

Jan. 18, 1927.

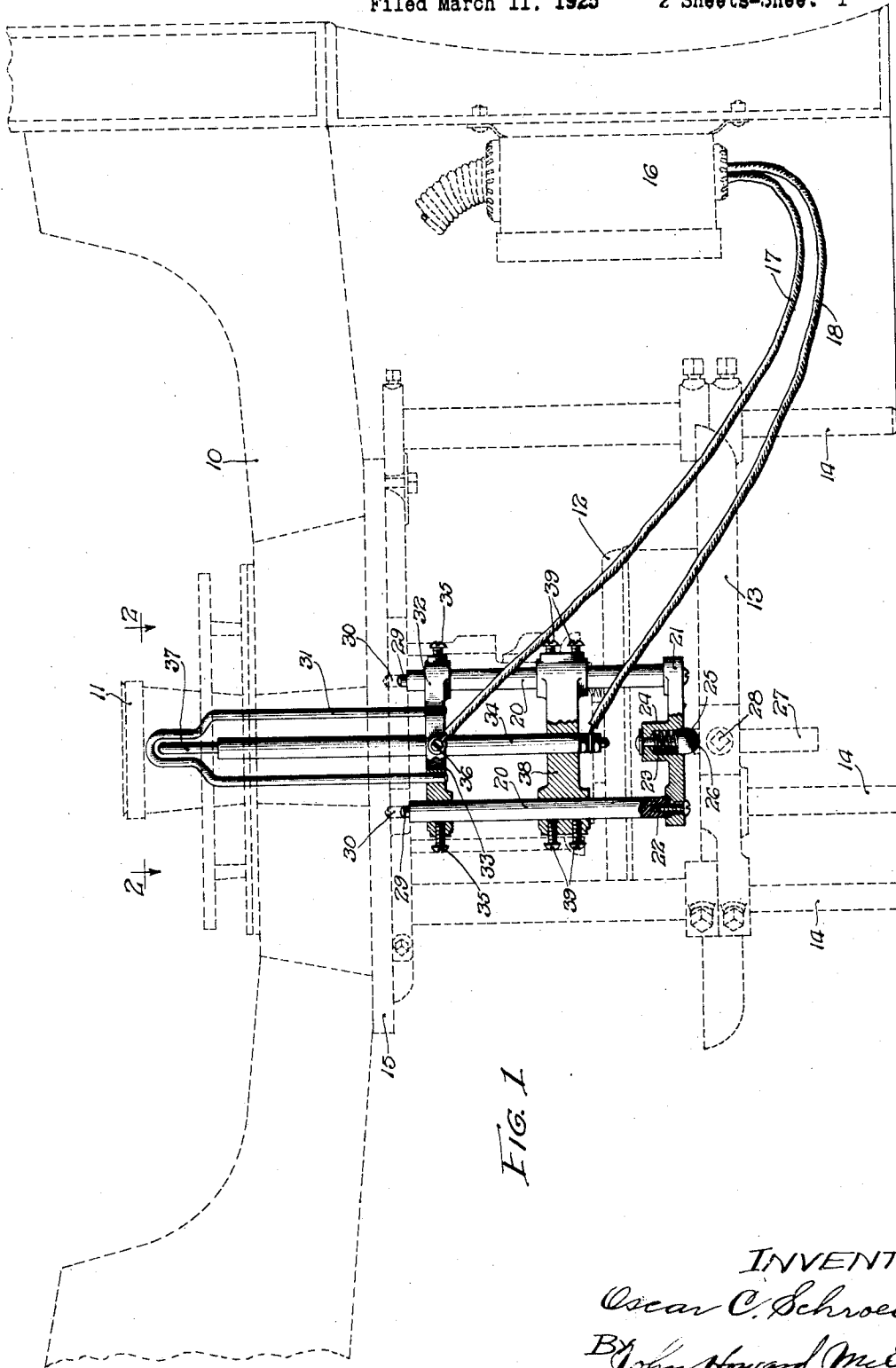
O. C. SCHROEDER

1,614,692

JUMP SPARK IGNITER FOR OIL BURNERS, ETC

Filed March 11, 1925

2 Sheets-Sheet: 1



INVENTOR
Oscar C. Schroeder
By John Howard McElroy
HIS ATT'Y.

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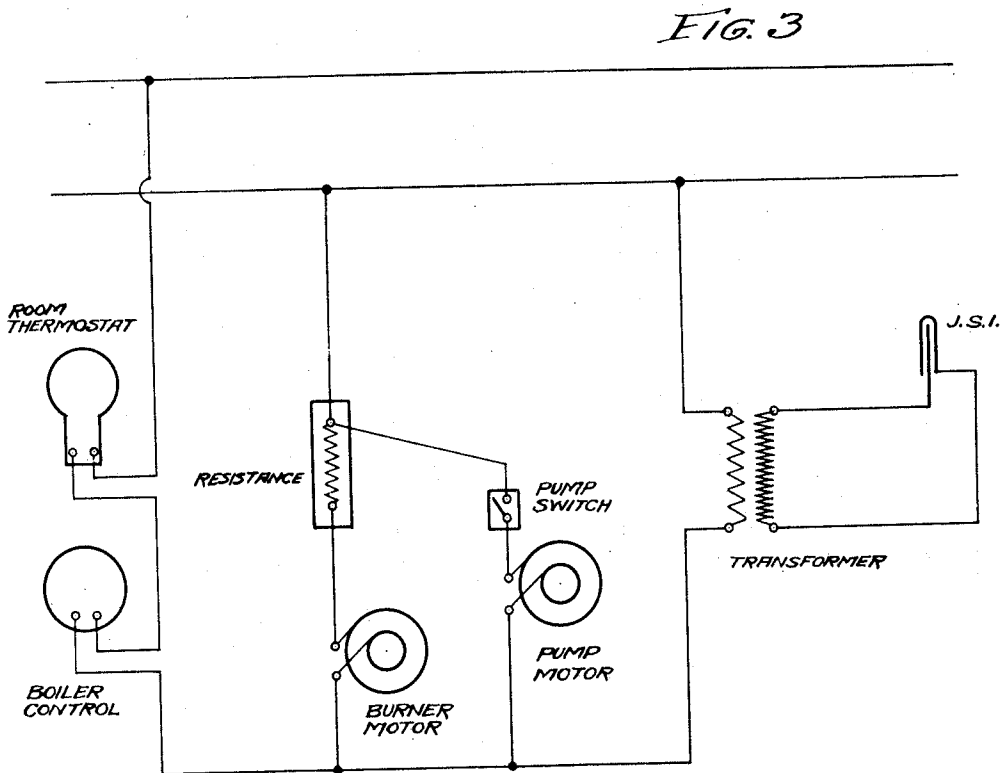
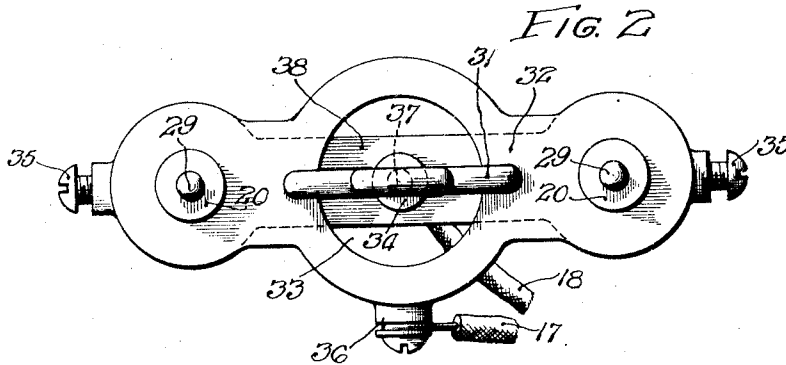
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UNITED STATES PATENT OFFICE.

OSCAR C. SCHROEDER, OF CHICAGO, ILLINOIS.

JUMP-SPARK IGNITER FOR OIL BURNERS, ETC.

Application filed March 11, 1925. Serial No. 14,842.

My invention is concerned with jump spark igniters designed primarily for use in an oil burner, where it is in continuous operation exposed to a flame, and prevents any possibility of the flame becoming and remaining extinguished. While such devices have been previously used in oil burners, heretofore they have been ordinary spark plugs, such as are used in gas engines, and I have found that when so used in oil burners, they soon clog up and cease to function, and my igniter is so designed that it will operate indefinitely. It is also designed so that it can be readily removed and replaced in case it should be deemed advisable.

To illustrate my invention, I annex hereto two sheets of drawings, in which the same reference characters are used to designate identical parts in all the figures, of which,—

Fig. 1 is a front elevation, partly in section, of my novel jump spark igniter installed in a furnace, the furnace and its associated parts being indicated in dotted lines, while my igniter is shown in full lines;

Fig. 2 is a top plan view of the igniter as seen on the line 2—2 of Fig. 1, but on a larger scale; and

Fig. 3 is a diagram illustrating the electrical connections by which the igniter is operated.

While I might use my igniter in connection with any form of a burner, I have shown it as installed in connection with the burner shown in my Patent No. 1,505,607, issued August 19, 1924, and it will be readily understood from the drawings that 10 represents the firepot of a furnace, and that the burner is provided with the rotating cup 11 from which the oil is sprayed out by centrifugal action, forming a ring of flame in the bottom of the firepot. The oil for the rotating burner is supplied through the reservoir 12, it being supported by the casting 13 from the legs 14, which also support the upper casting 15 which supports the upper portion of the burner proper. 16 indicates the transformer, where alternating current is used, and the wires 17 and 18 lead from the transformer to the igniter, as will be described.

In carrying out my invention in its preferred form, I form a generally rectangular main frame, the sides of which are composed of two rods 20 made of any desired insulating material, which are set in apertures in the base piece 21, preferably of metal, and

secured therein by screws 22. Mounted in the recess 23 formed in the lug 24 constituting a part of the base piece 21, is the spring-pressed plunger 25, the rounded bottom of which co-operates with the shallow recess 26 formed in the top of the rod 27 adjustably mounted in the base 13 of the framework and secured by the set screw 28 in any desired position. The upper ends of the insulating rods 20 are reduced so as to form the lugs 29, which are adapted to enter the recesses 30 formed on the under side of the frame 15. It will be understood that when it is desired to insert the igniter, the lugs 29 will be placed in the recesses 30, and the lower end swung over into place, the spring-pressed plunger 25 giving so as to allow its rounded lower end to enter and be retained in the recess 26.

The igniter is formed with two adjustable electrodes, the outer one consisting of the wire or rod 31, which is of the shape shown, and has its ends secured in the cross piece 32, which is of the shape best shown in Fig. 2, and has the large central aperture 33 therein to permit the passage of the other electrode 34 therethrough and give plenty of clearance so that there can be no sparking between the cross piece and the electrode 34. The cross piece 32 is secured in any desired adjustment by the screws 35 threaded through the ends thereof and engaging the posts 20. The wire 17 leads to the binding post 36 of the electrode 31. The electrode 34 is preferably formed of a heavy rod, as compared with the electrode 31, and the upper end of the same is reduced to form the electrode proper 37, which is preferably of the same diameter as the electrode 31. The wire 18 is connected to the bottom of the rod or electrode 34, which is constructed as a binding post. This electrode is rigidly secured in the cross piece 38, which is vertically adjustable on the rods 20, and is secured in any desired adjustment by the set screws 39 threaded through the ends thereof and engaging the posts 20.

With the foregoing construction, it will be obvious that I have formed a strong and durable igniter, with operating surfaces that can be adjusted to and from each other as may be desired, and it will likewise be obvious that the same can be readily removed from the furnace when it is desired to clean or replace it.

In Fig. 3, I have illustrated the preferred

wiring for the same, and the arrangement will be readily understood from the means attached to the various elements in the circuit. This is illustrated as arranged for an alternating current with a transformer to step up the potential to that necessary for the jump spark igniter, and it will be understood that where only direct current is available, a magneto will be substituted for the transformer to secure the desired potential.

While I have shown and described my invention in the form which I at present consider best adapted to carry out its purposes, it will be understood that it is capable of some modification, and that I do not desire to be limited in the interpretation of the following claims except as may be necessitated by the state of the prior art.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. In a furnace, the combination with a framework having a pair of opposed recesses, of a jump spark igniter having a supporting frame with a lug at one end to co-operate with one of the recesses, and at the other end a spring-pressed plunger to co-operate with the other recess, the igniter including two electrodes adjustable on the frame, substantially as described.

2. In a furnace, the combination with a framework having a pair of opposed recesses, of a jump spark igniter having a supporting frame with a lug at one end to co-operate with one of the recesses, and a spring-pressed plunger at the other end to co-operate with the other recess, the jump spark igniter including two cross pieces adjustable on the frame, each of said cross pieces carrying an electrode.

3. In a jump spark igniter, the combina-

tion with a pair of insulating posts, of a base piece connecting one end of the posts, a cross piece adjustable on the central portion of the posts and carrying an elongated electrode, and a second cross piece adjustable towards the ends of the posts and having an aperture therethrough for the first-mentioned electrode and an electrode carried by the second cross piece approaching at its end the adjacent end of the other electrode.

4. In a jump spark igniter, the combination with a pair of insulating posts, of a base piece connecting one end of the posts, a cross piece adjustable on the central portion of the posts and carrying an elongated electrode, and a second cross piece adjustable toward the ends of the posts and having an aperture therethrough for the first-mentioned electrode and an electrode carried by the second cross piece and of a general U-shape and approaching at its end the adjacent end of the other electrode.

5. In a jump spark igniter, the combination with a pair of insulating posts, of a base piece connecting one end of the posts, a cross piece adjustable on the central portion of the posts and carrying an elongated electrode consisting of a heavy rod with its electrode end reduced, and a second cross piece adjustable toward the ends of the posts and having an aperture therethrough for the first-mentioned electrode and a generally U-shaped electrode carried by the second cross piece but with its end adjacent the reduced end brought close to said reduced end.

In witness whereof, I have hereunto set my hand this 9th day of March, 1924.

OSCAR C. SCHROEDER.