J. P. TIRRELL.

Electric Gas Lighting Apparatus.

No. 232,661. Patented Sept. 28, 1880.

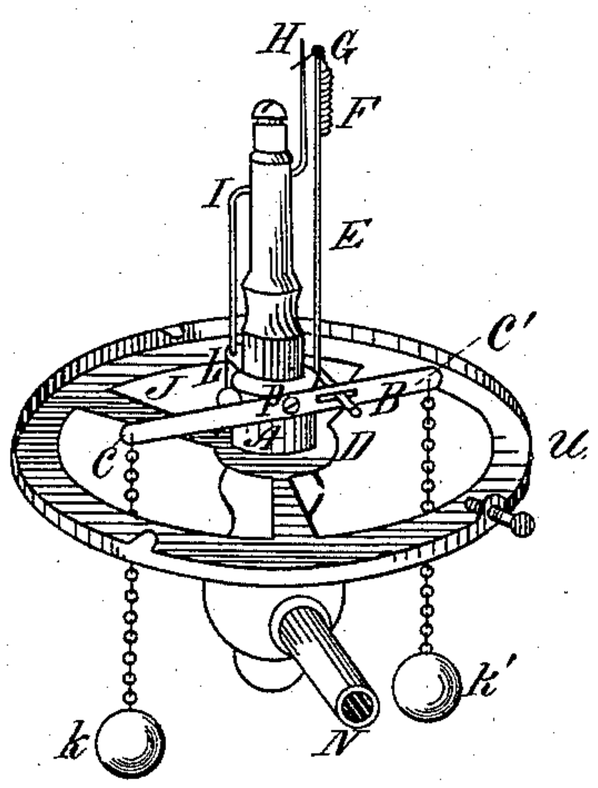

Fig. I.

Witnesses:

C. E. Gunn.

Frank H. Shepherd

Inventor:

Jacob P. Tirrell

by his attorney

Alex. L. Hayes.

UNITED STATES PATENT OFFICE.

JACOB P. TIRRELL, OF LEXINGTON, MASSACHUSETTS.

ELECTRIC GAS-LIGHTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 232,661, dated September 28, 1880.

Application filed January 8, 1877.

To all whom it may concern:

Be it known that I, JACOB P. TIRRELL, of Lexington, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Devices for Lighting Gas by Electricity, of which the following is a full, clear, and exact description, reference being had to the drawing accompanying and forming part of this specification.

This invention relates to that class of devices for lighting gas by electricity in which the gas is ignited by an electric spark produced in near proximity to the orifice from which the gas issues by breaking an electric circuit at that point, and is intended to be applied more particularly to gas-fixtures used in dwellings.

The invention consists in certain details of construction hereinafter more fully set forth, and pointed out in the claims.

In the accompanying drawing, Figure 1 is an isometrical perspective view of my invention.

In this drawing, A is a gas-burner attached to the gas-pipe N, and M is the ordinary shade-holder on the burner.

A gas-cock of the ordinary form is placed in the burner at P, and to the stem of this gas-cock is attached a two-arm metallic lever, E, one arm of which is vertical and the other horizontal. Pivoted to the burner is a horizontal lever, B, which has near one end, C′, a slot, D, in which the short horizontal arm of the lever E works. To each end of this lever B is attached a cord or chain, by means of which either end of this lever may be depressed, and thereby cause the oscillation of the lever E and the rotation of the gas-cock.

Upon the end of the vertical arm of the lever E is attached, by one end, a spiral spring, F, the other end of which spring passes through a small hole at the extremity of the arm, and is bent horizontally, as shown at G. By this means a yielding and elastic contact-point is obtained.

I is a metallic arm or standard fixed in a step, L, of suitable insulating material, such as hard rubber or ivory, attached to the side of the burner, which standard terminates in a platina point, H. This arm may be covered with an envelope of any suitable non-conducting material, as shown in the drawing.

It is necessary that the two arms should be insulated from each other, and any suitable method may be adopted for accomplishing this result.

The arm I may be insulated from the burner by the device shown in the drawing and herein described, or the arm I may be uninsulated from the burner, and the movable arm may be insulated in any suitable manner.

The arm I is connected to one pole of a battery by a wire, J, and the burner and gas-pipe are connected to the other pole, and consequently when the lever E is oscillated by depressing either end of the lever B the circuit will be completed by the point on the movable arm making contact with the point on the fixed arm, and then immediately broken by the separation of the points by the further movement of the lever E, and a primary spark will be produced. At the same time the gas-cock will be turned, and if the end C of the lever B has been depressed the gas-cock will be opened and the issuing gas will be ignited by the spark. The depression of the other end C′ of the lever B will reverse the motion of the gas-cock and shut off the gas.

The cords or chains K K′, attached to each end of the lever B, afford a convenient means moving the arm when this igniting device is attached to gas-fixtures which cannot be conveniently reached by the hand.

Any other suitable device may be used for oscillating the movable lever instead of the lever B.

For the purpose of increasing the size of the spark when the points break contact an ordinary electro-magnet or a helix surrounding a bar of soft iron or a bundle of iron wire may be placed in the circuit. This method of increasing the size of the primary spark is well known.

The effect of the yielding and elastic contact-point G on the end of the oscillating arm is to cause a lengthening of the spark produced when the points break contact, which renders it more certain of igniting the gas and to cause a sliding contact between the points, whereby their surfaces are kept clean and perfect electrical contact insured. This yielding and elas-

tic contact-point may be placed upon the fixed instead of the movable arm, and I do not confine myself to the use of a spiral spring for giving elasticity to the point, as any other device may be used which will effect this result.

It will be obvious that if the oscillating arm is insulated from the burner the conducting-wire must be connected to this arm instead of to the fixed arm.

I am aware that devices for lighting gas by a spark produced by making and breaking contact near the orifice of a gas-burner between the extremities of a fixed and movable arm are not new. I also am aware that devices operating in this manner have been attached to ordinary gas-fixtures and operated by hand. I therefore make no claim, broadly, to such devices; but

What I do claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In combination with a gas-burner, A, the fixed insulated arm I, attached thereto and terminating in a metallic point, the gas-cock and an arm attached to the stem thereof, and a device for actuating the said arm and thereby turning the gas-cock, said arm being also connected with and arranged to actuate the vibrating arm E, with its contact-point G, the whole so constructed, combined, and arranged that the oscillation of said arm shall conjointly turn on the gas and bring said points in contact to produce an igniting-spark near the tip of the burner, all substantially as and for the purposes specified.

2. The combination, substantially as and for the purpose set forth, of the lever B, the oscillating lever E, the fixed arm I, and the gas-burner, when said arms are insulated from each other and make and break contact at their extremities near the tip of the burner.

3. In devices for lighting gas by electricity, a yielding elastic contact-point on one of the arms, which by making and breaking contact produce the spark which ignites the gas, said yielding and elastic contact-point being constructed and operated substantially as and for the purpose set forth.

JACOB P. TIRRELL.

Witnesses:
C. A. SHAW,
H. E. METCALF.