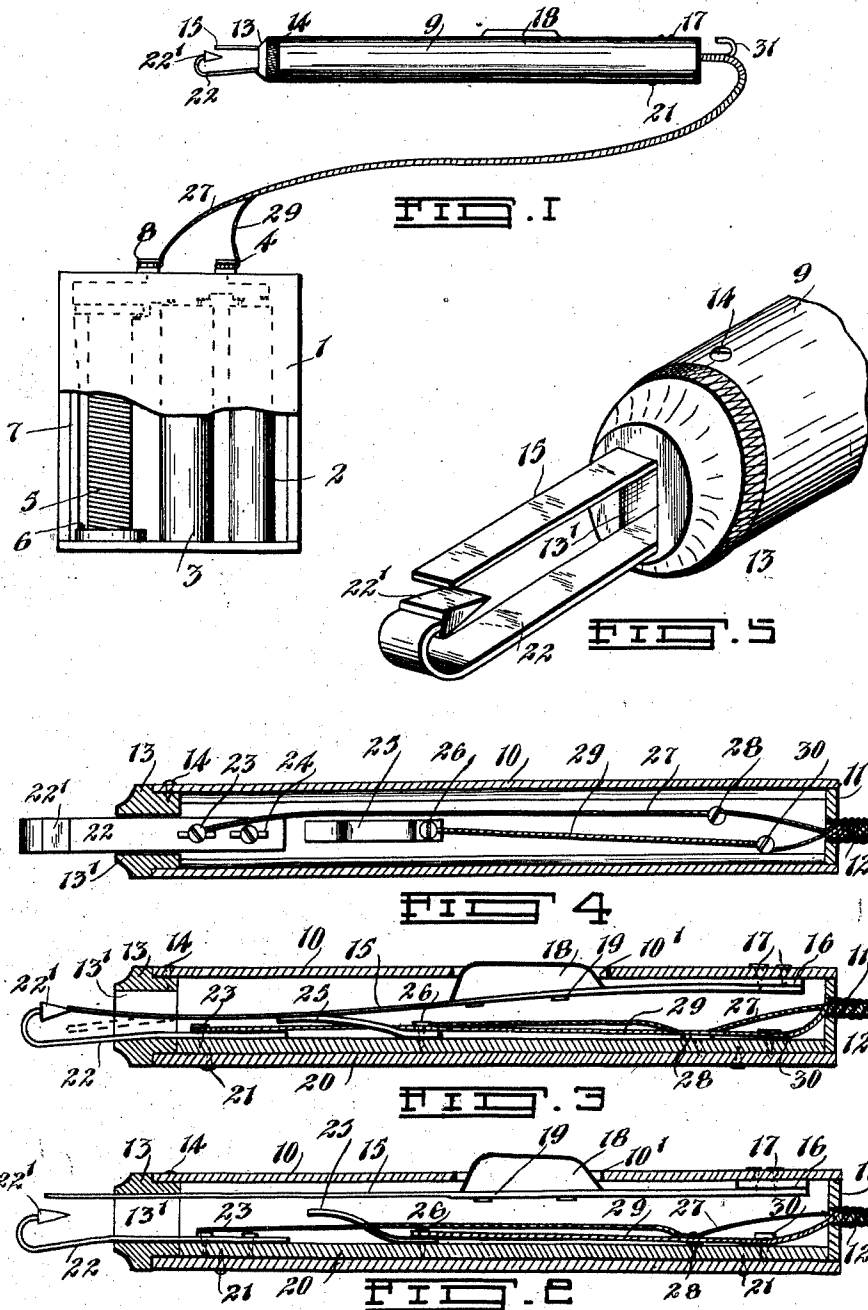


F. F. DIER & M. PRIMEAU.  
 GAS LIGHTING APPLIANCE.  
 APPLICATION FILED JAN. 9, 1909.

928,505.

Patented July 20, 1909.



WITNESSES

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# UNITED STATES PATENT OFFICE.

FREDERICK FRANKLIN DIER AND MEDERIC PRIMEAU, OF WINNIPEG, MANITOBA, CANADA.

## GAS-LIGHTING APPLIANCE.

No. 928,505.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed January 9, 1909. Serial No. 471,542.

*To all whom it may concern:*

Be it known that we, FREDERICK FRANKLIN DIER and MEDERIC PRIMEAU, of the city of Winnipeg, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Gas-Lighting Appliances, of which the following is the specification.

The invention relates to improvements in devices to be employed for igniting gases, and which is more especially intended to be used in connection with stoves in which gas or gasoline is used as fuel, yet it may be employed for igniting gases used for other purposes.

It consists in certain peculiarities of construction, and novel arrangement and operation of the various parts thereof, as will be hereinafter more particularly set forth, and specifically claimed.

One object of the invention is to provide an economical, simple, electrically operated igniter for gas and other ignitable substances which is of such a nature that an electric spark can be produced at a desired time and point thereby dispensing with the employment of matches and avoiding all inconveniences arising from their use.

Another object is to so construct the appliance that there is neither a possibility of the operator receiving an electric shock when using it nor of the apparatus becoming short circuited when not in use even if it be laid upon an electrical conductor.

Other objects and advantages will become apparent when the invention has been further described.

In the accompanying drawings Figure 1 is a side elevation of the complete apparatus showing the box containing the battery and the solenoid with a portion torn away. Fig. 2 is an enlarged detailed longitudinal sectional view centrally through the hand instrument through which electrical contact is made, certain portions being shown in side elevation, and the circuit being shown open. Fig. 3 is a longitudinal sectional view as in Fig. 2 the parts being shown as they appear just prior to the time when the spark is made. Fig. 4 is an enlarged detailed longitudinal and central sectional view through the hand instrument, the section being taken in a plane at right angles to Fig. 2, showing the manner in which the wires are connected

within the instrument. Fig. 5 is an enlarged detailed perspective view of one end of the instrument.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 represents a square box in which is placed two cells 2 and 3 forming a battery, the cells being connected in series and having the remaining terminal of the cell 2 in electrical connection with the binding post 4. 5 is a helix or solenoid also within the box and it has one of its terminals connected to the remaining terminal of the cell 3 and its other terminal 6 interconnected by a wire 7 to a binding post 8.

We have considered it unnecessary to give a detailed description of the box, the solenoid, the cells, and their connections, as they are constructed and connected in precisely the same manner as has been described in a United States application for patent on a gas lighting appliance, Serial #463699, filed November 20th, 1908.

9 is a contact making hand instrument which consists in a handle formed from a tube 10, preferably of metal, and of a length which is best adapted for the purpose. One end of the tube is closed by a plug or end wall 11 which is bored centrally and has secured therein an extending wire coil 12, the purpose of which will shortly be apparent. The opposite end of the tube is fitted with a fibrous insulating plug 13, the plug being removably secured in the tube end by a set screw 14. An opening 13' passes through the plug and communicates with the interior of the tube. The opening is substantially rectangular in cross section.

15 is a flat spring having a metallic plate 16 soldered or brazed on its rear end and it is secured to the tube rearwardly by screws 17 passing inwardly through the tube and into the plate. The opposite end of the spring passes forwardly through the opening 13' in the plug and extends for a considerable distance.

18 is a fibrous member forming a press button which is secured to the spring by screws 19, the press button passing into an opening 10' formed in the tube so that the spring can be depressed by the hand when grasping the tube. We have considered it advisable to make the spring with the rear

portion much stronger than the forward portion. In other words the portion to the rear of the press button is heavier than the portion forward of it, and consequently will not spring as readily.

20 is an insulating strip of fibrous material inserted in the tube and passing practically the full length thereof, its position being directly below the spring 15 where it is secured by screws 21 to the tube.

22 is a contact plate secured adjustably to the strip by screws which it will be noticed pass through slots 24 formed in the plate. The plate can be adjusted by unloosening the screws, as will readily be understood. The free end of the plate passes through the opening 13' and extends considerably therebeyond being turned upwardly and back and fitted with a wedge or V-shaped contact piece 22', such contact piece appearing normally directly beneath the free end of the spring 15.

25 is a comparatively weak flat spring secured by a screw 26 to the strip 20 and it has its free end extending upwardly and forwardly beneath the spring 15 with which it is designed to make contact.

27 is a wire secured at its one end to the binding post 8 and having its opposite end in electrical connection with the plate 22 by passing it around one of the screws 23 before it is tightened to position. The wire passes through the coil 12 and is looped around a screw 28 extending from the fibrous strip the screw preventing the wire from being accidentally withdrawn from the tube. 29 is a second wire having its one end secured to the binding post 4 and its opposite end passing through the coil 12 and electrically connected to the spring 5 by passing it around the screw 26 before it is fastened in position. This wire is also looped around a screw 30 similar to that 28 and serving the same purpose. The two wires can be wound together so as to form a single cord between the instrument and the contacts 4 and 8.

31 is a hook extending from the end wall 11 whereby the instrument can be hung up when it is idle.

In order to better understand the appliance we will now describe its operation.—The contact tip 22' is brought within the zone of the escaping gas and the press button 18 is forced downwardly by the pressure of the hand on the instrument. This initially brings the extending end of the spring 15 into contact with the tip, the spring touching the tip toward its base. Upon continued pressure of the hand the forward portion of the spring is bowed and shortly before the free end escapes from the apex of the contact tip the spring 25 engages with the spring 15 thereby closing the circuit. By the time the press button is brought to the level of the tube, that is, when it is de-

pressed as far as possible by the hand, the end of the spring 15 flips off the apex of the contact piece to the position shown in dotted outline in Fig. 3, and causes a spark to ignite the gas. When the pressure of the hand is released the forward end of the spring 15 returns against the face of the contact piece and is bowed upwardly before it flips off the apex. The upward bow of the spring causes it to pass out of contact with the plate 25 before the tip of the spring 15 escapes from the contact piece and consequently there is no spark when the spring 15 is passed to its upper or normal position. The only advantage which we claim in this respect is the saving it is in the battery to have only one spark instead of two. As far as igniting the gas is concerned two sparks would not be disadvantageous but the second one would be entirely useless if the first were large enough to ignite the gas. The contact tip may be made of platinum if it be found necessary to do so.

What we claim as our invention is:

1. In a gas lighting appliance the combination with a battery and a helix, of a hand instrument designed to close the circuit, said hand instrument being provided with two extending members adapted to be brought together, the circuit being closed after such members initially engage, as and for the purpose specified.

2. In a gas lighting appliance the combination with a battery and a helix, of a hand instrument designed to close the circuit, said hand instrument being provided with a stationary and a movable contact member adapted to be brought into engagement, and having an additional means whereby the circuit is closed after the members have been brought into engagement, as and for the purpose specified.

3. In a gas lighting appliance the combination with a battery and a helix, of a hand instrument designed to close the circuit said hand instrument being provided with a stationary extending and exposed contact plate, depressible means adapted initially to engage with the contact plate and upon continued depression to escape from the plate, and means for closing the circuit after the stationary and depressible means have been brought into engagement, as and for the purpose specified.

4. In a gas lighting appliance the combination with a battery and a helix, of a hand instrument designed to close the circuit, said hand instrument being provided with a stationary extending and exposed contact plate, a depressible spring adapted to engage with the contact plate, and a second depressible spring designed to close the circuit by engaging with the former spring after contact is made with the contact plate, as and for the purpose specified.

5. In a device of the class described a hand instrument comprising a tubular member, an insulated extending and exposed contact plate having the extending end turned backwardly on itself, a depressible spring adapted to initially engage with the contact piece and upon continued depression to escape quickly therefrom, and a depressible insulated spring adapted to engage with the former spring after it has made contact with the contact plate, as and for the purpose specified.

6. In a device of the class described a hand instrument comprising a tubular handle having its ends closed there being longitudinal openings formed in the ends; an insulated contact plate extending through one of the openings to the interior of the handle, said contact plate having its end turned upwardly and backwardly and being provided with a wedge-shaped contact tip, a depressible spring secured rearwardly to the interior of the handle and having its free end extending through the same openings as the contact plate, said spring being designed to engage initially with the base of the wedge-shaped contact tip and upon continued depression to escape downwardly quickly from the apex of the tip, and an insulated depressible spring within the handle adapted to engage with the former

spring after it has engaged with the contact tip, as and for the purpose specified.

7. In a device of the class described a hand instrument comprising a tubular handle having its ends closed by end pieces and provided with central openings, the handle having further a longitudinal slot in the body portion thereof, a strip of insulating material secured within the handle, an adjustable contact plate secured to the strip and having its free end extending through the opening in one of the end pieces and turned backwardly on itself, a wedge-shaped contact tip secured to the contact plate, a spring having its one end firmly secured within the handle and its other end extending through the same opening as the contact plate and designed to make contact therewith, a press button secured to the spring and extending through the slot, and a second depressible spring fastened to the strip and adapted to make contact with the former spring after it has engaged with the contact tip, as and for the purpose specified.

Signed at Winnipeg, in the Province of Manitoba, this 2nd day of December 1908.

FREDERICK FRANKLIN DIER.

MEDERIC PRIMEAU.

In the presence of—

GERALD S. ROXBURGH,

M. A. SOMERVILLE.