

S. E. FLICHTNER.

SERIES RESISTANCE FOR GAS OR VAPOR ELECTRIC LAMPS.

APPLICATION FILED JUNE 28, 1902.

NO MODEL.

Fig. 1.

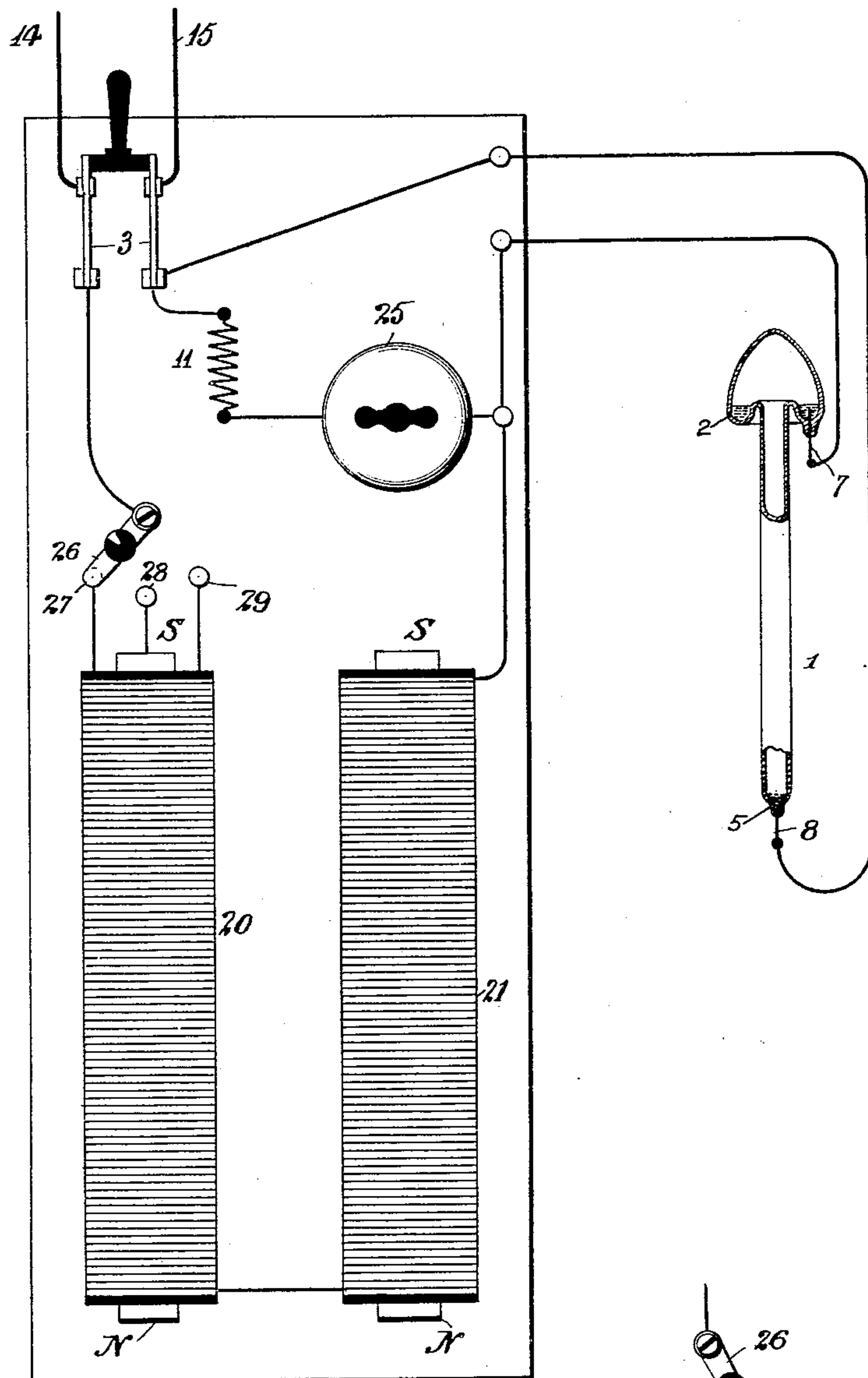
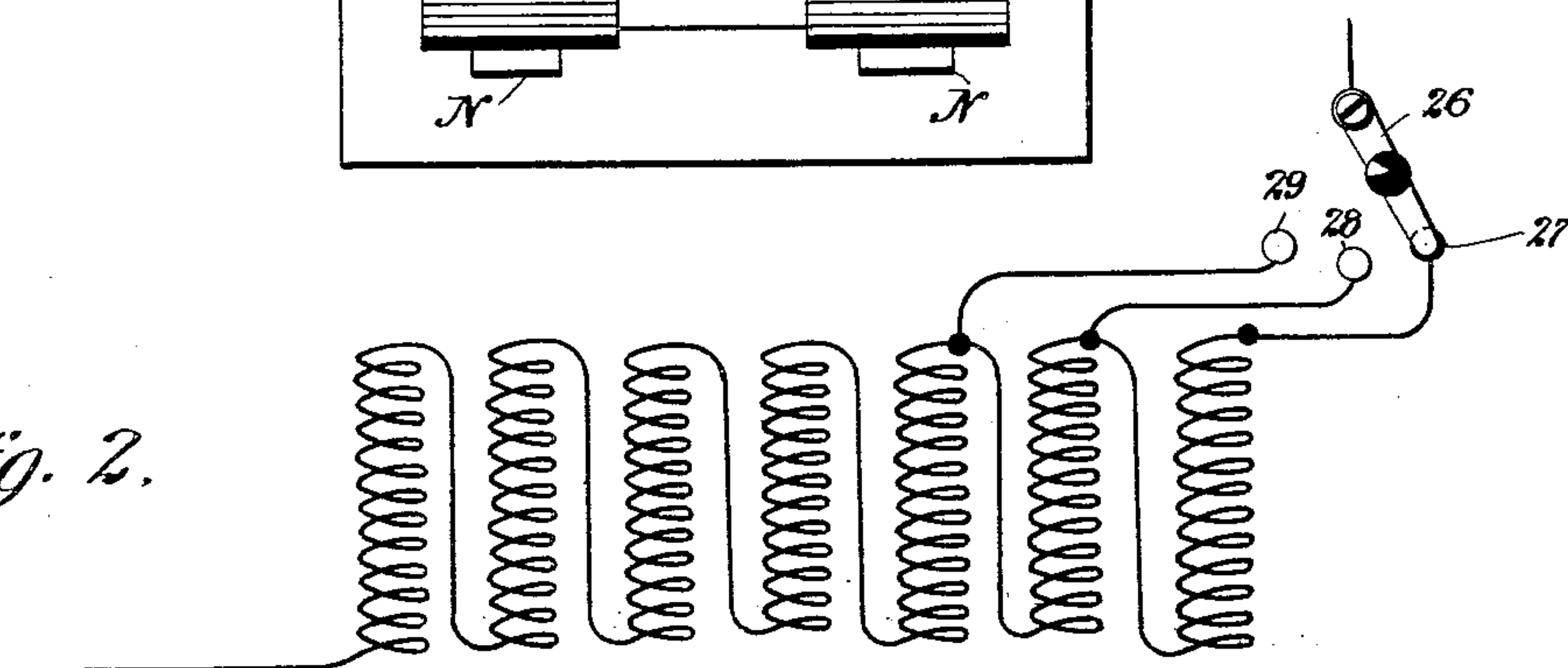


Fig. 2.



Witnesses
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MESNE ASSIGNMENTS, TO COOPER HEWITT ELECTRIC COMPANY, A
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SERIES RESISTANCE FOR GAS OR VAPOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 733,381, dated July 14, 1903.

Application filed June 28, 1902. Serial No. 113,590. (No model.)

To all whom it may concern:

Be it known that I, STANWOOD E. FLICHTNER, a citizen of the United States, and a resident of Englewood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Series Resistance for Gas or Vapor Electric Lamps, of which the following is a specification.

In starting and operating gas or vapor electric lamps of the Cooper Hewitt type it has been customary to employ an inductance-coil in series with each lamp for causing the initial higher potential starting-current, and it has been proposed to utilize this coil as the entire series resistance for the lamp during operation. It has been found, however, that in practice the resistance of these lamps increases during the first few weeks of running, so that a coil which is exactly adjusted for a certain lamp on a given voltage will at the end of these few weeks have too great a resistance, thus causing the lamp to run on too low a current.

The present invention relates to means for adjusting the series resistance for the lamps by utilizing for such resistance two inductance-coils in series with each lamp and providing one of the coils with such connections that one or more layers of wire may be cut out of circuit. In this way the increasing resistance of the lamp above referred to may be compensated for from time to time by cutting out successively the several layers of one of the coils, as indicated above.

While the foregoing statement is an indication of the general scope of the present invention, yet it should also be stated that two coils in series are far better for starting purposes than a single coil—that is to say, they give a greater increase of potential—while by placing the coils with like poles adjacent to each other the lines of force are cut with far greater rapidity, and in this way also a higher potential current is created. For both these reasons a far greater “kick” can be obtained by the arrangement suggested herein than by that usually adopted. Moreover, the second coil occupies but little space and can be mounted on the same board with the first coil. The fact that the series resistances would all

be inductive is also in favor of the proposed arrangement, as it has been found that an inductive resistance keeps the lamp steadier than a non-inductive resistance. As the resistance which remains in series with the lamp is first utilized for starting purposes, there is as little waste as possible involved in using my arrangement of devices. It is usually sufficient to provide means for cutting out two layers of wire in one of the inductance-coils, as the increase of resistance mentioned above only continues for a short time, after which no further adjustment of the series resistance is required.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a diagram of a circuit for a gas or vapor electric lamp, showing the main elements of a system required for starting and operating such a lamp; and Fig. 2 is a diagram illustrating appropriate means for cutting out one or more layers of one of the inductance-coils.

In the drawings, 1 is a transparent tube or container for a gas or vapor electric lamp, and 2 and 5 are respectively the positive and negative electrodes thereof, the same being joined, respectively, through the walls of the container with lead-wires 7 and 8.

The lamp 1 is designed to be connected up in the circuit of main conductors 14 15, controlled by a suitable switch 3. In series with the lamp I arrange two inductance-coils 20 and 21, so wound and arranged that their north poles N N are adjacent to each other, and their south poles S S are also adjacent to each other. In a shunt across the circuit between the lamp and the inductance-coils I place a suitable snap or quick-break switch 25 and a resistance 11.

The snap-switch 25 is generally arranged with its contacts under oil, for reasons which are well understood.

To start the lamp into operation, the main circuit is first closed by the switch 3, and the snap-switch is then operated to cause a quick rupture of the shunt-circuit. This causes a sudden reactance in the coils 20 21, and as a consequence of such reactance an electrical impulse of high potential is caused to

traverse the lamp-circuit and start the lamp. The circuit from one side of the switch 3 passes to the coil 20 through a switch 26, which can be moved into contact with any one of a series of contact-points 27 28 29. The diagram Fig. 2 illustrates how the circuit passes through all the layers of wire when the switch-arm 26 is on the contact 27, how one layer is cut out when the switch-arm rests on the contact 28, and how two layers are cut out when the contact-arm rests on the contact 29.

The function of the apparatus herein described is the same whether the gas or vapor apparatus on which it acts is intended to give light or to transmit electric currents for any other purpose.

I claim as my invention—

1. The combination with a gas or vapor electric lamp, of a pair of inductance-coils in series therewith, the coils being arranged with like poles adjacent to each other.

2. The combination with a gas or vapor electric lamp, of a plurality of inductance-coils in series therewith, and means for cutting out one or more layers of one of the inductance-coils.

3. The combination with a gas or vapor electric lamp, of a pair of inductance-coils having their like poles adjacent to each other and arranged in series with the lamp, one of the said coils being adjustable, as described.

4. The combination with a gas or vapor electric apparatus, of a plurality of inductance-coils in a series therewith, the coils being arranged with like poles adjacent to each

other, and means for creating in the said inductance-coils one or more impulses of relatively high potential and for discharging the said impulse or impulses through the apparatus.

5. The combination with a gas or vapor electric lamp, of a plurality of inductance-coils in series therewith, the coils being arranged with like poles adjacent to each other, a shunt across the circuit between the lamp and the inductance-coils, and means for causing a quick rupture of the shunt-circuit, whereby an impulse of high potential is created in the inductance-coils and discharged through the lamp, and the inductance-coils are left in the lamp-circuit as a series resistance for the lamp.

6. The combination with a gas or vapor electric lamp, of an adjustable inductive resistance in series therewith, a shunt across the circuit between the lamp and the said inductive resistance, and means for causing a quick rupture of the shunt-circuit.

7. The combination with a gas or vapor electric apparatus, of a plurality of inductance-coils in series therewith, the coils being arranged with like poles adjacent to each other.

Signed at New York, in the county of New York and State of New York, this 27th day of June, A. D. 1902.

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Witnesses:

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