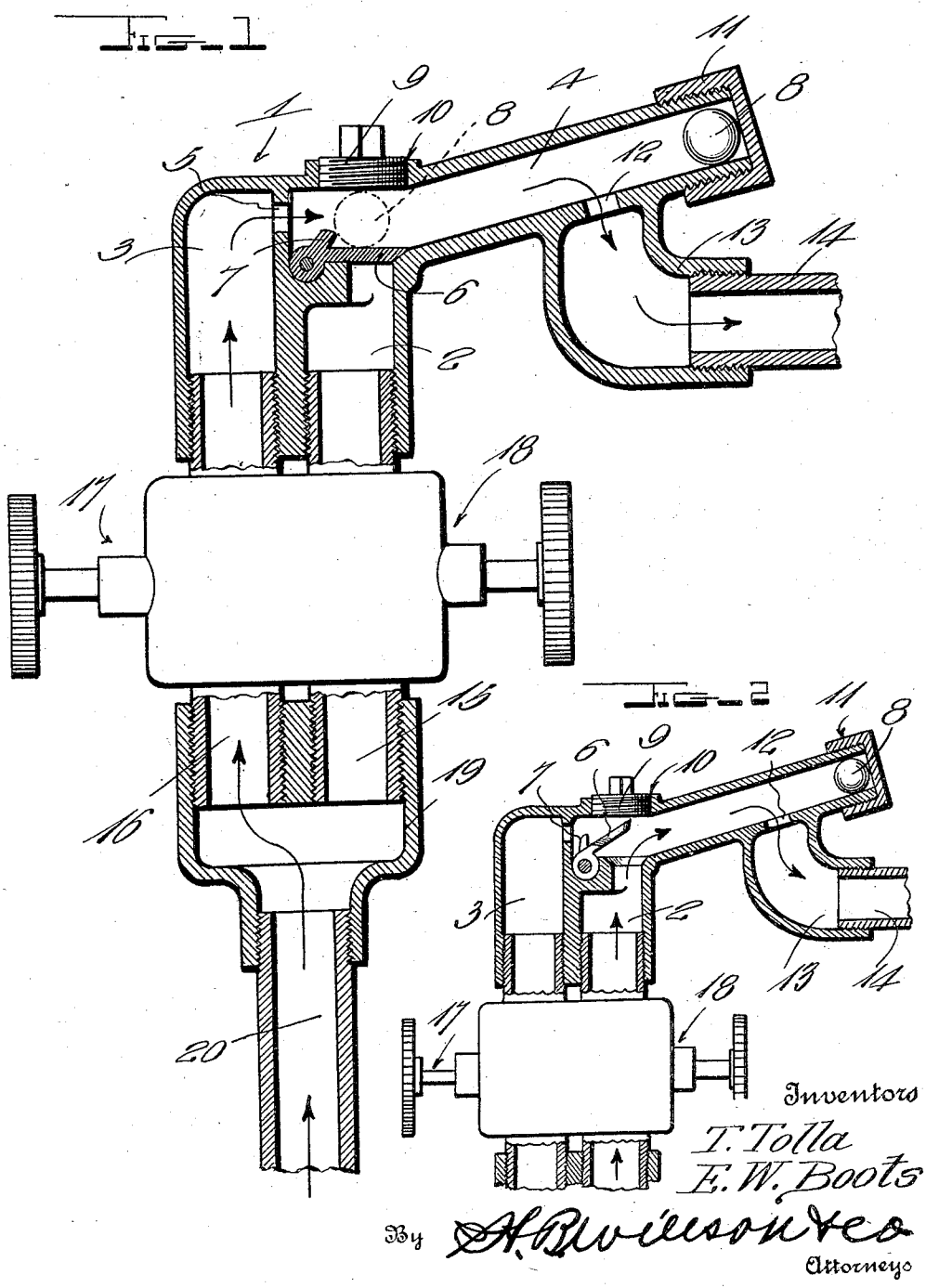
T TOLLA AND E. W. BOOTS.

AUTOMATIC CUT-OFF FOR GAS LINES.

APPLICATION FILED JULY 11, 1921.

1,410,852. Patented Mar. 28, 1922.



UNITED STATES PATENT OFFICE.

THEODORE TOLLA AND EDGAR WARREN BOOTS, OF ELLWOOD CITY, PENNSYLVANIA.

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Application filed July 11, 1921. Serial No. 483,993.

To all whom it may concern:

Be it known, that we, THEODORE TOLLA, a citizen of Serbia, and EDGAR W. BOOTS, citizen of the United States, residing at Ellwood City, in the county of Lawrence and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Cut-Offs for Gas Lines; and I do declare the following to be a full, clear, and exact description of the invention such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved device which can be conveniently termed a cut-off, the same being especially designed for installation in a gas line and being such that it automatically prevents further flow of gas to the burners when the pressure in the supply pipe falls below a pre-determined point. Hence, leakage of unburned gas into the room is entirely overcome and in this way the life of the occupants of the building is protected and rendered perfectly safe.

Another aim of the invention is to generally improve upon devices of this class by the provision of one of extreme simplicity and durability which is absolutely faultless in operation, can be easily and conveniently installed in the supply line, and is composed of comparatively few readily disconnectable parts which enable repairs to be made whenever necessary or desired.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is a central vertical sectional view, with parts in elevation of an automatic gas cut-off constructed in accordance with this invention showing the check valve still closed and the retaining device in ineffective position at the outer end of the inclined run-way.

Figure 2 is a view similar to Fig 1, showing the auxiliary passage closed and the main passage open, together with the check valve swung to open position.

In carrying out the invention, we employ a body which is designated generally by the numeral 1, the same including vertically disposed parallel independent passages 2 and 3, the first named of which constitutes the main passage and the remaining one of which forms an auxiliary passage. In addition, there is a third and upwardly inclined passage 4 which is in communication with the aforesaid passages and constitutes what may be conveniently termed a runway. Communication is had between the passages 3 and 4 by means of an opening 5 whereas communication between the main passage and runway is had by means of an opening closed by an automatically operable check valve 6. It may be stated here that this valve is provided with an upstanding integral lug 7 which constitutes a stop and serves a purpose to be later described. It is desirable to devise means for normally retaining the valve 6 closed so as to prevent passage of gas into the room even if the valve controlling the burner or light is turned on. The means preferred for accomplishing this is in the form of a roller 8 of a size to permit it to have free movement in the inclined runway 4. Owing to its own weight, this element 8 normally assumes the dotted line position shown in Fig. 1, and in this way prevents the valve 6 from being swung to open position. The aforesaid lug 7 serves to limit the direction of movement of the the ball or roller in one direction. Attention may be here directed to the fact that it is desired to prevent undue movement of this roller when in its normal position. A removable screw plug 9 is therefore employed and this plug serves to close the screw-threaded opening 10 which is immediately over the valve 6. With this arrangement it will be seen by rotating this plug it will be screwed inwardly so that it may be caused to very lightly contact the valve retainer 8 and prevent possible opening of the valve 6. In this way and even though the element 8 becomes worn after constant use, any lost motion may be taken up by properly adjusting this plug. This screw plug 9 is not only advantageous in that it permits the above result to be obtained, but it serves as a means to permit access to be had to the interior of the body for removing the retainer or for cleaning purposes. To also assist in cleaning the device, especially the run-way, the latter is closed at its outer end by a removable screw cap 11. It is yet to be pointed out that the runway 4 is formed with an outlet opening 12 and an integral elbow 13 with which the pipe 14 which leads to the burner is shown.

It is to be noted that the lower ends of

the passages 2 and 3 are internally screw-threaded and valved pipes 15 and 16 are inserted into these passages. We may mention here that the valve 17 which controls the passage of the fluid through the pipe 15 may be constructed in any suitable way, but is preferably such that it automatically closes immediately after releasing the handle. On the other hand, the valve 18 is such that it necessarily must be turned off by hand. Referring now to the opposite ends of the pipes 15, it will be seen that a common reducer coupling 19 is employed and the supply pipe 20 is connected with this coupling.

The operation of the device is as follows:

Assuming that both valves 17 and 18 are closed, it will be seen that in order to permit the valve 6 to be opened, the element 8 must be moved off of this valve. To do this, the handle of the valve 17 is gripped and this valve is opened, permitting the fluid to pass through the pipe 16 and then through the auxiliary passage 3 and through the hole 5 and against the element 8, forcing the latter upwardly through the inclined runway until it assumes a position approximating that shown in Fig. 1. Still holding the valve 17 open, the remaining valve 18 is opened and at the same time the handle of the valve 17 is released permitting this valve to close as soon as the valve 18 is open. The fluid will then pass through the main passage and pipes connected therewith and will lift the valve 6, after which it will pass through the run-way and from the latter into the pipe 14. The position of parts at this time is clearly shown in Fig. 2. Hence it will be seen that the pressure serves not only to hold the valve 6 open but also to retain the retainer 8 in ineffective position. Now, in case the pressure should decrease until it reaches a dangerous degree such as would be insufficient to keep the burner lighted, the element 8 will roll downwardly through the runway and the valve 6 will at the same time, owing to its weight, automatically resume a closed state, after which the ball will roll on top of the valve and hold the latter closed. Even though the valve 18 is still open, it will be practically impossible for the gas to leak out into the room after the valve 6 is thus closed and in order to permit the gas to flow to the burner again, the operation above described must be repeated, it being, of course, necessary to close the valve 18 before this course is followed.

By carefully considering the description in connection with the drawings, persons familiar with devices of this class will doubtless be able to obtain a clear understanding of the invention. Therefore, a more lengthy and detailed description is deemed unnecessary.

Since probably the best results may be obtained with the construction and arrangement herein shown and described this is taken as the preferred embodiment of the invention. However, we wish it to be understood that minor changes coming within the scope of the subjoined claims may be resorted to if desired.

We claim:

1. A safety cut-off for gas supply lines comprising a body including a vertically disposed main passage and an auxiliary passage having communication therewith, said body also including an upwardly inclined passage communicating with both passages and constituting a runway, the latter having an outlet arranged therein inward of its upper closed end, a valve for closing communication between the runway and said main passage, and a ball retainer resting on said valve to hold it closed, said ball being arranged in said runway and being moved upwardly in the latter and beyond the outlet therein when fluid is passed through the auxiliary passage and brought against it.

2. A safety cut-off for gas supply lines comprising a body including main and auxiliary passages, also including an upwardly inclined passage communicating with said first named passages and providing a runway, a valve closing communication between the main passage and runway a movable retainer for the valve arranged in said runway, being moved to ineffective position when fluid is brought against it, and an adjustable device arranged over said valve for preventing undue movement of the retainer, whereby the valve cannot be opened until the retaining device is moved to ineffective position.

3. A device of the class described comprising a body including parallel vertically disposed main and auxiliary passages and also including an upwardly inclined passage communicating with the first named passages and constituting a runway, a gravity closed check valve for closing communication between the main passage and runway, the latter being formed with a screw-threaded hole directly over said valve, and a screw-plug closing said hole, and a retainer for said valve movable along said runway and normally disposed between said valve and plug.

4. A device of the class described comprising a body including a parallel vertically disposed main and auxiliary fluid passages together with an upwardly inclined portion communicating with said passages and providing a combined runway and fluid passage, said upwardly inclined portion being equipped with an outlet and being formed at a point immediately over said main passage with a screw-threaded hole, a pivotally mounted check valve arranged in said body and closing communication between said

runway and main passage, said valve being equipped with an integral lug constituting a stop, a screw plug threaded into the aforesaid screw-threaded hole, a ball arranged in said runway between said valve and plug and bearing against said stop, and valve-controlled pipes communicating with said main and auxiliary passages.

5. An automatic cut-off for gas supply lines comprising a body including parallel vertically disposed main and auxiliary passages, said main passage being provided at its upper end with a valve seat, said auxiliary passage being formed above said valve seat with a port for passage of the fluid, an upwardly opening valve co-operative with said seat, an upwardly inclined runway associated with said passage and communicating with said port, said runway being provided inward of its upper closed end with a fluid outlet, and a ball retainer normally resting on said valve to maintain the latter closed, said retainer being positioned opposite said port so that when fluid is passed through the latter and brought against it, it will be moved upwardly in said runway beyond the outlet and held until the pressure is insufficient to maintain it in this position.

In testimony whereof we have hereunto set our hands.

THEODORE TOLLA.
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