion of the rendering of the number of selections represented by that token.

With these and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which,

Figure 1 is a side elevation of my improved check operated controlling apparatus. Fig. 2 is a perspective view illustrating a portion of the mechanism that is designed to be controlled by said apparatus. Fig. 3 is a side elevation of the apparatus on an enlarged scale. Fig. 4 is a top plan view

thereof, as well as a horizontal sectional view through the upper ends of the actuating levers. Fig. 5 is a rear elevation, and Fig. 6 is a detail perspective view of a swinging frame hereinafter specifically described.

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

Referring to the drawings (Fig. 2), A designates a cam wheel which represents a movable element of motor actuated mechanism selected for the purpose of illustration only; B designates the drive wheel of a motor, which term is to be understood as including any prime mover or other driving part; and C, a governing mechanism which I have selected as an example to show some means for directly controlling the starting and stopping of the motor under the influence of my improved check operated apparatus which forms the basis of this invention. In the present instance, the governing mechanism includes a friction disk *a* and a friction brake *b* arranged to engage the disk and pivotally mounted intermediate of its ends on any suitable support, the upper arm of said friction brake being designed for engagement by the depending crank *c* of a governor shaft *d*, when said shaft is turned in one direction by the depressing of an arm *e* secured to said shaft and extending perpendicularly therefrom. The crank *c* operates in opposition to a spring *f*, said spring being designed to move the governor shaft in a direction to release the disk *a* and permit the motor to act. To stop the motor, the governor arm *e* is depressed by a trigger *g*, said trigger being pivotally mounted upon and carried by a lever *h* fulcrumed at one end on a support *h'*. The lever *h* carries a roller *i* arranged to ride on the periphery of the cam wheel A to hold the lever in normal position and to drop into a depression *k* in the periphery of the cam wheel, so as to rock the lever in a direction to press its trigger *g* downwardly against the governor *e*, thereby stopping the motor. It will be understood that while this automatic motor actuated mechanism forms a part of my automatic phonograph application, before mentioned, it is to be broadly considered as any mechanism of an analogous character, as my present invention broadly comprehends a check operated controlling appa-

ratus, and is not to be combined except in the broadest sense with the mechanism controlled thereby. It is to be understood that in the example of the motor actuated mechanism given, when said mechanism is at rest, the lever *h* is downwardly moved with its roller *i* in the depression *k* and with its trigger *g* pressing down the governor arm *e*. To start this mechanism, it is only necessary to trip the trigger so as to release it from the governor arm, whereupon the spring *f* will release the friction brake *b* from the disk *a* and the motor will be permitted to act, turning the cam wheel *A* until the depression *k* again reaches the roller *i*, whereupon the lever will be permitted to drop and as it is dropped or lowered, the spring pressed trigger *g* will again bear down upon the governor arm *e*, and stop the motor until the trigger is again tripped by an element of my improved check operated controlling apparatus, which I shall now specifically describe.

Referring particularly to Fig. 1, *D* designates a coin-way or chute for coins of different denominations or checks or other tokens, the specific construction of said coin-way being described and claimed in another co-pending application for Letters Patent of the United States, filed the 11th day of January, 1909, Serial No. 471,689. I have selected this coin-way in the present case for the purpose of illustration only. It is to be understood however, that the coin-way *D* separates or sorts the coins or tokens of different denominations as to size and also tests them, the present embodiment of the invention dealing with a coin-way for silver dollars, half-dollars, quarters, nickels and dimes. These are separated in the coin-way and if found to be of the proper weight and size and not mutilated are passed from the coin-way to a particular one of a series of trays, designated 10, 5, 25, 50 and 100, respectively, and designated for the coins of different denominations as aforesaid. These trays are respectively provided with upturned side edges 1 and retaining lips 2 (see Fig. 3) and the trays are respectively mounted on the upper ends of levers designated 10^a, 5^a, 25^a, 50^a and 100^a respectively, as best seen in Fig. 5. These levers have a common axis intermediate of their ends being all mounted upon a rod 3, which extends transversely across the casing of the controlling apparatus, and which in the present instance is composed of side plates 4, 4^a of any desired construction and design, except as hereinafter noted. The levers are so poised that their upper ends will be held in proper juxtaposition to the discharge end of the coinway, until swung rearwardly and downwardly by the weight of the coin deposited in a tray, it being understood that the levers are independently movable and that they return to their normal position as soon as

the coins fall from the tray, through the tilting of the levers to a definite point, the coins dropping into a suitable receptacle (not shown). These levers are respectively provided with actuating rods 6, 7, 8, 9, and 11 connected thereto at different distances from the common axis 3 and all passing upwardly and forwardly through the upper cross-bar of a rectangular frame 12 mounted to swing freely on a transversely extending shaft 13. The upper extremities of these actuating rods (the rods being preferably constructed of wire), are bent to form hook portions 15 which engage the upper edge of the upper cross-bar of said frame, this construction providing that any one of the levers may be swung in an operative direction, and, through the instrumentality of the actuating rod, swing the frame 12 in an operative direction without actuating or drawing upon the other wires or actuating the other levers, the frame 12 being swung back to a substantially upright position by means of a weight 14 secured to its lower end.

A pawl 16 is pivotally mounted upon one side of the swinging frame 12 and is normally held in a neutral position, such as that illustrated in Fig. 3, by a raised portion 17 of the side plate 4 of the casing. This pawl is designed to engage the teeth of a ratchet wheel 18 which is secured to the shaft 13 and which is spring-pressed in an anti-clock-wise direction by means of a coiled-spring 19 secured to the side plate 4 and to the shaft. In the present instance the actuating rod 6 of the lever 5^a is attached to said lever at a point nearer to the common axis 3 than any other actuating rod and it is so arranged that when the lever 5^a is actuated it will cause the pawl 16 to rotate the ratchet wheel 18 a distance equal to one tooth. The actuating rod 7 of the lever 10^a is correspondingly arranged to effect a clock-wise movement of the ratchet wheel 18 a distance of two teeth, while the rods 8, 9, and 11, when pulled upon by their respective levers turn the ratchet wheel a distance equal to five teeth, ten teeth and twenty teeth, respectively. This arrangement is cited as an example for the reason that, as above stated, the invention is particularly designed for an automatic phonograph in which the deposit of a coin or token of a five cent value will cause one selection to be played, while for example the insertion of a token of a dollar value will result in the playing of twenty selections, one selection for each five cent value deposited. To provide for this selective operation, according to the different movements of the ratchet wheel 18 as turned under the influence of the different levers, said wheel is provided with a pin 20 which normally lies in engagement with one side of the upwardly projecting arm 21 of a bell-crank lever 22, said

lever being fulcrumed at its elbow as at 23, while the lower arm 21^a of said bell-crank is under the pulling tension of a compression spring 24 secured thereto and to the plate 4 of the casing, the said spring exerting a tension upon the bell-crank to swing the upper arm 21 inwardly or toward the center of the ratchet wheel. The lower arm 21^a of the bell-crank 22 is connected to the lower end of a link in the form of a rod 26, said link extending upwardly and having its upper end operatively connected to the trigger of the lever *h* in such a manner that a downward pull upon said link will trip the trigger *g* from the governor arm *e* while the subsequent upwardly swinging movement of the lever will impart an upward movement to the link, overcoming the tension of the spring 24.

From the foregoing description, it will be seen that as one of the coin actuated levers turns the ratchet wheel 18 in a clock-wise direction, the pin 20 of the ratchet wheel will pass away from and out of contact with the arm 21 of the bell-crank 22 and this will permit the spring 24 to rock said bell-crank in a direction to pull upon the link 26 and trip the trigger *g*, thereby automatically starting the motor actuated mechanism, and, specifically, resulting in the rotation of the cam wheel A. As the cam wheel rotates, the roller *i* of the lever *h* will pass out of the depression *k*, thereby swinging the lever upwardly and effecting an upward pull upon the link 26, thereby rocking the bell-crank 22 against the tension of the spring 24 and the upper arm 21 of the bell-crank outwardly or away from the center of the ratchet wheel 18. The said arm 21 is provided with an outwardly projecting finger 27, and as said arm is thus swung outwardly, it will actuate a counter 29 of any desired type or construction, through the instrumentality of a connecting rod 28 secured to the finger 27 and to the operative portion of the counter 29, thereby indicating the number of selections played, and serving as a register. Furthermore the outward movement of the arm 21 causes its finger 27 to engage an escapement pawl 30 pivoted intermediate of its ends as at 31 and acted upon by a spring 32 to press its upper end into engagement with the teeth of the ratchet wheel 18. The escapement pawl 30 will thus be disengaged from the ratchet wheel, but at the same time the co-acting escapement pawl 33 will be permitted to engage another tooth of the wheel, and the wheel will be permitted to turn backwardly one step. The movement of the escapement pawl 33 in a direction to engage the ratchet wheel is permitted by pivoting said pawl 33 intermediate of its ends as at 34 and connecting a compression spring 35 to its lower end, such lower end being formed with a lug 36

designed to be engaged by the inner edge of the arm 21, and as said arm moves outwardly, as before stated, it will move away from the lug and permit the spring 35 to act to swing the upper engaging end of the pawl 33 inwardly. It is to be understood that these movements, just described, are effected by an upward pull upon the link 26, caused by the upwardly swinging movement of the lever *h* and the subsequent riding of the roller *i* upon the regular or undepressed portion of the periphery of the cam wheel A. As soon, however, as the cam wheel has completed a revolution and brought its depression *k* again into alinement with the roller *i* the lever *h* will drop permitting the spring 24 to again pull upon the link 26 so as to draw the trigger out of operative relation to the governor arm *e*, while at the same time, the spring 24 will rock the bell-crank in a direction to swing its upper arm 21 inwardly. This inward movement of the said arm will manifestly release the escapement pawl 30 and permit its spring to draw it into engagement with another tooth of the ratchet wheel, while at the same time the rear edge of the arm 21 will engage the lug 36 and rock the escapement pawl 33 in a direction to disengage its upper end from the tooth that it has been engaging, thereby permitting the ratchet wheel to move backwardly another tooth. This operation is repeated until the ratchet wheel 18 has thus moved step by step in a rearward direction far enough to bring its pin 20 against the inner edge of the arm 21 of the bell-crank 22, whereupon the spring 24 will not be again permitted to act to draw downwardly upon the link 26 until another coin or other similar token has been deposited in the machine, the machine being thereby brought to a stand still with the lever *h* in lowered position with the roller *i* and with the trigger *g* pressing downwardly upon the governor arm *e* to hold the motor B inoperative.

If desired, the shaft 13 may carry at one end an indicator disk 37 containing either on its periphery or outer face, or both, a series of numbers indicating the number of pieces that will be played after the introduction of any coin or other token, the said indicator disk being movable with the ratchet wheel 18 and so arranged that when the ratchet wheel is returned to its normal stop position, the indicator disk will not disclose any of its indicating numerals. For example, when with the embodiment of the invention herein described, a dollar is inserted in the coin chute, the ratchet wheel 18 will be turned twenty teeth, and the indicator disk will display the numeral 20 at any suitable side opening in the cabinet (not shown). As the selections are played one after another, and at the conclusion of each selection, the ratchet wheel will turn

rearwardly as well as the indicator disk, so as to display the numeral 19 at the end of the first selection, the numeral 18 at the end of the second, and so on.

5 From the foregoing description in connection with the accompanying drawing, it will be seen that I have provided a very simple and efficient construction of check operated controlling apparatus, so arranged
10 as to properly control the automatic mechanism, or set it in motion a definite number of times according to the predetermined coin or token that is inserted in the coinway, and that, more specifically, I have provided a novel and ingenious apparatus of
15 this character so combined with an intermittently operated mechanism that such mechanism may be operated any desired number of times in succession, according to
20 the coin which is inserted.

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

1. The combination with a motor actuated mechanism, of check operated controlling
25 means including a ratchet wheel arranged to operate the motor actuated mechanism a predetermined number of times according to the degree to which the ratchet wheel is turned, a pawl engaging the ratchet wheel,
30 and means operated according to a predetermined check for varying the traverse of the pawl.

2. The combination with a motor actuated mechanism, of escapement mechanism including a ratchet wheel arranged to operate the
35 motor actuated mechanism a predetermined number of times according to the degree to which the ratchet wheel is turned, a pawl operatively connected to the ratchet wheel
40 and a series of independently movable check operated levers connected to the pawl and arranged to move the same different distances in engagement with the ratchet wheel.

3. The combination with a motor actuated
45 mechanism, of check operated controlling apparatus arranged to operate the motor actuated mechanism and including a ratchet wheel arranged to operate the motor actuated mechanism a predetermined number
50 of times according to the degree to which the ratchet wheel is turned, a pawl designed to engage said ratchet wheel, independently movable check operated levers mounted upon the same axis, and a connection between said
55 pawl and the various levers at different distances from said axis for the purpose specified.

4. The combination with a motor actuated mechanism, of escapement mechanism
60 including a ratchet wheel arranged to operate the motor actuated mechanism a predetermined number of times according to the degree to which said ratchet wheel is turned, a series of independently movable levers
65 mounted upon the same axis, a pawl adapted

to engage the ratchet wheel, a movable frame carrying the pawl, and a series of rods connected to the respective levers at different distances from the axis thereof, said rods being designed to engage said frame in the
70 movement of the levers, the connection between the rods and the frame permitting a rod to move without operatively moving the others.

5. The combination with a motor actuated
75 mechanism, of escapement mechanism including a ratchet wheel arranged to operate the motor actuated mechanism a predetermined number of times according to the degree to which said ratchet wheel is turned,
80 and means acting upon the wheel for turning the same to different degrees according to a predetermined check.

6. The combination with a motor actuated mechanism, of check operated controlling
85 apparatus connected therewith and including an escapement mechanism embodying a ratchet wheel arranged to operate the motor actuated mechanism a definite number of times according to the degree of movement of the ratchet wheel, and means, operated by checks, engaging said ratchet
90 wheel to turn the same different distances according to the particular check inserted in the controlling apparatus.

7. The combination of motor actuated mechanism including a cam wheel, a motor connected therewith, a governing mechanism, a lever co-acting with said cam wheel,
100 a trigger mounted on said lever and arranged in one movement of the lever to actuate the governing mechanism to stop the motor, and a check operated controlling apparatus operatively connected to said
105 trigger to release the same from said governing mechanism.

8. The combination of motor actuated mechanism, including a cam wheel, a motor connected therewith, a governing mechanism, a lever co-acting with said cam wheel,
110 a trigger mounted on said lever and arranged in one movement of the lever to actuate the governing mechanism, and a check operated controlling apparatus operatively connected to said trigger and arranged upon the introduction of a check to
115 release the trigger from the governing mechanism, the lever being arranged in turn to actuate the controlling apparatus so as to repeat the operation a definite number of
120 times according to the check inserted in the controlling apparatus.

9. The combination with a motor actuated mechanism arranged for intermittent movements, of check operated controlling
125 apparatus connected therewith and arranged upon the introduction of a check to start the motor actuated mechanism, the motor actuated mechanism being arranged in turn at the conclusion of a movement thereof to
130

again start the controlling apparatus into motion, and such repeated movements being continued a definite number of times according to the predetermined check inserted in the controlling apparatus.

10. A check operated controlling apparatus comprising a ratchet wheel, escapement pawls co-acting therewith to permit a step by step return movement of the ratchet wheel, means for stopping said movement at a predetermined point, and means for moving the ratchet wheel forwardly, varying distances according to the predetermined check inserted in the apparatus.

11. A check operated controlling apparatus comprising a ratchet wheel, escapement pawls co-acting therewith and arranged to permit a step by step return movement of the ratchet wheel, means for stopping said movement at a predetermined point, a pawl co-acting with said ratchet wheel to turn the same forwardly, and a series of check operated levers all of which are operatively connected to said pawl and which are arranged to move said pawl different distances, as and for the purpose set forth.

12. A check operated controlling apparatus, embodying a ratchet wheel, escapement pawls co-acting therewith and arranged to permit a step by step return movement of the ratchet wheel, a pawl arranged to effect the forward movement of the ratchet wheel, and a series of coin actuated levers arranged for moving one independently of others, and all operatively connected to the last named pawl and arranged to swing the same varying distances according to the predetermined coin inserted in the controlling apparatus.

13. A check operated controlling apparatus embodying a spring turned ratchet wheel, means for permitting the return movement of said ratchet wheel step by step, means for limiting such movement at a predetermined point, and means for turning said ratchet wheel in a forward direction varying distances according to the predetermined check inserted in the controlling apparatus.

14. A check operated controlling apparatus embodying a ratchet wheel, means for effecting a step by step return movement of said ratchet wheel, means for stopping said movement at a definite point, a pawl engaging said ratchet wheel to turn the same forwardly, a swinging frame upon which said last named pawl is mounted, a series of rods, all connected to said frame to swing the same and arranged to be actuated, one independently of others, and a series of independently movable levers connected to the respective actuating rods, the point of connection between the levers and actuating rods being such that the levers upon actuation will move the pawl varying distances

according to the particular lever that is actuated.

15. A check operated controlling apparatus embodying a ratchet wheel provided with a stop pin, a trip lever arranged to engage said pin to stop the movement of the ratchet wheel at a definite point in one direction, means for turning the ratchet wheel in the opposite direction upon the introduction of a check into the apparatus, escapement pawls co-acting with said ratchet wheel and permitting a step by step return movement thereof and means actuated by the rocking of said trip lever for alternately disengaging said escapement pawls from the ratchet wheel.

16. A check operated controlling apparatus embodying a ratchet wheel provided with a stop pin, a trip lever arranged to engage said pin to stop the movement of said ratchet wheel in one direction at a definite point, said lever being formed with a forwardly projecting finger, means for turning the ratchet wheel to release the lever from the pin, means for automatically rocking said lever in a direction to carry its finger forwardly, escapement pawls co-acting with said ratchet wheel and arranged to permit a step by step return movement thereof, the lever being arranged upon its forward movement to engage its finger with one of said pawls so as to release the latter from the ratchet wheel, and being arranged in such movement to release the other pawl whereby to permit it to engage the ratchet wheel, means for swinging the lever in the opposite direction, and means whereby the lever in such opposite movement will release the first named pawl and disengage the second named pawl from the ratchet wheel.

17. The combination with a motor actuated mechanism including a ratchet wheel arranged to operate the motor actuated mechanism a predetermined number of times according to the degree to which the ratchet wheel is turned, a pawl designed to engage said ratchet wheel, means for moving said pawl in engagement with said ratchet wheel different distances according to the predetermined check, and means for automatically releasing the pawl from the ratchet wheel upon the return movement of the pawl.

18. The combination with a motor actuated mechanism of escapement mechanism including a ratchet wheel arranged to operate the motor actuated mechanism a predetermined number of times according to the degree to which said ratchet wheel is turned, a pawl arranged to engage said ratchet wheel, means for moving said pawl into engagement with said ratchet wheel different distances according to a predetermined check, a support for the ratchet wheel including a pawl, the said pawl being formed

with a raised surface designed to engage the pawl and disengage it from the ratchet wheel upon the return movement of the pawl.

5 19. A check operated controlling apparatus embodying a ratchet wheel, means for effecting a step by step return movement of said ratchet wheel, and means for stopping said movement at a definite point, a pawl
10 engaging said ratchet wheel, a swinging frame upon which said last named pawl is mounted, a series of rods, a series of independently movable levers connected to the
15 respective rods, the points of connection between the levers and the rods being at different distances from the axis of said levers, all of said levers having a common axis, the
20 frame embodying a cross bar through which the rods loosely pass, said rods being provided with hooks adapted to engage the cross bar as specified.

20. A check operated controlling apparatus embodying a single ratchet wheel arranged to operate a motor actuated mechanism a predetermined number of times according to the degree to which said ratchet wheel is turned, escapement pawls engaging
25 said ratchet wheel, means for moving said pawl in engagement with said wheel different distances according to a predetermined check, the ratchet wheel being provided with a stop pin, a trip lever arranged to engage
30 said pin and stop the movement of the ratchet wheel at a definite point in one di-

rection, means for automatically rocking the trip lever intermittently, and means actuated by the rocking of said lever for alternately disengaging said escapement pawls from the ratchet wheel. 35

21. A check operated controlling apparatus embodying a ratchet wheel provided with a stop pin, a trip lever arranged to engage said pin and stop the movement of said ratchet wheel in one direction at a definite point, means for turning the ratchet wheel
40 to release the lever from the pin, means for automatically rocking said lever, escapement pawls coacting with said ratchet wheel and arranged to permit a step by step return movement thereof, the lever being arranged upon its forward movement to engage one of the pawls so as to release the
45 latter from the ratchet wheel and being provided with a lug arranged in such movement to release the other pawl whereby to permit it to engage the ratchet wheel, means for
50 swinging the lever in the opposite direction and for carrying its lug into engagement with the last named pawl to disengage it from the ratchet wheel and at the same time
60 to permit the first mentioned pawl to engage the ratchet wheel.

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

LOUIS M. NELSON. [L. s.]

Witnesses:

ROBERT F. POTTER, Jr.,
W. J. MARSCH.