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DEVICE FOR PREVENTING THE ESCAPE OF GAS FROM GAS PIPES.

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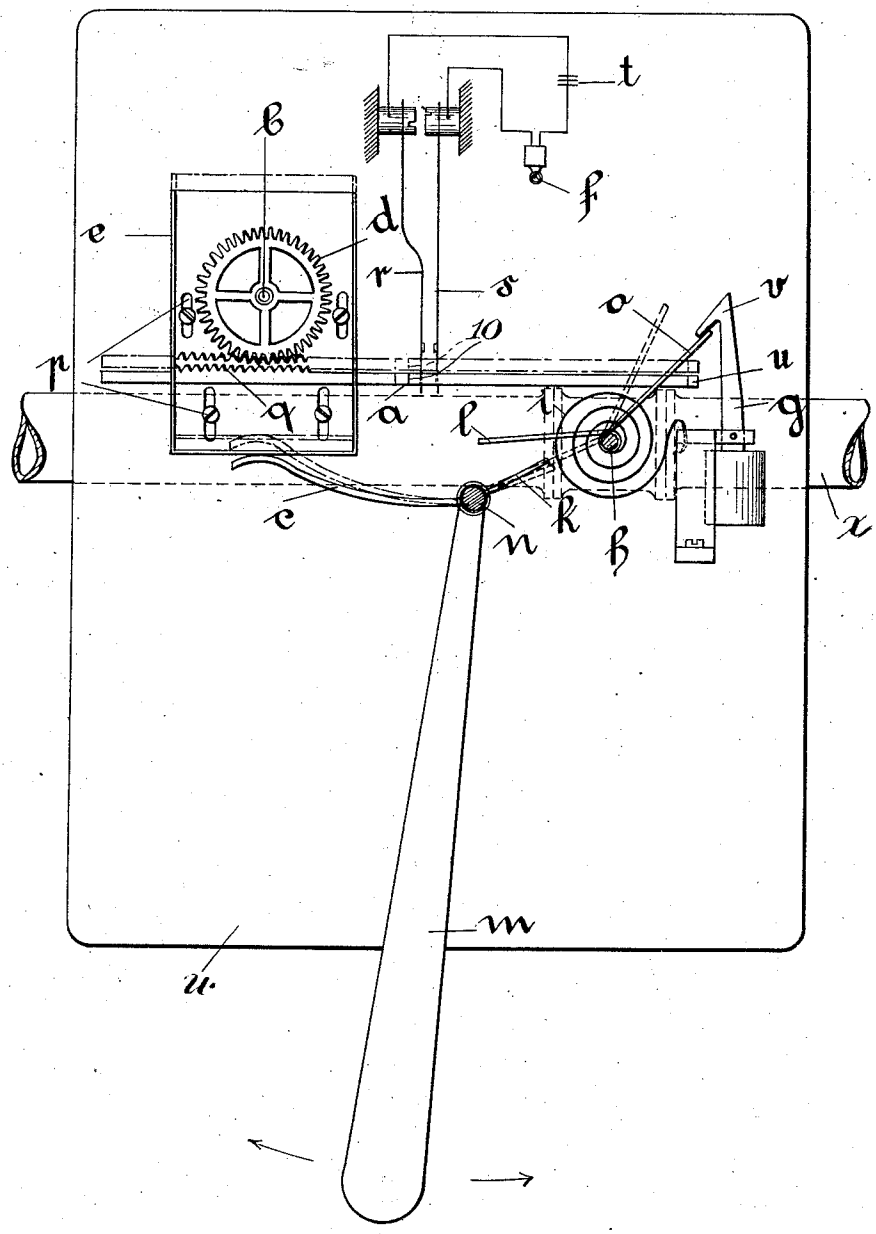
1,047,776. Patented Dec. 17, 1912.



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DEVICE FOR PREVENTING THE ESCAPE OF GAS FROM GAS-PIPES.

1,047,776. Specification of Letters Patent. Patented Dec. 17, 1912.

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To all whom it may concern:

Be it known that I, PAUL GEORG FISCHER, a subject of the German Emperor, and a resident of Stuttgart, in the German Empire, have invented certain new and useful Improvements in Devices for Preventing the Escape of Gas from Gas-Pipes, of which the following is a specification.

It is customary, when for some time no gas is wanted, to cut off the gas supply on the main pipe of a gas service. On such occasions it may happen that a flame is still burning and that, when the gas is again turned on, it escapes through the still open burner and causes accidents.

The object of the present invention is to prevent such occurrences, as well as to prevent the escape of gas from the piping due to other causes, and it is attained in a simple manner by the provision of a mechanism adapted to be operated by an element which is moved by the flowing gas, for instance the shaft of a gas-meter, so as to cut off the gas and simultaneously ring a bell, should there be an outlet for the gas on the piping previous to the lighting of any flame.

The invention is illustrated by way of example in the accompanying drawing which shows a diagrammatic view of the arrangement.

The device is preferably carried by a base plate *w* supported by the gas main *x*, and may be connected to a gas-meter in which case the shaft *b* of the latter is fitted with a toothed wheel *d*. Around said wheel a frame or casing *e* is arranged which is mounted by means of slots on pins *p* entering the base plate *w* so as to be vertically adjustable. This frame is adapted to slidably guide a horizontal rod *a* which is fitted with a toothed rack *q*. A hand-lever *m*, pivoted at *n*, is connected to an arm *c* which engages the frame *e* so that, by rocking the lever *m*, the frame can be raised for bringing the toothed rack *q* into engagement with the wheel *d*. At the movement of the wheel *d* during such engagement, the rod *a* is slid along its guide-way in the frame *e*, and a projection 10 on the rod then contacts with a blade-spring *r* so as to press it against a blade-spring *s* and thereby to cause the electric circuit of a battery *t* to be closed. The closing of the circuit effects a ringing of a bell *f* arranged in the same. If the wheel *d* continues to move, the bent end *u* of the rod *a* finally strikes against a weight-balanced lever *g* which it turns backward on its pivot. At the upper end of the lever *g* a catch *v* is provided which is adapted to arrest an arm *o* mounted on the stem *h* of the cock-plug on the main gas-pipe *x*. When the arm *o* is thus arrested by the catch *v*, the gas is on. A spiral spring *i*, also connected to the cock-plug, tends to close the cock and effects such closing when the arm *o* is released owing to the lever *g* being pushed back by the end of the rod *a*. The opening of the cock is effected by means of the lever *m* which, in addition to the arm *c* has an arm *k* adapted to contact with an arm *l* on the stem *h* of the cock-plug so as to turn the plug and bring its arm *o* into engagement with the catch *v*.

The *modus operandi* is as follows:—When the gas is to be turned on, the cock *h* is opened by turning the lever *m* to the right until the arm *o* has been engaged by the catch *v*. Thereupon the rack *q* is put in engagement with the wheel *d* by turning the lever *m* to the left. If now a burner should happen to be open or the piping to be defective, the gas will escape. The wheel *d* being actuated by the flow of gas, then slides the rod *a* along its guide-way, causes the bell *f* to ring and finally releases the arm *o* of the cock as previously described. The spring *i* closes the cock, and further escape of gas is prevented.

I claim:—

1. In a device of the character described, the combination with a gas main, and a cock therein, of means adapted to hold the cock open, and means within the gas main and operable by the flow of gas therethrough to act against said first named means whereby the cock is automatically closed when escape of gas occurs.

2. In a device of the character described, the combination with a gas main, a cock therein and a projecting arm carried by said cock, of means adapted to engage said arm to hold the cock open, and means within the gas main and actuated by the gas flow through said gas main to act against said first mentioned means to release said arm whereby the cock is automatically closed when escape of gas occurs.

3. In a device of the character described, the combination with a gas main and a cock therein, of means for holding said cock in

open position, a wheel adapted to be revolved by flow of gas through the main and a rod adapted to be projected by the wheel against said means to release the cock when an escape of gas occurs.

4. In a device of the character described, the combination with a gas main and a cock therein, of a toothed wheel adapted to be revolved by the flow of gas through the main, means adapted to hold said cock open, and a longitudinally movable rod having a rack adapted to mesh with the teeth of said wheel, whereby said rod is movable against said means to automatically close said cock.

5. A device for preventing the escape of gas from gas pipes, comprising the combination with a gas main, a cock on the same and an element operated by the gas flow, of means for automatically closing the cock, means for arresting the same in open position, connection between said arresting means and the element operated by the gas flow for releasing the cock, means for opening the cock, and means for putting said connection into operation, after such opening so that, if gas escape takes place, the cock is reclosed, substantially as set forth.

6. A device for preventing the escape of gas from gas pipes, comprising the combination with a gas main, a cock on the same and a gas-meter, of a toothed wheel mounted on the shaft of the gas-meter, a vertically adjustable frame on said gas-meter, a horizontal rod slidably guided in said frame, a toothed rack on said rod adapted to mesh with the wheel on the gas-meter shaft when the frame is raised, a spiral spring tending to close the cock on the gas main, means for arresting the cock in open position, means for releasing the same when the rod is actuated by the wheel owing to the flow of gas, means for opening the cock, and means for raising the frame so as to put the rod into engagement with the wheel for reclosing the cock in case of gas escape, substantially as set forth.

7. A device for preventing the escape of gas from gas pipes, comprising the combination with the gas main and a gas-meter of a toothed wheel mounted on the shaft of the gas-meter, a vertically adjustable frame on said gas-meter, a horizontal rod slidably arranged in said frame, a toothed rack on said rod adapted to be brought in engagement with the wheel when the frame is raised, a self-closing cock on the gas main, an arm on the cock-plug, a catch adapted to engage said arm for arresting the cock in open position and to be pressed by the horizontal rod for releasing the cock when the rod is actuated by the wheel, a hand lever adapted to be turned in one direction for opening the cock and in the other direction for raising the frame so as to bring the rod in engagement with the wheel for reclosing the cock in case of gas escape, substantially as set forth.

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