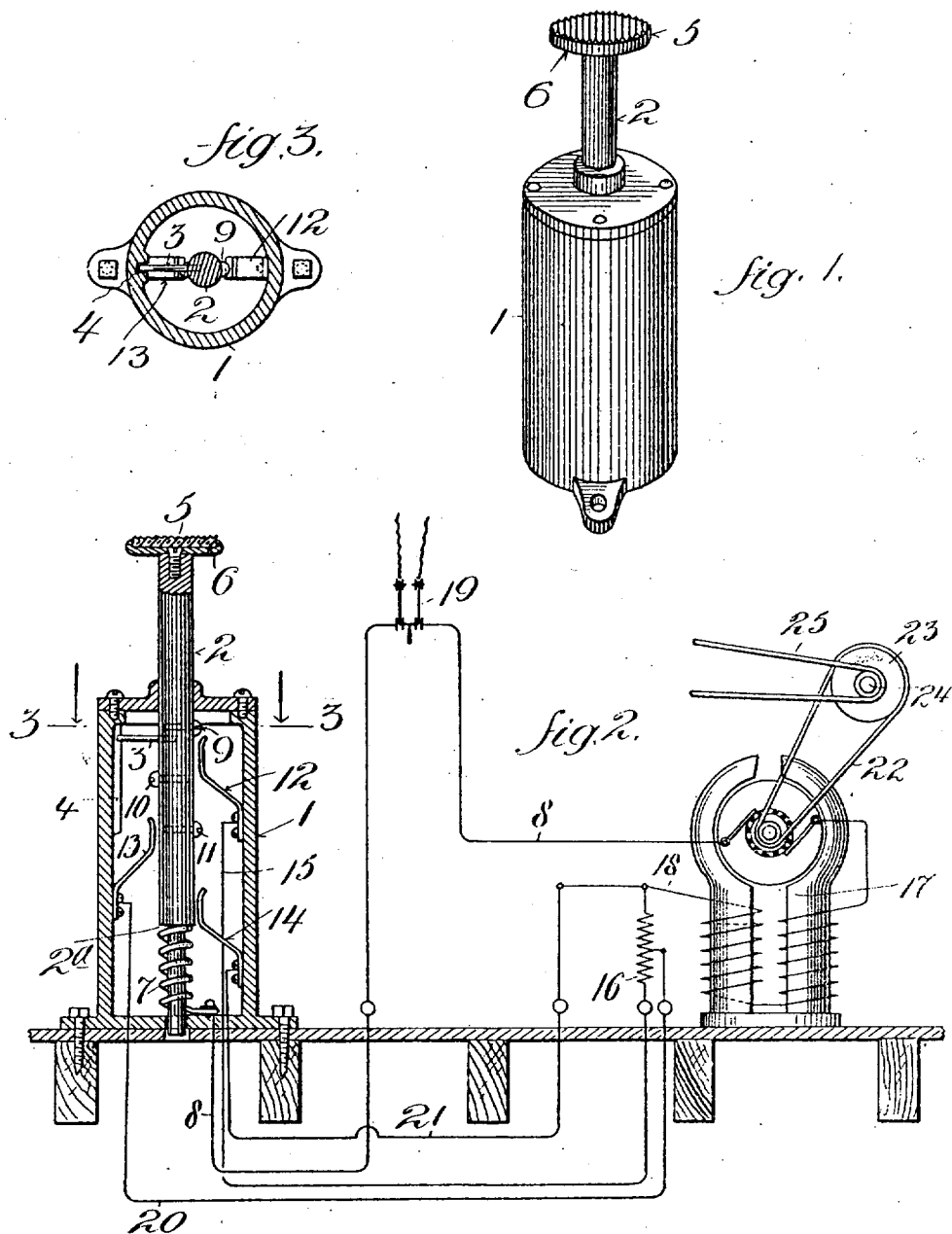


No. 893,382.

PATENTED JULY 14, 1908.

D. B. SAWYER.
ELECTRIC CIRCUIT CONTROLLER.
APPLICATION FILED SEPT. 24, 1907.



Witnesses:
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UNITED STATES PATENT OFFICE.

DANE B. SAWYER, OF PATERSON, NEW JERSEY.

ELECTRIC-CIRCUIT CONTROLLER.

No. 893,382

Specification of Letters Patent.

Patented July 14, 1908.

Application filed September 24, 1907. Serial No. 394,312.

To all whom it may concern:

Be it known that I, DANE B. SAWYER, a citizen of the United States, and resident of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Electric-Circuit Controllers, of which the following is a specification.

The object of my invention is to provide a controller for an electric circuit adapted to be operated by the foot of an operator for controlling the speed of an electric motor, such as a motor used for driving a sewing machine, where it is desired to vary the speed of the machine as the work progresses, and my invention comprises the novel details of improvement and arrangements of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein

Figure 1 is a perspective view of my improved circuit controller. Fig. 2 is an elevation, partly in section, illustrating my improvements in connection with a motor, and Fig. 3 is a cross section on the line 3, 3, in Fig. 2.

In the accompanying drawings, in which similar numerals of reference indicate corresponding parts in the several views, the numeral 1 indicates a suitable casing or frame, and at 2 is a metal rod adapted to slide in said casing, being shown guided in suitable bearings in opposite ends of the casing. To keep said rod from rotating I have shown the same provided with a pin 3 extending into a vertical groove 4 provided in casing 1. The rod 2 is shown provided with a foot piece 5 insulated from said rod by suitable insulation 6. Said rod is normally pressed outwardly by a suitable spring 7 which is shown coiled around said rod and bearing at one end against a shoulder 2' on rod 2 and at its opposite end against the bottom of the casing, and said spring may thus form part of the circuit by being connected with the line wire 8. Rod 2 is provided with any suitable number of contacts 9, 10, 11, which are respectively adapted to engage contacts 12, 13, 14 at suitable distances apart, and shown carried by casing 1. In the normal position of the parts shown in Fig. 2 the contacts 9, 10 and 11 will be out of engagement with the contacts 12, 13 and 14, and the relative arrangement of the parts is such that when rod 2 is first pushed inwardly contacts 9 and 12 will

engage, then upon a further push or rod 2 contacts 10 and 13 will engage, and upon a still further push inwardly of rod 2 contacts 11 and 14 will engage, and the arrangement is preferably such that contacts 9 and 12 will remain in engagement until contacts 10 and 13 have engaged, and likewise contacts 10 and 13 will remain in engagement until contacts 11 and 14 have engaged, to prevent sparking at the respective contacts. On the outward movement of rod 2 a similar effect will take place as the respective contacts respectively engage. Casing 1 may be made of insulating material with contacts 12, 13 and 14 connected directly thereto, or casing 1 may be made of any suitable material with contacts 12, 13 and 14 suitably insulated therefrom. Contact 12 is connected by a suitable conductor 15 with one end or terminal of a suitable resistance 16, the opposite end or terminal of said resistance being connected with a suitable motor 17, as by conductor 18, the line wire 8 being connected with the opposite terminal of said motor, and a suitable switch 19 may be provided for the line 8 and connected in well known manner with a source of electrical energy. Contact 13 is connected by a suitable conductor 20 with an intermediate part of resistance 16, such as practically at the center thereof, and contact 14 is connected by a conductor 21 with the motor around the resistance, as with conductor 18. The motor may be connected by a belt 22 with a suitable pulley 23 provided with a pulley 24 from which a belt 25 passes to a sewing machine, or other machine to be operated at varying speeds.

With the device arranged as shown in Fig. 2, the motor will be out of circuit, and when it is desired to rotate the motor, rod 2 is pressed inwardly until contacts 9 and 12 engage whereupon current will flow from the line through conductor 8, spring 7, rod 2, contacts 9 and 12, and conductor 15 to the resistance 16, thence through the resistance and conductor 18 and the motor winding to the line, the motor thereupon being operated at reduced or slow speed; to increase the speed of the motor rod 2 is pushed further into casing 1 to engage contacts 10 and 13 and disengage contacts 9 and 12, whereupon the circuit will be from conductor 8 to spring 7, rod 2, contacts 10 and 13, and conductor 20 to an intermediate part of the resistance, and thence by conductor 18 and the motor.

winding to the line, whereupon the speed of the motor will increase; to further increase the speed of the motor rod 2 is pushed further into casing 1 whereupon the circuit will be from line 8; spring 7, rod 2, contacts 11 and 14, and conductor 21 to the motor winding, cutting out the resistance, and thence to the line; whereupon the motor will operate at high speed. The speed of the motor may be varied as desired by pressing in rod 2 or allowing the same to be pushed out by spring 7 to bring either pair of contacts into engagement as desired. Thus, with a sewing machine equipped with my improvements the same may be operated by merely operating rod 2 by the foot as desired for throwing in more or less resistance to the circuit.

By having the contacts 9 to 14 inclosed within casing 1, the operator is protected from current flowing through the circuit, and sparks from the make and break at the contacts are confined within the casing.

Having now described my invention what I claim is:

1. The combination of a casing, a rod mounted to slide therein and provided with contacts in circuit therewith and spaced apart, contacts to co-act with the first named contacts and spaced apart, and a spring to move said rod upwardly, conductors connected with the second named contacts, translating devices connected with said conductors, and a conductor in circuit with said devices and with said rod.

2. The combination of a casing, a rod mounted to slide therein and provided with contacts spaced apart, contacts to co-act with the first named contacts and spaced apart, a spring to move said rod upwardly, and means to prevent rotation of said rod, conductors connected with the second named contacts, translating devices connected with said conductors, and a conductor in circuit with said devices and with the first named contacts.

3. The combination of a casing, a rod

guided to slide therein and provided with a plurality of contacts spaced apart, a plurality of contacts within said casing, a resistance, and a motor, one of said contacts being connected with one terminal of the resistance, another of said contacts being connected with an intermediate part of said resistance, and another of said contacts being connected with the motor around said resistance, said resistance also being connected with the motor.

4. The combination of a casing, a rod guided to slide therein and provided with a plurality of contacts spaced apart, a plurality of contacts within said casing, a resistance, and a motor, one of said contacts being connected with one terminal of the resistance, another of said contacts being connected with an intermediate part of said resistance, and another of said contacts being connected with the motor around said resistance, said resistance also being connected with the motor, a spring in circuit with the rod to move it outwardly, and a line wire connected with said spring.

5. The combination of a casing, a rod guided to slide therein and provided with a foot piece insulated therefrom, a spring coiled around said rod and in contact therewith, said rod having a plurality of contacts spaced apart, contacts within said casing spaced apart, a motor and a resistance, one of said contacts being connected with a terminal of said resistance, another of said contacts being connected with an intermediate part of said resistance, another of said contacts being connected with a motor around said resistance, and a line wire connected with said spring.

Signed at New York city, in the county of New York, and State of New York, this 17th day of September, A. D. 1907.

DANE B. SAWYER.

Witnesses:

T. F. BOURNE,
MARIE F. WAINRIGHT.