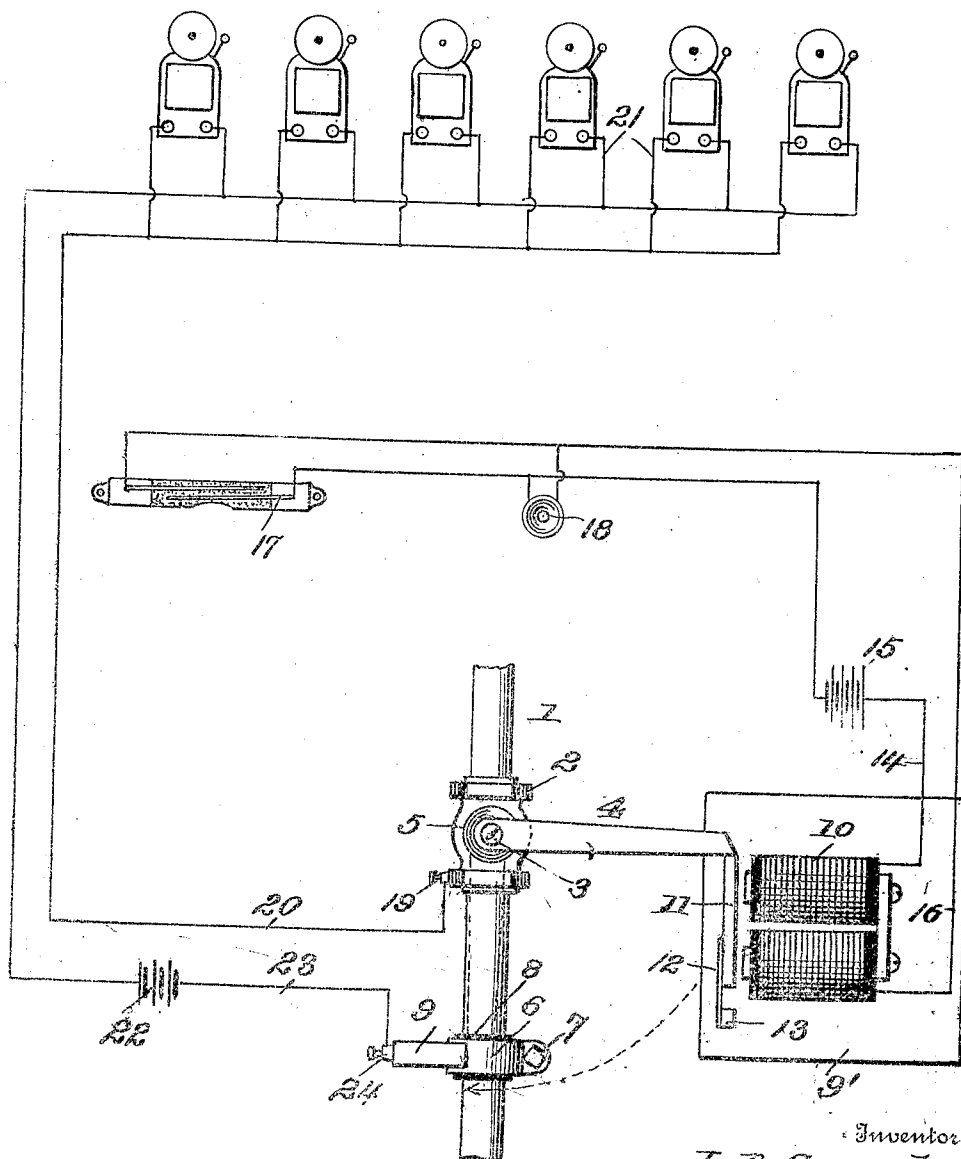


L. D. CROUCH.
 AUTOMATIC CUT-OFF DEVICE.
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1,056,009.

Patented Mar. 18, 1913.



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UNITED STATES PATENT OFFICE.

LEE D. CROUCH, OF ONEONTA, NEW YORK.

AUTOMATIC CUT-OFF DEVICE.

1,056,009.

Specification of Letters Patent.

Patented Mar. 18, 1913.

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To all whom it may concern:

Be it known that I, LEE D. CROUCH, citizen of the United States, residing at Oneonta, in the county of Otsego and State of New York, have invented certain new and useful Improvements in Automatic Cut-Off Devices, of which the following is a specification.

This invention relates to cut-off valves for gas supply mains and electrically operated means for permitting the automatic closing of such valves in the event of fire in the building supplied by the main.

It is one aim of the invention to provide an automatically operated cut-off valve which may be readily interposed in any gas supply main of standard size and to provide electrically operated releasing means for the valve which will be of simple construction and may be conveniently arranged in proper relation to the valve.

The valve includes an arm which is carried by its stem and which has connected with it a spring tending to swing the arm in a direction to rotate the valve to closed position, and the invention contemplates the provision of a stop for limiting the movement of this valve, which stop may be readily applied to the supply main adjacent to the valve and will serve not only the function of a stop but also as a contact point, it being in a signal circuit in which the casing of the valve is also located, it being understood that the arm upon the valve stem serves as a means to close this circuit when the valve is automatically closed so that the occupants of the building may be warned.

The invention is illustrated in the view of the accompanying drawing partly in elevation and partly diagrammatically.

In the drawing, there is shown a gas supply main which is indicated by the numeral 1 and interposed at any suitable point in this main, is a cut-off valve the casing of which is indicated by the numeral 2. The valve itself may be of the ordinary rotatable plug type and the stem thereof is indicated by the numeral 3. An arm 4 is secured at one end to the stem 3 and a spring 5 is coiled about the valve stem and has one end secured to the valve casing and its other end to the arm 4. As illustrated in the drawing, this spring 5 has a tendency to swing the arm 4 downwardly from its full line position and the valve is so constructed and arranged

that upon such movement of the arm its plug will be rotated to closed position.

A collar 6 is clamped about the supply main 1 at a point adjacent to the valve 2 by means of a nut or bolt 7 and is insulated from the said main by a ring 8 of rubber or other suitable material. This collar has formed or fixed upon it, a boss 9 which serves as a stop to limit the downward swinging movement of the arm 4.

Arranged upon any suitable support 9' adjacent to the supply main 1 are electromagnets 10 and an armature 11 is arranged in advance of these magnets and supported by a leaf spring 12 secured to a post 13 upon the said support 9'. The armature 11 is, of course, normally spaced from the cores of the electromagnets 10 and the arm 4 rests at its free end against the upper end of this armature, as shown in the drawing, it being in this manner held against downward swinging movement. A wire leads from one of the electromagnets 10 to one pole of a battery 15 and a wire 16 leads from the other magnet to the other pole of the said battery. Interposed at suitable intervals in the wire 16 are a number of thermostats, one of which as indicated by the numeral 17, is shown diagrammatically in the drawing. The thermostats 17 are preferably of the fusible type and it will be understood that they are to be arranged at suitable points within the different rooms of the building in which the invention is installed and that in the event of fire and the fusing of any one of the thermostats the circuit will be completed through the coils 10 and the armature will be attracted to the cores of these coils. Upon movement of the armature from beneath the free end of the arm 4, this arm will be swung down by the spring 5 to assume the dotted line position shown in the drawing. This movement of the arm will serve to rotate the plug of the cut-off valve to closed position and thereby shut off the supply of gas through the main 1. If desired, a manually operable circuit closing device may be interposed at any convenient point in the wire 16 and such device may be an ordinary push button, such as indicated by the numeral 18. It will be understood, of course, that any number of buttons or similar devices 18 may be employed, for example, one located at each floor of the building so that in the event of outbreak of fire, at some point

not likely to affect the thermostats, the circuit could be manually closed through the electromagnets.

A binding post 19 is located upon the valve casing and connected thereto is a conductor wire 20, in which are interposed a number of electric bells 21 arranged within the different rooms of the building or at the different floors thereof, and this wire 20 leads to one terminal of a battery 22, the other terminal of which is connected by a wire 23 with a binding post 24 upon the boss 9. It will be readily understood that when the arm 4 has been swung down to dotted line position, the signal circuit just described will be closed and the occupants of the building will in this manner be warned.

Having thus described the invention what is claimed as new is:—

In an alarm of the class described, a cut-off valve, a pipe leading thereto, an arm rigidly connected to the stem of the valve and movable therewith, a spring connected to the arm and tending to swing the arm in a direction to close the valve, an electromag-

net, an armature for the magnet yieldably supported at its lower end and having its upper end free from support, the free end of the arm normally resting in engagement with the upper end of the armature and held thereby against movement to close the valve, an electric circuit in which the magnet is located, a circuit closing device in said circuit, a binding post upon the casing for the valve, a signal circuit having one terminal connected to the binding post, a collar clamped about the pipe and insulated therefrom, a contact block rigidly supported by the collar and arranged in the path of movement of the arm when released from engagement with the armature, and a binding post upon the block to which the other terminal and signal circuit is connected.

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

LEE D. CROUCH. [L. S.]

Witnesses:

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JOHN W. SMITH.