

(No Model.)

F. W. COTTON.

CUT-OFF ACTUATING MECHANISM FOR GAS OR ELECTRIC LIGHT SYSTEMS.

No. 546,090.

Patented Sept. 10, 1895.

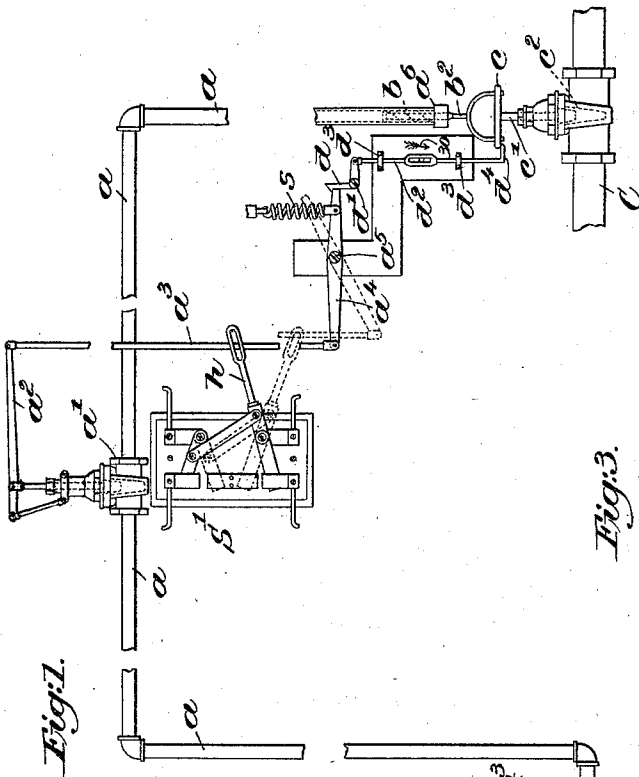


Fig. 1.

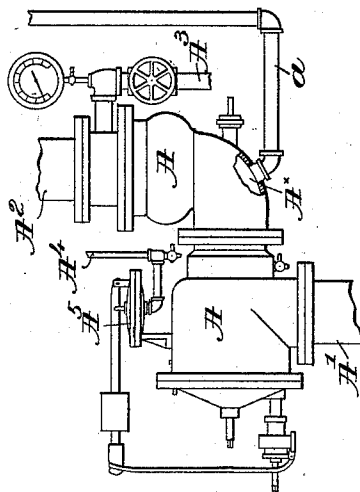


Fig. 2.

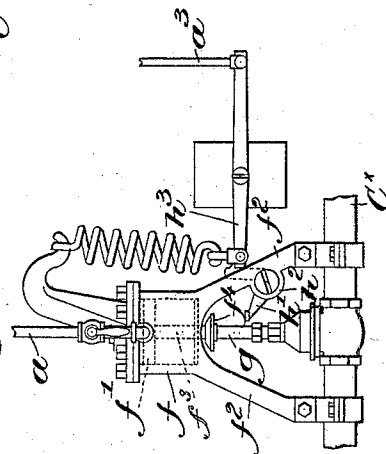


Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE.

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CUT-OFF-ACTUATING MECHANISM FOR GAS OR ELECTRIC LIGHT SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 546,090, dated September 10, 1895.

Application filed November 12, 1894. Serial No. 528,595. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. COTTON, of Dedham, county of Norfolk, State of Massachusetts, have invented an Improvement in Cut-Off-Actuating Mechanism for Gas or Electric Light Systems, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

The escape of gas often aids in spreading the flames when fire breaks out before it can be cut off from the street-main, causing in many instances explosions and loss of life or property, and in the case of electric lighting it is desirable, for many reasons, to cut out the building promptly, a great many buildings being provided with one or both systems of lighting.

This invention has for its object the production of means for cutting off the gas or the electric current, or both, from a building upon the breaking out of a fire therein, and the invention is particularly adapted for use in connection with automatic sprinkler systems, the cut-off mechanism being automatically controlled in such instances by the operation of the sprinkler system.

In accordance therewith my invention consists in a cut-off-actuating mechanism for building light systems of a main gas-valve, a water-motor to close it, a supply-pipe for the motor having a normally open shut-off therein, a normally locked actuator connected to and to close the shut-off, and means operative by the closure of the gas-valve to release said actuator, whereby the shut-off is closed and the motor stopped, substantially as will be described.

Other features of my invention will be hereinafter described in the specification and particularly pointed out in the claims.

Figure 1 represents in elevation, and broken out to save space, one embodiment of my invention in connection with an automatic sprinkler system. Fig. 2 is a vertical sectional view of the motor on a larger scale; and Fig. 3, also on a larger scale, shows a different form of motor.

I have shown in Fig. 1 the cut-off-actuating device co-operatively connected with the con-

trolling-valve of a springler system known as the "dry-pipe" system. The controlling mechanism of said system comprises a valve-casing A, connected with the water-main by pipe A' and located in any convenient part of a building, usually the basement or cellar. The casing A is connected by a pipe A² with the sprinkler-pipes, (not shown,) and a pipe A³ leads from any suitable air-compressing device to the casing A to maintain the sprinkler-pipe filled with compressed air and also to retain the usual valves in said casing seated under normal conditions, a branch pipe A⁴ leading to a valve-controlling diaphragm-chamber A⁵, whereby sudden diminution of the air-pressure by the opening of the sprinkler will release the valves in the casing in well-known manner and open communication between the supply-pipe A' and the sprinkler system. In applying my invention for use in connection with such a system I preferably connect the motor to be described by a pipe a to the air-chamber A^x of the valve-casing, and in said pipe I place a normally open valve a', actuated by a lever A², jointed to its stem, said valve constituting a shut-off, as will be described.

A switch S' (shown as closed in full lines and open by dotted lines) has its actuating-handle h coupled to a link a³, connecting the shut-off lever a² and a controlling-lever a⁴, pivoted at a⁵ to a suitable support and adapted to be turned upon its pivot by a spring s when released.

The open end a⁶ of the pipe a is provided with an actuator (shown as a water-motor b in Figs. 1 and 2) of any desirable construction.

I have shown the shaft b' of the motor as hollow to receive therein a spindle b², connected to a disk or wheel c on the stem c' of a screw-valve c² in the gas-pipe C between the main and the pipes in the building.

The motor b is supported in a bearing b^x, and when water passes through the pipe a the said motor will be turned in the direction of arrow 25, Fig. 2, rotating by means of a slot-and-pin connection the spindle b² and valve-stem c', the valve c² being screwed down upon its seat thereby, the slot 3 permitting the longitudinal outward movement of the spindle b², provided with an engaging-pin 4.

A locking device, shown as a lever d pivoted at d' , normally engages and holds the actuator or controlling lever a^4 against the action of spring s , the locking-lever having
 5 pivoted thereto a slide-rod d^2 , movable in guides d^3 and offset at its lower end, as at d^4 , to project under the edge of the disk or wheel c .

Supposing now that the parts are, as shown in Fig. 1, in normal inoperative position, and that for any reason water has been admitted to the valve-casing A. The water rushes through pipe a , past the open valve a' , and out at the open end a^b of said pipe, operating the motor b , which shuts the valve c^2 of the gas-pipe C, thereby cutting off the gas from the building. The descent of the disk c draws the rod d^2 in the direction of arrow 30, thereby withdrawing the locking-lever d from engagement with and releasing the actuator-lever a^4 .
 20 Immediately upon its release the said lever a^4 is thrown by the spring s into dotted-line position, Fig. 1, cutting out the electric current by means of switch S' , and also closing the shut-off valve a' to stop the flow of water
 25 through the pipe a just as soon as the motor has performed its work. After the sprinkler system has been reset the parts of the cut-off-actuating device are brought back to normal position; the locking device d again engaging the actuator-lever a^4 , and the valve c^2 is opened, so that the disk c will be in the position shown in Fig. 1.

Instead of the actuator shown in Figs. 1 and 2, I may connect the pipe a with a cylinder f , having a piston f' therein (see dotted lines) and shown as secured to the gas-pipe C^x by brackets f^2 .
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The piston-rod f^3 is secured to or forms a continuation of the valve-stem g , and has thereon
 40 a tripping-collar f^4 , adapted in its descent to bear upon the arm h' of a locking-lever h^2 and turn the latter on its pivot to release the controlling-lever h^3 , which will immediately be thrown by spring s' and through link a^3 operate the cut-off-actuating devices described.
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Should it be desired to connect my invention with a building equipped with the usual water-pipe system only, I may connect the pipe a directly to the main supply-pipe and
 50 interpose a valve between the supply-pipe and the motor. Said valve can be made accessible from the street, and preferably it would be protected by a box having a glass door, to be broken in case it was desired to
 55 operate the valve, simple opening of the same enabling the cut-off-actuating devices to operate as hereinbefore described.

My invention is not restricted to any par-

ticular form of motor for the mechanism, nor to the intermediate connections between 60 said motor and mechanism, as the same may be varied or rearranged in different particulars without departing from the spirit and scope of my invention.

I claim—

1. In a cut-off actuating mechanism for building light systems, a main gas valve, a water motor to close it, a supply pipe for the motor having a normally open shut-off therein, a normally locked actuator connected to 70 and to close the shut-off, and means operative by the closure of the gas valve to release said actuator, whereby the shut-off is closed and the motor stopped, substantially as described.
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2. In a cut-off actuating mechanism for building light-systems, a main gas valve, a water motor to close it, a supply pipe for the motor having a normally open shut-off therein, an electric switch, a normally locked actuator connected to and to operate said shut-off and switch, and means operative by the closure of the gas valve to release the actuator, whereby the switch is thrown, and the shut-off closed to stop the motor, substantially 85 as described.
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3. In a cut-off actuating mechanism for building light systems, a main gas valve, a water motor to close it, a supply pipe for the motor having a normally open shut-off, and 90 an electric switch, combined with a spring controlled normally locked actuating lever connected to said shut-off and electric switch, and means to unlock said lever by the closure of the gas valve, whereby the lever is rapidly 95 swung to instantly throw the switch and close the shut-off, substantially as described.
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4. In a cut-off actuating mechanism for building light systems, a main gas valve, a water motor to close it, a supply pipe connecting said motor with the controlling valve of a dry pipesprinklersystem, and a normally open shut-off in said supply pipe, a normally locked actuator for the shut-off, and means operated 100 by closure of the gas valve to release the actuator and close the shut-off, the sprinkler controlling valve automatically supplying the motor with water, substantially as described.
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In testimony whereof I have signed my name to this specification in the presence of 110 two subscribing witnesses.

FREDERICK W. COTTON.

Witnesses:

JOHN C. EDWARDS,
 AUGUSTA E. DEAN.