

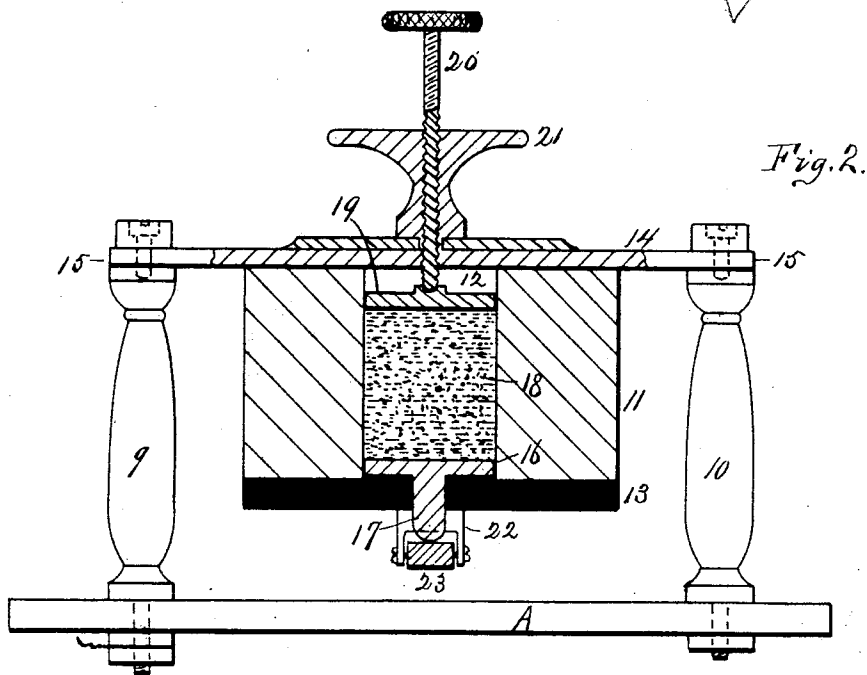
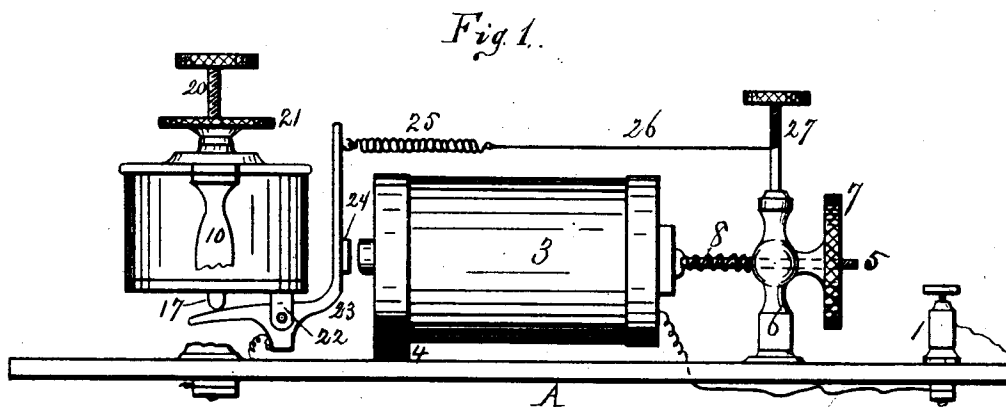
(No Model.)

2 Sheets—Sheet 1.

A. B. JONES.
ELECTRIC CURRENT REGULATOR.

No. 512,115.

Patented Jan. 2, 1894.



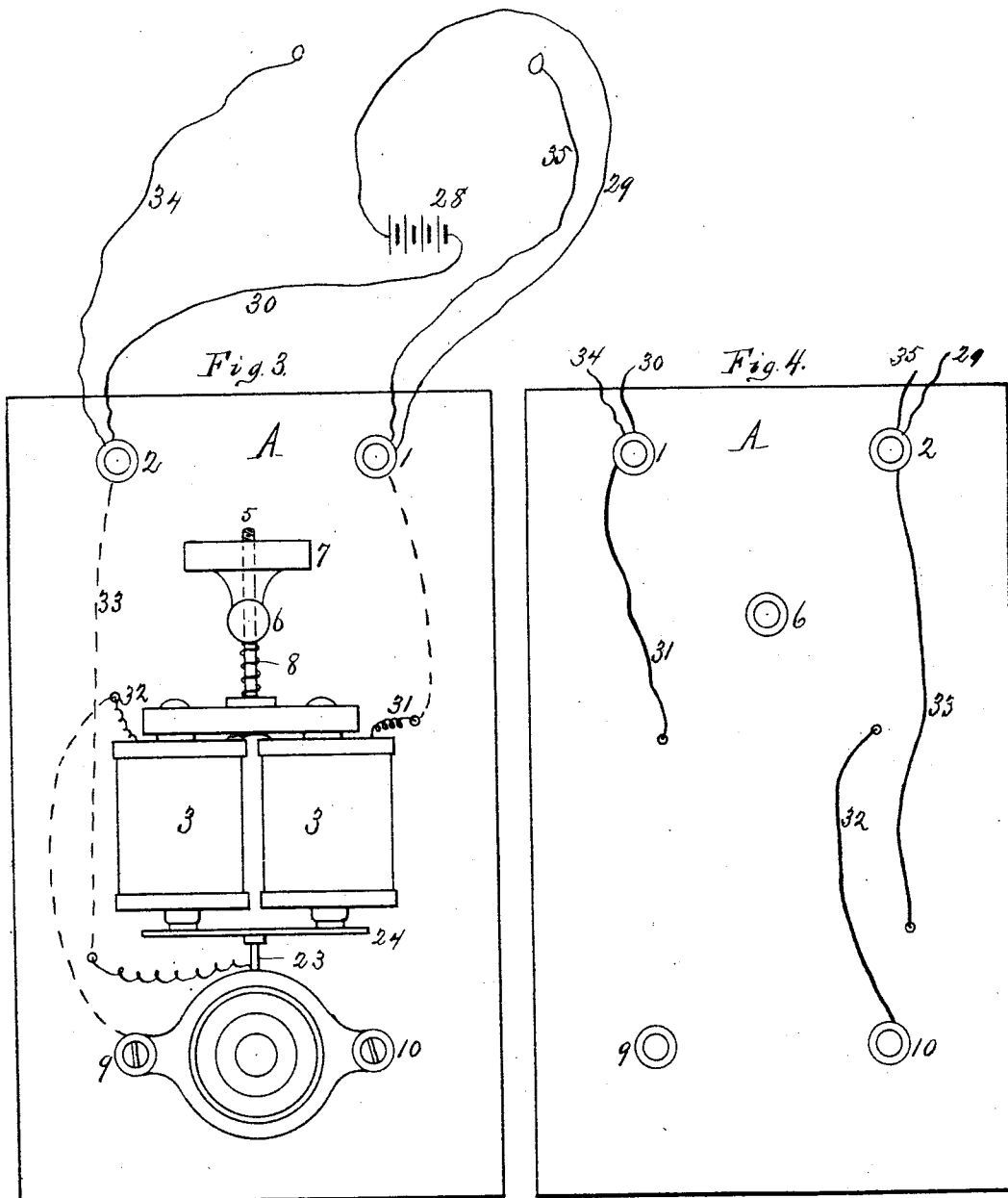
Attest:
To L. Fair
J. B. Morgan

Inventor.
Ansel B. Jones
By N. S. Sprague
Att'y.

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Attest:
J. H. Davis
J. H. Morgan

Inventor.
Ansel B. Jones.
By A. C. Sprague Atty.

UNITED STATES PATENT OFFICE.

ANSEL B. JONES, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO WILLIAM P. HORTON, JR., OF SAME PLACE.

ELECTRIC-CURRENT REGULATOR.

SPECIFICATION forming part of Letters Patent No. 512,115, dated January 2, 1894.

Application filed June 10, 1891. Serial No. 395,828. (No model.)

To all whom it may concern:

Be it known that I, ANSEL B. JONES, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Electric-Current Regulators, of which the following is a specification, reference being had therein to the accompanying drawings.

15 This invention relates to certain new and useful improvements in regulators for electric-currents, and is especially designed for use in regulating the current employed in dental surgery in obtunding nerves.

20 The invention has for its object the construction of a regulator in the use of which a greater or less resistance may be imposed upon the armature against the attraction of the magnets, and in the peculiar construction, arrangement and combinations of the various parts, all as more fully hereinafter described and pointed out in the claims.

25 The invention consists in the peculiar construction of a resistance box through which a greater or less resistance may be imposed upon the armature against the attraction of the magnets, and in the peculiar construction, arrangement and combinations of the various parts, all as more fully hereinafter described and pointed out in the claims.

30 In the accompanying drawings illustrating the invention Figure 1, Sheet 1, is a side elevation of my improved regulator. Fig. 2, Sheet 1, is an enlarged vertical central section through the resistance box. Fig. 3, Sheet 2, is a top plan of Fig. 1. Fig. 4, Sheet 2, is a bottom plan of the base board, showing the direction and positions of the circuit wires.

A represents the base upon which my improved regulator is supported.

1 and 2, represent binding posts.

40 3, represents the magnets, the front ends of which rest upon an insulated block 4, while their rear ends are supported by the screw stem 5 which passes through the post 6, and receives upon its outer end an adjusting nut 7.

50 8 is a spring coiled around the stem 5, between the post 6 and the rear ends of the magnets, and is for the purpose of forcing the magnets forward as the nut 7 is retracted upon the stem, so as to adjust the said magnets relatively to the armature.

9 and 10 represent posts which support the resistance-box. This resistance box is constructed substantially as follows:—11 represents a cylindrically shaped block of hard rubber or other suitable insulating material, and which is axially bored as at 12 (Fig. 2); the bottom of this central orifice in the cylinder 11 is partially closed by a disk 13, also made of insulating material, and which is provided with a small central aperture; the disk 13 and the cylinder 11 are rigidly secured to a sustaining metallic plate 14, by means of proper screws (not shown) which pass up through the parts 11 and 13 and engage with the plate 14; outwardly projecting arms 15, of the plate 14, are secured upon the tops of the posts 9 and 10 by means of proper screws which are shown in dotted lines in Fig. 2.

70 In the bottom of the bore 12 of the cylinder 11, is placed a metallic disk 16 having a downwardly projecting lug 17 which passes through the central opening in the disk 13; within the bore 12 and upon the top of the disk 16, is placed the desired quantity of carbon or other current conducting material, and upon this material is placed a follower disk 19 with which engages the lower end of an adjusting screw 20, tapped through the sustaining plate 14, and is provided with a jam-nut 21, by means of which the adjusting screw may be secured against accidental displacement. By this construction, it will readily be seen that the armature-lever can be easily adjusted to the desired position.

85 To the bottom of the resistance box is secured a hanger 22 in which is pivotally secured the bell-crank shaped armature lever 23, which is provided with an armature 24. The vertical arm of the lever 23 is connected by a spring 25 and cord 26 to a winding post 27 rotatably secured in the head of the post 6. The horizontal arm of the armature-lever projects beneath the resistance box and beyond its center, and is designed that the downwardly projecting lug 17 shall rest upon said horizontal arm of the armature-lever. By this construction and arrangement of the parts it will readily be seen that a circuit is established as between the supporting post 9, the metallic plate 14, screw 20, disk 19, carbon 18, disk 16—17, and the armature lever 23.

28 represents the battery or electric current producing machine.

A circuit wire 29 connects one pole of the battery with the binding post 1, while the opposite binding post 2 is electrically connected to the battery through a circuit wire 30. The electric circuit is further established from the binding post 1 by means of a circuit wire 31 to the magnets, thence, from the magnets, through a circuit wire 32 to the sustaining post 9 of the resistance box, thence through said resistance box to the armature lever 23, and thence through a circuit wire 33 to the binding post 2, and thence to the battery through the wire 30, as before described. The working circuit is established through the wires 34 and 35, as soon as they are brought into contact with a conductor whether mechanical, or the body of a patient.

When the device is constructed and electrically connected the normal current through the working circuit is established as may be desired, as is well understood by those skilled in the art. Should the current through the working circuit rise above the normal, then the magnet 3 will act to attract the armature, thereby elevating the horizontal arm of the armature lever, and through a like movement of the disk 16, will compress the carbon or conductor within the resistance box, thereby causing a greater flow of electricity through the magnets in shunt circuit, which necessarily reduces the current through the working circuit to the normal, all the parts then assuming their normal positions, relatively. It will be readily understood that in case the current should drop below the normal, the action of the device would be directly opposite to that above described.

There are various uses to which a device of this character might advantageously be applied beyond that herein set forth, and it will be readily seen that, by merely changing the

spring so as to cause the armature to oppose the attraction of the magnet, the device could advantageously be employed in series-circuit.

What I claim as my invention is—

1. In an electric current regulator, the combination of the adjustable magnets, a bell-crank shaped armature lever, and a resistance box, consisting of the non-conductive block 11, having a central orifice, a non-conductive disk 13 at the bottom of said block, the sustaining plate 14, a conductive disk 16 movably mounted in the bottom of the orifice in said block, said disk having a depending lug passing through said disk 13 and engaging the horizontal portion of said armature lever, a conducting substance upon said disk 16, a metallic disk 12 on said conducting substance, and an adjusting screw engaging said disk 12, said resistance box being in electrical circuit with said magnet and armature lever, and adapted to regulate the flow of said electrical current through said magnets, in shunt, to regulate the current through the working circuit, substantially as described.

2. In a current regulator, the combination of the magnets, a screw and spring for adjusting the same, an armature lever, a resistance box having a conductive substance in its interior, a movable conductive disk supporting said substance, said disk being supported by an arm of said armature lever, and an adjusting winding post connected with an arm of said lever, substantially as described and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 6th day of June, 1891.

ANSEL B. JONES.

Witnesses:

H. S. SPRAGUE,
W. P. HORTON.