

E. SCHATTNER.  
AUTOMATIC CONTROLLER.  
APPLICATION FILED JULY 8, 1904.

Fig. 1.

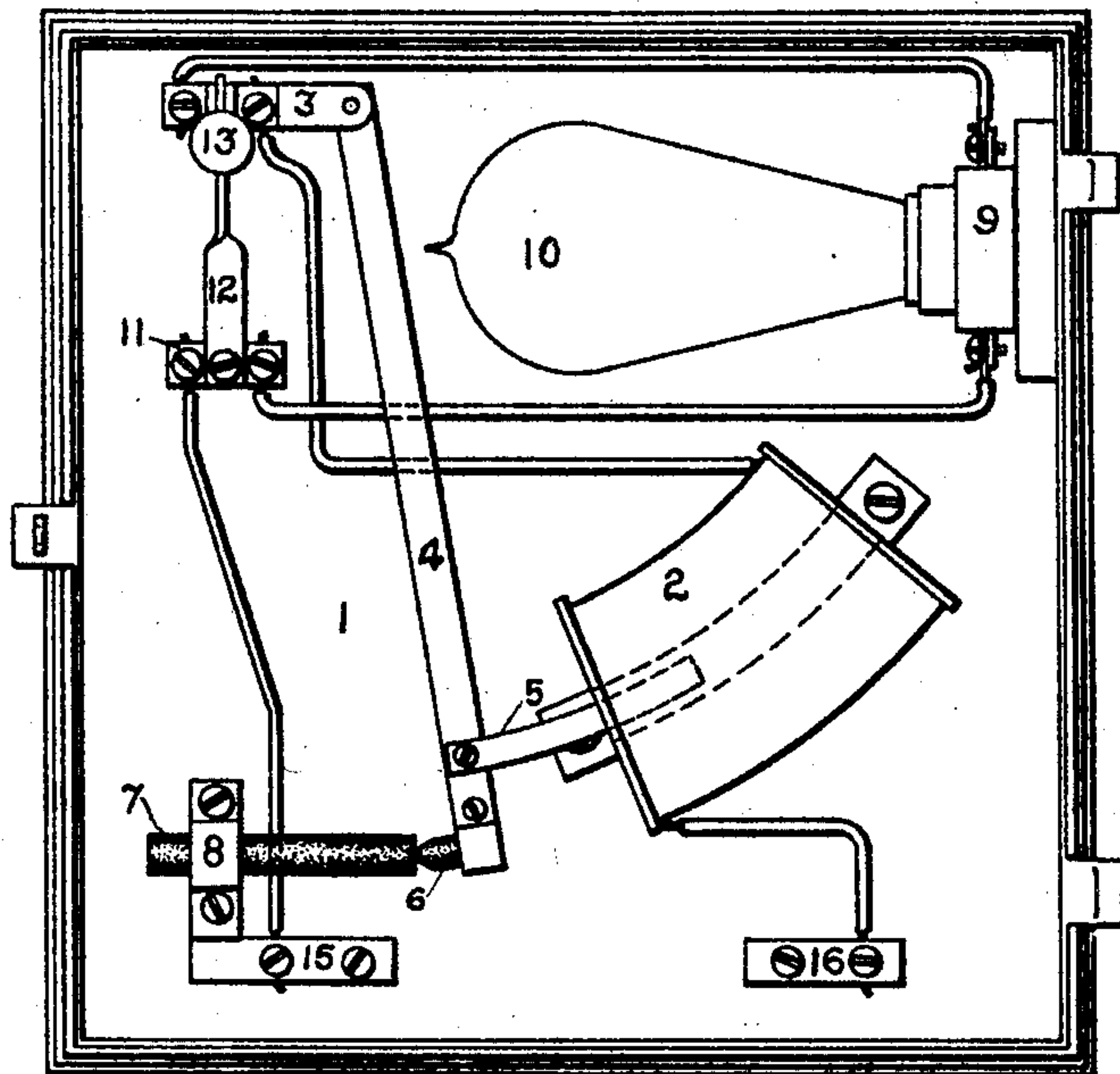


Fig. 2.

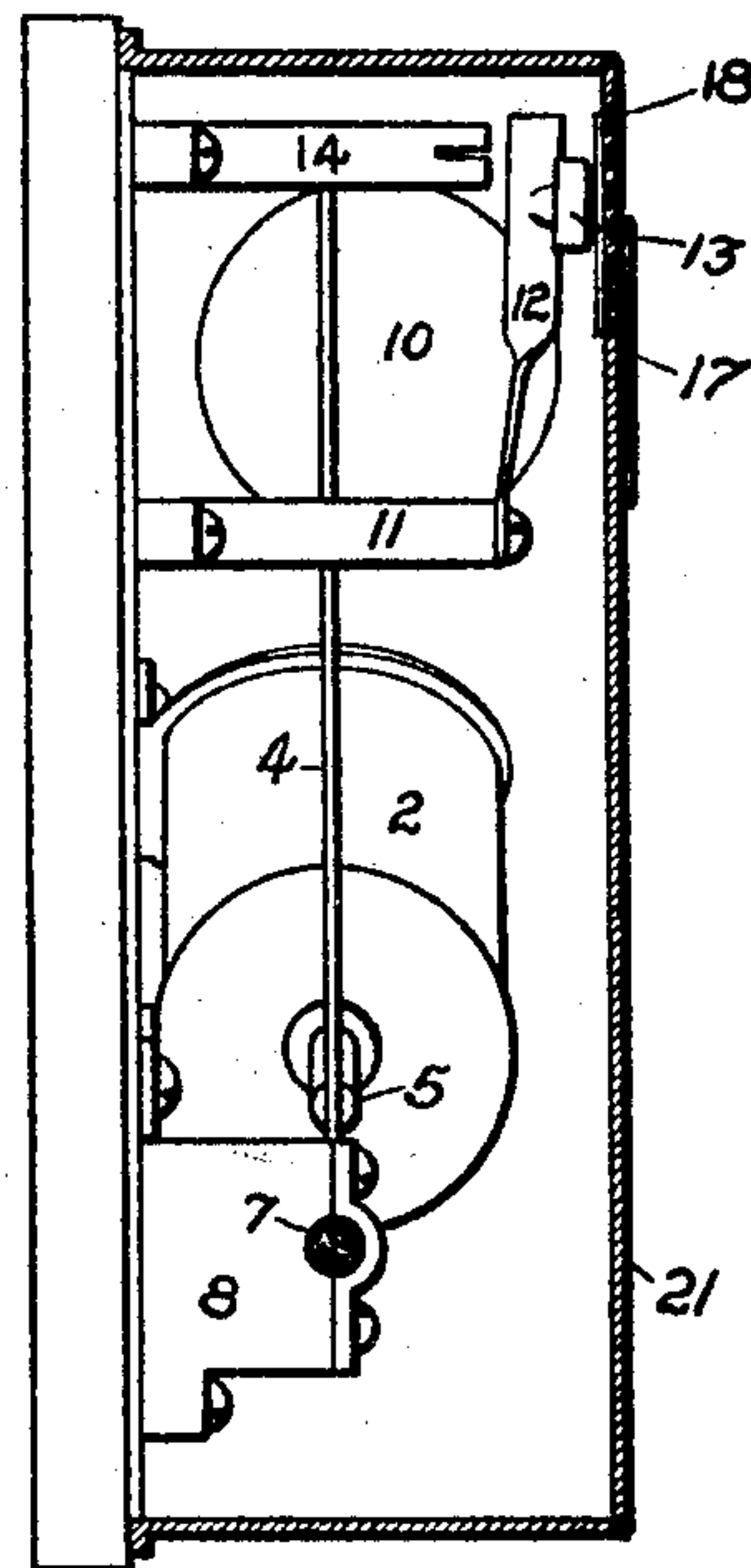
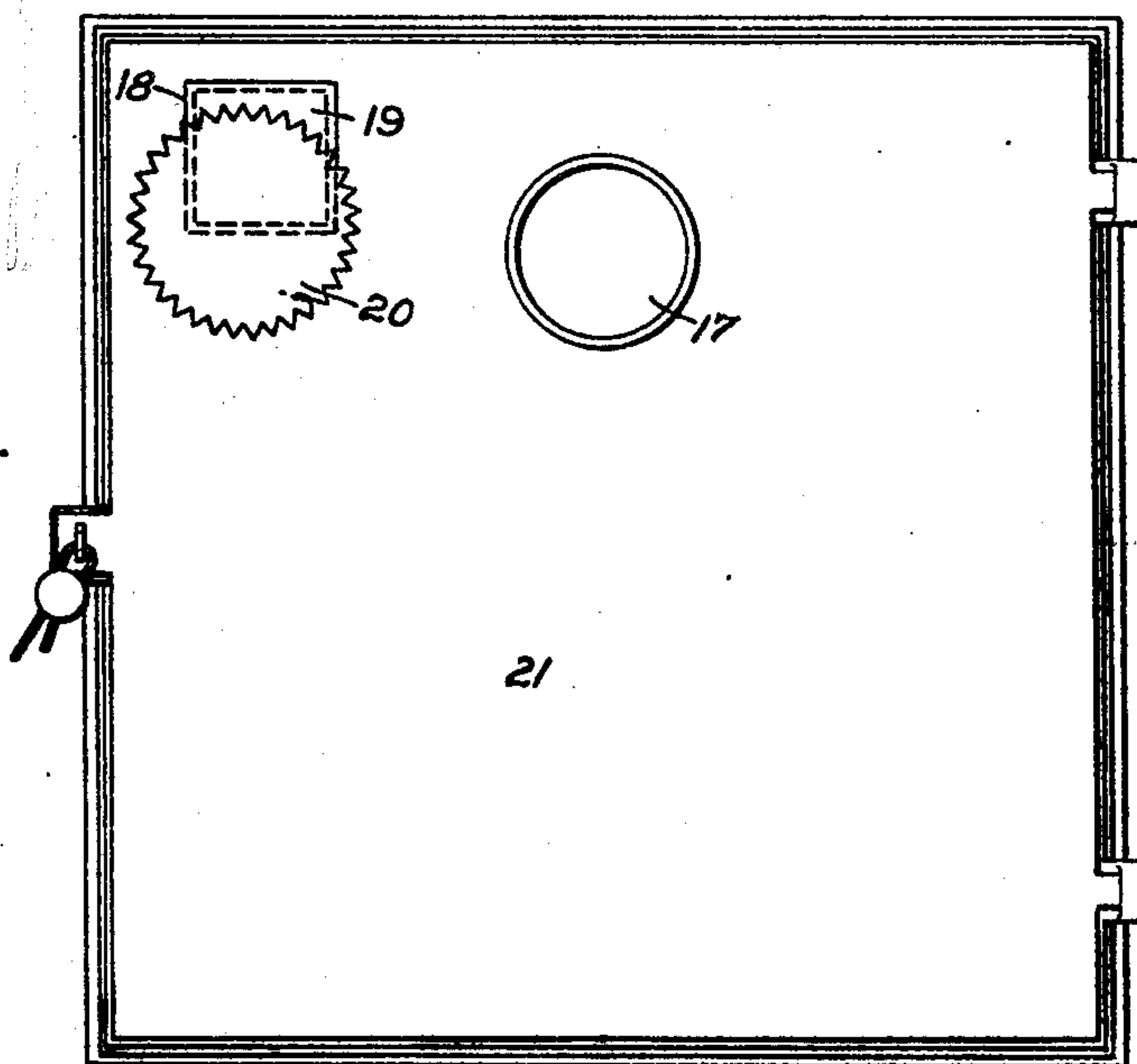


Fig. 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

ERNEST SCHATTNER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## AUTOMATIC CONTROLLER.

No. 795,369.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed July 8, 1904. Serial No. 215,726.

*To all whom it may concern:*

Be it known that I, ERNEST SCHATTNER, a subject of the King of Great Britain, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Automatic Controllers, of which the following is a specification.

In installing incandescent lamps electric-lighting companies frequently wire a consumer's premises and furnish electric energy on a contract basis by which the consumer agrees to use only a certain maximum number of lamps, although his house is provided with enough lamps to give sufficient illumination in any part of the premises. Thus it may be agreed that the consumer is not to use more than ten lamps at any one time; but his house may contain in its various rooms thirty or forty lamps. In order to prevent the use of lamps in excess of the number agreed upon, due either to dishonesty or neglect to notice how many lamps are being used, automatic controllers have sometimes been provided for forcing upon the consumer's attention the fact that he is exceeding the contract number and for rendering his lights practically useless until enough of them are extinguished to come within the contract. Automatic controllers of this type as heretofore proposed involve entirely extinguishing the lights in case the prescribed number is exceeded or rapidly opening and closing the consumer's circuit to cause a fluttering of the lights or inserting a resistance in circuit to reduce the voltage at the terminals of the lamps enough to dim them.

My invention relates to an automatic controller of this kind; and its objects are to increase the flexibility of the system, to afford the consumer greater convenience, and to provide a controller which is inexpensive, compact, substantial, and readily adjustable to meet different contract conditions. In accomplishing these ends I provide an electromagnetic device responsive to the current flowing in the line and a device operated thereby when the current exceeds a certain amount to cut into circuit a resistance sufficient to dim the lights. For this purpose I prefer to use a series incandescent lamp of ordinary construction, as such a lamp is inexpensive and can be readily mounted within the controller-casing or withdrawn therefrom when desired, and by providing an

opening in the casing over the lamp the latter serves to indicate whether any trouble in the circuit is caused by the controller having operated.

It often happens that for some special reason a consumer would want to exceed the number of lamps for which he has contracted, and with many of the controllers of this type as heretofore constructed that would necessitate having an agent of the lighting company come and short-circuit the controller, causing a great deal of inconvenience and expense. I have therefore provided means by which the controller may be rendered ineffective; but this means is made accessible only in a prescribed way and only by leaving a permanent indication of the fact that this means has been resorted to. It is therefore possible for a consumer to use all the lights he desires; but for this he must pay a penalty which is charged against him by the lighting company when they see by the indicator that the controller has been rendered ineffective.

The novel features which I believe to be characteristic of my invention will be definitely indicated in the claims appended hereto.

The details of construction and the method of operation of my improved automatic controller will be better understood by reference to the following description, taken in connection with the accompanying drawings, which show the preferred embodiment of my invention.

In the drawings, Figure 1 is a front view of the controller with the cover removed. Fig. 2 is a side view of the same, and Fig. 3 is a front view with the cover in place.

Referring to the drawings, 1 indicates a base or back board on which is mounted a solenoid 2, curved in the arc of a circle. Pivotaly mounted on a block 3, secured on the base 1, is a switch-arm 4, of good conducting material, to which is secured a core 5, also curved in the arc of a circle and extending into the opening in the solenoid 2. Switch-arm 4 also carries a carbon contact 6, which normally rests in engagement with a stick of carbon 7, adjustably mounted in a support 8, secured to the base 1. Mounted on the side of the casing is a lamp-receptacle 9 of ordinary construction, which supports and connects in circuit a series incandescent lamp 10. The terminals of receptacle 9 are connected



to the blocks 3 and 11, mounted on the base, and each of these blocks has an integral extension. Secured to one of these extensions is a switch-blade 12, of spring metal, having a handle 13, and the other extension is split, as shown, to form switch-clips 14, with which the switch-blade 12 coöperates to short-circuit lamp 10 and in which the blade is held when depressed by the clamping action of the clips. One of the lines entering the consumer's premises is cut and the ends attached to connection-blocks 15 and 16, mounted on the base 1, the former of which is preferably formed integral with the support 8. The solenoid 2 is connected between connection-blocks 16 and 3, and blocks 15 and 11 are electrically connected, as shown. In the cover 21 of the controller is an opening 17 directly over the lamp 10 and preferably covered by a glass. An opening 18 is also provided in cover 21 directly over the handle 13 of the switch-blade 12, and this opening has a cover 19, of stiff paper, cardboard, or other suitable material, which is held in place by a destructible seal 20, of wax or other suitable material. The cover 21 is hinged or otherwise fastened on one side and on the other is provided with means for locking or sealing it in the closed position.

As thus constructed the operation of the controller is as follows: When the lamps are turned on, the current enters the controller over one of the line-wires at the connection-block 15 and flows through the carbon contacts 7 and 6, through switch-arm 4 to block 3, and then through the coils of the solenoid 2 to block 16 and out. If more than the contract number of lamps are turned on, the increased current flowing through the coils of solenoid 2 causes the latter to draw in the core 5, thus separating the contacts 6 and 7. This causes the current to flow from connection-block 15 to block 11 through lamp 10 to block 3 and then out, as before. The lamp filament being thus cut into series relation to the house-lamps causes the potential at the terminals of the lamps to drop, and the lamps are thus dimmed. The solenoid 2, however, does not allow the core 5 to go back to its normal position, as the pull of the solenoid on core 5 is increased when the latter is drawn into it, and the resistance of lamp 10 is not great enough to effect a great reduction in the flow of current. This dimming of the lamps forces upon the consumer's notice the fact that he is using more than the contract number of lamps and on inspection the light from lamp 10, showing through window 17, would clearly prove that the trouble is owing to this cause, and in order to restore the lamps to their full brilliancy he must turn out enough lamps to reduce the number to that agreed upon. If, however, the consumer desires to use the greater number of lamps, he can by breaking the seal 20 depress the han-

dle 13 of the switch-blade 12, forcing the latter into the clips 14, thus short-circuiting lamp 10 and enabling him to use as many lamps as he desires. The parts remain in this relation until the end of the week or month, when an agent of the lighting company comes and notes the fact that seal 20 has been broken, and the agent then restores all parts to their original positions and puts a new seal over the opening 18. Whenever it is desired to readjust the controller—as, for instance, when a customer wishes to change his contract to cover the use of a greater or less maximum number of lamps or when the controller is installed on the premises of a new customer—the only change necessary is a readjustment of the carbon stick 7, so that more or less of core 5 extends within the solenoid 2 when carbons 6 and 7 are in contact. The series incandescent lamp 10 need not be changed, as the only effects of the different current strength when the carbons 6 and 7 are separated are that its ohmic value and its incandescence are changed somewhat.

I do not wish to be understood as limited to the precise construction which I have herein illustrated and described, as many modifications can be made therein which I consider within the scope of my invention and which I aim to cover in the claims appended hereto.

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

1. An automatic controller for a consumer's constant-potential incandescent lighting-circuit comprising a switch arranged for connection in the consumer's circuit, means responsive to a predetermined load for opening the switch, an incandescent lamp of large current-carrying capacity shunting the switch, said lamp having sufficient resistance to dim the lamps, and a casing inclosing the parts, having an opening therein over said lamp.

2. An automatic controller for a consumer's constant-potential incandescent lighting-circuit comprising a pivoted switch-arm, a carbon contact carried thereby, a stationary carbon contact in coöperative relation thereto, one of said contacts being adjustable, an electroresponsive device connected in series in the consumer's lighting-circuit and arranged to actuate the switch-arm when a predetermined number of lamps are cut into circuit, and an incandescent lamp of large current-carrying capacity having sufficient resistance to dim the lamps shunting said contacts.

3. An automatic controller comprising a switch, an electroresponsive device for opening the switch, a device for permanently short-circuiting the switch, and means whereby operating said device to short-circuit the switch leaves an indication by changing the condition of the parts of the controller.

4. An automatic controller comprising a



switch, means responsive to a predetermined load for opening the switch, means for short-circuiting the switch, a casing for the controller having an opening therein, and a seal for said opening so arranged that said short-circuiting means can be operated only by the rupture of said seal.

5. An automatic controller comprising a switch, an electroresponsive device for opening the switch, a second switch for short-circuiting the first, a handle therefor, a casing inclosing the parts having an opening therein over said handle, and a destructible covering for said opening.

6. An automatic controller comprising a switch and an electroresponsive device for

opening said switch arranged for connection in a consumer's lighting-circuit, an incandescent lamp of large current-carrying capacity in shunt to said switch, said lamp having sufficient resistance to dim the consumer's lamps, a second switch for short-circuiting said switch and lamp, a casing inclosing the parts having an opening therein over the second switch, and a destructible covering for said opening.

In witness whereof I have hereunto set my hand this 6th day of July, 1904.

ERNEST SCHATTNER.

Witnesses:

BENJAMIN B. HULL,  
HELEN ORFORD.