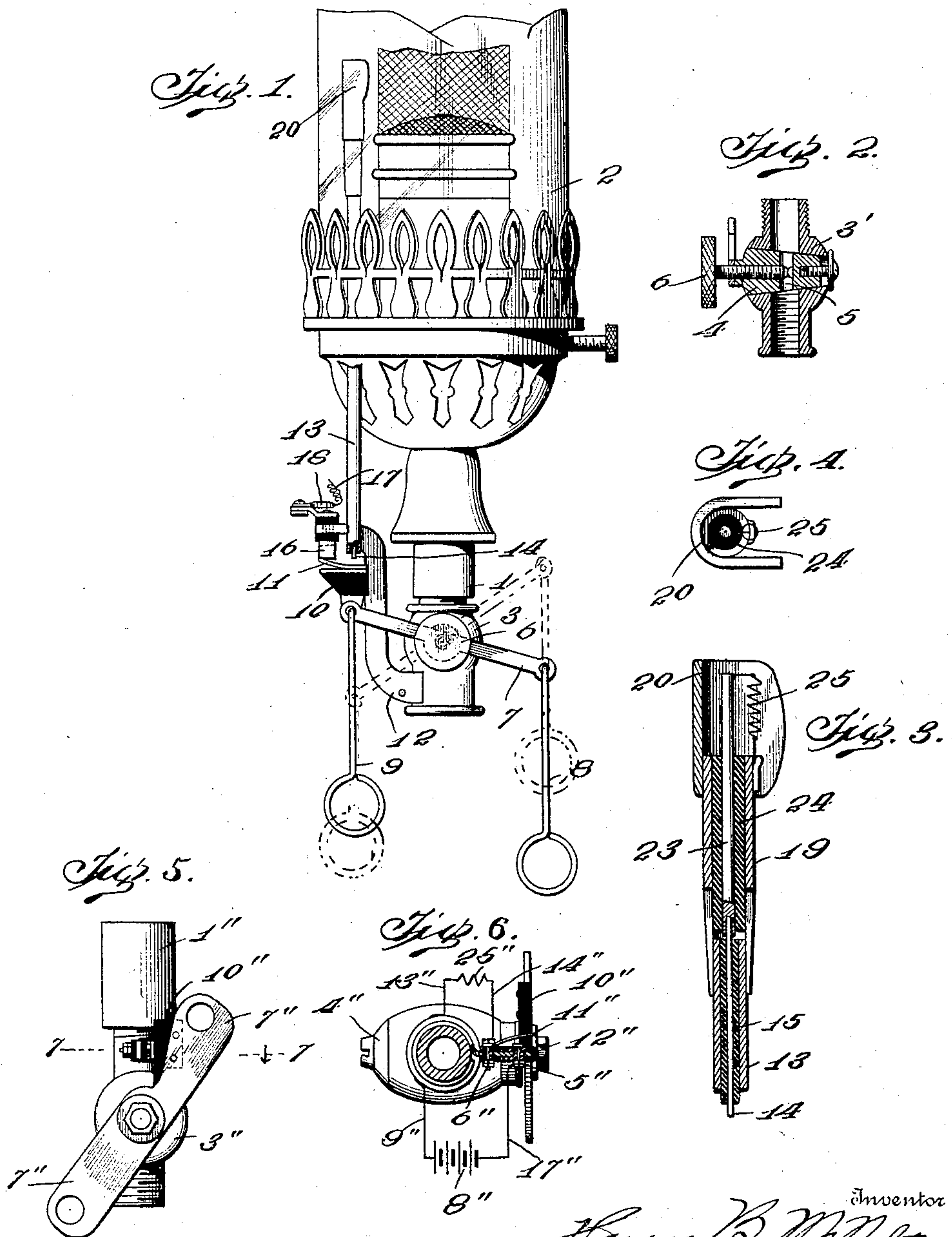


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H. B. McNULTY.
ELECTRIC IGNITER.
APPLICATION FILED OCT. 22, 1903.

NO MODEL.



Witnesses
L. Sanford Handy
Edgar M. Kitchen

Inventor
Harry B. McNulty
By Mason, Fawcett & Co.
Attorneys

UNITED STATES PATENT OFFICE.

HARRY B. McNULTY, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
TO THE McNULTY INCANDESCENT GAS LIGHTER COMPANY, A CORPORATION OF THE DISTRICT OF COLUMBIA.

ELECTRIC IGNITER.

SPECIFICATION forming part of Letters Patent No. 773,411, dated October 25, 1904.

Application filed October 22, 1903. Serial No. 178,094. (No model.)

To all whom it may concern:

Be it known that I, HARRY B. McNULTY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Electric Igniters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In the art of gas-igniting devices it is common to employ an electric conductor of comparatively high resistance, through which is passed a current of electricity of sufficient potential for raising the temperature of the resistance to incandescence; but difficulty has been experienced in governing the amperage of a current for preventing burning out the resistance, and my present invention contemplates the production of a structure wherein the removal and replacing of the resistance is facilitated.

Among other and further objects which might be mentioned for the present invention is the provision of manually-operated mechanism for cleansing a switch of an electrical circuit including an igniting resistance and automatic means for opening said switch.

With these and further objects in view the invention consists of certain novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 represents a view in side elevation of a gas-lamp with igniting mechanism embodying the features of the present invention applied thereto. Fig. 2 represents an enlarged detail transverse vertical section through a valve and valve-casing included within the present invention. Fig. 3 represents an enlarged detail fragmentary longitudinal vertical central section through an igniter-cap and connecting parts. Fig. 4 represents a top plan view of the same. Fig. 5 represents a view in side elevation of a section of a gas-supply pipe provided with a valve and valve-lever-operated switch of a slightly-modified form of the

present improved structure. Fig. 6 represents a horizontal section taken on the plane of line 7 7 of Fig. 5, the valve-lever being shown in full.

Referring to the drawings by numerals, 1 indicates any suitable gas-supply pipe carrying a mantle-chamber 2, which may be provided with any suitable mantle and other elements well known in the art for aerating the gas for producing incandescence of the contained mantle. A valve-casing 3 is interposed in the length of tube 1 and is provided with any common form of plug-valve 4, bored transversely for forming a passage 5 for permitting the movement of gas past said valve when turned in position for being opened. The valve 4 is formed with a longitudinal threaded bore, into which is introduced a thumb-screw 6, entering the passage 5 and designed to be threaded into the same to any desired degree for controlling the amount of gas passing said valve. An operating-bar 7 engages the stem of valve 4 and extends past the same in both directions and may be provided with pendent operating-handles 8 and 9 at its ends.

The end of bar 7, carrying pendant 9, is provided with an insulating-block 10, upon which is mounted a contact brush or switch 11, of spring material, fixed at one end and curved into a spring member for a portion of its length at its free end. A suitable bracket 12 is carried by the tube 2 or casing 5, as preferred, and said bracket supports at its upper end a tube 13, projecting up into the mantle-chamber 2. A rod or wire 14 is arranged within the tube 13 and projects beneath the lower end of the same in the vertical plane of brush 11 when said brush is raised. A suitable insulation 15 surrounds the rod or wire 14 for preventing an electrical contact between said wire and the tube 13. Insulated from the bracket 12 and carried thereby is a contact-plate 16, connected electrically with a conductor 17, leading from any suitable source of supply, a fuse-block 18 of any common and well-known type being interposed between the conductor 17 and the contact-plate

16, block 18 being made of suitable material for fusing and breaking the circuit if a current of too high potential is supplied, the block 18 bearing the proper relation to the platinum tip 25 for protecting the same against injury. The contact-plate 16 is spaced a distance from the lower protruding end of rod 14 less than the length of brush 11 in the vertical plane of said brush when raised.

The upper end of tube 13 is designed to receive a cap 19, designed to be removed and replaced at will, the lower end of said cap being constructed to fit snugly about the upper end of tube 13. The upper end of cap 19 is provided with a hood or deflector 20, in use opening toward the mantle within the chamber 2. A rod 23 extends throughout the length of cap 19 and beyond the same into the hood 20, the lower end of said rod 23 being bored for receiving the upper end of rod 14, which projects above the upper end of tube 13. Any suitable insulation 24 surrounds the rod 23 and prevents contact thereof with tube 19. A platinum resistance 25 is contacted electrically with cap 19 and with the rod 23 within the hood 20.

In operation, the parts being in position indicated in dotted lines in Fig. 1, the pendant 8 is drawn downwardly until the brush 11 is caused to contact with plate 16 at its free end, which free end gives under pressure and permits the fixed end of said plate to contact with the projecting end of rod 14, whereby current flowing from any desired source through conductor 17 will pass through plate 16, brush 11, rod 14, rod 23, resistance 25, cap 19, tube 13, bracket 12, and pipe 1 back to the source of supply. A movement of the bar 7 from the position indicated in dotted lines to the position indicated in full lines in Fig. 1 moves the valve 4 from a closed to an open position, permitting the charge of gas to enter the mantle-chamber simultaneously with or slightly prior to the passing of the current through resistance 25. When the operator has caused the brush 11 to contact with plate 16 and the end of rod 14, he releases the pendant 8, whereupon the free end of the brush 11 springs back to its curved position and forces the fixed end out of contact with rod 14. Thus it will be seen that by merely turning on the supply of gas in the ordinary manner of pulling down a pendant the same may be ignited and the circuit broken automatically. When it is desired to extinguish the light, it is only necessary to pull down the pendant 9 for causing the same to revolve valve 4 to a closed position.

A slight modification of the present invention is illustrated in Figs. 5 and 6 of the accompanying drawings, in which 1" indicates the gas-supply pipe provided with a valve-casing 3", inclosing a valve 4". An operating-bar 7", similar to bar 7, is connected to the stem of valve 4" for rotating such valve.

A bracket 12" projects from pipe 1" in the path of movement of the bar 7" and carries a binding-post 5", insulated therefrom, a similar binding-post 6" being also carried by said bracket and insulated. A spring-switch 11" is carried by said bracket and contacts electrically with binding-post 6" and extends beyond the plane of one end of binding-post 5". A conductor 14" extends from binding-post 6" to an igniting resistance 25", said resistance being grounded on the pipe 1 by means of conductor 13". A conductor 17" leads from binding-post 5" to one pole of battery 8", the opposite pole of said battery being grounded on pipe 1" by conductor 9". The bar 7" is provided with an insulating-block 19", and in operation said bar is pivoted vertically for opening the valve 4", whereby the block 10" is brought into contact with switch 11" and presses the same against binding-post 5". When the parts are in this position, current flows from battery 8" through conductor 17", binding-post 5", switch 11", binding-post 6", conductor 14", resistance 25", said resistance being arranged in such position relative to the discharge from pipe 1" as to ignite the same when raised to incandescence, and from resistance 25" through conductor 13" to the pipe 1" and thence to the battery. After the ignition has occurred the operator of course releases bar 7", whereupon a spring-switch 11" will throw said bar back sufficiently for leaving the switch out of contact with binding-post 5".

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a mechanism of the class described, the combination with electro-igniting means, of a lever, a spring-switch carried thereby, and a circuit for said igniting means including said switch, the switch being adapted to be closed against the spring-pressure thereof, such spring-pressure serving to break contact when the switch is released.

2. In a mechanism of the class described, the combination with an electro-igniting means and electrodes therefor spaced apart, of a spring-switch, and a circuit for said electro-igniting means including said switch and electrodes, said spring being adapted to be brought into contact with said electrodes for bridging the space therebetween against the spring-pressure of such switch, such spring-pressure serving to break such contact when the switch is released.

3. In a mechanism of the class described, the combination with a gas-supply tube, a valve for controlling such gas-supply, a lever for actuating said valve, electro-igniting means for the gas supplied through said tube, electrodes spaced apart, and a switch carried by said lever and adapted to be brought into contact with said electrodes for bridging the space therebetween, said switch being bent

into a spring for causing automatic breaking of such contact and a circuit for said electro-igniting means including said electrodes and switch.

5 4. In a mechanism of the class described, the combination with a supply-pipe, a valve therefor, and a rod for said valve, of electro-igniting means for the discharge from said pipe, a circuit for said electro-igniting means, 10 and a curved spring-switch carried by said rod and designed to close said circuit.

5 5. In a mechanism of the class described, the combination with a supply-pipe and a valve therefor, of electro-igniting means for the discharge from said pipe, a bracket carried by 15 said pipe, a tube carried by said bracket and supporting said electro-igniting means and forming electric contact therewith, a conductor connected with said electro-igniting means 20 and extending through said pipe, a contact-plate, and an automatic contact-breaking switch adapted to close contact between said plate and conductor.

25 6. In a mechanism of the class described, the combination with a tube, a conductor with-

in the same, and a circuit including said tube and conductor, of a cap designed to engage said tube, an igniting resistance carried by said cap, and a conductor also carried by the cap designed to engage the conductor within 30 said tube.

7. In a mechanism of the class described, the combination with a tube and a conductor, of a cap adapted to engage said tube, a conductor carried by said cap, and an igniting 35 resistance interposed between said conductor and cap.

8. An electro-igniting means comprising a tubular cap, a hood carried thereby and opened at one side, an igniting resistance car- 40 ried within said hood connected at one end with said cap, and a conductor connected to the opposite end of said hood and extending through the cap.

In testimony whereof I hereunto affix my 45 signature in presence of two witnesses.

HARRY B. McNULTY.

Witnesses:

JOHN L. FLETCHER,
EDWIN E. VROOMAN.