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W. ERNST

SAFETY CUT-OFF DEVICE FOR VALVES

Filed Feb. 16, 1925

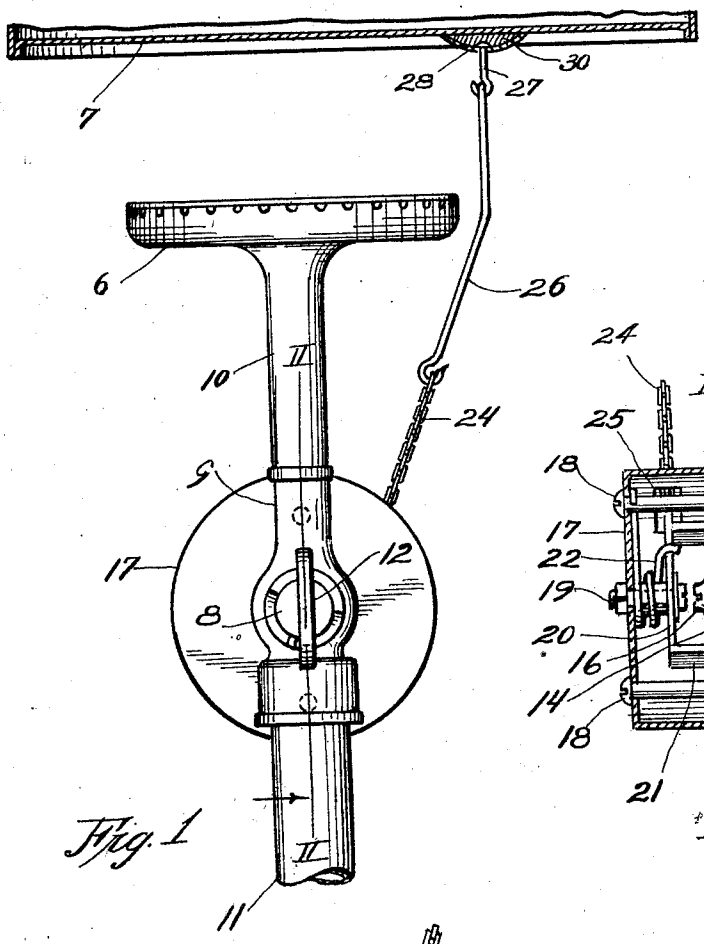



Fig. 1

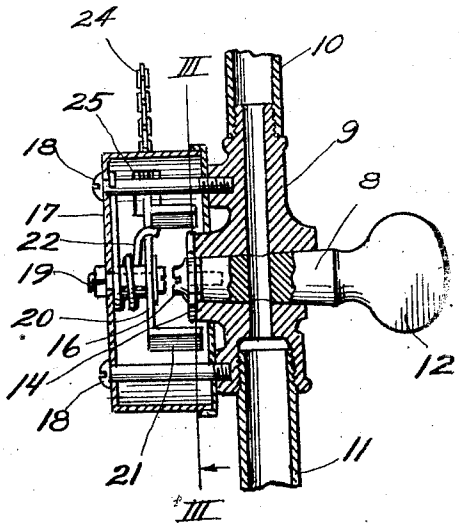



Fig. 2

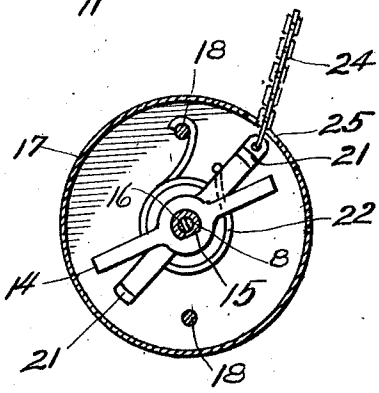



Fig. 3

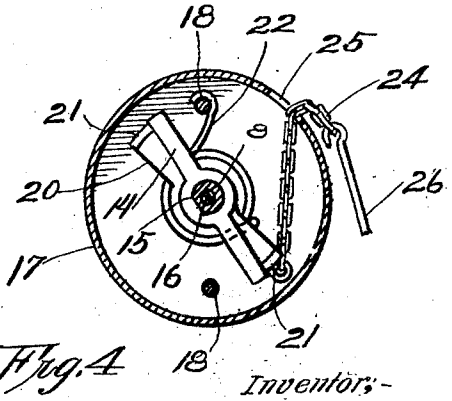



Fig. 4

Witness:

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By Thorpe & Gerard,
his attorneys.

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# UNITED STATES PATENT OFFICE.

WILLIAM ERNST, OF KANSAS CITY, KANSAS.

## SAFETY CUT-OFF DEVICE FOR VALVES.

Application filed February 16, 1925. Serial No. 9,517.

*To all whom it may concern:*

Be it known that I, WILLIAM ERNST, a citizen of the United States, and a resident of Kansas City, county of Wyandotte, State of Kansas, have invented a certain new and useful Improvement in Safety Cut-Off Devices for Valves, of which the following is a complete specification.

The present invention relates to automatic cut-off or safety devices for valves, with particular reference to valves for controlling the fuel supply to burners, such as gas burners, and the special object in view is to provide a protective cut-off device particularly adapted for use in connection with coffee urns or the like, and operative to cut off the fuel supply to prevent damage to the urn's structure in the event of the water chamber running dry.

Accordingly, I have provided an improved cut-off device arranged in connection with a burner valve, and having automatic valve-closing means adapted to permit a certain amount of independent movement of the valve for regulating the flow of fuel, while also operating automatically when released, as hereinafter described, for completely closing the valve and shutting off the fuel supply.

In the specific form of the invention herein illustrated, I employ a valve having an arm attached to one of its ends, and adapted to be engaged by a second arm for the purpose of automatically closing the valve upon the release of said second arm, as by the melting of a fuse attached to the urn in the event of the latter being subjected to an unsafe temperature. It is also preferred to mount the principal elements of the device within a suitable casing or housing attached to the valve casting and arranged to accommodate the necessary releasable connection extending to a fixed point outside the housing, as to the urn itself.

With the foregoing general objects in view, the invention will now be described with reference to the accompanying drawing illustrating one form of construction which I have devised for practically embodying the improvement, after which those features deemed to be novel will be particularly set forth and claimed.

In the drawing—

Figure 1 is a front elevation, illustrating a burner and its valve having associated therewith a cut-off device embodying the present invention, the parts being also illustrated in proper relation to the bottom of an urn, indicated in section;

Figure 2 is a sectional detailed view of the valve and adjacent parts, representing a section taken on the line II—II of Figure 1;

Figure 3 is a detail section, taken on the line III—III of Figure 2; and

Figure 4 is a similar sectional detailed view, with the parts occupying a different operative position.

Referring now to the drawing in detail, this illustrates the improved cut-off device in operative relation to an ordinary gas burner 6 arranged beneath the bottom 7 of an urn (see Figure 1), the supply of fuel to the burner being controlled by an ordinary valve 8 mounted in the usual valve fitting or casting 9 connecting the stem 10 of the burner 6 with the fuel pipe 11.

The valve 8 has the usual handle or operating portion 12, and in the present construction I provide the opposite end of the valve with a suitable arm 14 which is fixed for rotative movement with the valve, as by means of a D-shaped opening 15, as illustrated in Figures 3 and 4, the arm being retained in this position by means of a screw 16.

To this side of the valve casting 9 I also attach a suitable casing or housing member 17 fitted with screws 18 having their threaded ends screwed into said casting 9 (see Figure 2). Mounted centrally within this casing or housing 17 is a pin or screw 19 serving for pivotally mounting a second spring-actuated arm 20, the pin or screw 19 being mounted in alinement with the axis of the valve 8, for adapting said arm 20 for movement coaxially with said valve. This arm 20 is also formed with projections 21 extending laterally in the direction of the arm 14, and adapted to engage the ends of the latter as illustrated in Figure 4 which represents the valve-closing action of the arm 20.

Coiled about the pin or screw 19 between the arm 20 and the casing is a spring 22 one end of which is hooked over the arm 20, while the opposite end of said spring is engaged by one of the screws 18, the function of this spring being to effect the automatic closing movement of the arm 20. The arm 20, however, is normally retained in inoperative position, illustrated in Figure 3, by the means of a releasable connection comprising

a flexible member, such as a chain 24 which extends through a suitable opening 25 in one side of the casing, to a link 26 which is designed to be attached to a suitable hook element 27 carried by a washer 28, which in turn is designed to be secured by solder material 30 to the bottom 7 of the urn, this solder being of a character adapted to melt at a relatively low temperature, below that at which any damage would be done to the joints, seams or other parts of the urn structure.

It will thus be apparent that I have devised a practical and efficient construction for fulfilling the desired objects of the invention. The normal or inoperative arrangement of the parts is clearly illustrated in Figures 1 to 3, in which the arm 20 is maintained in a position in which its lugs or projections 21 are out of engagement with the ends of the valve arm 14, so that it is apparent that the valve may be freely manipulated as required for the usual regulation of the flow of fuel to the burner 6. However, in the event of the link connections 24 and 26 being released, as by melting of the solder material 30, the spring 22 is then free to act for the purpose of rotating the arm 20 in the proper direction for the engagement of its lugs or projections 21 with the ends of the arm 14, thereby rotating the valve 8 into closed position, as is clearly illustrated in Figure 4. Thus the supply of fuel to the burner 6 is promptly cut off, and the urn structure protected against any damage which would be produced if the operation of the burner were continued.

The improved construction is of very simple and compact form, and, being enclosed in a neat form of housing, presents an appearance which does not detract in any way from the valve's appearance, while further the construction shown is comparatively cheap to manufacture and comprises nothing that is readily gotten out of order. While I have illustrated what I regard as the preferred form of construction for embodying the proposed improvement, I desire to reserve the right to make such changes and modifications as may fairly fall within the scope of the appended claims.

What I claim is:

1. A safety cut-off valve construction comprising, in combination with a valve, an arm attached to the valve, and an automatic valve-closing device provided with means for engaging said arm to close the valve and permitting limited movement of the arm whereby the valve may be regulated independently of the valve-closing movement of said device.

2. A safety cut-off valve construction comprising, in combination with a valve, an arm attached to the valve, a second spring-actuated arm mounted for independent movement coaxial with said valve and having means for engaging said first arm to close the valve, and releasable means for retaining said spring-actuated arm in inoperative position.

3. A safety cut-off valve construction comprising, in combination with a valve casting and valve, an arm attached to the valve, a second spring-actuated arm mounted for independent movement coaxially with said valve and having means for engaging said first arm to close the valve, a casing attached to said valve casting and enclosing said arms, and a releasable connection to said second arm and extending to a fixed point outside the casing for retaining said second arm in inoperative position.

4. A safety cut-off valve construction comprising, in combination with a valve casting and valve, an arm attached to the valve, a casing attached to said valve casting and enclosing said arm, a second spring-actuated arm mounted within said casing for independent movement coaxially with said valve and having means for engaging said first arm to close the valve, and a releasable connection to said second arm and extending through the casing to a fixed point outside the latter for maintaining said second arm inoperative.

In witness whereof I hereunto affix my signature.

WILLIAM ERNST.