F. H. POMEROY.

GAS IGNITER.

APPLICATION FILED JUNE 4, 1914.

1,212,155. Patented Jan. 9, 1917.

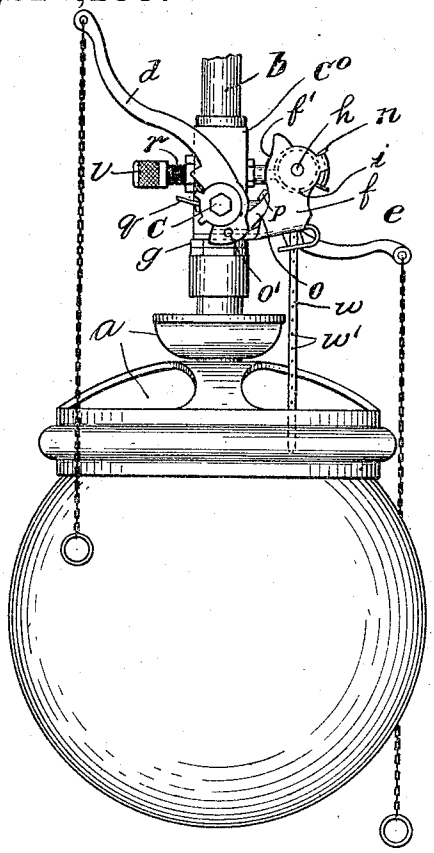


Fig. 1.

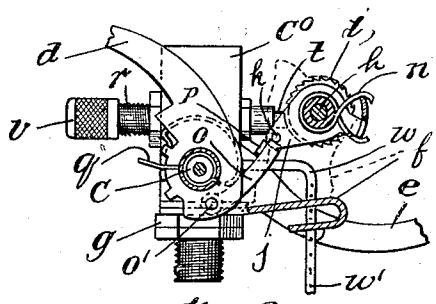


Fig. 2.

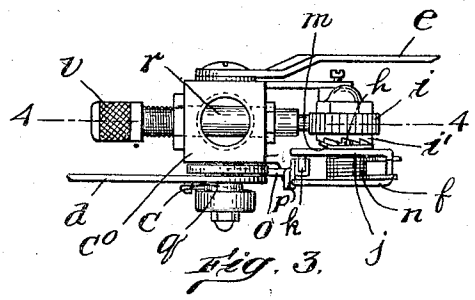


Fig. 3.

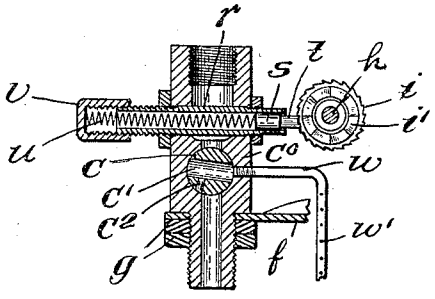


Fig. 4.

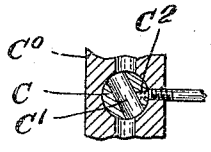


Fig. 5.

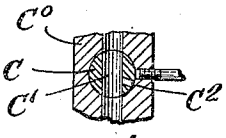


Fig. 6.



Fig. 8.

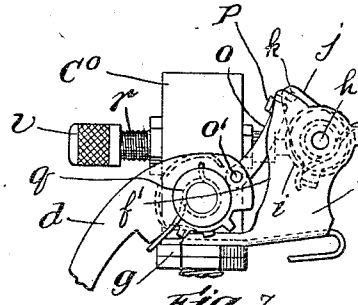


Fig. 7.

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UNITED STATES PATENT OFFICE.

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GAS-IGNITER.

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To all whom it may concern:

Be it known that I, FREDERICK H. POMEROY, a citizen of the United States, residing at Haverhill, in the county of Essex and State of Massachusetts, have invented an Improvement in Gas-Igniters, of which the following is a specification.

This invention relates to pyrophoric gas-igniters and more particularly to that type of igniter which is adapted to be combined with a gas-cock and to be operated by a pull-chain, or other device, to turn on and ignite the gas.

The object of my invention is to provide an igniter of the type above referred to, which is particularly well adapted to ignite a pilot flame which will, in turn, ignite the gas in the main burner and which is reliable in its action and of simple, compact, and durable construction. I accomplish these objects by the means shown in the accompanying drawing, in which,

Figure 1 is a side elevation of an inverted mantle gas-burner provided with an igniting device made according to my invention. Fig. 2 is a side elevation partly in section, and Fig. 3 is a plan view of the igniting device. Fig. 4 is a central cross-sectional view on the line 4—4 of Fig. 3. Figs. 5 and 6 are detail views of the gas-cock. Fig. 7 is a side elevation of the igniter showing the parts in a different position, and, Fig. 8 is a detail view of the pyrophoric metal holder.

In the drawings *a* indicates an inverted mantle burner of any well-known type, which is connected to a depending gas-pipe *b* through the casing c^0 of a gas-cock *c*. Said gas-cock extends entirely through the casing, and operating levers *d* and *e* are mounted on opposite ends thereof, pull-chains being connected thereto, so that they may be conveniently operated.

A bracket *f* is mounted on the projecting nipple of the gas-cock casing and clamped in position thereon by nuts *g* or other suitable means, and a shaft *h* is mounted in said bracket having a corrugated abrading wheel *i* mounted thereon, said wheel having a ratchet *i'* at one side thereof. An arm *j* is also mounted on the shaft *h* between the ratchet *i* and the bracket *f*, and is provided with a laterally projecting pin *k* at its end, and with a pawl *m* which is arranged to engage the ratchet *i'*. A spring *n* is mounted on the shaft *h* and is arranged in engagement with the arm *j* in position normally to force its pin *k* downwardly. A dog *o* is pivoted at *o'* on the opposite end of the lever *d* from the pull-chain, and said dog is arranged in position to engage the laterally projecting pin *k* when the lever *d* is in raised position. Said dog also has a laterally projecting lug *p* which is adapted to ride on the vertically extending edge *f'* of the bracket *f*, and guide said dog in its movements. A spring *q* on the projecting end of the gas-cock *c* is arranged to engage the lever *d*, so as to swing the chain end thereof upwardly to a certain extent. A tube *r* is arranged to extend through the gas-cock casing c^0, directly above the gas-cock, and is tightly connected to the walls of the casing by means of nuts or other suitable means, as shown in Fig. 4, said tube acting as a guide for a sleeve *s* arranged therein, and having a piece of pyrophoric metal *t* mounted in one end thereof. A coiled spring *u* is arranged in said tube in the rear of said sleeve and acting to press the pyrophoric metal against the surface of the abrading wheel *i*, the cap *v* being threaded on the opposite end of the tube *r* for holding said spring against said sleeve and for adjusting its tension. As the tube *r*, which contains the pyrophoric metal, is arranged horizontally, it would be inconvenient to remove the holder which contains the metal, so that another may be placed therein, unless some means were provided to enable this to be done. In order that the sleeve may be readily removed, the inner end coils of the spring *u* are made tapering, so that they will pass into the end of the sleeve *s* when pressed thereagainst. The sleeve *s* is internally threaded, so that said tapered end will be screwed into the sleeve when the spring is rotated by the action of the cap *v* in screwing it on. The spring thus becomes automatically attached to the sleeve, so that, when the spring is withdrawn, on removing the cap *v*, the sleeve will be drawn out with it. The sleeve may then be readily detached and another sleeve with the fresh supply of metal therein may be inserted.

The cock *c* is provided with a main port *c'* and a by-pass port c^2, and a pilot tube *w* is connected to one side of the gas-cock casing in position to register with the port c^2,

and extends downwardly therefrom into the burner chamber. Said pilot tube is provided with adjacently arranged perforations w' throughout its length, which are formed so closely together that, if the gas issuing from the uppermost of said perforations is ignited, the flame will be communicated to the gas which is escaping from the next perforation below, in succession, in a well known manner, so that the gas issuing from the lower end of the pilot tube will become ignited.

The operation of the above described device is as follows:—The parts are normally held in the position of Fig. 1, in which position the gas-cock is closed and the dog o is below the laterally projecting pin k. The lever d is pulled downwardly, so that the main port through the gas-cock is open and the port c^2 is moved into register with the passage leading to the entrance end of the pilot tube w, as shown in Fig. 5. This motion causes the dog o to be moved upwardly into engagement with the pin k, causing the arm j to be swung upwardly. As the dog o is moved upward, its laterally projecting lug p rides on the edge f' of the bracket, which is so formed that said dog is held in engagement therewith until the lever d has nearly reached the end of its opening movement, at which time the pin k will have been swung to one side of the vertical from its initial position, as shown in Fig. 7, so that, when the dog is moved upwardly still farther the edge of the bracket will prevent it from following the pin k, and the dog and pin will be disengaged, releasing the arm j, so that its actuating spring will be free to operate. During the upward movement of the arm j, the pawl m will have been moved back one or two notches on the ratchet i', so that when said arm is released, the spring n will rotate the abrader i forwardly and throw a shower of sparks downwardly into the gas which will then be issuing from the uppermost perforations w' in the pilot tube w, and the flame will be communicated to the gas issuing from the lower end of the tube, thereby causing the gas at the burner to be ignited. It may be noted that the relative arrangement of parts is such that the lug k on dog o will constantly be held against the edge f', so that said dog will be guided throughout its operating movement. When the lever d is released, the spring q will turn the cock back to a sufficient extent to move its port c^2 out of register with the pilot tube, so that the supply of gas to the latter will be cut off, as shown in Fig. 6. The parts will then remain in this position until the lever e is pulled, which will turn the cock back to the initial position of Fig. 4, extinguishing the gas at the burner, the dog o, on the return movement, riding on the pin k and swinging back beneath it at the end of said movement.

I claim:—

1. An igniter for gas burners comprising a gas-cock having an operating lever for opening the same, a dog pivoted on said lever, a rotary abrader, and means for holding a pyrophoric metal thereagainst, a spring-actuated arm having a pawl and ratchet connection with said abrader arranged to cause rotation thereof when actuated by its spring, a dog pivoted on said lever and a fixed guide arranged to direct said dog into engagement with said arm, to swing the latter against its spring action, as said lever is moved to open the gas cock, and to direct the dog out of engagement with said arm to release said arm at a predetermined point in said movement.

2. In a gas-igniter, an abrader, an open-ended tube having one end adjacent the abrader, a sleeve adapted to slide in said tube and having a piece of pyrophoric metal in one end thereof, a coil spring in said tube arranged to be connected at one end to the opposite end of said sleeve when pressed thereagainst, and a cap on the opposite end of said tube from the abrader arranged to engage the opposite end of said spring to press the metal against the abrader, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FREDERICK H. POMEROY.

Witnesses:

L. H. HARRIMAN,

H. B. DAVIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."