

J. H. SKILLCORN.
 AUTOMATIC GAS CUT-OFF.
 APPLICATION FILED DEC. 8, 1909.

961,904.

Patented June 21, 1910.

2 SHEETS—SHEET 1.

Fig. 2

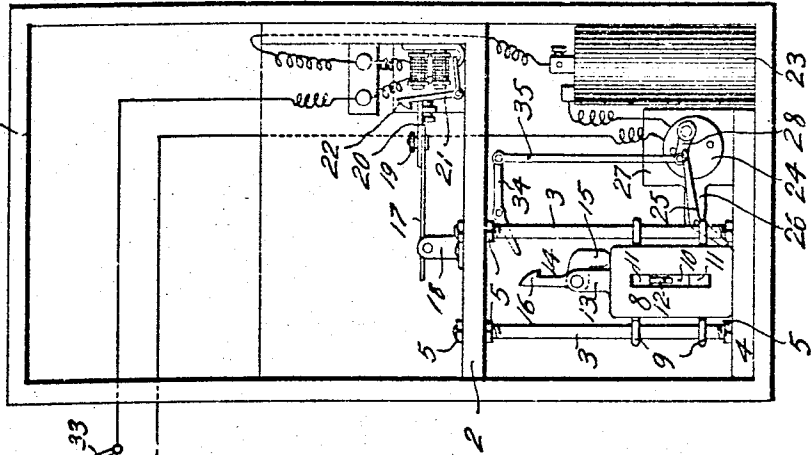
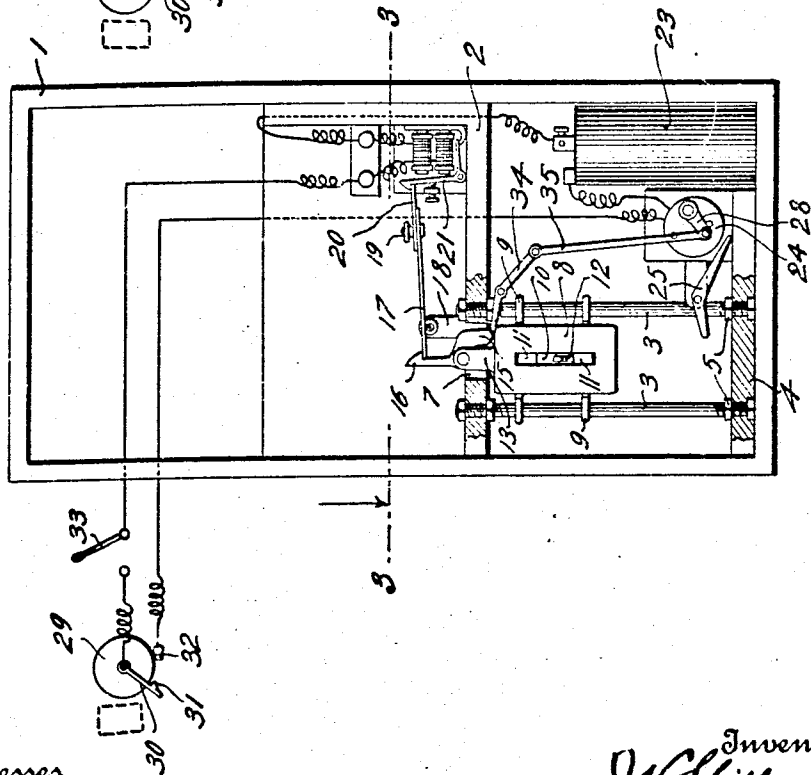


Fig. 1



Witnesses
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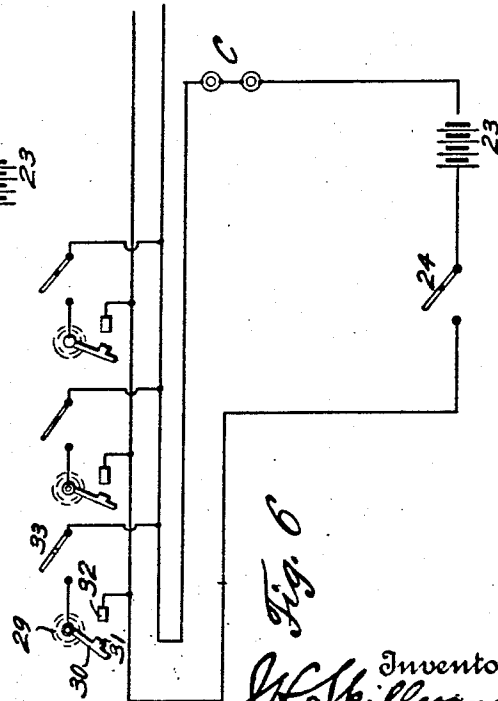
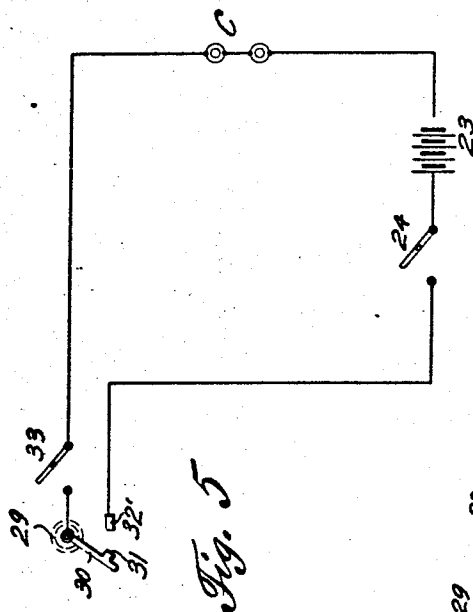
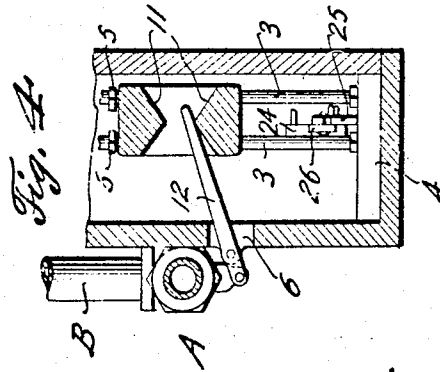
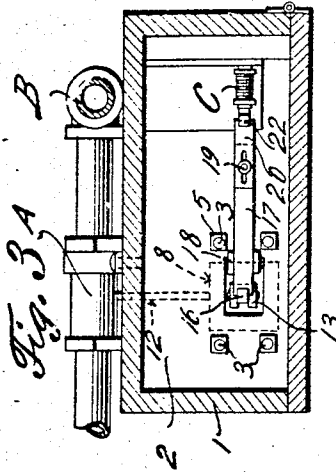
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN H. SKILLCORN, OF PITTSBURG, PENNSYLVANIA.

AUTOMATIC GAS CUT-OFF.

961,904.

Specification of Letters Patent. Patented June 21, 1910.

Application filed December 8, 1909. Serial No. 532,089.

To all whom it may concern:

Be it known that I, JOHN H. SKILLCORN, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Gas Cut-Offs, of which the following is a specification.

This invention relates to automatic cut-offs for gas and other fluids and operates by the completion of an electrical circuit through the medium of a thermostat.

The objects of this invention are to prevent accidents which frequently occur when the gas is left burning and is unnaturally extinguished and escapes into the room, whereby sleeping persons may be asphyxiated or an explosion occur when a light is introduced into said room.

Further and other objects of this invention are to provide a device of this type and character which may be connected or disconnected at the gas fixture, and at the same time be connected to the main supply pipe, being set to entirely cut out the gas supply to the building in case of an emergency.

With the above and other objects in view this invention consists of the construction, combination and arrangement of parts all as hereinafter more fully described, claimed and illustrated in the accompanying drawings, wherein:

Figure 1 is a front elevation partly in section of a cut-off constructed in accordance with the present invention, the door thereof being removed and the mechanism set; Fig. 2 is a similar view showing the position of the respective elements in the mechanism after the same is operated; Fig. 3 is a central horizontal section taken along line 3-3 of Fig. 1; Fig. 4 is a vertical longitudinal section through the operating weight, illustrating the construction of the valve and the method of closing the same; Fig. 5 is a diagrammatical view of the electrical circuit and Fig. 6 is a similar view illustrating the wiring adapted for use when a series of thermostats are in the circuit. any one of which may operate the cut-off or which may be taken from or put into the circuit at will.

Reference being had to the drawings, 1 indicates a casing forming the main body portion of the present invention, having approximately mid-way of the interior

thereof the platform 2, said platform being of any suitable construction or material. A series of vertically extending rods 3 are interposed between the platform 2 and the bottom 4 of the casing and are secured in place by the nuts 5. These rods are to one side of the casing and are directly in front of the opening 6 in the back wall of the casing, through which the valve A of the supply pipe B is operated. The platform 2 is pierced by an opening 7 which is centrally disposed with respect to the rods 3 and through which operates the catch of the valve operating weight 8.

The valve operating weight 8 is approximately a rectangular block of metal or other heavy material and reciprocates on the rods 3 through the instrumentality of the plurality of eyes 9 secured to the sides thereof adapted to loosely engage the said rods. In order to operate the valve A this weight is provided with a vertical slot 10, the transverse sides 11 of which converge toward the center of the block, in which is received the inner extremity of the lever 12 which is pivoted in the opening 6 and operates the valve A at its outer extremity. This construction of the weight eliminates all corners and, as a result, supplies the lever with sufficient space to entirely close or open the valve upon reciprocation of the weight, and at the same time removes all stresses or strains from said lever which would ordinarily be caused by sharp edges or corners. On the upper side of the weight 8 is formed a pair of upwardly extending ears 13 between which is pivoted the catch 14. This catch is formed having the weight 15 resting parallel to the ears, said weight retaining the main body portion 16 of the catch normally in a vertical position.

In order that a means may be supplied whereby the weight may be set in a position to hold the valve open and to automatically release the same, a lever 17 is pivoted between the vertical lugs 18 adjacent the opening 7 and projects partially over the latter. The opposite extremity of this lever is provided with a longitudinal adjustment comprising a set screw 19 operating through a slot and opening in the lever 17 and adjusting member 20 respectively. Adjacent the inner extremity of the lever 17 is an electrical magnet C of the usual construction provided with the magnet bar 21 at the upper extremity of which is the catch 22 adapt-

ed to engage and retain the adjusting member 20 of the lever 17 when the poles of the magnet C are not energized.

Directly below the platform and the magnet C is the battery 23 of any usual construction. This battery has one binding post thereof connected directly to one binding post of the magnet, while the other is connected to a switch 24 adjacent said battery. This switch is operated by the angle lever 25 when the weight 8 falls in such a manner that at the same time the gas is cut off and the electric circuit is likewise broken. This angle lever 25 is pivoted adjacent the rods 3 on a stud 26 formed on the plate 27 carrying the switch and operates directly against the handle 28 thereof.

Adjacent the flame or blaze, either in the stove or gas fixture is the thermostat 29 of ordinary construction, the indicator 30 of which is provided with a contact point 31 that is adapted to cooperate with a similar member 32 adjacent said thermostat when the gas is turned out. The indicator of the thermostat is connected with the free binding post of the magnet while the contact point 32 is connected to the switch 24; thus, it will be seen that the indicator of the thermostat makes and breaks the circuit upon the oscillation thereof. In order to provide a means whereby the light may be turned out allowing the indicator of the thermostat to fall completing the circuit, without cutting off the entire supply of gas to the building, a switch 33 is provided adjacent each thermostat, and remains open except when it is desired to leave the gas burning in a vacant room or in an oven which is not being constantly watched.

In operation, the casing including the valve operating weight and magnet is placed adjacent the gas meter on the main supply pipe to the building while each gas fixture and stove is provided with a thermostat and switch. When set the weight is raised and engages the projecting extremity of the lever 17 which causes the opposite extremity thereof to be raised into contact with the catch 22 of the magnet bar 12. The switch 33 being open the gas may be lighted or turned out at will, but upon leaving the same the switch is closed causing the circuit to be complete should the light go out and the indicator drop. In this case the poles of the magnet will be energized attracting the bar 21 thus releasing the lever 17 and as a result causing the weight to drop shutting off the entire supply of gas to the house. The electric circuit is broken by the angle lever 25 operating against the handle 28 of the switch 24, and permits the device to be set and the flow of gas renewed, and at the same time economizes in electricity. When the weight 8 is raised, the construction of the angle lever 25 is such that the same will automatically

drop back to its normal position permitting the switch to be closed and the device to be in position for re-operation.

The absolute elimination of springs in this construction increases the strength and durability of the same and insures the increase of accuracy.

If so desired the elements of the circuit may be arranged in series or parallel, and any number of thermostats, switches, and batteries be brought into the circuit in accordance with the size of the building as illustrated in Fig. 6.

In order to provide a means whereby the switch may be connected when the weight is raised, an arm 34 similar to the arm 25 is pivoted adjacent the upper extremity of the rods 3 and is pivotally connected by the rod 35 to the handle 28 of the switch. Thus it will be seen that when the weight is raised it will come into contact with the lever 34, causing the rod 35 to be depressed and the switch connected.

Having thus described my invention, what is claimed as new is:

1. An automatic gas cut-off comprising, in combination, a casing, a platform formed in said casing, a magnet supported by said platform, a valve cooperating with said casing, an operating lever projecting through said casing, a vertically movable weight mounted below said platform and cooperating with said valve lever, means whereby said weight is supported, a battery cooperating with said magnet, a plurality of thermostats in the circuit with said magnet and battery adapted to close the circuit, and means whereby said weight is released by said magnet and thereby closing the valve.
2. An automatic gas cut-off comprising, in combination with a valve located on the supply pipe having an operating lever projecting therefrom, a vertically movable weight cooperating with said lever, a magnet adapted to retain said weight in an elevated position, a battery connected with one pole of said magnet, a plurality of thermostats connected to the opposite pole of said magnet and to the battery adapted to close the circuit, thereby releasing said weight and closing the valve.
3. An automatic gas cut-off comprising, in combination, with a valve on the supply pipe having an operating lever, a vertically movable weight adapted to operate said lever, a magnet, means whereby said magnet supports said weight, a series of thermostats, and an electrical current including said magnet, and a battery adapted to be closed by any one of said thermostats and release said weight closing the valve.
4. An automatic gas cut-off comprising in combination with a valve on the supply pipe having an operating lever, a vertically reciprocating weight, a magnet, means for

supporting said weight cooperating with said magnet, a plurality of thermostats, an electrical circuit including said thermostats, magnet and a battery, said thermostats

5 adapted to close the circuit and cause the magnet to release the weight thereby closing the valve, and means disposed in said circuit adapted to break said circuit upon the closing of the valve.

10 5. An automatic gas cut-off comprising in combination with a valve, a weight adapted to operate said valve, an electric circuit including a battery, a plurality of thermostats in said circuit adapted to make and break
15 the same, a magnet disposed in said circuit adapted to support said weight when the circuit is broken by said thermostats, and means whereby the circuit is broken upon the downward movement of said weight.

20 6. An automatic gas cut-off comprising in combination with a valve, a weight adapted to operate said valve, an electric circuit including a battery, a plurality of thermostats in said circuit adapted to make and break
25 the same, a magnet disposed in said circuit

adapted to support said weight when the circuit is broken by said thermostats, and means whereby said weight is released when the thermostats close the circuit.

7. An automatic gas cut-off comprising in 30 combination with a valve, a weight adapted to operate said valve, an electric circuit including a battery, a plurality of thermostats in said circuit adapted to make and break the same, a magnet disposed in said 35 circuit adapted to support said weight when the circuit is broken by said thermostats, means whereby said weight is released when the thermostats close the circuit, means 40 whereby the circuit is broken upon the downward movement of said weight, and means whereby said last named break is completed upon the upward movement of said weight.

In testimony whereof I affix my signature 45 in presence of two witnesses.

JOHN H. SKILLCORN.

Witnesses:

ALBERT E. LEPPED,
HARRY B. SUTCH.