R. YEARNEAU.

RENT COLLECTING MEANS FOR TELEPHONE SERVICE.

APPLICATION FILED MAY 15, 1907.

910,628. Patented Jan. 26, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

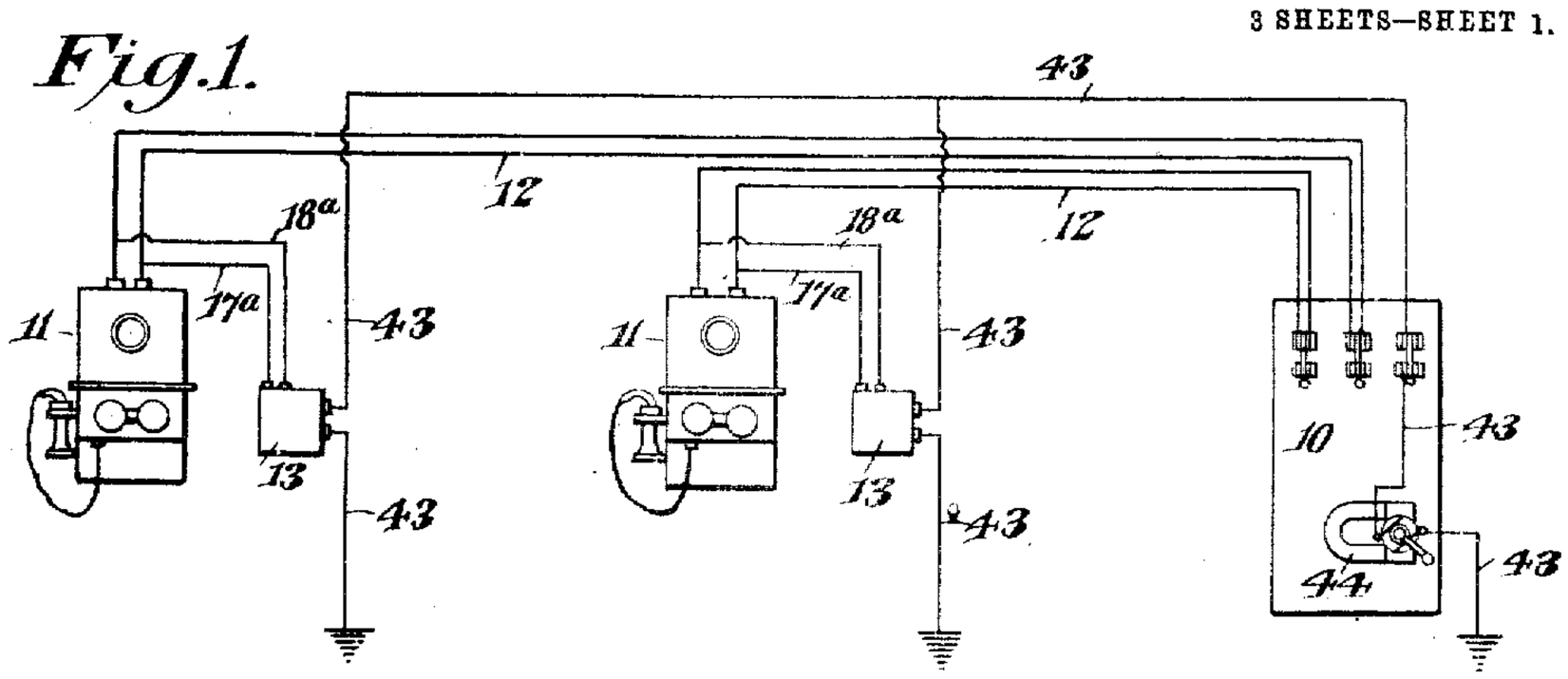
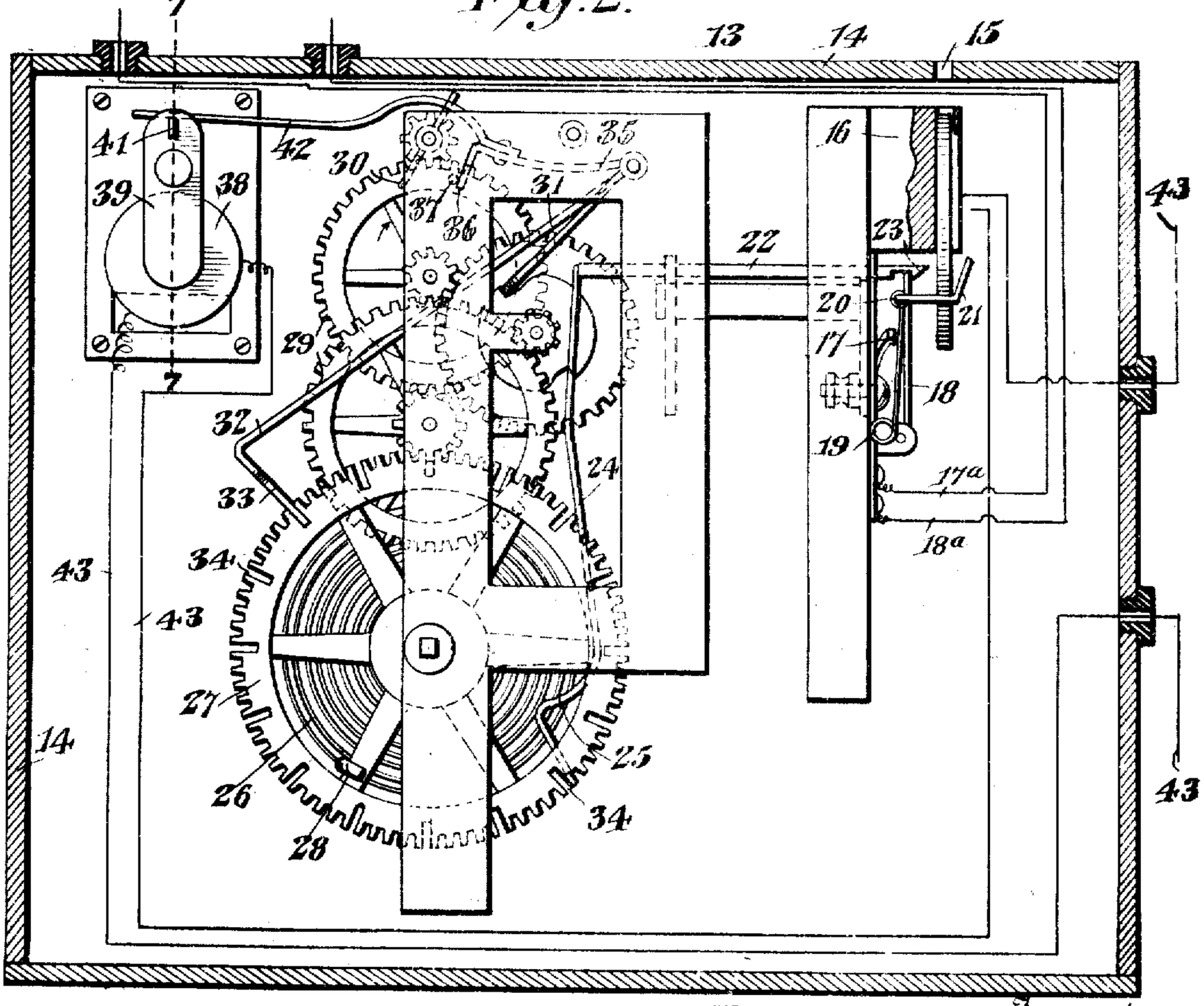


Fig. 2.



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3 SHEETS—SHEET 2.

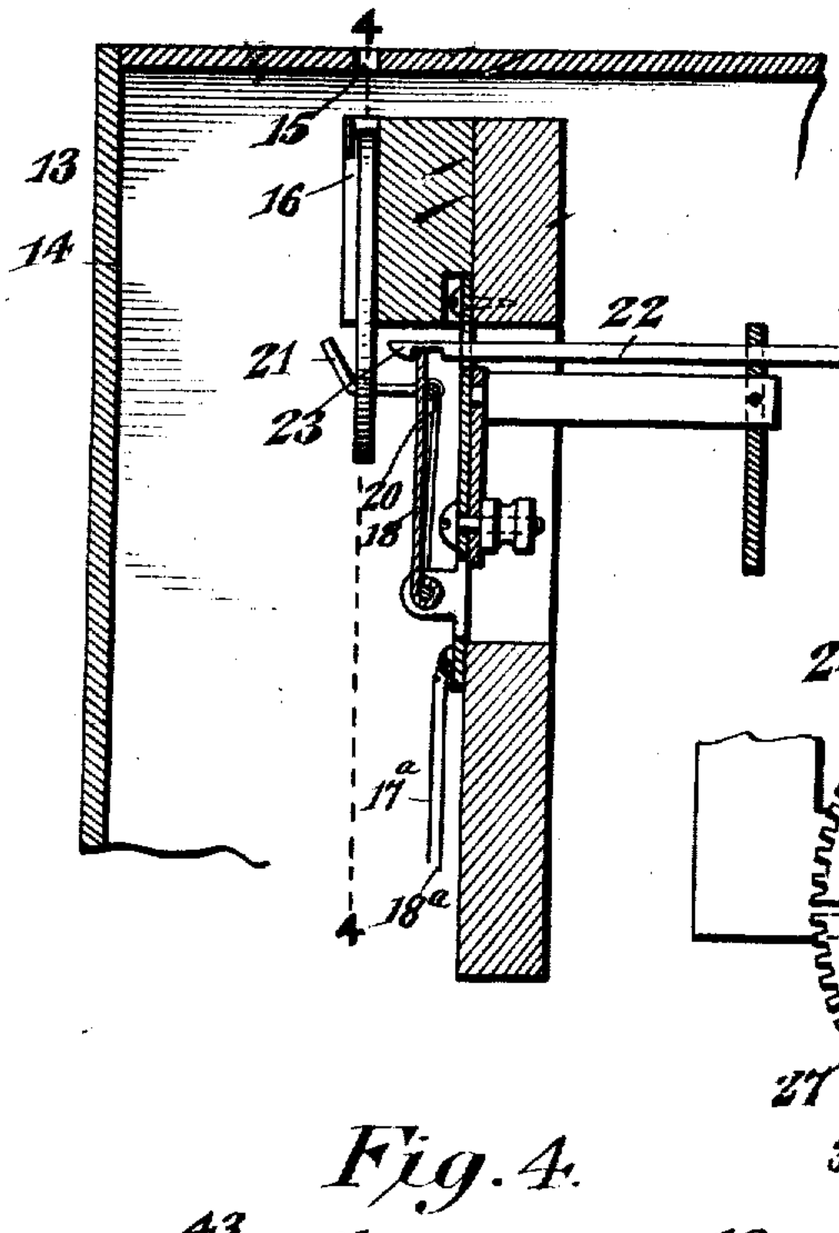


Fig. 3.

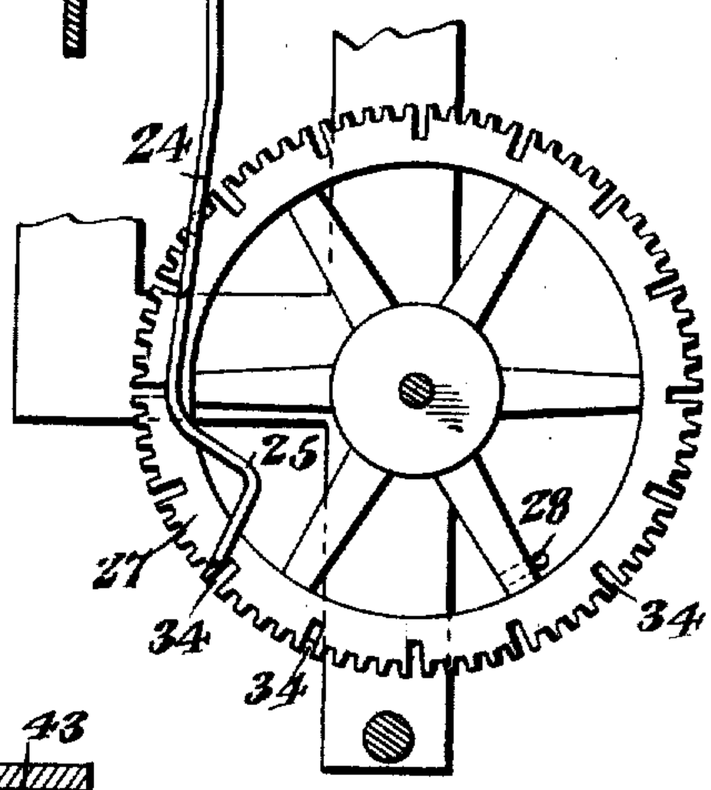


Fig. 4.

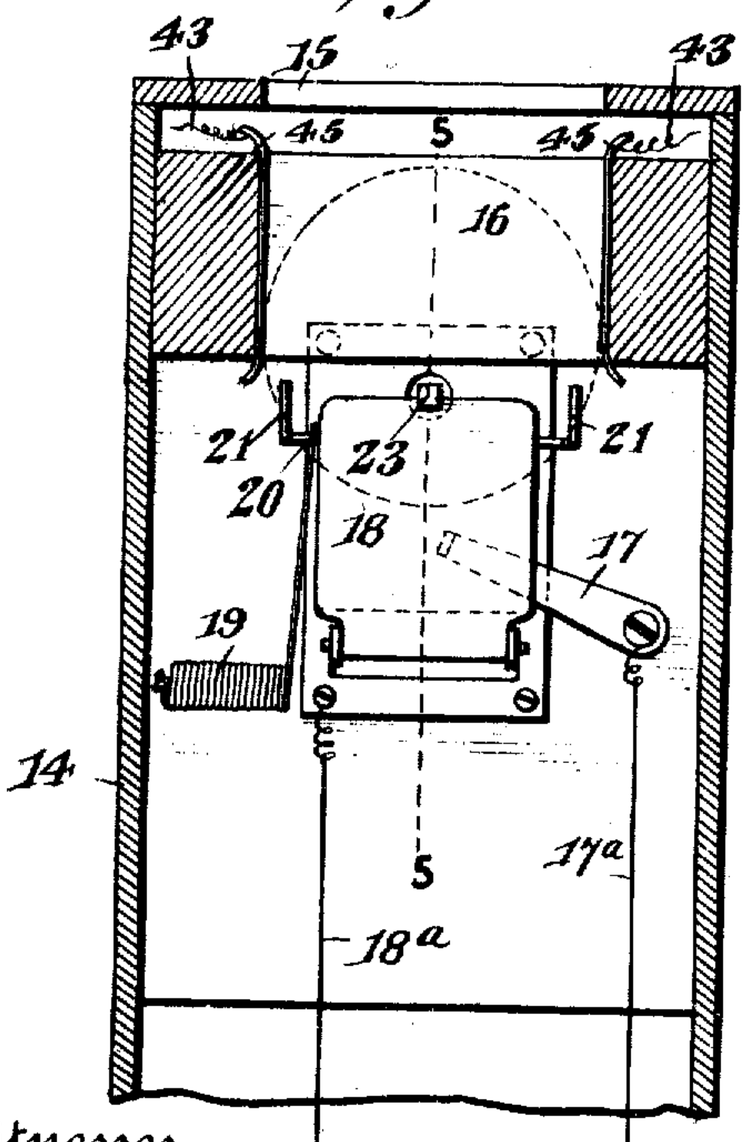


Fig. 5.

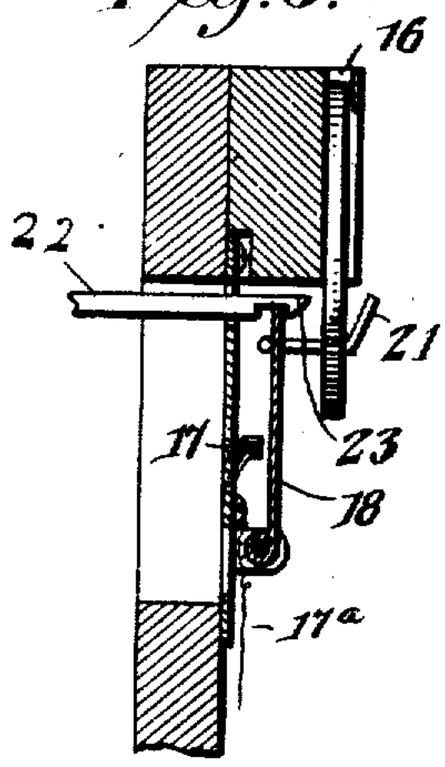
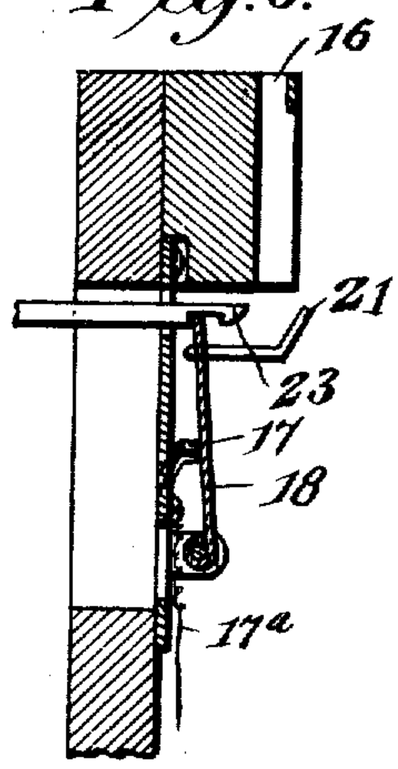


Fig. 6.



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RENT COLLECTING MEANS FOR TELEPHONE SERVICE.

APPLICATION FILED MAY 16, 1907.

910,628.

Patented Jan. 26, 1909.

3 SHEETS—SHEET 3.

Fig. 7.

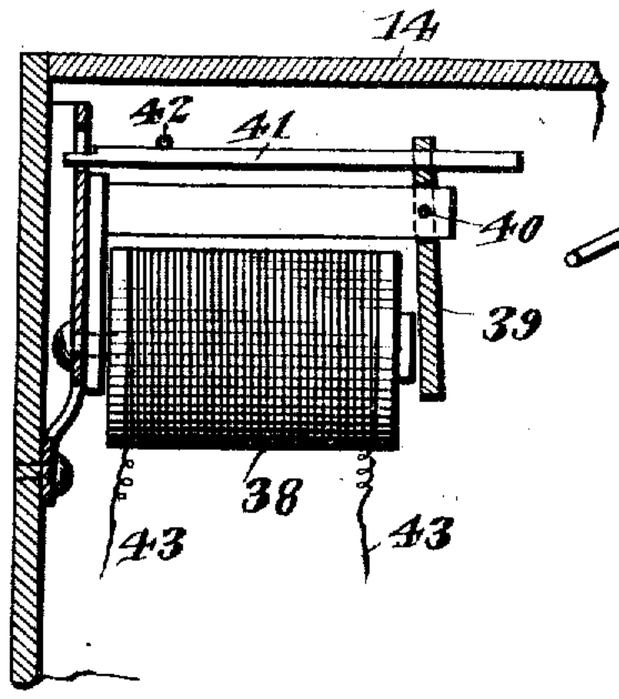


Fig. 8.

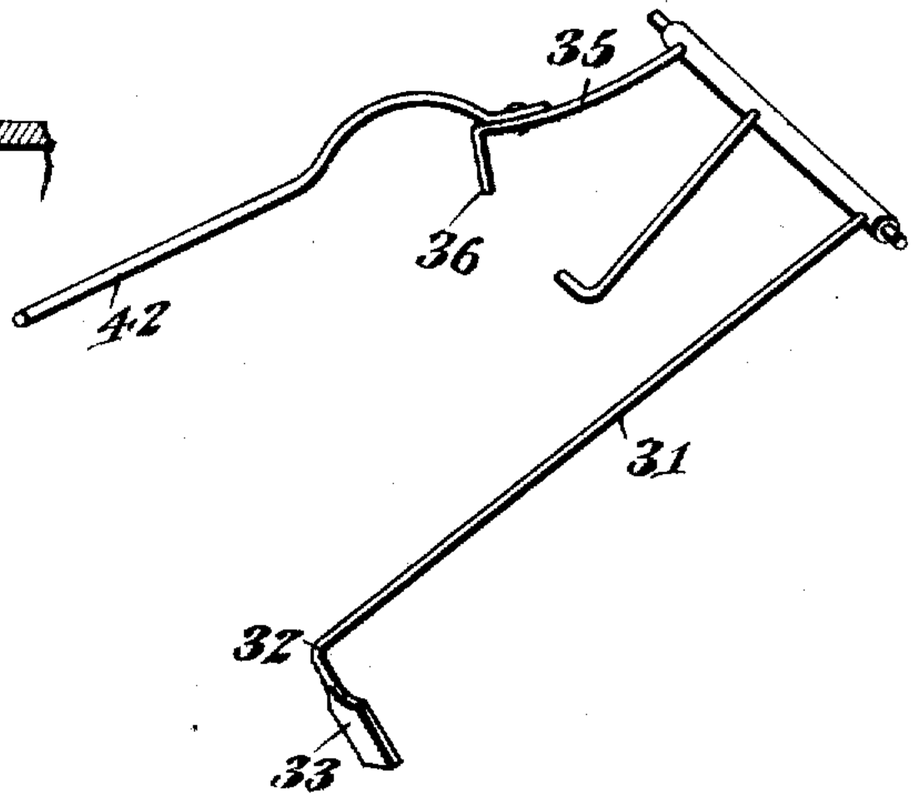
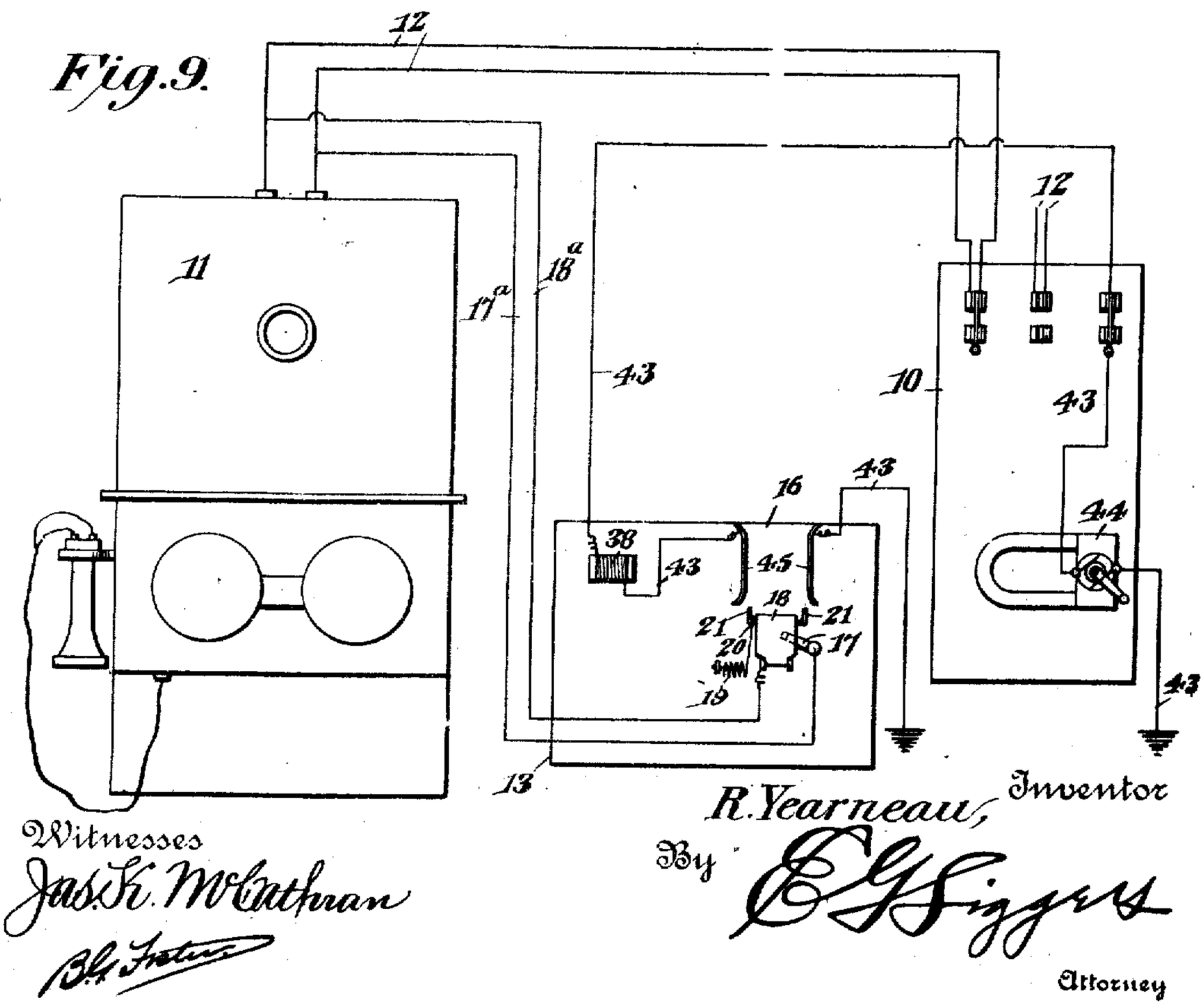


Fig. 9.



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UNITED STATES PATENT OFFICE.

RICHARD YEARNEAU, OF CLARK, SOUTH DAKOTA.

RENT-COLLECTING MEANS FOR TELEPHONE SERVICE.

No. 910,628. Specification of Letters Patent. Patented Jan. 26, 1909.

Application filed May 15, 1907. Serial No. 373,798.

To all whom it may concern:

Be it known that I, RICHARD YEARNEAU, a citizen of the United States, residing at Clark, in the county of Clark and State of South Dakota, have invented a new and useful Rent-Collecting Means for Telephone Service, of which the following is a specification.

This invention relates to means for placing telephone instruments in and out of commission.

The primary object of the present invention is to provide novel, simple and effective mechanism for maintaining by the aid of a check or coin, an operative connection between the telephone instrument and the central station, and furthermore to employ mechanism controlled from such central station, for effecting the discharge of the checks or coins from the said means, and thereby automatically cutting out the instrument until another check or coin has been introduced.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a diagrammatic view of a portion of a telephone system, showing the novel controlling means installed. Fig. 2 is a sectional view through one of the casings inclosing one of the instruments, showing the mechanism in elevation. Fig. 3 is a sectional view through a portion of the mechanism. Fig. 4 is a detail sectional view on the line 4—4 of Fig. 3. Fig. 5 is a detail sectional view on the line 5—5 of Fig. 4 and showing a check or coin in place. Fig. 6 is a view similar to Fig. 5, but showing the position of the parts when there is no check or coin therein. Fig. 7 is a detail sectional view on the line 7—7 of Fig. 2. Fig. 8 is a detail perspective view of the motor detent. Fig. 9 is a diagrammatic view showing the electrical connections.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, a telephone system is disclosed, which includes a central station 10 and a plurality of instruments 11 having line connections 12 with said station. While a metallic circuit is shown, it is to be understood that other circuits may be employed. Associated with each instrument, is a rent-collecting device, designated as a whole by the reference numeral 13.

Each instrument is preferably constructed, as follows: A suitable casing 14 is employed having a check or coin receiving slot 15 in its top. Beneath this slot, and within the casing is located a coin guide 16. A circuit closer is mounted beneath the coin guide, and consists of a spring 17, and a swinging plate 18 that is movable into and out of contact with the spring 17. The spring 17 therefore constitutes in effect a stationary contact element, while the plate 18 is a movable contact element. The spring 17 has an electrical connection 17^a with one of the leads of the telephone instrument, while the plate 18 is in electrical connection by a wire 18^a with the other lead of said instrument. Consequently it will be evident that when the plate 18 is in engagement with the spring 17, the line 12 will be short circuited, and the telephone instrument will therefore be out of commission. The said plate 18 is urged into engagement with the spring 17 by a spring 19, one of the terminals 20 of said spring being connected to one of a pair of check or coin holding arms 21 secured to the upper portion of the plate 18 and disposed directly beneath the check or coin guide 16. The relation of the parts is therefore such that when no check or coin rests on the arms 21, the spring 19 will hold the plate 18 against the spring 17, as shown in Fig. 6, but if a check or coin of suitable weight and size is introduced into the coin chute or guide 16, it will drop upon the arms 21 and will thus swing the plate outwardly and out of engagement with the spring 17, as illustrated in Figs. 2 and 5. The swinging movement of said plate 18 is limited, however, by a pivoted latch 22 having a terminal hook 23 that engages the upper edge of the plate 18. This latch has at its rear end a depending finger 24 terminating in a substantially V-shaped track or guide 25. A suitable motor, preferably a spring motor 26 is located within the casing 14, and includes a wheel 27 that carries a projection or stud 28. The V-shaped track 25 of the finger 24 of the latch is located in the path of movement of this projection or stud. The motor also includes a train of gearing 29, which operates a speed governor fan 30, and associated with this gearing is a pivoted detent 31 corresponding substantially to the detent employed in the striking train of a time movement. This detent includes an arm 32 having a selector tooth 33 that operates against the periphery of the wheel 27, said periphery being pro-

vided with deep notches 34. The detent furthermore has an arm 35 provided with an offset terminal 36 that is arranged to engage behind a pin 37 on one of the gear wheels of the train 29. An electro-magnet 38 is also located within the casing and the armature 39 of this magnet is pivoted to a support, as shown at 40 in Fig. 3. Said armature carries a rearwardly extending finger 41 upon which rests an arm 42 secured to the detent. The electro-magnet is in circuit, as shown by the wires 43 with a magneto generator 44 located at the central station 10. One of the leads is preferably grounded, as shown, the other or metallic connection preferably including a pair of spaced springs 45, shown in Figs. 4 and 9, which springs are located at opposite sides and in the path of movement of a check or coin placed in the slot 15. Consequently when the check or coin rests upon the arms 21, the circuit which includes the electro-magnet and magneto generator will be closed.

The operation of the structure may be briefly described as follows: As already shown, as long as the plate 18 is in engagement with the spring 17, the line will be short circuited, and the instrument cannot therefore be used. Inasmuch as the spring 19 urges the plate 18 into such contact, the instrument will be out of commission until a proper check or coin has been introduced into the slot 15, and is located upon the supporting arms 21. When a check or coin, has thus been introduced, its weight will carry the plate out of engagement with the spring 17, thus opening said short circuit, whereupon the instrument can be operated in the ordinary manner. At the same time, the check or coin engaging both the springs 45 will close the circuit in which the electro-magnet 38 and magneto generator 44 is placed. When the rent becomes due again, all that is necessary is for the operator at the central station to actuate the magneto generator 44, whereupon a current will be passed through the line 43, and the magnet 38 energized. The armature 39 will therefore be swung, raising the finger 41 and arm 42, which actuates the detent to release the motor. As a result, the wheel 27 will be revolved and the projection 28 striking the track portion 25 of the finger 24 will actuate the latch, thus raising the free end, so that it will disengage from the plate 18. The weight of the coin will now swing said plate downwardly until the coin drops from the arms 21, whereupon the spring 18 will react to swing the plate to its original position in contact with the spring 17. The short circuit of the telephone instrument is thus again completed, and the instrument cannot be used until another check or coin is deposited. It will also be noted that when the coin drops from the arms, the circuit which controls the operation of the electro-magnet 38 will be opened, and the magnet deënergized, allowing the detent to immediately drop and re-lock the motor. This is of importance, inasmuch as it permits the placing of a series of the controlling devices on a single line, and each one will be automatically stopped as soon as the coin has dropped from the coin engaging means. The employment of a toothed wheel 27 with a selector 33 is important, for in case of electrical disturbances, the magnet 38 may be energized, but the movement of the motor will be comparatively small and not sufficient to permit the wheel 27 to make a complete rotation, and thus effect the operation of the latch. Any number of deep notches may therefore be employed so as to make it improbable that the motor will be operated a sufficient number of times to effect an unauthorized release of the controlling check or coin within a predetermined period of time. One of the particular advantages of the mechanism as a whole is that it can be installed with any system and instruments now in use without altering or disturbing said instruments or system as it merely constitutes means for short circuiting the lines, and thus cutting out said instruments.

It will of course be understood that the controlling devices may be located at any point, and the short circuiting connections effected in any desired manner. Preferably, however, each mechanism is located in close proximity to the telephone instrument, where it can be conveniently supplied with checks or coins and inspected without difficulty. The spring motor is rewound in the ordinary manner by a key, this rewinding being made at certain periods by the inspector or collector.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In mechanism of the character described, the combination with circuit controlling means, of a movable check holder constituting an actuating device for the circuit controlling means, a latch for maintaining the check holder in a predetermined position, a motor for moving the latch, holding means for the motor, and mechanism for releasing the holding means to permit the movement of the motor.

2. In mechanism of the character de-

scribed, the combination with circuit controlling means, of a swinging check holder constituting an actuating device for the circuit controlling means, a latch for holding the check holder against swinging movement, a motor for operating the latch, holding means for the motor, and a magnetically operated detent device for operating the holding means.

3. In mechanism of the character described, the combination with circuit controlling means, including a swinging contact element, of a check holding device mounted on the swinging contact element, a swinging latch engaging the contact element for holding the same and the check holding device against swinging movement, a motor, a rotary device operated by the motor and engaging the latch to swing the same, a detent for the motor, and an electro-magnet engaging the detent to operate the same and release the motor.

4. In mechanism of the character described, the combination with circuit controlling means including relatively movable contact elements, of means for normally maintaining the elements in contact, a check controlled device operating when a check is engaged therewith to maintain the elements out of contact, and means for holding the check controlled device in a predetermined position and with the contact elements out of engagement.

5. In mechanism of the character described, the combination with circuit controlling means including relatively movable contact elements, of means for maintaining the elements in contact, a latch for permitting a limited relative movement between the elements to separate them, a check holding device associated with the elements and arranged to hold them separated when a check is engaged therewith, and means for operating the latch to permit a free movement of one of the elements to thereby discharge a check from the check holding device.

6. In mechanism of the character described, the combination with circuit controlling means including a stationary contact element, and a swinging contact element movable into and out of engagement with the stationary element, of means for normally maintaining the swinging contact element in engagement with the stationary contact element, a check holding device carried by the swinging contact element for moving it out of engagement with the stationary contact element, a latch for holding the movable element in a predetermined position and out of engagement with the stationary element, a motor for operating the latch, a detent for the motor, and means for actuating the detent.

7. In mechanism of the character described, the combination with circuit controlling means including a spring, and a swinging element movable into and out of engagement with the spring, of check supporting arms carried by the swinging element and operating when a check is engaged therewith to hold the elements separated, a latch for maintaining the swinging element in a predetermined position when a check is engaged with the arms, said latch having a finger, a motor having a projection that engages the finger to move the same and thereby the latch, a swinging detent for the motor, and an electro-magnet having an armature provided with a finger that engages the detent to move the same.

8. In mechanism of the character described, the combination with a telephone instrument, a central station and an electric line circuit connecting the two, of a short circuit in the line circuit including a switch having relatively movable contact elements, means for normally urging the elements into contacting relation, a check controlled device for holding the elements out of contact, electrical means for controlling the movement of the check controlled device, an electric circuit including said controlling means and the central station, and means at the central station for energizing the latter circuit.

9. In mechanism of the character described, the combination with a telephone instrument, a central station, and a line connecting the same, of a short circuit for the line including a switch having a stationary contact element, a movable contact element movable into and out of engagement with the stationary element, a check engaging device associated with the movable element to hold it out of engagement, a latch for holding the movable element in a predetermined position, and means controlled from the central station for effecting the movement of the latch.

10. In mechanism of the character described, the combination with a telephone instrument, a central station, and a line connecting the same, of a short circuit for the line including a switch having a stationary contact element, a movable contact element movable into and out of engagement with the stationary element, a check engaging device associated with the movable element to hold it out of engagement, a latch for holding the movable element in a predetermined position, a motor for operating the latch, a detent for the motor, an electro-magnet for actuating the detent, and a circuit including said electro-magnet and having controlling means located at the central station.

11. In mechanism of the character described, the combination with a telephone instrument, a central station, and a line connecting the two, of a short circuit for said line including a switch, said switch comprising a spring and a swinging contact plate movable into and out of engagement with the spring,

check holding arms carried by the plate, means for urging the plate into contact with the spring, a swinging latch engaging the plate to maintain it in a predetermined position when out of engagement with the spring, said latch having a finger, a motor having a projection that engages the finger to operate the latch and thereby free the plate, a swinging detent for the motor, an electro-magnet including a swinging armature having a finger that engages the detent, a line connecting the central station and the electro-magnet, said line including spaced contact elements located in the path of movement of checks placed upon the check holding arms.

12. In mechanism of the character described, the combination with a telephone instrument and a central station, of a circuit connecting the two, a short circuit for the instrument including a switch, a movable check holding device connected to the switch, means for limiting the movement of the check holding device to maintain a check therein while holding the switch open, and mechanism separate from the instrument for operating said limiting means to permit a further movement of the holding device and the discharge of the check therefrom.

13. In mechanism of the character described, the combination with a telephone instrument, of a central station, a circuit connecting the instrument and station, a short circuit for the connecting circuit including a switch, a movable check holding device connected to the switch for operating the same, means for limiting the movement of the check holding device to maintain a check therein while holding the switch open, mechanism for operating said limiting means to permit a further movement of the holding device and the consequent discharge of the check therefrom, a separate circuit operable from the central station for controlling said mechanism, and automatic means for returning the check holding device after the discharge of the check therefrom.

14. In mechanism of the character described, the combination with a telephone circuit, of controlling means for said circuit, including a check holder, other and electrically operated controlling means for the holder, including another circuit, and means associated with a check placed in the holder for making and breaking the latter circuit.

15. In mechanism of the character described, the combination with a telephone circuit, of controlling means for said circuit including a check holder, and other and electrically operated controlling means for the holder including another circuit, contact springs located in the other circuit, and means for supporting said springs adjacent to the check holder and in a position to be engaged and electrically connected by a check placed in the holder.

16. In mechanism of the character described, the combination with a telephone instrument, of a circuit therefor, controlling means for said circuit including a switch, of check holding means automatically operated by a check placed therein to hold the switch open, means for effecting the discharge of a check from the check holding means to permit the switch to close, said means including another circuit held closed by a check placed in the check holding means, and automatic mechanism for closing said switch when the check is ejected from the check holding means.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

RICHARD YEARNEAU.

Witnesses:
OTTO BAARSCH,
ANNA ARTZ.