

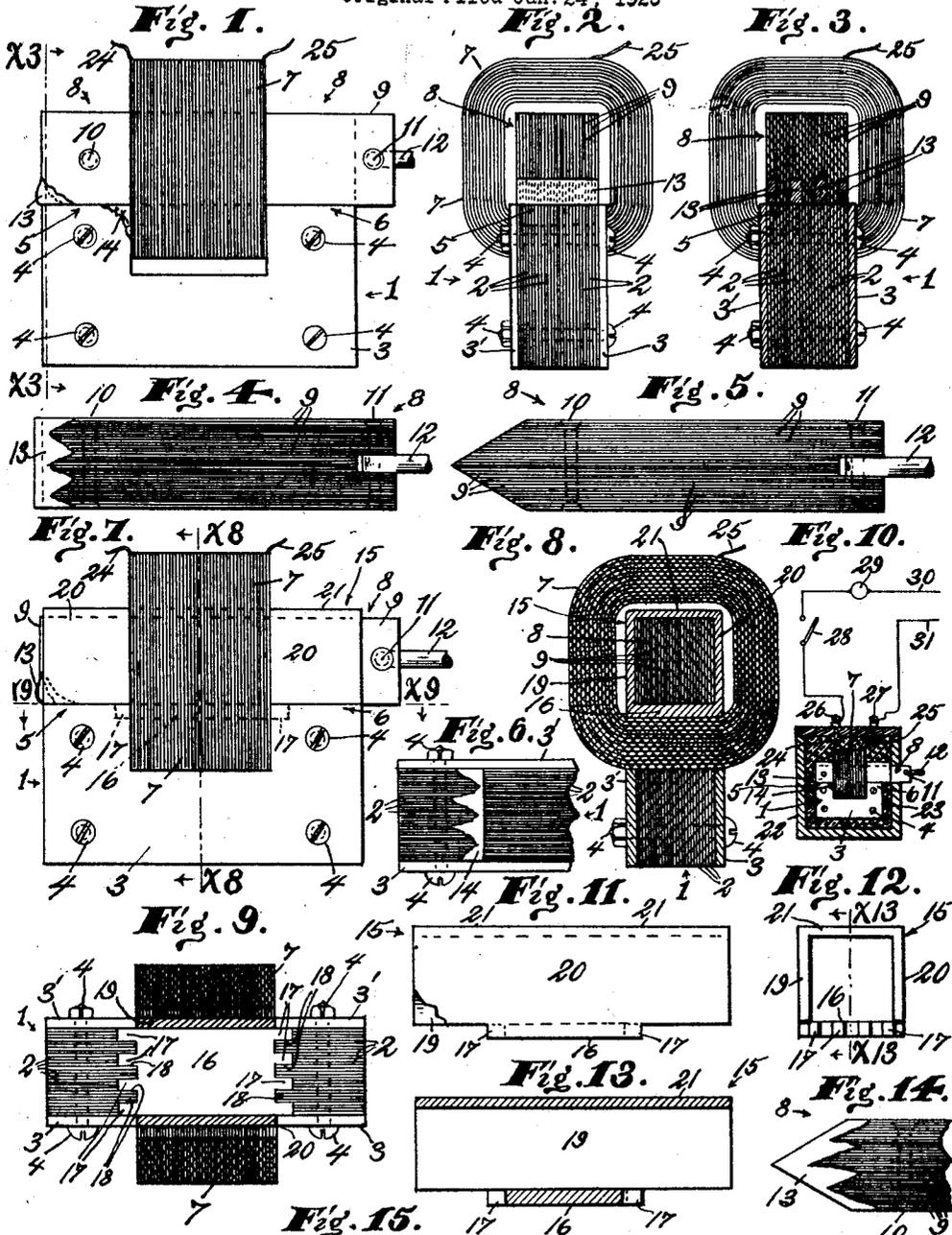
Jan. 3, 1928.

1,655,034

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ADJUSTABLE REACTION RESISTANCE

Original Filed Jan. 24, 1925



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ADJUSTABLE REACTION RESISTANCE.

Application filed January 24, 1925, Serial No. 4,430. Renewed May 25, 1927.

An object of this invention is to provide a simple and effective means for preventing a core from sticking or chattering when it is actuated to make or break a magnetic circuit. 55

Another object is to provide an adjustable reaction resistance having a core that can be easily adjusted to vary the lamp lighting brilliancy of an electrical current passing through a coil; and which also can be actuated to gradually diminish the magnetic field of force when the core is actuated to break the field. 60

An object of the invention is to provide an adjustable reaction resistance that is simple in construction; durable in use and which is easy to install in any suitable electric lighting system. 65

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims. 70

The accompanying drawing illustrates the invention. 75

Figure 1 is a side view of an adjustable reaction resistance constructed in accordance with this invention. 80

Fig. 2 is a left hand end view of the resistance shown in Fig. 1. 85

Fig. 3 is a cross section on line x^3 , Fig. 1. 90

Fig. 4 is an underside view of the core shown in Fig. 1, detached from the resistance. 95

Fig. 5 is a view analogous to Fig. 4, showing the core provided with a tapered end. 100

Fig. 6 is a fragmental plan view of the laminated body shown in Fig. 1, detached from the resistance. 105

Fig. 7 is a side view analogous to Fig. 1, showing the core provided with a non-magnetic casing. 110

Fig. 8 is a cross section on line x^8 , Fig. 7. 115

Fig. 9 is a longitudinal section on line x^9 , Fig. 7. 120

Fig. 10 is a diagrammatic view of a lighting system with the resistance installed therein showing a sectional view of a housing enclosing the resistance. 125

Fig. 11 is a side view of the non-magnetic casing in which the core is adapted to be reciprocated. 130

Fig. 12 is an end view of the casing shown in Fig. 11. 135

Fig. 13 is a section on line x^{13} , Fig. 12. 140

Fig. 14 is a fragmental bottom view of a core analogous to the left hand portion of the core shown in Fig. 5. 145

Fig. 15 is a grouped plan and edge view of a detached non-magnetic plate analogous to the magnetic plate integral with the casing shown in Fig. 11. 150

The resistance is provided with a laminated body 1 that comprises metal sheets 2 secured between side plates 3, 3' by screw bolts 4; and the sheets and plates are provided with upward extensions that when assembled form the magnetic poles 5, 6 between which is secured the bottom portion of a coil 7. 155

The coil 7 is wound to form a central opening through which a core 8 is adapted to extend and be reciprocated on the ends of the poles 5, 6. 160

The core 8 is formed of metal sheets 9 that are secured together by rivets 10, 11; and the sheets 9 are arranged to lie edge-wise and in the same plane as the sheets 2. 165

A rod 12 is pivotally connected to the rivet 11 to facilitate a reciprocation of the core. 170

To prevent the core 8 from chattering or sticking as it is moved toward or from the pole 5, a non-magnetic filler 13 is attached to the bottom edge of the free end of the core; and a similar non-magnetic filler 14 is secured to the top edge of the pole 5 adjacent the coil 7 and these fillers are constructed and arranged so that as the core 8 is moved onto or off of the pole 5 that the magnetic force is gradually increased to its full power or diminished until the force is negligible so that the core 8 can be moved toward or from the pole 5 without the usual sticking or chattering now common in adjustable reaction resistance when the magnetic circuit is broken. 175

In other words the metal sheets at the bottom edge of the free end of the core, and also the metal sheets at the top edge of the pole 5 adjacent the coil 7 are cut away to form saw toothed recesses that are filled with non-magnetic fillers 13, 14 that are arranged to gradually increase or diminish the magnetic force of the resistance as they meet or separate. 180

In Fig. 5 the free end of the core 8 is shown beveled to a point to thereby reduce the magnetic force as the core is moved toward or from the pole 5. 185

In Fig. 14 the free end of the core 8 is tapered and also provided with a non-magnetic filler for the purpose of preventing sticking or chattering as the case is moved toward or from the pole 5.

If desired the core 8 can be made to reciprocate in a non-magnetic casing 15 as indicated in Figs. 7, 8, 9, 11, 12 and 13.

As shown therein a casing 15 is provided with a base plate 16 that has its ends provided with tongues 17 adapted to be fitted into grooves 18 that are cut into the metal sheets 2 of the body 1 to form tongue and groove joints between the plate 16 and the poles of the body 1, as best shown in Fig. 9; so that when the casing 15 is fitted into place it extends through the coil 7 with the non-magnetic plate 16 arranged with its top surface substantially level with the top of the poles 5, 6.

By this construction, combination and arrangement of parts a resistance is provided in which the core can be reciprocated without it sticking or chattering; and also in which the side walls 19, 20 top 21 and the base plate 16 of the non-magnetic casing 15 for a guide for the reciprocation of the core 8.

It is understood, however, that the non-magnetic plate 16 can be separated from the guide casing 15 if so desired as indicated in Fig. 15.

In Fig. 10 the appliance is semi-diagrammatically shown in use. As seen therein the adjustable reactive resistance is shown in a housing 22 that is filled with an insulation 23 that surrounds all of the resistance except an extended end of the core and the rod by which it is adapted to be reciprocated.

The coil 7 is connected by wires 24, 25 with terminals 26, 27 on the housing 22 and their terminals are in circuit with a switch 28 and lamp 29 by lighting system wires 30. 31 so that as the resistance is manipulated to increase or decrease the magnetic force the brilliancy of the lamp 29 will be correspondingly increased or diminished.

I claim:

1. The adjustable reaction resistance set forth comprising a body having oppositely arranged poles; an electrical coil secured between said poles; a core adapted to be reciprocated through said coil and across the ends of said poles; and a non-magnetic filling secured to one end of said core, to prevent said core from sticking, or from chattering when it is actuated.

2. The adjustable reaction resistance set forth comprising a body having oppositely arranged poles; an electrical coil for said body; a core adapted to be reciprocated through said coil; and a non-magnetic filling secured to an end of said core.

3. The adjustable reaction resistance set

forth comprising a body; an electrical coil for said body; a non-magnetic filling in said body; a core adapted to be reciprocated through said coil; and another non-magnetic filling in said core, said fillings arranged so that they will permit an electro-magnetic force to gradually increase or diminish as said core is moved into or out of said coil.

4. The adjustable reaction resistance set forth comprising a body having poles; a non-magnetic metal filling connected to one of said poles; an electrical coil for said field; a core adapted to be reciprocated through said coil; and another non-magnetic metal filling connected to said core, said fillings arranged to contact as said core is reciprocated to predetermined positions through said coil.

5. The adjustable reaction resistance set forth comprising a body having poles; a non-magnetic metal plate secured between the poles of said body; a non-magnetic casing integral with said plate and arranged across the ends of said poles of said body; an electrical coil secured between said poles; and a core adapted to be reciprocated through said casing.

6. The adjustable reaction resistance set forth comprising a laminated body having poles; a non-magnetic metal plate secured between the poles of said body; a coil between said poles; a core adapted to be reciprocated through said coil that has a tapered end; and a non-magnetic metal filling secured to the tapered end of said core.

7. The adjustable reaction resistance set forth comprising a laminated body having poles; a non-magnetic metal plate secured between the poles of said body; a coil between said poles and extending around said plate; a core adapted to be reciprocated through said coil and arranged to engage and slide over said plate; and a non-magnetic metal filling secured to an end of said core and arranged to contact with said plate.

8. The adjustable reaction resistance set forth comprising a laminated body having poles; a non-magnetic metal plate secured between the poles of said body; a non-magnetic casing integral with said plate; an electrical coil arranged between said poles and around said plate and casing; a core adapted to be reciprocated through said casing and over and engaging said plate into contact with the poles of said body; and a non-magnetic metal filling secure to the end of said core and arranged to be moved into engagement with said plate.

9. The adjustable reaction resistance set forth comprising a laminated body having poles; a non-magnetic metal plate; tongue and groove joints connecting said plate to the poles of said body; a non-magnetic casing integral with said plate; a coil extending around said plate and casing and arranged

between the poles of said field; a core adapted to be reciprocated through said casing and coil and arranged to contact with said plate and the poles of said body; a tapered end 5 to said core; and a non-magnetic metal filler on the tapered end of said core.

10 10. The adjustable reaction resistance set forth comprising a laminated body having poles; a non-magnetic plate secured between the poles of said body; an electrical coil extending around said plate; a lamp in circuit with said coil; a core adapted to be reciprocated through said coil to increase or decrease 15 the magnetic force of said resistance and thereby increase or decrease the brilliancy of said lamp; and a non-magnetic point to said core, said point or plate arranged to prevent said core from sticking or chattering when reciprocated through said coil.

20 11. The adjustable reaction resistance set forth comprising a laminated body; poles to

said body that have their ends terminating in the same plane; a non-magnetic plate secured between said poles and arranged with its top surface in the same plane as the ends 25 of said poles; an electrical coil extending around said plate; a lamp in circuit with said coil; a core having a point and adapted to be reciprocated through said coil to increase or decrease the magnetic force of 30 said resistance and thereby increase or decrease the brilliancy of said lamp; and a non-magnetic saw tooth filler on the end of said core that is arranged to be moved into contact with said plate and adapted to coact 35 with said plate to prevent said core from sticking or chattering when reciprocated through said coil.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 40 19th day of January, 1925.

FRANK JOSEPH ZAMBONI.