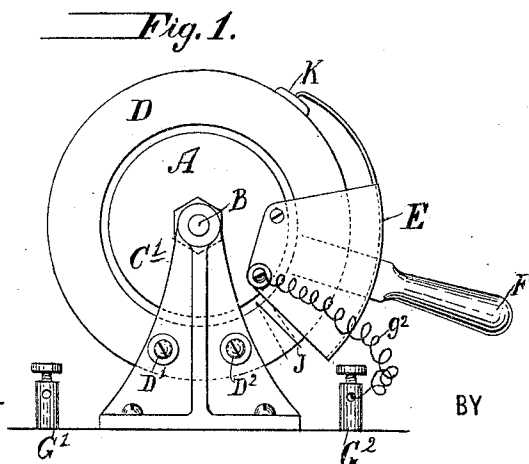
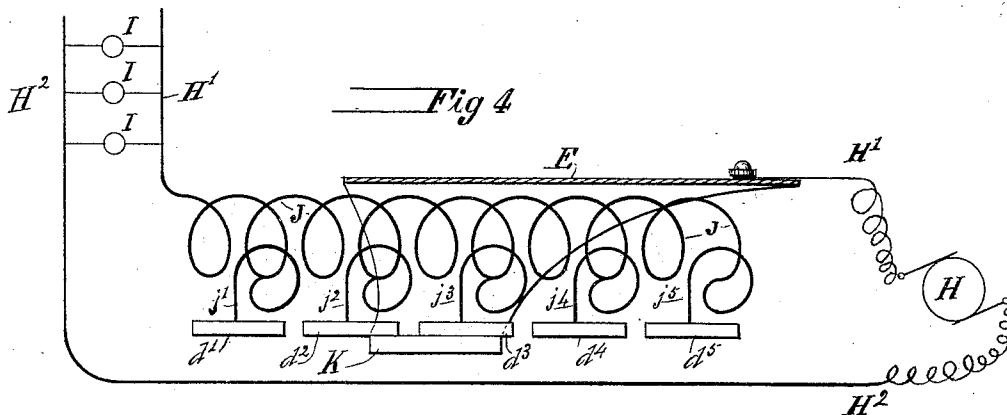
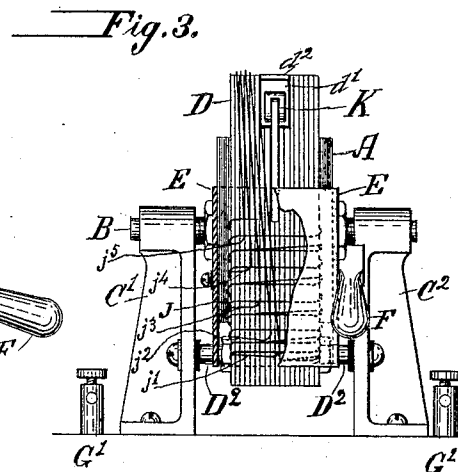
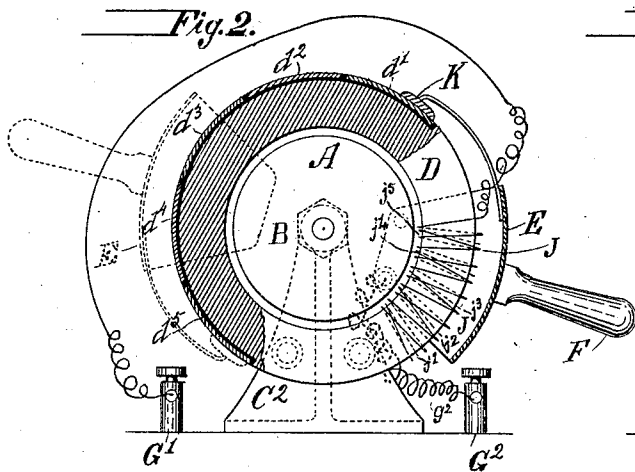


(No Model.)

E. E. STARK.
REACTIVE COIL.

No. 543,564.

Patented July 30, 1895.



WITNESSES:

Wm A. Pollock.
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INVENTOR.

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BY

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UNITED STATES PATENT OFFICE.

EDGAR E. STARK, OF NEW YORK, N. Y., ASSIGNOR TO SIGMUND BERGMAN,
OF SAME PLACE.

REACTIVE COIL.

SPECIFICATION forming part of Letters Patent No. 543,564, dated July 30, 1895.

Application filed February 21, 1894. Serial No. 500,975. (No model.)

To all whom it may concern:

Be it known that I, EDGAR E. STARK, of the city, county, and State of New York, have invented a certain new and useful Improvement
5 in Reactive Coils, of which the following is a specification.

My improvement is intended especially for reactive coils which are employed for toning incandescent lights in theaters and analogous
10 places.

I will describe an apparatus embodying my improvement and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is
15 a side view of a reactive coil embodying my improvement. Fig. 2 is a similar view, partly in section. Fig. 3 is a partly-sectional elevation of the same, this view being taken in a position at right angles to Fig. 2. Fig. 4 is a
20 diagram.

Similar letters of reference designate corresponding parts in all the figures.

A designates a cylindric laminated block of iron. It is mounted upon a shaft B, which
25 is sustained in standards C' C² affixed to any suitable base. Preferably the block will be affixed to the shaft, so that the latter may be rotated with it, and then the shaft is journaled in the standards. When the shaft is thus
30 made to rotate with the block it may be screw-threaded and have fitted to it nuts, whereby the laminæ forming the block will be secured together.

D designates a ring, which also will be preferably made of iron and laminated. As here
35 shown, it is supported by bolts D' D², which pass through it and also through the standards C' C². This ring D is not intended to rotate.

E designates a shield of segmental shape, and preferably made of sheet-copper. It is
40 attached to the ends of the block A, and as here shown its attachment is made by bending its ends transversely and fastening them by screws to the block. Motion imparted to
45 the shield E circumferentially of the ring D will cause the block A to move similarly. To facilitate the moving of the shield E and block A a handle F is provided. This is arranged radially and, as shown, is fastened to
50 one side of the shield.

G' G² designate binding-screws, to which the ends of an interrupted line-wire are connected, as may be more fully understood by reference to the diagram in Fig. 4, where H
55 designates a source of an alternating current of electricity—such, for instance, as an alternating-current dynamo-electric machine or the secondary of a transformer—and H' H² indicate line-wires communicating therewith. 60
In this diagram I have shown a number of incandescent lamps I connected in multiple arc to the line-wires H' H².

From the binding-screw G² a wire g² extends to the shield E. This wire is flexible
65 and has a number of loose coils, so that it will not interfere with the movement of the shield. It may be connected with the shield by means of one of the screws that fasten the shield to the block A.
70

Around a portion of the ring D a wire J is wound continuously. One end of this wire J is connected to the binding-screw G'. The other end is in electrical communication with a metal plate d⁵, attached to the ring D. Besides this plate d⁵ there are a number of similar plates d' d² d³ d⁴. These plates may be
75 secured to the ring D in any suitable manner, but must be insulated from it and from each other. In the present instance they are set
80 into a recess in the periphery of the ring D, and may be secured to a block of insulating material by screws or otherwise, and the latter may be fastened by screws to the ring.

K designates a sliding contact piece or
85 brush attached to the shield and arranged so that it will move across the plates d' d² d³ d⁴ d⁵ when the shield is appropriately moved. It is intended to be made of metal and in the present instance is connected by a metal re-
90 silient wire or a spring to the shield.

That end of the wire J which is not attached to the binding-screw G' is attached to a reverse wire winding or reversely-wound coil j⁵, and the extremity of the latter is attached
95 to the plate d⁵, as may be best understood by reference to the diagram Fig. 4. To another coil or winding of the wire J is attached one end of a reverse-winding or reversely-wound coil j⁴, which is attached to the plate d⁴. To another coil or winding of the wire J is attached
100 one end of a reverse-winding or reversely-

wound coil j^3 , which is attached to the plate d^3 . To another coil or winding of the wire J is attached one end of a reverse-winding or reversely-wound coil j^2 , which is attached to the plate d^2 . To another coil or winding of the wire J is attached one end of a reverse-winding or reversely-wound coil j' , which is attached to the plate d' . The reverse windings or coils j' j^2 j^3 j^4 j^5 are severally equal in turns to one-half of the turns of the portions of the wire J which are intermediate of the points of attachment of the former. By means of the coiled wire J, in combination with the reverse windings or reversely-wound coils j' j^2 j^3 j^4 j^5 , I am able to move the contact piece or brush K from one of the plates d' d^2 d^3 d^4 d^5 to another without causing any sudden change in the brilliancy of the light, because the algebraic sum of the turns between adjacent plates is zero.

Obviously instead of a block or cylinder A and ring D straight bars of iron laminæ may be used, provision being afforded for a movement of the shield and contact-piece relatively to the wound part.

The advantages of a sliding contact or brush K is to bring a few turns or coils of the wire J, or, in other words, of the reactive coil, into active operation. When all of the coils are brought into action at once a sudden change of light is produced by the effect of the resistance of the wire.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a part made of iron laminæ, a wire forming part of an electric circuit wound or coiled around it and in electrical communication with a set of insulated contact pieces, a sliding contact or brush interposed in the circuit and which is movable over said set of insulated contact pieces, and reverse coils or windings attached to coils or turns of the said wire and the said set of in-

45
sulated contact pieces, substantially as specified.

2. The combination of a part made of iron laminæ, a wire forming part of an electric circuit and coiled or wound around said part, a shield or hood encircling said part and capable of movement relatively to the same, reverse coils or windings electrically connected to said coil, and means for successively shunting portions of said coil through these reverse coils or windings, substantially as specified. 50

3. The combination of a part made of iron laminæ, a wire forming part of an electric circuit, and coiled or wound around said part, a shield or hood encircling said part and capable of movement relatively to the same, reverse coils or windings electrically connected to said coil, and means for successively shunting portions of said coil through these reverse coils or windings simultaneously with a movement of shield or hood, substantially as specified. 55

4. The combination of a part made of iron laminæ, a wire forming part of an electric circuit and coiled or wound around said part, a shield or hood encircling said part and capable of movement relatively to the same, insulated contact pieces, reverse coils or windings electrically connected to insulated contact pieces, and to said coil, a metallic brush sliding over said contact pieces and electrically connected to shield or hood, and a metallic piece connecting said hood to a terminal of an electric circuit, substantially as specified. 60 65 70 75

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 80

EDGAR E. STARK.

Witnesses:

HORACE C. SKELLY,
S. A. PALMER.