

No. 667,139.

Patented Jan. 29, 1901.

E. OXLEY.
PREPAYMENT METER.

(No Model.)

(Application filed Mar. 14, 1900. Renewed Oct. 18, 1900.)

2 Sheets—Sheet 1.

Fig. 3.

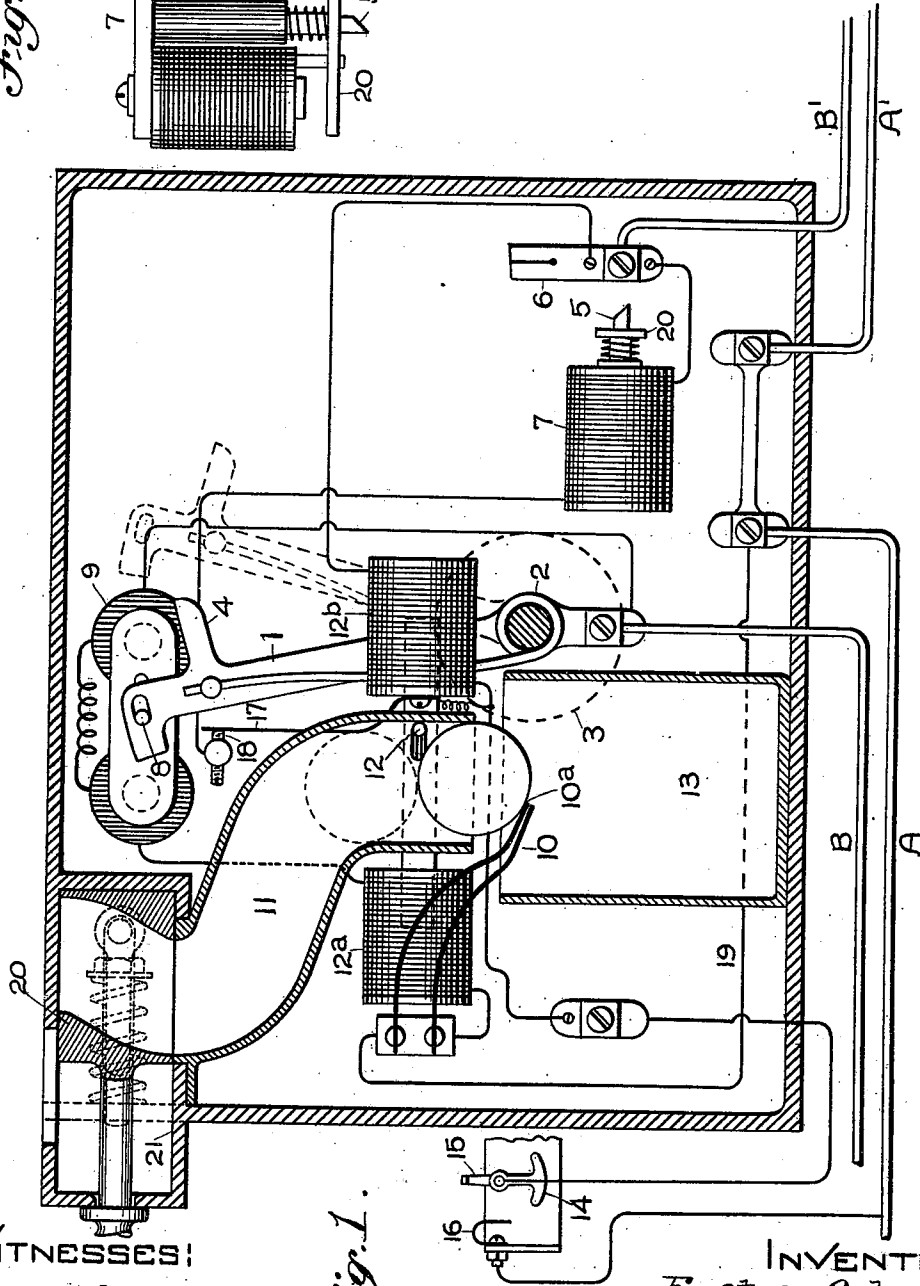
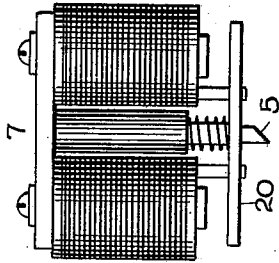


Fig. 1.

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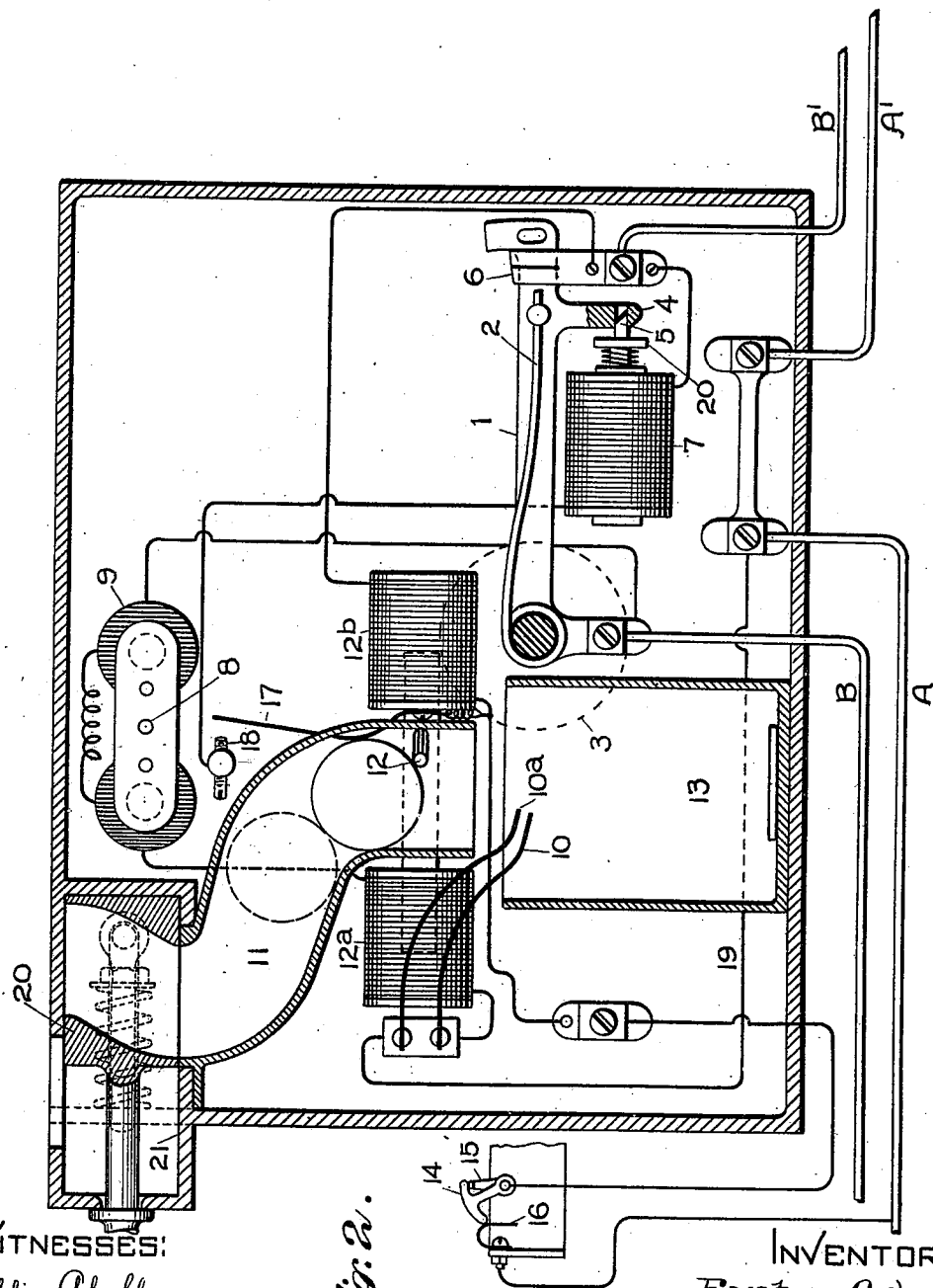
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PREPAYMENT METER.

(No Model.)

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2 Sheets—Sheet 2.



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Fig. 2.

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UNITED STATES PATENT OFFICE.

EUSTACE OXLEY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE GENERAL ELECTRIC COMPANY, OF NEW YORK.

PREPAYMENT-METER.

SPECIFICATION forming part of Letters Patent No. 667,139, dated January 29, 1901.

Application filed March 14, 1900. Renewed October 18, 1900. Serial No. 33,451. (No model.)

To all whom it may concern:

Be it known that I, EUSTACE OXLEY, a subject of the Queen of Great Britain, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Prepayment-Meters, (Case No. 1,248,) of which the following is a specification.

This invention relates to prepayment-meters in which by the deposit of a coin or token of determinate value a device may be operated at a consumer's premises, so as to permit consumption devices to be fed with energy.

The invention is particularly adapted for service in connection with electric translating devices. It might also be employed to measure the quantity of gas or other commodity supplied to a consumer.

The invention has particular reference to that type of prepayment devices in which the controlling device which admits energy to the consumer's plant is magnetically controlled, and is an improvement upon the apparatus described in a prior application filed by me on or about October 28, 1899, Serial No. 735,072.

My present invention differs from that described in my prior application in accomplishing the same results by a greater simplicity of mechanism. In my present organization the closure of the circuit to the translating devices is controlled directly by the consumer, but is dependent upon an electromagnetic releasing device operated by the admission of a coin to the prepayment apparatus and by which the controlling handle or lever is released, so that the switch may be closed.

My present invention, like the prior one above referred to, provides for the interruption of service after the prepaid amount of energy shall have been delivered, but provides also for a continued supply of energy when a second payment has been made before the complete delivery of the value of the prior coin or token.

The novel features will be hereinafter more fully described and will be particularly pointed out in the claims.

In the accompanying drawings, which illustrate the invention, Figure 1 is a vertical sec-

tional view of a prepayment apparatus involving my improvements, showing the arrangement of the parts when the consumer's devices are cut off from the source of supply. Fig. 2 is a similar view showing the condition of the apparatus when the consumer's devices are in operative relation to the source of supply. Fig. 3 is a side elevation of the release-magnet by which service is interrupted.

Referring first to Fig. 1, within a closed casing and under seal 1 provide a pivoted switch or service-controller governed by a coil-spring 2, one end of which is secured to the framework and the other to the outer portion of the lever. The tension of the spring when the parts are in a condition of freedom will support the lever in the dotted position shown in Fig. 1. The lever is controlled by a knob or handle on the outside of the apparatus (indicated by dotted lines at 3) and may be shifted angularly to the right until a hole drilled in a lug or arm 4 on the lever slips over a spring-actuated detent 5, in which position the end of the lever passes between the jaws of a metallic spring-clip 6, which forms one of the circuit-terminals. This position of the parts is shown in Fig. 2 and will be maintained until a definite amount of energy has been delivered to the consumer's devices, after which an electromagnet 7 will attract the armature controlling the detent 5, thereby releasing the lever 1 and permitting its controlling-spring to rebound, in which process it passes beyond the dotted position shown in Fig. 1 and engages a latch-pin 8, controlled by an auxiliary electromagnet, and its release can only be effected by the payment of a coin to the apparatus. The controlling-electromagnet 9 for the latch-pin is included in a branch circuit including two flexible spring-contacts 10 10^a, normally disconnected, but which are forced into contact by the transit of a coin through a chute 11, accessible from the outside of the apparatus. In operative relation to this coin-chute is a stop-pin 12, which may be shifted by a pair of solenoids 12^a 12^b, so as to obstruct the coin-channel and arrest the transit of a coin or token, or, on the other hand, can be withdrawn from the path of the coin and leave the channel open, so that the coin may drop freely

into a coin-receiver 13. The solenoid 12^a is included in a normally open branch circuit across the mains including the springs 10 10^a and the releasing-electromagnet 9, while the coil 12^b is in an independent branch circuit including a circuit-controller operated by the meter after a determinate quantity of energy has been furnished. This circuit-controller is shown detached at 14, comprising a pendulous contact freely pivoted on an arbor of the meter and adapted to be engaged after a determinate range of movement of the metering apparatus by an arm 15, secured to one of the shafts of the wheelwork of the meter and carried into engagement with a cooperating contact 16, which closes the circuit including the solenoid 12^b. In another branch circuit controlled by the meter-operated circuit-controller is the electromagnet 7, which determines the interruption of service, and in this branch circuit is included a spring-contact 17, a projection of which extends into the coin-chute in such relation to the path of the coin that when the latter rests upon the pin 12 the contact made by the spring 17 will be opened, thereby cutting the electromagnet 7 out of the branch circuit and disabling the operation of the service-interrupting device, notwithstanding the closure of the control-circuit at the meter. Thus so long as a coin remains in the chute, or, otherwise expressed, so long as energy has been prepaid, no interruption of service can occur; but when all prepayment has ceased the spring 17 makes contact with its cooperating contact 18, thereby putting the circuit including the release-magnet in condition to cut off service when the meter-circuit closer is operated.

As thus organized the operation may be briefly described as follows: Assuming that the apparatus is in a condition of idleness and the service-controlling lever locked by the pin 8, as indicated in Fig. 1, the consumer will place a coin or token in the chute 11, the coin-path being unobstructed by the withdrawal of the pin 12 when service was last interrupted. In order to prevent fraud, the coin-slot may be guarded by a slide 20, containing a pocket in which the coin may be dropped when the slide is pulled out, a guard 20 preventing the coin falling until the slide is pushed in. The coin in falling causes the spring-contacts 10 10^a to be connected, thereby closing a circuit from one of the supply-mains A to a binding-post within the prepayment device, thence by conductor 19 to and across the spring-contacts, and thence through the solenoid 12^a and magnet 9 to a binding-post connected with the negative main B. Two results follow: The pin 8 is withdrawn from the switch-lever, permitting it to swing under the slight tension of its controlling-spring to the position indicated in dotted lines in Fig. 1, and the core of the solenoid is drawn into the coil, carrying the pin 12 into the coin-chute and preventing the transit of further coins until the prepaid service has

been rendered. The switch-lever being now free, the consumer may operate the knob 3 on the outside and force the lever against the tension of its spring into switch-clips 6, thereby closing a circuit to the translating devices, which may be included between the leads A' B'. When forced into the jaws of the clip, the switch-arm is locked by the pin 5, the beveled nose of which permits the pin to be forced back by the lever until it is free to drop into the slot formed in the end of the lever to accommodate it. The reaction of the spring then latches the lever and holds it in that position until the electromagnet 7 is energized. When the prepaid energy has been delivered, the operation of the meter mechanism or its counting-train brings the circuit-closer 14 into engagement with the contact 16 and, assuming that no reserve coin has been placed in the chute, closes a branch circuit across contacts 17 and 18 to magnet 7, which draws in its armature 20 against the tension of its controlling-spring and releases the switch-lever, permitting its controlling-spring to rebound and be arrested and locked by the pin 8. An auxiliary branch circuit including the solenoid 12^b was energized when contact was made at 15 and 16, thereby shifting the pin 12 to the right and opening the coin-chute, so that the apparatus will be in condition to receive another coin at the pleasure of the consumer. If, however, the consumer desired no interruption of his service, a reserve coin may have been placed in the chute and would have been held in abeyance by the pin 12 and bearing against the spring 17 would have opened the release-circuit including the magnet 7, thereby preventing the latter from opening the switch or service-controller.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A prepayment device comprising a normally-retracted switch device for connecting the source of supply with the consumption devices, a lock for holding it retracted, means controlled by a coin or token for unlocking it, an operating-handle outside of the casing, a latch for holding it in closed relation to the consuming devices against its retractive force, and automatic means for releasing it when the prepaid energy has been delivered.

2. A prepayment device comprising a spring-actuated service-controller between the source of supply and the consumption devices, a lock normally holding it open, means controlled by a coin or token for releasing the lock, a handle accessible from the outside for closing it against its spring, a latch for holding it closed, a measuring apparatus controlling release of the latch, and means controlled by a reserve coin when paid for disabling the release until the energy represented by the reserve coin has been delivered.

3. A prepayment device comprising a spring-actuated service-controller between the source of supply and the consumption de-

vices, electromagnetic locks for retaining it in closed or open position, a coin-chute, a circuit-controller actuated by a coin for releasing the service-controller, a handle for closing said service-controller, and an independent circuit-controller actuated by an energy-measuring device in circuit to release it and cut off the supply.

4. A prepayment device comprising a spring-actuated service-controller between the source of supply and the consumption devices, an electromagnetic lock normally holding it open, a circuit-closer governed by transit of a coin or token through the coin-chute for releasing said lock, an operating-handle accessible to the consumer for closing the controller against its spring, an electromagnetic lock for retaining it closed, and a circuit-closer controlled by a measuring device for releasing the lock and permitting the controller to rebound to its normal position after a determinate amount of energy has been supplied.

5. A prepayment device comprising a spring-actuated service-controller between the source of supply and the consumption devices, an electromagnetic lock normally holding it open, a circuit-controller governed by transit of a coin or token through the coin-chute for releasing said lock, an operating-handle accessible to the consumer for closing the controller against its spring, an electromagnetic lock for retaining it closed, a circuit-controller governed by a measuring device for releasing the lock and permitting the controller to rebound to its normal position after a determinate amount of energy has been supplied, a magnetically-controlled coin obstruction in the chute, interposed when energy is being supplied, and a circuit-breaker operated when a coin engages the obstruction to disable the magnet which opens the controller from interrupting service as long as any supply has been prepaid.

6. In a coin-controlled mechanism, the combination of a manually-operated switch for

closing a circuit, a coin-controlled device which locks the switch against manual operation except when a coin is on deposit, and electrically-controlled means which regulate the opening of said switch.

7. In a coin-controlled mechanism which is adapted to be operated by two hands, the combination of a coin-receptacle, a manually-actuated switch for closing a circuit which is separate from the coin-receptacle, a lock for holding the switch open which is controlled by a deposited coin, and a second lock which is independent of the first for holding the switch closed.

8. In a coin-controlled mechanism, the combination of a switch for closing an electric circuit, a magnetically-controlled lock for locking the switch in the open position, and a coin-controlled device for affecting the magnet in a manner to cause the lock to release the switch.

9. In a coin-controlled mechanism, the combination of a switch for controlling an electric circuit, a lock for holding the switch in the open position, a second lock for holding the switch in the closed position, and a coin-controlled means for controlling one of the locks.

10. In a coin-controlled mechanism, the combination of a coin-receiver which is conveniently disposed with respect to one hand of the operator, a handle which is conveniently disposed with respect to the other hand of the operator, a switch-blade that is operated by the handle, a lock controlled by a deposited coin for holding the switch in the open position, means for locking the switch in its closed position, and means for actuating the lock.

In witness whereof I have hereunto set my hand this 9th day of March, 1900.

EUSTACE OXLEY.

Witnesses:

DUGALD MCKILLOP,
CHAS. B. BETHUNE.