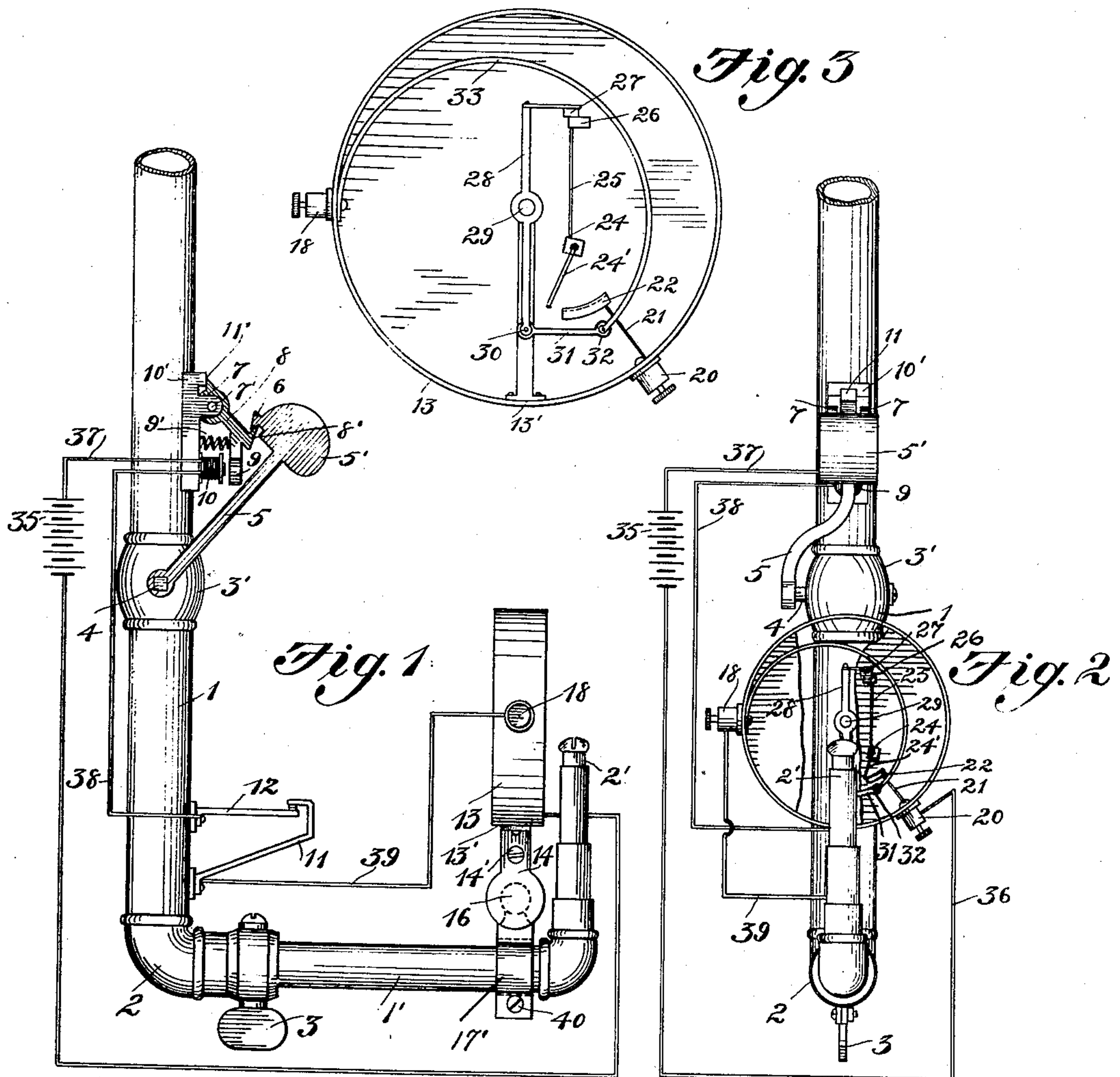


G. H. MURRAY.
AUTOMATIC GAS REGULATOR.
APPLICATION FILED AUG. 10, 1909.

944,686.

Patented Dec. 28, 1909.



WITNESSES
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UNITED STATES PATENT OFFICE.

GEORGE H. MURRAY, OF BRISTOL, VERMONT.

AUTOMATIC GAS-REGULATOR.

944,686.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed August 10, 1909. Serial No. 512,128.

To all whom it may concern:

Be it known that I, GEORGE H. MURRAY, a citizen of the United States, residing at Bristol, in the county of Addison and State of Vermont, have invented certain new and useful Improvements in Automatic Gas-Regulators, of which the following is a specification.

This invention relates to new and useful improvements in automatic gas regulators.

The object of my invention is to provide an ordinary gas jet with a simply constructed attachment arranged so that if the flame should be accidentally extinguished without the valve having been closed the device would automatically operate to close the same.

Another object is to provide a means whereby a thermostat may be adjustably secured to a gas jet.

With these and other objects in view, the present invention consists in the combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the appended claims, it being understood that changes in the specific structure shown and described may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming a part of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 shows a side elevation of an automatic gas regulator embodying my invention. Fig. 2 shows a front elevation thereof. Fig. 3 shows an enlarged detached detail of the thermostat. Fig. 4 shows an enlarged central sectional view of the thermostat holding member.

Where a gas flame is employed for illuminating or heating purposes, it quite frequently happens that through some cause the flame becomes extinguished. The gas continuing to escape is likely to fill the apartment to the danger of the occupants. In my present invention I provide a light, readily adjustable means whereby upon the extinguishment of the flame the flow of gas is automatically checked.

In the accompanying drawings, the numeral 1 designates a suitable gas supply pipe provided with the gas jet 1' connected to the supply pipe by means of the elbow 2. Secured to this jet 1' is the gas tip 2' the

jet being provided with the usual controlling valve 3.

At a suitable point within the pipe 1 I provide the valve 3' to the stem 4 of which I secure the arm 5 carrying the weight head 5' provided with the recurved engaging ear 6, as clearly disclosed in Fig. 1. Secured to this supply pipe 1 is the ear 7 carrying the pin 7' which pivotally supports a detent in the form of a dog 8 having the extending lip 8' arranged to be held below the ear 6 to secure the weighted arm in one of its extreme positions. This detent performs the function of an armature in that the same is provided with the armature bar 9. Working against this armature 9 is the coil spring 9' insuring the armature being yieldingly held, the outward travel of the armature being limited by the stop shoulder 11' contacting with a suitable base 10'. The base 10' which carries the ear 7 also supports the electromagnet 10 held for co-action with the armature, in the usual manner. At a suitable point I provide the batteries 35, a conductor 37 being led from one pole of the battery to one terminal of the electromagnet, as disclosed in Fig. 1.

The weight 5' is arranged to drop upon the release of the detent to close the valve 3', and positioned within the path of this traveling weight 5' is the insulated yieldingly held contact making arm 12 which is arranged to be in normal engagement with the stationary arm 11 also insulated, these arms 11 and 12 being secured to the supply pipe 1. The construction is such that when the traveling weight 5' drops the same contacts with the yieldingly held member 12 to carry the same out of contact with the stationary arm 11. A conductor 38 is led from the yieldingly held member 12 to the remaining post or contact point of the electromagnet 10.

Adjustably secured to the gas jet or bracket 1', is the insulated clamping collar 17' which is pinched to this gas jet or bracket by means of the clamp screw 40. This clamp collar carries the spherical head 16 upon which is movably clamped the sleeve 14 which is in the form of two similar members held together by means of the screw 14' so that this clamping sleeve may be secured to the spherical head 16. Suitably secured to this clamping sleeve is the preferably metallic housing or casing 13

from the bottom 13' of which extends the centrally held pin 29. Secured to this casing is the binding post 18 and at a suitable point opposite is the insulated binding post 20. An electric conductor 36 extends from the battery 35 to the insulated binding post 20. Extending from this insulated binding post 20 is the conductor 21 which is led to an insulated switch contact 22 in the path of the switch blade 24' mounted upon the pin 24, this switch blade also being insulated from the casing 13. Extending from this switch blade 24' is the conductor 25 connected to a stationary insulated contact lug 26. Secured to the housing or casing 13 and in contact with the binding post 18, is the thermostat 33 of any approved construction which at its free end by means of a pin 32 is connected to a link 31 and this link 31 by means of the pin 30 is fastened to the pivotally held traveling contact maker 28 held to the pin 29, this traveling contact maker having the contact lug 27 arranged for co-action with the stationary contact 26. A suitable conductor 39 extends from the binding post 18 to the stationary switch arm 11.

As disclosed, the switch blade 24' is in the path of the lower end of the traveling contact maker 28 so arranged that when the thermostat actuates this traveling member 28 the switch blade 24' will be thrown upon the switch contact 22.

Owing to the swivel connection between the clamp collar and the thermostat housing, the thermostat 33 can be inclined over and brought into close proximity with the gas jet so that this thermostat will be sensitive even if the flame should be turned down very low.

The operation of my device is as follows: In adjusting the instrumentalities the operator first throws the switch blade 24' off of the contact 22. The circuit is then broken. The weight 5' is then carried upward to open the valve 3', the weight being held in an upward position in securing the ear 8' below the lip 6. The valve 3 is then opened and the gas ignited. This results in the thermostat elongating to actuate the traveling member 28 to carry the contact makers 26 and 27 apart to break the circuit at that point. As the contact maker 28 is advanced it engages the switch blade 24' to carry the same into contact with the member 22 to close the circuit at this point. The switch members 11 and 12 in this position of the instrumentalities are in closed contact. The energizing circuit is, however, open in that the terminals 26 and 27 are separated. The instrumentalities being thus arranged with the flame burning, should the flame be suddenly extinguished the thermostat 33 will contract so that the terminals 26 and 27 will again be brought into contact. This will result in entirely closing the circuit and en-

ergizing the magnets 10 to actuate the armature thereby releasing the weighted valve arm 5 which is permitted to drop and close the valve 3'. This would leave the circuit closed if it were not for the switch member 12 which is struck by the member 5' to break the circuit. An incident of convenience to this arrangement of devices for automatically operating a valve is that the thermostat carrying case may be tilted over and against the burner 2' so that where a very small night flame is used, should the flame become extinguished the valve will be automatically closed. This attachment may be effected in any suitable workmanlike manner.

The device is simple and inexpensive of construction and both durable and efficient in operation, and the adjustments may be made with ease, accuracy, and despatch.

Having thus described my said invention what I claim as new and desire to secure by United States Letters Patent is:

1. The combination in a device of the character described, of a gas supply pipe having a burner, of a valve within said pipe, a weighted stem to form a gravity actuated valve, a detent engaging said weighted stem, an electromagnet to operate said detent, a normally closed switch operated through contact with said weighted stem, a thermostat, a traveling contact maker secured to said thermostat, a stationary contact maker for co-action with said traveling contact maker, a switch blade actuated by said traveling contact maker, a switch contact in the path of said blade, an electric source of energy, and a conductor connecting said instrumentalities in circuit as and for the purpose set forth.

2. The combination in a device of the character described of a gas supply pipe having a burner, of a valve within said pipe, an arm extending from said valve, a weight carried by said arm, said weight having a projecting ear, a pivotally held armature provided with an extending lip engaging said ear, a normally closed switch operated by the release of said weighted arm, a thermostat, a traveling contact maker secured to said thermostat, a stationary contact maker for co-action with said traveling contact maker, a switch blade actuated by said traveling contact maker, a switch contact in the path of said blade, an electric source of energy, and a conductor connecting said instrumentalities in circuit, as and for the purpose set forth.

3. In a device of the character described, the combination with a supply pipe having a burner, of a valve within said supply pipe, a weighted stem extending from said valve to provide a gravity actuated valve operating means, a detent engaging said weighted stem, an electromagnet to operate said de-

tent, a normally closed switch operated by the fall of said weighted stem, a thermostat, means to adjustably secure said thermostat to said supply pipe, a traveling contact maker secured to said thermostat, a stationary contact maker for co-action with said traveling contact maker, a switch blade actuated by said traveling contact maker, a switch contact in the path of said blade, an electric source of energy, and a conductor connecting said instrumentalities in circuit, as and for the purpose set forth.

4. The combination in a device of the character described of the following instrumentalities, to wit, a gas supply pipe having a burner, of a valve within said pipe, a weighted stem extending from said valve, a detent engaging said weighted stem, to hold said stem in an upward position, an electromagnet to operate said detent, a normally closed switch operated by the release of said weighted stem, an adjustably held thermostat, a traveling contact maker secured to said thermostat, a stationary contact maker

for co-action with said traveling contact maker, a switch blade actuated by said traveling contact maker, a switch contact in the path of said blade, an electric source of energy, a conductor extending from one pole of said electric source and connected to said switch contact, an electric conductor extending from said switch blade to said stationary contact, an electric conductor extending from said traveling contact maker and secured to one member of said normally closed switch, an electric conductor extending from the remaining member of said normally closed switch and to one terminal of said electromagnet, and an electric conductor extending from the remaining terminal of said electromagnet to the remaining pole of said source of supply.

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

GEORGE H. MURRAY.

Witnesses:

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