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FLUID CONTROL DEVICE

Filed July 8, 1929

Fig. 1.

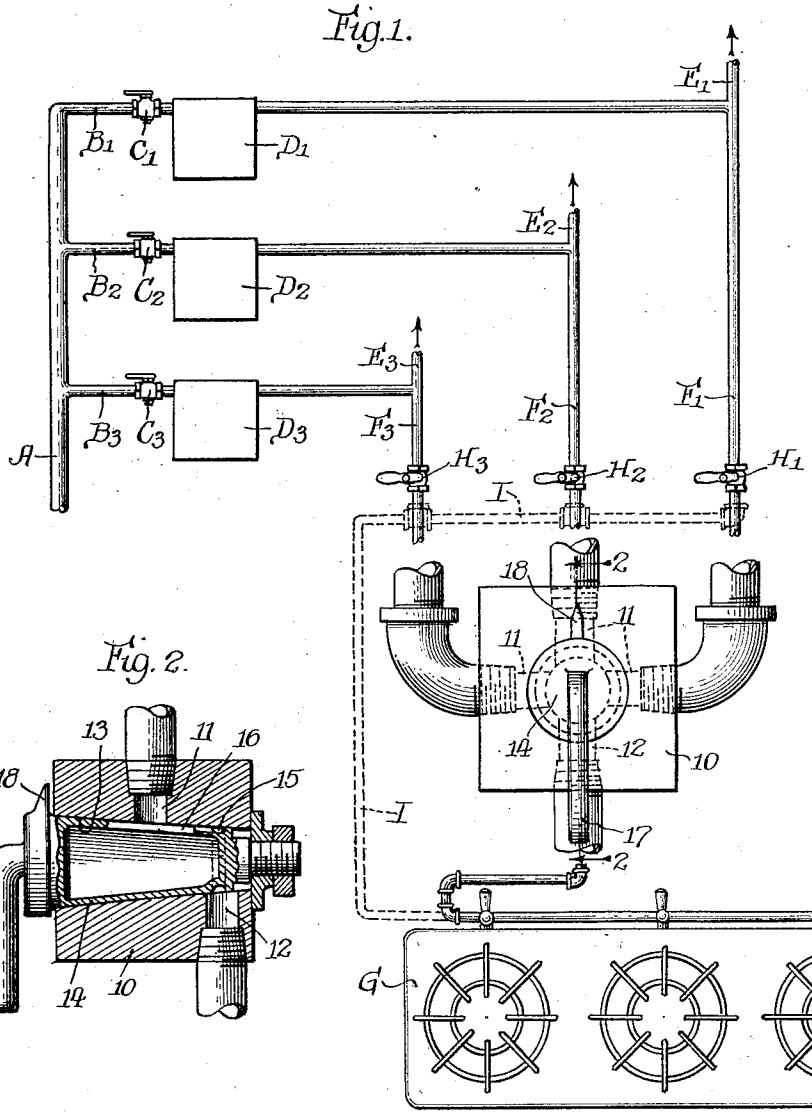


Fig. 2.

Inventors:
Martin I. Mix,
Hiram E. Heil,
By Churchill Parker & Carlson Attys.

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MARTIN I. MIX AND HIRAM E. HEIL, OF CHICAGO, ILLINOIS

FLUID CONTROL DEVICE

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Our invention relates generally to a fluid control device and more particularly to such a device for a gas laundry stove in an apartment building, which stove is for the use of all the tenants in the building and which may draw gas from any one of the individual tenant gas lines.

In the present system of piping in apartment buildings, each apartment is supplied by a line leading from the main in which line there is a meter cock and a meter, controlling and registering the amount of gas used by each tenant. From each one of these tenant lines, a branch line provided with a lock valve leads to a common header for the laundry stove so that each tenant may use the stove but use only his own gas.

But such a system is subject to abuse should any tenant fail to lock the valve in his branch line. When such failure occurs, it is possible for one of the other tenants by manipulating the control valves in a manner hereinafter set forth to use gas flowing through the meter of the first mentioned tenant not only for his use in the laundry stove but also in his apartment. Also there is an element of danger in the present system if, in a vacant apartment, the gas pipe is uncapped and the lock valve in the branch line for that apartment to the laundry stove is left unlocked and open; for, under these conditions, when another tenant opens his lock valve in order to use the laundry stove, gas may pass into the vacant apartment.

The general object of this invention is to provide a fluid control device connected to a plurality of lines supplying a gas laundry stove, or the like, and permitting only one of said lines to supply gas to the stove at a time, the other lines being automatically closed when the one line is open.

Another object of the invention is to provide a valve device having an outlet passage, a plurality of inlet passages, and means permitting only one of said inlet passages to be connected with said outlet passage at a time.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing, in which:

Figure 1 is a side elevation of a fluid control device embodying the features of the present invention with the system of piping shown diagrammatically.

Fig. 2 is a section of the device taken along the line 2—2 of Fig. 1.

While the invention is susceptible of various modifications and alternative constructions, we have shown in the drawing and will herein describe in detail the preferred embodiment, but it is to be understood that we do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

In Figure 1 there is illustrated diagrammatically a system of piping to be used in connection with the present device which, for convenience, will be called the new system while the system previously used, which includes a part of the new system and that shown in broken lines, will be called the old system.

In both systems, from the main A delivering gas into the building, lines B^1, B^2, and B^3 branch off to supply the various apartments individually. In each of these lines are placed meter cocks C^1, C^2, and C^3 and meters D^1, D^2, and D^3 registering the amount of gas used in each apartment. From the meters, branch lines E^1, E^2, and E^3 lead to each apartment, as indicated by the arrows, and they also have leads F^1, F^2, and F^3 running to the laundry to supply a laundry stove G. Individually locked valves H^1, H^2, and H^3 are placed in the leads F^1, F^2, and F^3 so that each tenant can prevent any unauthorized use of his gas. This much of the piping is common to both systems.

In the old system below these valves the leads joined into a common header I leading directly to the laundry stove G.

But this system was subject to abuse and might cause a dangerous condition to exist if any of the valves H^1, etc., were left unlocked. For example, assume that the valve H^1 were left unlocked. In such event, an unscrupulous tenant in an apartment connected with

the line E^2 could open both the valves H^1 and H^2 and thereby permit access from the lead F^1 to the lead F^2 through the header I. Then by restricting the flow of gas through the meter D^2 by wholly or partially closing the meter cock C^2, the tenant could then draw gas into his apartment connected with the line E^2 through the meter D^1, the path from the meter D^1 being through the lead F^1, the valve H^1, the header I, the valve H^2, the lead F^2 and thence to the apartment connected with the line E^2. In case of a partial restriction of the meter cock, this abuse could go on indefinitely without detection.

The dangerous condition occurs when, in a vacant apartment, an outlet is left uncapped as when the kitchen stove is removed. To illustrate, assume that, in a vacant apartment connected with the line E^2, there is an uncapped pipe and that the valve H^2 was accidently opened, the meter cock C^2 being closed. Then assume that the tenant in the apartment connected with the line E^3 attempts to use the laundry stove G. He opens the valve H^3 to permit gas to flow to the stove, but, in so doing, the gas can also flow through the header I, the valve H^2, the lead F^2 and up into the vacant apartment connected with the line E^2 through the uncapped pipe.

To obviate these evils, we provide a fluid control device comprising generally a member providing passages from the branch lines to the stove, and means permitting a flow of gas through said passages to the stove from only one of the branch lines at a time.

In the present instance, a body member 10 is provided with a plurality of inlet passages 11 lying in one plane and an outlet passage 12 lying in a different plane than that of the inlet passages 11. The inlet passages 11 are connected to the leads F^1, F^2, and F^3 respectively, the number of such leads and passages depending upon the number of apartments for which the stove G is to be used. The outlet passage 12 is connected with the stove. A circular chamber 13 is formed in the body member 10 which communicates with all of the passages.

As mentioned above, the invention includes means permitting a flow of gas through said passages to the stove from only one of the branch lines at a time. In the present embodiment, this means comprises a circular valve member 14 rotatably mounted in the chamber 13 and fitting snugly against the walls thereof. An annular groove 15 is cut in the valve member 14 in the plane of the outlet passage 12 and a longitudinal groove 16 is cut therein extending from the annular groove 15 to the plane of the inlet passages 11, the width of the groove 16 being less than the distance between two adjacent inlet passages 11 measured along the wall of the chamber 13. Thus, the grooves 15 and 16 form a path whereby gas may flow from any inlet passage, opposite which the longitudinal groove 16 is positioned, to the outlet passage 12.

A handle 17 is formed on the end of the valve member 14 so that it may be conveniently located and a pointer 18 or other indicator may be formed on an external portion of the valve member 14 to indicate the position of the longitudinal groove 16.

In operation, it is apparent that no two of the leads F^1, F^2, or F^3 may be connected, as gas from only one of them may pass to the laundry stove at a time. Thus, the evils mentioned above are entirely obviated even though one of the lock valves should accidentally be left unlocked.

We claim as our invention:

1. A gas control device for a laundry stove to which gas may be supplied from a plurality of branch lines comprising, in combination, a body member having a plurality of inlet passages and an outlet passage, the latter being connected with the stove, a valve member operable in said body member permitting only one of said inlet passages to be connected with said outlet passage at a time and closing off each of the other inlet passages one from another, a plurality of pipes respectively connecting said inlet passages with said branch lines, and a plurality of individually locked valves respectively mounted in said pipes for separately closing each of said pipes against flow of gas therethrough.

2. A control device for a gas appliance to which gas may be supplied from a plurality of branch lines comprising, in combination, a plurality of lock valves respectively connected to said branch lines, and means connecting said lock valves to the appliance, said means including a valve permitting gas to flow to the appliance from only one of said lock valves at a time and closing off each of the other lock valves one from another.

In testimony whereof we have hereunto affixed our signatures.

HIRAM E. HEIL.
MARTIN I. MIX.