

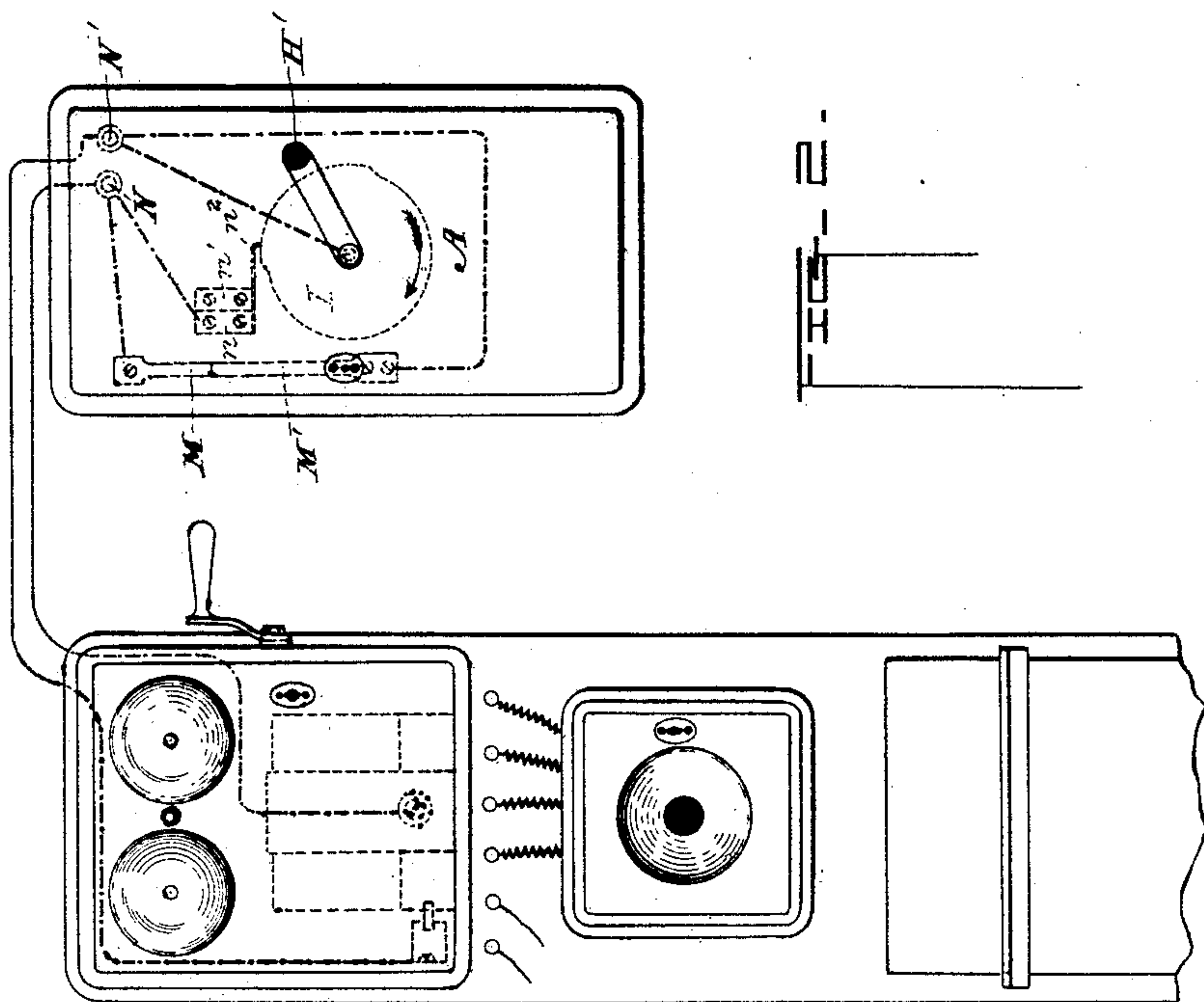
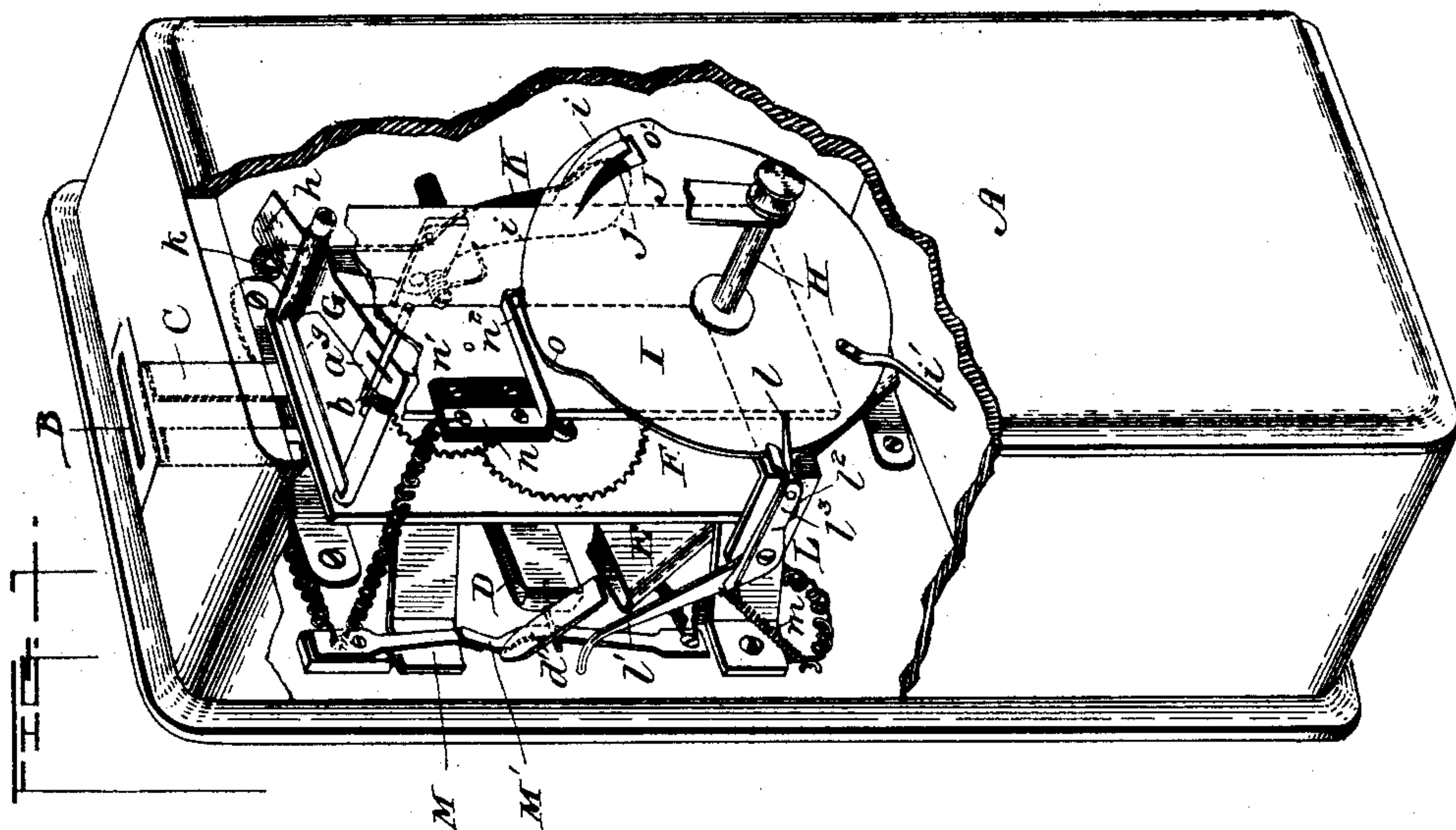
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J. J. KATO & T. H. RHODES.
TOLL COLLECTING APPARATUS FOR TELEPHONES.

No. 472,169.

Patented Apr. 5, 1892.



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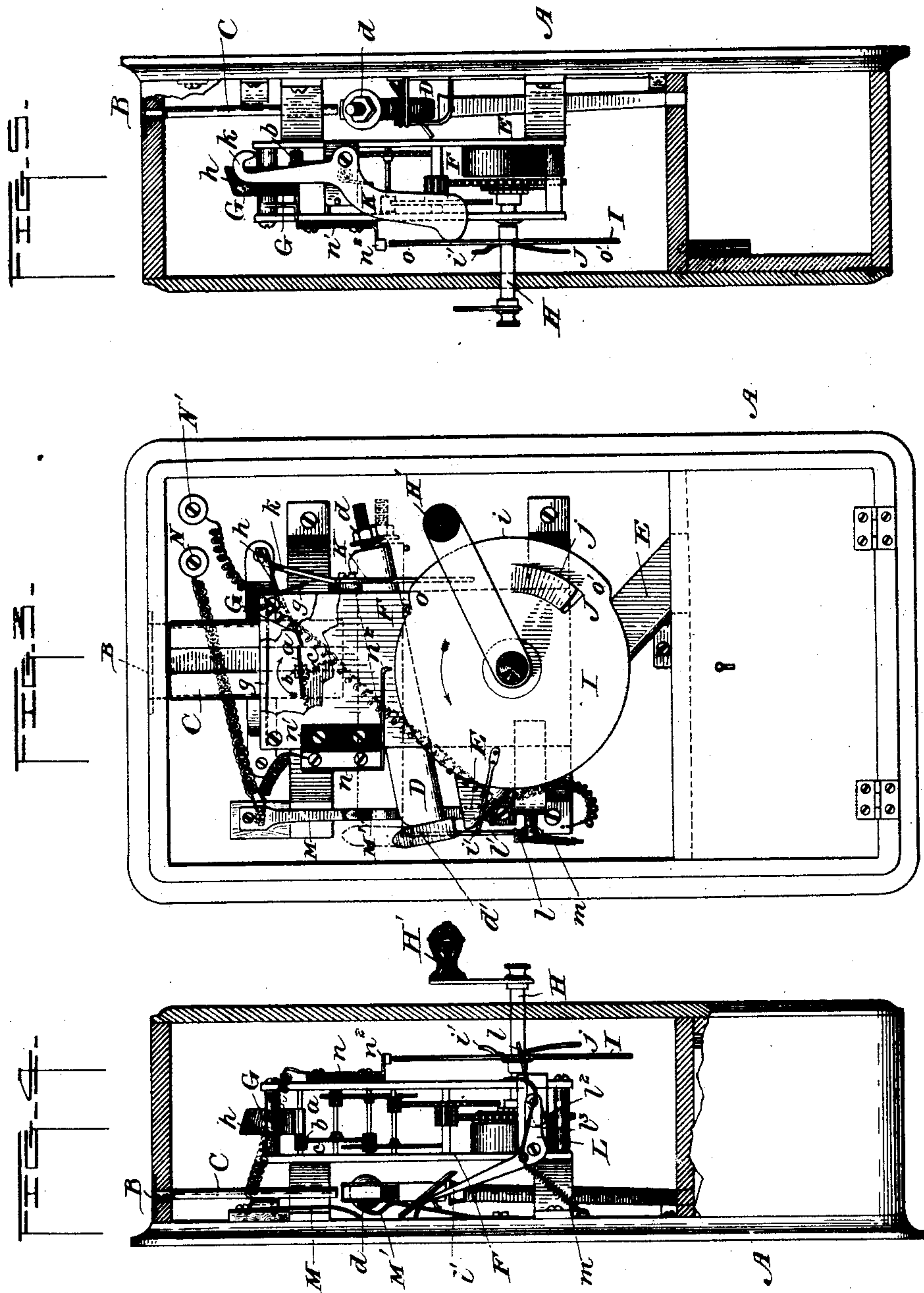
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UNITED STATES PATENT OFFICE.

JESSE J. KATO AND THOMAS H. RHODES, OF LOS ANGELES, CALIFORNIA.

TOLL-COLLECTING APPARATUS FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 472,169, dated April 5, 1892.

Application filed March 28, 1890. Serial No. 346,785. (No model.)

To all whom it may concern:

Be it known that we, JESSE J. KATO and THOMAS H. RHODES, citizens of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Toll-Collecting Apparatus for Telephones; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to nickel-in-the-slot machines, and is specially designed for use in connection with telephones located for use at various points in cities—such as hotels, saloons, and stores—where the general public may make use of the instruments.

It has heretofore been proposed to provide toll-collecting apparatus for telephonic systems in which the charges for the use of the telephone are made dependent upon the time the apparatus is in use; but such apparatus as have heretofore been devised and with which we are familiar are more or less complex in construction and expensive in the manufacture and maintenance, requiring the constant attention of an operative or employé of the telephone company to keep the time-movements of such instruments wound and the telephone in working condition.

The object of our invention is to provide a toll-collecting apparatus for use in connection with an ordinary telephone outfit at a public station or at a subscriber's office, where others than the lessee are liable to use the instrument, and to dispense with the services of an attendant or employé of the company at such station. To this end we have provided improved appliances by which the person desiring to use the telephone must first deposit a coin or equivalent device and also wind the time-movement before the instrument can be used, thereby dispensing with the services of an employé of the company in doing this work. The toll or charge to be made for the use of the telephone may be arbitrarily determined and any desired coin or equivalent device representing a monetary value equal to the toll or charge to be made may be adopted. The mechanism is so arranged that communication with the central

office or with a subscriber to the telephone-exchange cannot be had until the requisite deposit has been made and the clock-work wound; but another subscriber or an operative at the exchange or central office may at any time actuate the bell or signal at the station where the toll-collecting device is located.

The invention will first be described with reference to the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Referring to the drawings, in which like letters of reference are used to designate like parts of the apparatus, Figure 1 is a perspective view of the invention, with the upper portion of the toll-box broken away, so as to show the toll-collecting mechanism inclosed therein. Fig. 2 is a diagrammatic representation of the toll-collector connected with an ordinary telephone outfit. Fig. 3 is a front elevation of the invention with the cover of the toll-box removed. Fig. 4 is a side elevation looking at the toll-collecting mechanism at the left side of Fig. 3, the toll-box or casing being shown in section; and Fig. 5 is a similar view looking at the mechanism at the opposite side of said Fig. 3.

A in the drawings designates the inclosing casing or toll-box, within which is placed the toll-collecting appliances, which box may be made of wood or any suitable material and of any desired style and dimensions. This box is provided with a cash-drawer at the bottom thereof, into which the coins are directed, such drawer being provided with a lock and key by which it may be rendered inaccessible to any one except the person or persons empowered by the telephone company to collect the coins.

The toll-collecting appliances are located in the casing above the cash-drawer, so as to render the same accessible to the employés of the company for the purpose of inspection or repairs without at the same time affording access to the money-drawer.

The box A is provided with a slit B for the introduction of the coins, and below this slit is placed a chute C, by which the coins are directed onto a balance-lever D, which is preferably made in the form of a trough for the purpose of receiving the coin or other circular device in such position that it will roll

down the trough, which is tipped thereby. When the coin reaches the lower end of the trough, it will drop into a second chute E, by which it is directed into a cash-drawer at the bottom of the box.

The lever D is provided with an adjustable weight or counter-balance d , by which it may be regulated. This lever is supported upon a suitable frame-work at the back of the casing or box, and in front thereof may be secured the frame F, which supports a train of gearing comprising a clock-work of ordinary construction, save that instead of the usual escapement and pallet we provide a fan a , mounted upon a shaft which carries a pinion b , which meshes with the gear-wheel c , connecting with the train of gearing of the clock-work, as best shown in Figs. 1 and 4. The fan a rotates in the path of a stop-plate G, which is held normally in engagement with the fan by means of a spring g , and which is provided with a projection h for a purpose to be hereinafter described.

H designates the main shaft of the clock mechanism, to which the usual mainspring is attached, and H' is a crank-handle, which may be detachably secured to said shaft for the purpose of winding the spring.

To the shaft H is secured a cam-shaped disk or dial-plate I, the peripheral portion of which for about one-third of its circumference, as from o to o' , is formed with a projecting portion or ledge i . The dial-plate I may be indented or preferably cut at J, and the cut portion bent upwardly from the opening thus formed in the plate, so as to form an inclined lip j , overhanging said opening.

Beneath the dial-plate I is pivoted a spring-pressed lever K, whose upper end is pressed normally by the spring against the under side of the dial-plate. When the dial-plate is thrown into the position shown in Fig. 1, with the end of the lever K resting in the opening beneath the overhanging lip j , the opposite cam-shaped end k of said lever will drop below the projecting portion h of the stop G, so as to permit said stop to engage the fan a and arrest the movement of the clock-work; but when the dial-plate is rotated the end k of the lever K will be elevated and engage the projecting portion h of the stop and release the fan, so as to set the clock-work in motion. This motion of the clock-work will continue until the upper end of the lever K is forced into the opening J beneath the lip j , whereupon the stop G will be released by the lever and will engage the fan so as to stop the clock mechanism.

The dial-plate I is provided with a projecting pin i' , which travels in the path of an upwardly-projecting arm or pawl l , pivoted to the short arm l^2 of a rocking lever L. The lever L may be pivoted to a depending portion of the frame-work, as shown, at the side of the clock mechanism, and is held normally in the position indicated in Fig. 4, with its long arm l' resting against the back of the casing

in position to engage an inclined plate d' , secured to the end of the balance-lever D when the latter is tilted by the deposit of a coin. The pivoted arm or pawl l is sustained in a vertical position upon the arm l^2 of the lever L by means of a spring l^3 , which spring allows the pawl l to rock backward upon its pivot, so as to permit the pin i' upon the dial-plate to be turned back without affecting the lever; but upon the forward movement of the dial-plate the pin will engage said pawl and rock the lever L upon its pivot, so as to cause the arm l' of the lever to raise the end of the balance-lever D and restore the same to its normal position after having been tipped by the deposit of a coin.

M M' designate two contact-springs, which are held normally in contact by the balance-lever D, but which will separate when released by said lever. The spring M is electrically connected with the binding-post N and with a brass plate n , which may be secured to the frame of the clock-work, as shown in Fig. 3, by means of an intervening insulating-plate n' of rubber or other suitable material. The plate n is provided with a contact-spring n^2 , which is arranged in such relation to the peripheral portion of the dial-plate I as to make contact therewith only during about one-third of the revolution of the latter and while impinging upon the projecting portion or ledge i of said plate, being held normally out of engagement therewith during the remaining portion of the revolution of said plate. The spring M' is electrically connected with the binding-post N', as shown in Fig. 3, and when in contact with the spring M the current will pass from the binding-post N to the spring M, thence to the spring M', and thence to the binding-post N', taking a short circuit through said springs, and when the contact-springs are disconnected and the clock-work not in motion the current will pass from the binding-post N to the spring M, thence to the brass plate n , through the contact-spring n^2 , to the dial-plate I, and thence through the intermediate electrical connections to the wiring connecting with the binding-post N', it being understood, of course, that during this time the ledge i of the dial-plate will be in contact with the spring n^2 . It will therefore be understood that with the usual telephone outfit connected with the toll-collector, as indicated in Fig. 2, electrical connection may be established with the telephone through the local circuit in the toll-box, so as to permit the operator at the central office or a subscriber at any station upon the system to operate the magneto call-bell; but before the person desiring to use the telephone at the place or station where the toll-collector is located can do so it will be necessary for him to deposit a suitable coin or equivalent device of a predetermined character and value in order to open the local circuit and break the electrical connection through the contact-springs and the dial-plate, which can only be

done by depositing the requisite coin and turning the crank H', so as to cause the ledge upon the dial-plate to disengage the spring n^2 and simultaneously wind the clock-work.

5 By this means the user of the telephone is compelled not only to deposit a coin before using the telephone, but also to wind the clock, so that to keep the toll-collector in operative condition it is only necessary to keep
10 the instrument in perfect working order without the annoyance and expense incident to the use of a collecting device, the time-movement of which must be kept in working condition by an operative or employé of the telephone company.

Our toll-collector is also adapted to be used in connection with any ordinary telephone outfit by simply connecting the same with the wiring thereof in the manner indicated,
20 the toll-box being placed beside or underneath the telephonic apparatus, and the circuit connections being so arranged that the local circuit through the toll-box must be broken before the call-bell or other signaling device
25 can be actuated. The deposit of a coin or the winding of the clock-work alone will not suffice to establish electrical connection with the line, so as to permit the telephone to be used, for the reason that when the local circuit is broken by depositing a coin only, without winding the clock, or vice versa, the circuit will still be established, in one case through the springs and in the other through the parts N n^2 I N', so that by the use of
35 this double circuit any person desiring to use the telephone must not only deposit a coin, but also wind the clock before the necessary circuit connections can be made, and it is therefore impossible for designing persons to use
40 the telephone by simply winding the clock without at the same time dropping a coin into the slot. As long as the current is closed through either of the double circuits in the toll-collecting apparatus no current can be
45 generated, so as to actuate the magneto call-bell. With the arrangement shown our time-movement is regulated so as to run only five minutes, at the end of which time the electric connections will be re-established, so that a
50 subscriber cannot call another subscriber or ring up the central office without dropping in another nickel. It will be understood, of course, that the time-movement may be regulated, so as to run fast or slow, by any of the
55 well-known means employed for regulating clock-trains, and thereby increase or diminish at pleasure the time during which the telephone may be used by the deposit of a single coin.

60 It will of course be understood that various modifications may be made in the construction and arrangement of parts hereinbefore described without departing from the essential features of our invention, and hence we
65 do not desire to be limited to the exact construction and arrangement shown and described; but

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

1. In combination with a telephone, a toll- 70
collecting apparatus comprising a coin-receiver, a normally-closed local electric circuit, means for breaking said circuit by the deposit of a coin, a second normally-closed local electric circuit, clock mechanism, and connections for 75
breaking said second circuit by winding the clock, and means whereby said clock mechanism is adapted to simultaneously close both of said circuits at a predetermined point in its movement, substantially as described. 80

2. In combination with the telephone, the toll-collecting apparatus comprising a balance-lever, a clock-movement for resetting said balance-lever when tipped, and normally-closed double-circuit connections through 85
the toll-collecting apparatus adapted to be opened, the one by the deposit of a coin and the other by the winding of the clock mechanism, substantially as described.

3. In combination with the telephone, the 90
toll-box, the contact-springs, the balance-lever for holding said springs normally in contact, and the double-circuit connections adapted to establish electric connection with the telephone through said toll-box in either of two po- 95
sitions of the springs through the same when in contact and through the dial-plate of the clock-movement when the springs are separated, substantially as described.

4. In combination with the telephone, the 100
toll-collecting apparatus comprising a suitable casing, a coin-receptacle in said casing, an inclined chute for receiving the coin, a balance-lever, an electric circuit through said casing adapted to be broken by the tipping 105
of said lever, a clock-movement, and a second electric circuit adapted to be broken by winding said clock-movement, whereby the local circuits through the toll-collecting apparatus can only be broken by depositing a coin and 110
winding the clock, substantially as described.

5. In combination with the toll-collecting apparatus, the clock-movement, the dial-plate on the main shaft thereof, the electric circuit adapted to be established through said dial- 115
plate, the fan connecting with the gearing of said clock-work, the stop-plate for arresting the movement of said fan, and the lever for releasing said stop-plate when the clock is wound, substantially as described. 120

6. In combination with the telephone, the toll-collecting apparatus comprising a balance-lever, an electric circuit adapted to be broken by the tipping of said balance, a clock-movement for resetting the balance, a 125
stop for arresting the movement of the clock-work, mechanism for releasing said stop by winding the clock-work, and mechanism adapted to be actuated by the movement of the clock mechanism, so as to restore the balance-lever to its normal position at a prede- 130
termined point in the movement of the clock-work, substantially as described.

7. In combination with an ordinary tele-

phone outfit, a toll-collecting apparatus comprising a balance-lever, electric connections between the telephone and said apparatus, adapted to be broken by the tipping of said
5 lever, a clock-movement for restoring said lever to its normal position, additional circuit connections with said telephone through the toll-collecting apparatus for establishing an electric circuit therethrough when the balance-lever is tipped, and mechanism for breaking
10 said circuit connections by winding the clock-work, substantially as described.

8. In combination with a telephone, a toll-collecting apparatus in electric connection
15 therewith, coin-controlled devices for breaking the electric circuit through said connections, clock mechanism for resetting said coin-controlled devices, circuit connections normally

closed by said clock-work, and means for breaking said circuit connections by winding the clock, substantially as described. 20

9. In combination with a telephone, a toll-collecting apparatus connected therewith, double circuits connecting said telephone through said collecting apparatus, coin-controlled devices for breaking one of said circuits, and clock mechanism for breaking the other circuit, substantially as described. 25

In witness whereof we have hereunto set our hands this 17th day of March, 1890.

JESSE J. KATO.
THOS. H. RHODES.

Witnesses:

JOHN T. JONES,
R. C. CARLTON.