

H. L. YOUNG.
 AUTOMATIC SAFETY GAS VALVE.
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972,975.

Patented Oct. 18, 1910.

Fig. 1.

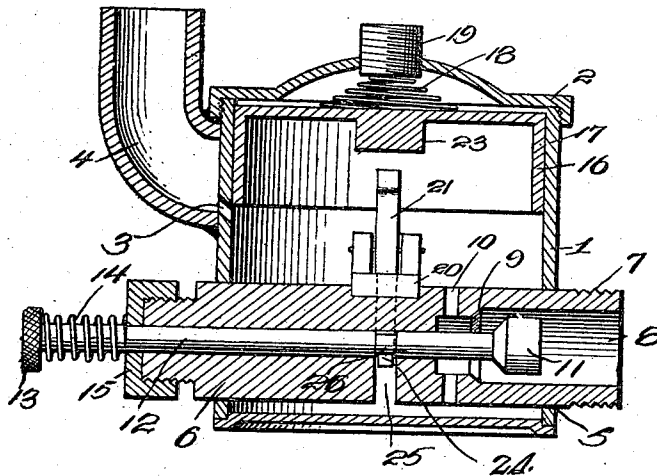
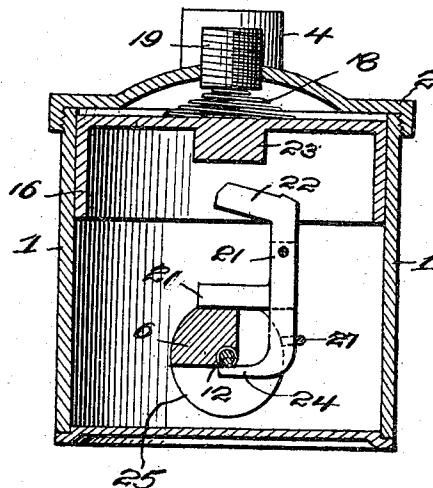


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

HARRY L. YOUNG, OF ST. JOSEPH, MISSOURI.

AUTOMATIC SAFETY GAS-VALVE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY L. YOUNG, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented new and useful Improvements in Automatic Safety Gas-Valves, of which the following is a specification.

This invention relates to an improvement in safety valves designed for the automatic control of gas supply whereby upon the cessation of pressure in the supply the passage of the gas beyond the valve is automatically cut off.

The present invention is designed particularly for use with natural gas supply in which as is well understood extreme variations in pressure are liable to occur.

The improved valve is designed to prevent the flow of gas beyond the valve to the point of use in the event the gas pressure should be restored after such a lowering thereof as to cut off the flame at the point of use.

The invention in its preferred form of details will be described in the following specification, reference being had particularly to the accompanying drawings in which,

Figure 1 is a vertical sectional view partly in elevation of the improved valve. Fig. 2 is a transverse sectional view thereof.

Referring particularly to the accompanying drawings the improved valve comprises a body or casing 1 preferably of cylindrical form and open at the upper end, a cap 2 being arranged for threaded connection with the open end to close the same when the valve is in use while at the same time providing for access to the interior of the body when necessary. At an appropriate point the cylindrical wall of the casing is formed with an outlet bore 3 communicating with a pipe or nipple 4 secured exteriorly of the casing and designed in an appropriate way to permit connection thereof of the usual service pipe to the burner, stove, or the like.

Below the bore 3 the wall of the body is formed with diametrically opposite openings 5 in which is seated the valve carrier 6. The carrier is in the form of a cylindrical member solid for the greater portion of its length, and projecting in both directions beyond the wall of the casing. At one end the carrier is exteriorly threaded beyond the cas-

ing as at 7 to permit connection thereof to the usual supply pipe. This end of the carrier is of hollow construction providing its chamber 8 formed near one end with a valve seat 9 and beyond the valve seat provided with lateral bores 10 to establish communication between the chamber 8 and the interior of the casing. Within the carrier is mounted the valve including a valve proper 11 designed for coöperation with the seat 9 and a stem 12 which projects beyond the solid end of the carrier, and is terminally provided with a button or head 13, a coil spring 14 encircling the stem between the button and a packing gland 15 sealing the stem bore in the carrier beyond the end wall. The spring is tensioned to normally maintain the valve 11 on its seat whereby communication between the interior of the casing 1 and the gas supply is cut off.

Arranged for vertical movement in the casing above the carrier is a piston 16 preferably of a hollow construction with its side wall fitted against the interior of the casing. The top of the piston bridges the interior of the casing, and a coil spring 18 is arranged between the piston top and a spring adjusting member 19 threaded in the cap 2, which spring serves to normally depress the piston. The parts are so arranged that in the lowered position of the piston the side wall thereof will close the bore 3 and cut off the service nipple 4 from the interior of the casing. Secured upon the carrier 6 is a bracket 20 between the arms of which is pivotally supported a trip 21. The bracket is mounted on the upper side of the carrier and the trip lever is provided at its upper end with a laterally extending arm 22 designed to lie in the path of movement of a depending lug 23 arranged centrally of the piston top. The lower end of the trip lever is provided with a laterally extending finger 24 normally positioned in a recess 25 in the carrier, the extreme end of the finger being designed in operative position to engage a notch or recess 26 formed in the valve rod. The recess 25 includes about three-fourths of the cross sectional area of the carrier and communicates with the bore for the reception of the valve stem 12. A spring 27 secured upon the carrier and overlying the lever below its pivot operates to normally maintain the finger 24 in position to engage the notch on the valve rod, it being under-

stood that when the lever finger is in engagement with the notch the valve 11 is held off of its seat against the tension of the spring 14.

5 In operation when desired to admit a supply of gas to the burner the valve rod 12 is moved longitudinally to force the valve 11 from its seat. As the valve 11 leaves the seat the gas enters the casing and elevates
10 the piston thereby permitting the uninterrupted flow through the service nipple. The valve rod is moved inward until the lever finger 24 engages the notch 26 whereupon
15 the valve will be locked in open position and the uninterrupted flow of the gas through the casing permitted.

Upon the cessation of the pressure, or the lowering of the same beyond the predetermined point the piston falls, cutting off
20 the bore 3 and at the same time engaging the arm 22 and withdrawing the lever finger from the notch 26. The spring 14 will then close the valve 11, cutting off the gas supply until the parts have been manually operated to reduce the flow of gas.

25 By the invention described the lowering of the pressure of the gas to a predetermined point will immediately cut off the flow of the gas and thereby the danger of a
30 restoration of said flow after the flame has been extinguished by the lowering of the pressure is avoided. The improved valve comprises few parts and may be simply and
cheaply constructed, and while primarily
35 useful in the control of gas supply in places where extreme variations of pressure are liable to occur is nevertheless equally serviceable in all situations where it is advisable to cut off the flow of fluid when its pressure

has decreased to or beyond the predetermined point.

Having thus described my invention, what I claim, is:—

1. A valve including a casing, a valve carrier removably secured therein, said carrier being formed to provide a chamber connected with the gas supply and also formed with bores establishing communication between said chamber and the interior of the casing, a valve mounted in the carrier to
45 close the bores against the chamber, a lever normally operative to engage and hold the valve in open position, and a piston movable within the casing and operated by the gas pressure, said lever being arranged in
50 the path of movement of the piston.

2. A valve including a casing, a valve carrier removably secured therein, said carrier being formed to provide a chamber connected with the gas supply and also formed
60 with bores establishing communication between the said chamber and the interior of the casing, a valve mounted in the carrier to close the bores against the chamber, a lever normally operative to engage and hold the
65 valve in open position, and a piston movable within the casing and operated by the gas pressure, said lever being arranged in the path of movement of the piston, and adapted to be actuated to release the valve
70 upon the diminution of the gas pressure beyond the predetermined point.

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

HARRY L. YOUNG.

Witnesses:

WILLIS H. SHERWOOD.

WILLIAM J. JONES.