Aug. 23, 1938. H. E. WEBSTER 2,127,898

LOW VOLTAGE FENCE CHARGER

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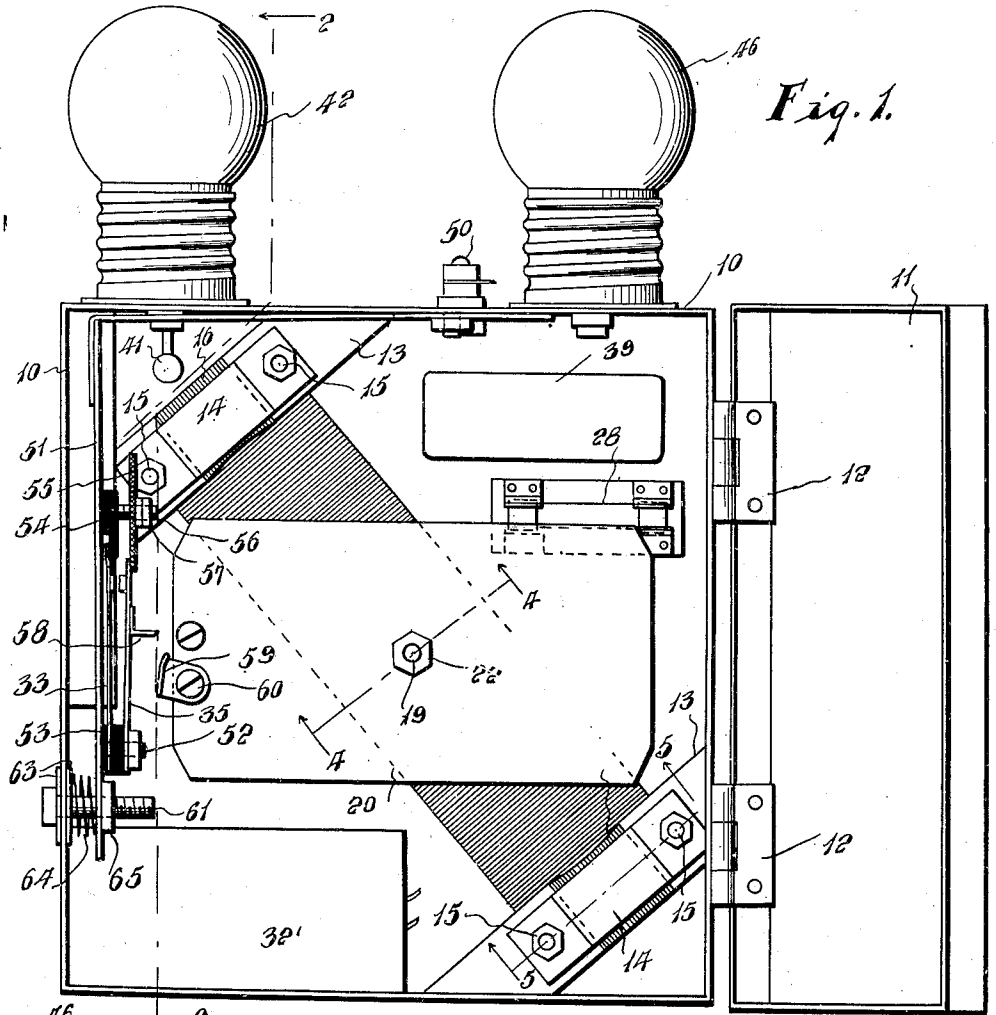


Fig. 1.

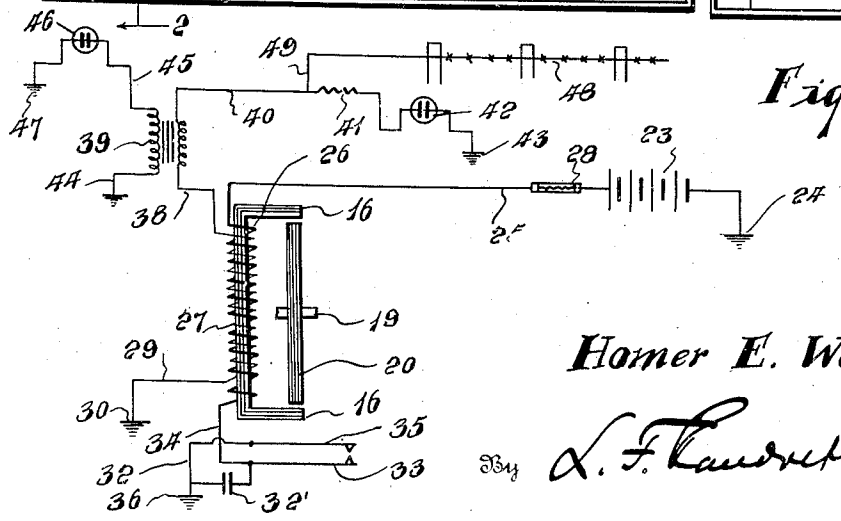


Fig. 6.

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Fig. 2.

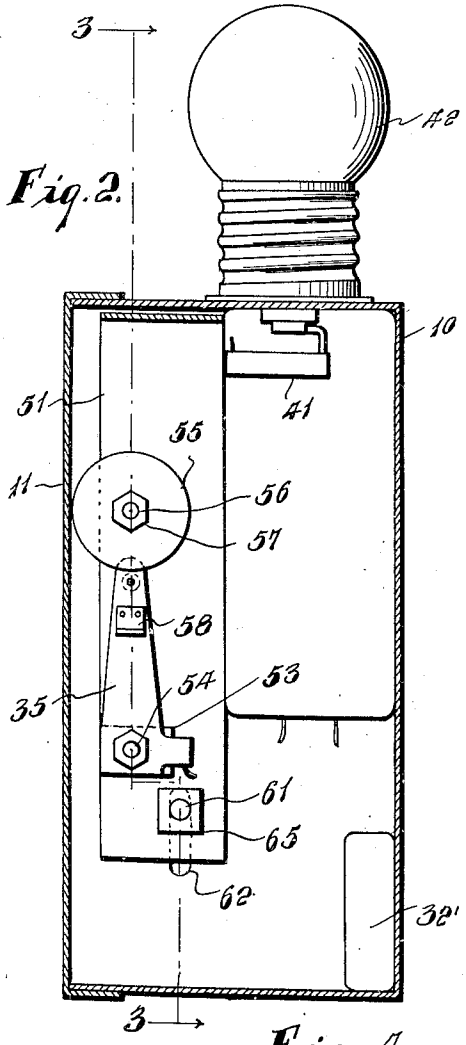


Fig. 3.

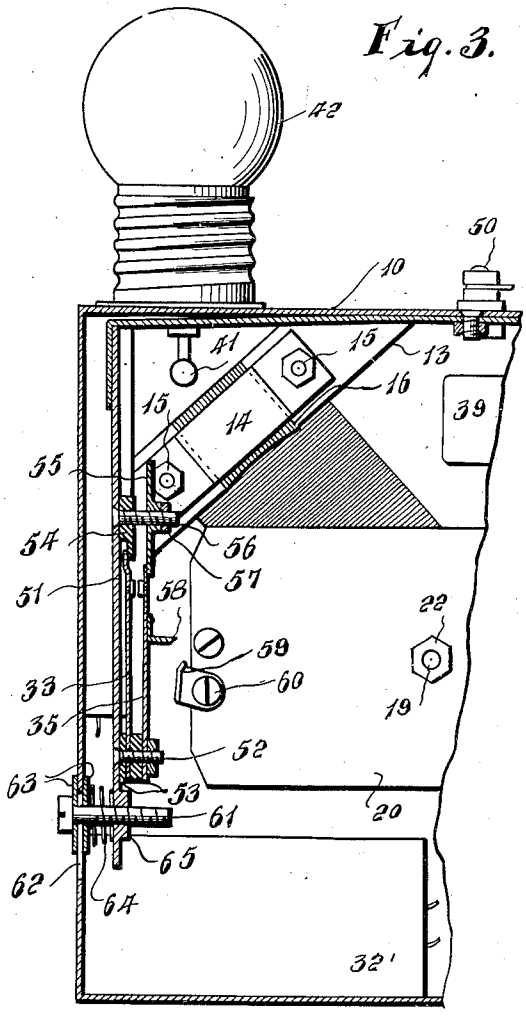


Fig. 4.

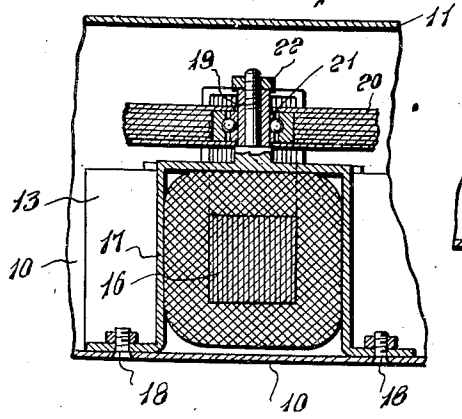
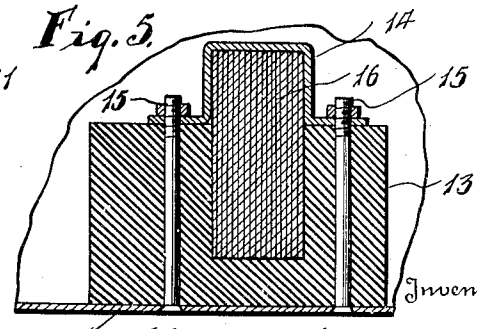


Fig. 5.



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LOW VOLTAGE FENCE CHARGER

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Application February 6, 1936, Serial No. 62,708

2 Claims. (Cl. 200—153)

This invention relates to a low voltage fence charger, and it aims to provide a novel construction adapted to intermittently charge a cattle fence with electricity say from 100 to 150 volts for a period of about 1/1000 of a second once in every revolution of a rotating circuit breaker, or about once in every second.

A prime object is to secure the maximum effect of keeping cattle from fences by an electric shock with the minimum amount of current. It has been found that one instant of electric shock is about as effective as a periodic series of smaller ones, or even a continuous charge, and of course is far safer.

While the machine uses an electrically operated rotor in the present embodiment, any approved type of apparatus to produce the above effect may be used.

It is further aimed to provide a novel means whereby a secondary voltage and current may be regulated at will, as well as the speed of the rotor.

The more specific objects and advantages will in part be pointed out and otherwise become apparent from a consideration of the description following, taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:—

Figure 1 is a view of the apparatus in front elevation, with a closure or front of the casing in open position;

Figure 2 is a vertical sectional view taken substantially on the line 2—2 of Figure 1;

Figure 3 is a fragmentary vertical sectional view taken on the plane of line 3—3 of Figure 2;

Figure 4 is a diametric section taken on the line 4—4 of Figure 1;

Figure 5 is a cross section taken on the line 5—5 of Figure 1; and

Figure 6 is a view of the part in electrical diagram.

Referring specifically to the drawings, wherein like reference characters designate like or similar parts, all of the elements are carried by and for the most part mounted within a suitable casing 10 having a door or closure 11 hinged thereto as at 12. The specific connection of the various elements or parts will best be seen from the diagram of Figure 6.

Within the casing 10 a suitable block 13, of insulation, in combination with straps 14 and bolts 15, mount main coil laminations 16, such laminations, for instance, being of iron. An intermediate bracket or strap 17 bolted as at 18 to the casing, has a vertical post 19 on which a rotor 20 is journaled, ball bearing means 21 preferably being interposed between the rotor and post and the rotor being removably secured in place by means of a nut 22 threaded to the post. The rotor 20 preferably consists of laminations of cast iron, and it will be noted that the ends of the laminations 16 extend upwardly at opposite terminals and are disposed adjacent the periphery of the rotor.

Electric current is adapted to be supplied from any suitable source, as, for instance, a 6-volt storage battery as shown at 23, one terminal of which is connected to ground as at 24, and the other terminal of which is connected to a conductor 25 with a primary induction coil 26, with which a secondary induction coil 27 coacts. Coils 26 and 27 are wound about the laminations 16. Means hereinafter described provides a normally open circuit through coil 26 and a constantly closed circuit through coil 27. A fuse 28 may be provided in the conductor 25.

A conductor 29 leads from the secondary winding 27 and is grounded to the machine at 30, and the machine is grounded to the earth. A conductor 34 leads from the primary winding 26 to a resilient contact 33. Coacting with the contact 33 and normally disengaged therefrom is a resilient contact 35. A conductor 32, connected to both contacts is grounded to the machine at 36, and includes a condenser 32'.

Leading from the secondary winding 27 is a conductor 38 to a transformer 39 from the lower voltage side of which a conductor 40 leads to the fence, as later described, having a resistor 41 therein and a lamp 42 therein, grounded as at 43. From the higher voltage side of the transformer 39, which is grounded as at 44, a conductor 45 leads through a lamp 46, grounded as at 47. Both of said lamps 42 and 46 are of the neon glow type, the lamp 42 being a secondary voltage indicator, and the lamp 46 being a secondary current indicator.

The metallic wire of a fence, such as a cattle fence, to be charged, as suggested at 48, is connected directly or by an intermediate conductor 49 to a binding post 50 carried by the casing 10.

The conductor 45 may essentially comprise an L-shaped metallic frame 51 to which a bolt 52 connects the aforesaid contacts 33 and 35, properly insulated as at 53 and normally out of contact. Outward movement of one of said contacts is limited by a block of insulation 54 carried by the frame 51 when the other contact tends to spring away from such contact that is adjustable to vary the distance or space between the contact

to which end it is engaged by a disc 55 slidably and adjustably positioned on a bolt 56 extending from block 54 and held in adjusted position by a nut 57 on the bolt.

One of said contacts carries a projection 58 thereon which is adapted to be engaged by a metallic shoe 59, once during each revolution of the rotor 26. Such contacts 59 may be tilted or moved to any desired angle with respect to the rotor, as it is fastened to place removably and adjustably by the bolt 60. By the tilting or angularity of the shoe 59, the amount of secondary voltage current may be regulated.

The frame 51 may be shifted or adjusted to the shifting or adjustment of a bolt 61, which passes through a hole in the frame 51 and an elongated slot 62 in the wall of the casing 10, and which bolt engages, by screw threads, screw threads of discs or nuts 63, on opposite sides of such wall, to rigidly hold the screw in different adjusted positions. An expansive coil spring 64 surrounds the bolt between the innermost disc 63 and the frame 51, a nut 65 being soldered to the frame 51, and hence through the turning of the screw 61, the adjacent end of the frame 51 may be moved inwardly or outwardly to vary the distance between the contacts 33 and 35, thereby facilitating their adjustment.

From a practical standpoint, the rotor is adapted to rotate at about 40 to 60 revolutions per minute, for example. It is adapted to charge the cattle fence 48 with about 100 to 150 volts for a period of about 1/1000 of a second, which charge occurs once in each revolution, which is about once in every second. From the closing of the circuit through the lamp 42, the glowing thereof will indicate the secondary voltage, that is, the voltage applied on the fence, while, when the circuit is closed through the lamp 46, which is the secondary current indicator lamp, the glow thereof will indicate how much current is leaving the machine for the fence.

The primary or circuit through coil 26 is open except when shoe 59 holds resilient contacts 33 and 35 together, thus allowing the current in such primary circuit to build up a magnetic field in the core 15. But when the resilient contacts 33 and 35 are released, the sudden breaking of the primary circuit, facilitated by the condenser 32, induces a powerful charge in the secondary coil 27, which is always closed.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:—

1. A device of the class described having a casing, a rotor therein, circuit closing contacts, means to close said contacts through the operation of the rotor, a frame in said casing anchored at one end and mounting said contacts, a bolt extending loosely through the casing having screw-threaded connection with the frame operable to adjust the position of the frame to vary the spacing of the contacts, an expansive coil spring on said bolt engaging the casing and the frame, a block overlapping one of the contacts, a bolt on the frame on which the block is mounted extending beyond the block, a disc slidable on the latter bolt engaging a free end of the other contact, and a nut threaded on the latter bolt operable against the disc to adjust the position thereof.

2. A device of the class described having a casing, a rotor therein, circuit closing contacts, means to close said contacts through the operation of the rotor, a frame in said casing anchored at one end and mounting said contacts, a bolt extending loosely through the casing having screw-threaded connection with the frame operable to adjust the position of the frame to vary the spacing of the contacts, an expansive coil spring on the bolt engaging the casing and the frame, a block overlapping one of the contacts, a bolt on the frame on which the block is mounted extending beyond the block, a disc slidable on the latter bolt engaging a free end of the other contact, a nut threaded on the later bolt operable against the disc to adjust the position thereof, a shoe on said rotor, means to secure the shoe at different angles to the rotor, and a projection on one of the contacts engageable by the shoe.

HOMER E. WEBSTER.