

C. SPILLAN.

VALVE.

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Fig. 1.

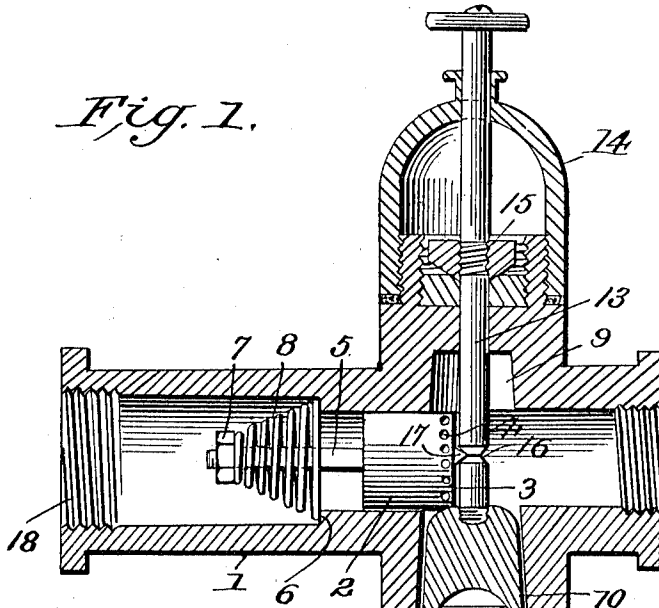
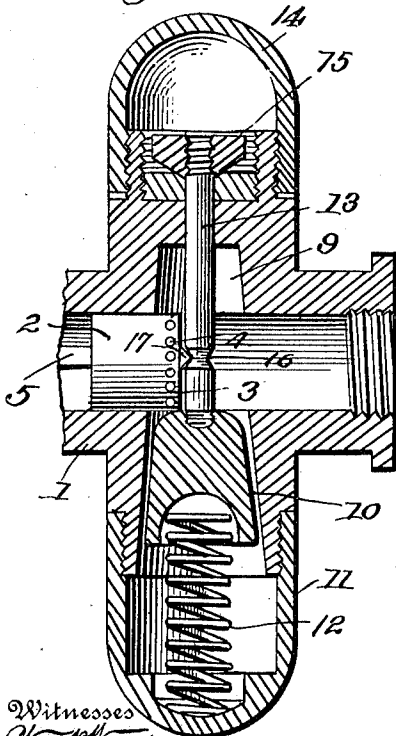
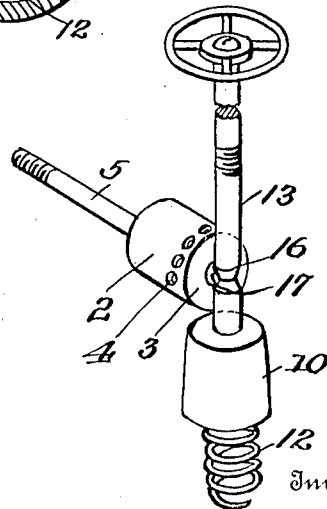


Fig. 3.



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Fig. 2.



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VALVE.

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To all whom it may concern:

Be it known that I, CORNELIUS SPILLAN, citizen of the United States, residing at Steubenville, in the county of Jefferson and State of Ohio, have invented certain new and useful Improvements in Valves, of which the following is a specification.

This invention has relation to valves especially adapted to be used upon the connection between an injector and a boiler, although the valve may be used to advantage upon other connections.

The main object of the valve is to provide means for preventing pressure from the boiler passing back into the injector and heating the same. It frequently happens that steam will pass from the boiler back to the injector and heat the same to such an extent that the injector will not force the water into the boiler and consequently the boiler becomes dry notwithstanding the fact that the gage glass may indicate that it is amply supplied. This of course if permitted to continue results in accident or damage to the boiler.

With the above object in view the valve includes a fitting in which are located two valve members for movement at right angles to each other. Springs are provided for moving the valve members to closed positions and when the valve members are in open positions one engages the other to hold the same open against the tension of the spring which has a tendency to close it. A still further object of the invention is generally to improve this class of devices so as to render them more useful and commercially desirable.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a vertical sectional view of the valve; Fig. 2 is a perspective view of the valve members of the valve. Fig. 3 is a vertical sectional view of a modified form of the valve.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

The valve includes a fitting 1 in which is slidably mounted a valve member 2. This member is cylindrical and fits snugly within the fitting 1. One end of the valve member 2 is closed as at 3 and the valve member

2 is provided in its sides adjacent the closed end 3 with openings 4. A stem 5 is fixed to the valve member 2 at the closed end 3 thereof and extends through the valve member and projects beyond the opposite end thereof. A shoulder 6 is formed in the interior of the fitting 1 and a nut 7 is screw threaded upon the end of the stem 5. A coiled spring 8 is interposed between the shoulder 6 and nut 7 and is under tension with a tendency to hold the valve member 2 in its outward position. The fitting 1 is provided with a transversely disposed bore 9 in which is slidably mounted a valve member 10. A cap 11 is detachably applied to the side of the fitting 1 and a spring 12 is interposed between the cap and the lower end of the valve member 10. This spring is under tension with a tendency to hold the valve member 10 in the upper part of the bore 9 and across the opening in the fitting 1 in which the valve member 2 is located. A stem 13 is fixed to the valve member 10 and passes up through the top side of the fitting 1. A cap 14 is screw threaded upon the upper portion of the fitting 1 and the stem 13 passes up through the said cap. A collar 15 is mounted upon the stem 13 and is housed under the cap 14. This valve member 15 is adapted to seat against the upper side of the fitting 1 when the valve 10 is moved down into the lower part of the bore 9. The stem 13 is provided with an annular groove 16 which is adapted to receive the pointed end 17 of the stem 5.

The inlet end of the fitting 1 is indicated at 18 and the outlet end at 19. The inlet end is connected with the injector (not shown) and the outlet end 19 is connected with the boiler (not shown).

The operation of the valve is as follows: When the injector is started the stem 13 is depressed by pushing the same in a downward direction so that the valve member 10 is moved down into the lower part of the bore 9. The water coming from the injector encounters the closed end 3 of the valve member 2 and moves the valve member 2 in a direction toward the stem 13 so that the pointed end 17 of the stem 5 enters the groove 16 of the stem 13. The water then passes through the openings 4 which at this time are uncovered and in the upper part of the bore 9 from whence the water passes through the outlet 19 to the boiler. The parts of the valve remain in these positions

so long as the injector is operating. If for any reason the pressure in the boiler should become greater than the pressure in the injector, the back pressure from the boiler will operate upon the closed end 3 of the valve member 2 and the spring 8 will cooperate with this back pressure to move the valve member 2 so that the openings 4 are moved out of the upper portion of the bore 9 and are closed by the side walls of the fitting 1. When the pointed end 17 of the stem 5 disengages the groove 16 the tension of the spring 12 comes into play and the valve member 10 is moved up across the passageway through the fitting 1 and closes the same. Thus the back pressure from the boiler is cut off from the injector and the parts will remain in these positions until the stem 13 is again depressed. Therefore it will be seen that a simple and an effective means is provided for automatically cutting off the back pressure from a boiler to an injector and thereby avoiding danger incident to the back pressure from the boiler entering the injector and heating the same to such an extent as to interfere with its proper operation.

While the foregoing description and accompanying drawing set forth the preferred embodiment of my invention, it is to be understood that various changes may be made in the details of construction, arrangement and proportions of the parts within the scope of the invention as defined by the appended claims.

In the form of the device as shown in Fig. 3 the stem 13 does not extend through the cap 14 as it does in the form as shown in Fig. 1. The form of the device as shown in Fig. 3 is especially adapted to be used upon gas mains or service pipes, and the upper end of the stem 13 is housed under the cap 14 in order that the said stem may not be tampered with by persons who have no knowledge of the purpose for which the valve is intended. This form of the valve operates in the same way as the form shown in Fig. 1, but when the valve 10 has interrupted the passage-way through the fitting 1, it is necessary to remove the cap 14 in order to depress the stem 13 to open the passage-way through the said fitting.

Having thus described the invention, what is claimed as new is:—

1. A valve comprising a fitting having a passageway therethrough and a bore disposed transversely of said passageway, a

valve member mounted for movement in the passageway of the fitting, a valve member mounted for movement in the bore, said valve members adapted to engage each other to be retained in open positions when the first mentioned valve member is subjected to pressure, and means for automatically moving the valve members to closed positions when the pressure upon the first mentioned valve member is removed.

2. A valve comprising a fitting having a passageway therethrough and provided with a bore disposed transversely to the passageway, a valve member mounted for movement in the bore, means tending to move the said valve member to closed position, a valve member slidably mounted in the passageway in the fitting and adapted to engage the first mentioned valve member and hold it in open position, the last mentioned valve member having a closed end and being provided in its sides with openings that are within said bore when said valve member is in engagement with the first-mentioned valve member.

3. A valve comprising a fitting having a passageway therethrough and provided with a bore disposed transversely to the passageway, caps detachably mounted upon the fitting at the ends of the bore, a valve member slidably mounted in the bore, a spring interposed between one of the caps and the valve member and tending to hold the said valve member across the passageway in the fitting to close the passageway, a stem attached to the valve member and passing through one of the caps, said stem having a groove, a valve member slidably mounted in the passageway in the fitting and having a portion adapted to enter the groove in said stem and hold the first-mentioned valve member in open position, the second mentioned valve member having a closed end and openings in its sides that are within said bore when said valve member is in engagement with the first-named valve member, and a spring engaging the second mentioned valve member and tending to hold the same away from the stem of the first mentioned valve member.

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

CORNELIUS SPILLAN. [L. s.]

Witnesses:

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