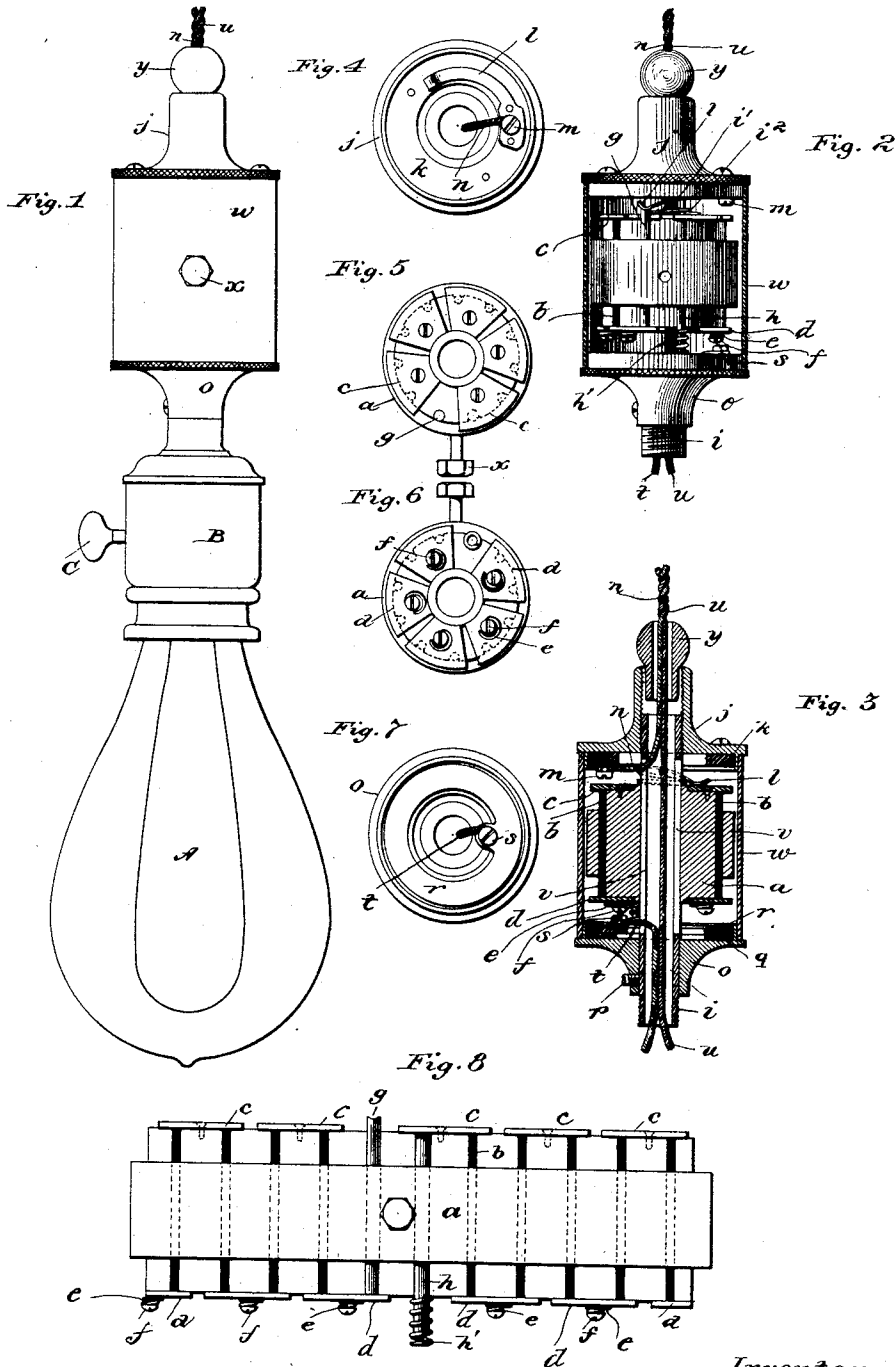


(No Model.)

A. C. CAREY.
RHEOSTAT.

No. 473,209.

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Witnesses:

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UNITED STATES PATENT OFFICE.

AUGUSTUS C. CAREY, OF LAKE PLEASANT, MASSACHUSETTS.

RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 473,209, dated April 19, 1892.

Application filed January 27, 1892. Serial No. 419,458. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS C. CAREY, a citizen of the United States, residing at Lake Pleasant, in the county of Franklin and State

of Massachusetts, have invented a certain new and useful Improvement in Regulators for Electric-Light and other Currents, of which the following is a full, clear, and exact description.

The primary object of this invention is to provide means for controlling or regulating the brilliancy of electric lights, so that (borrowing an analogy from the use of illuminating-gas) the light may be turned up or down, according as it is desired to have much or little light; but my regulator is applicable in other relations to control the strength or efficiency of an electric current.

The invention consists of a peculiarly-constructed resistance medium adapted to be interposed between an electric generator and a lamp or other consumer of the electric current, and made adjustable to increase or diminish the resistance to the flow of the current, and thereby vary its effective force in the consumer, substantially as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is an elevation of a common form of suspended incandescent lamp with which my regulator is connected. Fig. 2 is an elevation of the regulator detached, showing its revolving case in section. Fig. 3 is a longitudinal section of the regulator. Fig. 4 is an inside plan view of the top cap; Fig. 5, a top view of the revolving carrier, and Fig. 6 is a bottom view thereof. Fig. 7 is an inside plan view of the bottom cap, and Fig. 8 is a developed view of the carrier.

The bulb A, socket B, and key C may be as usual.

I prefer to make my regulator wholly independent in construction and operation of the lamp proper and the generator, and hence I show the lamp-socket and the key for turning on and off the current, so as to emphasize the fact that my regulator may be used in installations already in; but I wish it to be

as distinctly understood that it is within my invention to replace the ordinary key and its appurtenances by my regulator. For conciseness, however, I will describe only the independent regulator applied to a completed installation of ordinary construction.

a is a carrier, of wood, bonsilate, porcelain, or other suitable insulating material, and I prefer to use bonsilate because it is an insulator, is highly refractory, and also is moisture-proof. This carrier is pierced longitudinally to receive cylinders or sticks *b* of electric-resisting material, which sticks are connected alternately in pairs at opposite ends of the carrier by conducting segments or plates *c* and *d*. The segments *c* are fastened rigidly to the carrier in contact with the sticks, while the segments *d* are in yielding contact with the sticks *b* by virtue of the introduction of springs *e* between said segments and the heads of their fastenings *f*, thereby insuring good contact should there be any tendency to looseness or unevenness.

For convenience I will designate the cylinders or sticks *b* "resistances" and the segments or plates *c* "conductors," because of their respective functions with relation to the electric current. A leading-in conductor *g* is placed in the carrier and projects above the level of the conductors *c* and is in contact with one of the conductors *d*, and a leading-out conductor *h* is placed, also, in the carrier and projects beyond the level of the conductors *d*, and is in contact with that one of the conductors *c* farthest from the conductor *g* in going around the carrier from the said conductor, so that should the circuit-wires be connected with the wires *g* and *h* all of the resistances in the carrier would be thrown into the circuit. The carrier is mounted to revolve freely upon a hollow stem *i*. This stem has screwed to it a top cap *j*, in which is an insulator *k*, to which is attached the contact-spring *l*, the screw *m* for securing the contact-spring being utilized as a binding-screw for the leading-in wire *n* from a main or local circuit. This contact-spring co-operates with the conductors *g* and *c* in making a circuit, and the end of the conductor *g* is concaved, the better to receive the contact-spring and prevent it from slipping off. The bottom cap *o* may be

fastened to the stem *i* in suitable manner, as by a screw *p*, and this cap is supplied with an insulator *q*, upon which is laid the conducting-ring *r*, pinned to the insulator in any suitable manner and having the binding-screw *s*, which receives the leading-out wire *t* of the circuit-wires. *u* is the return-wire of the circuit, which is passed through the hollow stem *i*. The stem is slitted or slotted longitudinally at *v* to permit the passage of the wires *n* and *t*. The conductor *h* is supplied with an expansion-spring *h'* to insure contact with the ring *r*. There is a cross-pin *i'* in the stem *i*, between which and the carrier a spring *i''* is arranged to keep the barrel in position. A casing *w* is arranged between the caps *j* and *o* so as to be capable of being revolved, and this casing and the carrier are connected by a plug or key *x*, by which the revolution is effected. *y* is a wooden plug, commonly used for finishing off the end of the socket of a suspended lamp, and which plug I apply to the regulator-cap *j* for a like purpose. When the contact-spring *l* is in contact with the conductor *g*, the current passes through the several resistances out through the conductor *h*, and a current of minimum strength in the lamp is the result, because all of the resistances are included or interposed in the circuit. If the carrier be revolved so as to place the contact-spring *l* in contact with the conductor *c*, next on the right of wire *g* in Fig. 8, the current flows through the conductor *h* at once, as none of the resistances are in the circuit, and hence a current of maximum strength is supplied to the lamp, and so the carrier may be revolved to bring any number of the resistances into the circuit to obtain the desired brilliancy of the light.

When my regulator is to be applied to an electrolier, its cap *j* is screwed to or coupled with the electrolier and the lamp screwed to the threaded and projecting end of the tubular stem *i*.

As already intimated, the ordinary socket and key may be used for turning on and off the light, and the regulator employed solely for varying the brilliancy of the light; but it is within my invention to use the regulator for both purposes. As shown, the several conductors opposite spring *l* are spaced so that adjacent conductors will be connected by said

spring in the rotation of the carrier. Now if the space between the highest and lowest resistances be so great as not to be spanned by said spring then the carrier can be used for shutting off the current and no key will be required.

What I claim is—

1. A carrier containing electric resistances, any number of which may be included in circuit or all excluded, leading-in or leading-out conductors applied to said carrier and movable with it, a stem upon which said carrier may be revolved, and stationary caps containing appropriate contacts for co-operation with the carrier, substantially as described.

2. In a regulator for electric currents, a carrier containing a series of resistance devices, conductors applied rigidly to one end of said devices, and conductors applied yieldingly to the other end of such devices, combined with suitable circuit connections, substantially as described.

3. In a regulator for electric currents, a carrier containing a series of resistances, conductors applied thereto, leading-in and leading-out wires, a conducting-ring to which the leading-out wire of the circuit-wires is connected, and an expansion-spring applied to the leading-out wire of the regulator and bearing upon said ring to insure good contact, substantially as described.

4. In a regulator for electric currents, a carrier containing resistances, a stem upon which said carrier is adapted to be rotated, caps applied to opposite ends of such stem, and a casing arranged between such caps and connected to the carrier to revolve with or revolve said carrier, substantially as described.

5. In a regulator for electric currents, a carrier containing resistances and a hollow stem upon which it rotates, slotted longitudinally for the passage of the circuit-wires, combined with caps containing contacts to which the circuit-wires are connected, substantially as described.

In testimony whereof I have hereunto set my hand this 25th day of January, A. D. 1892.

AUGUSTUS C. CAREY.

Witnesses:

LEONARD L. DAVIS,
HENRY E. WILKINS.