No. 705,125. Patented July 22, 1902.

L. M. OSBORNE.

GAS SERVICE SAFETY VALVE.

(Application filed Nov. 30, 1901.)

(No Model.)

Fig. 1.

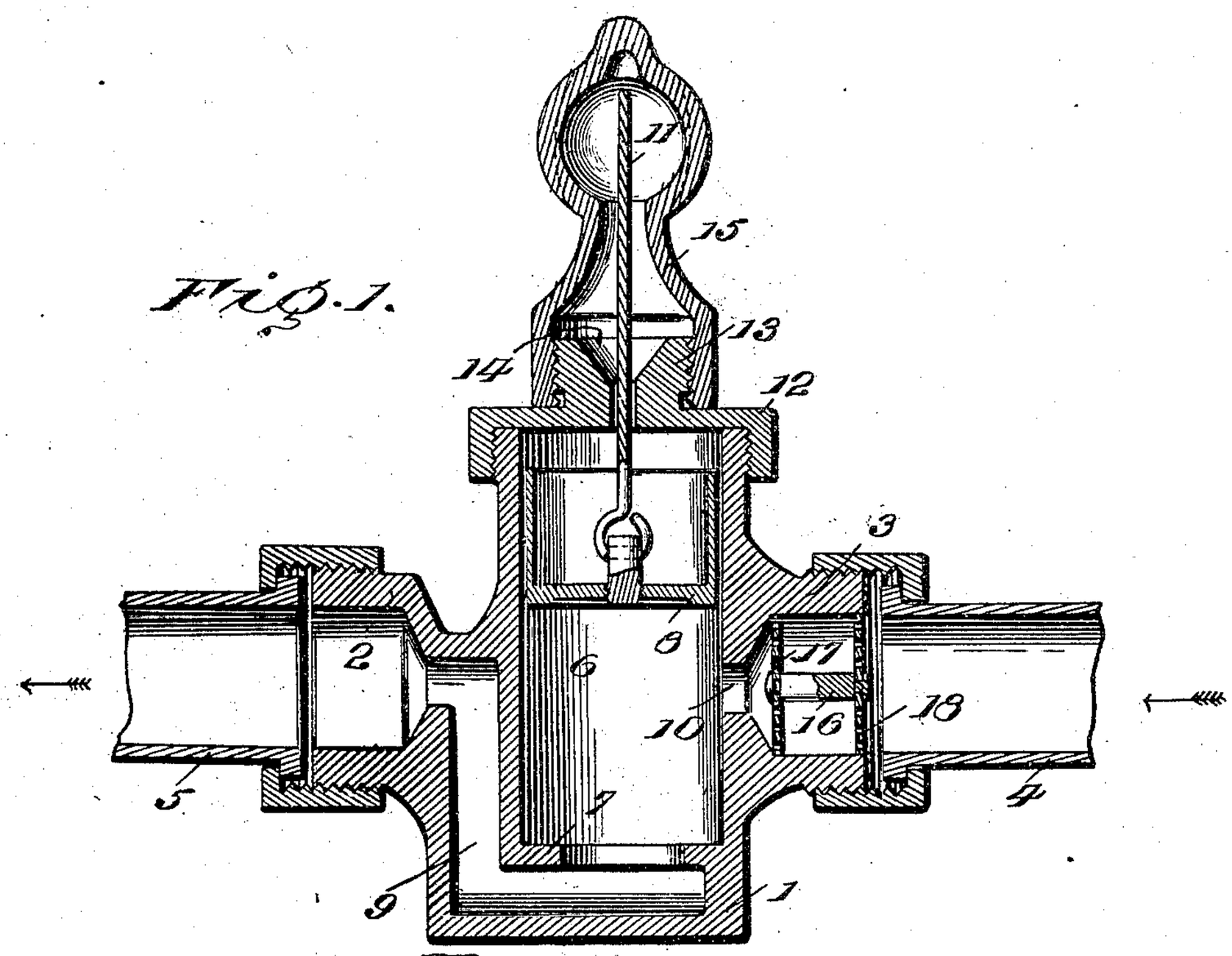


Fig. 2.

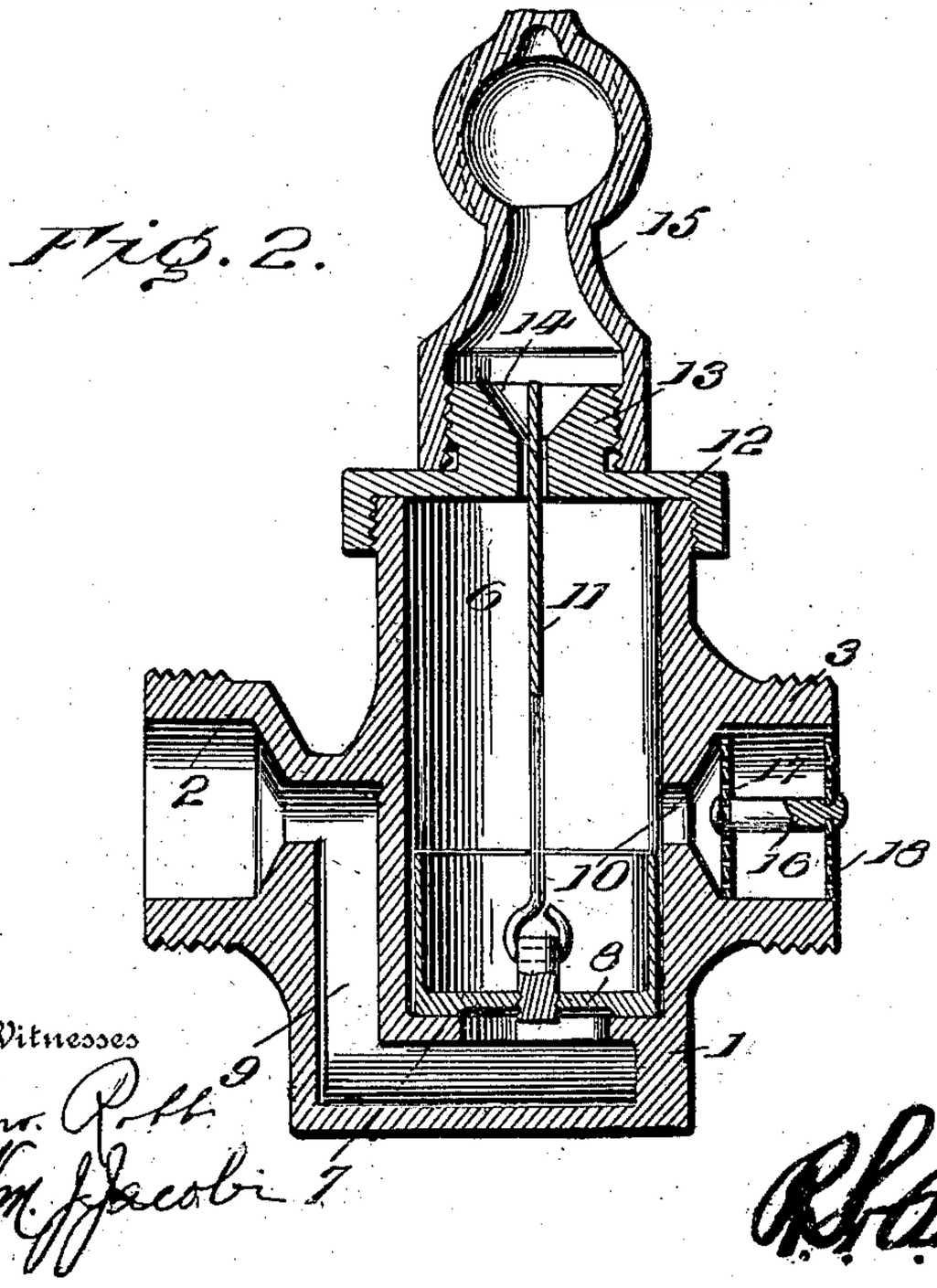
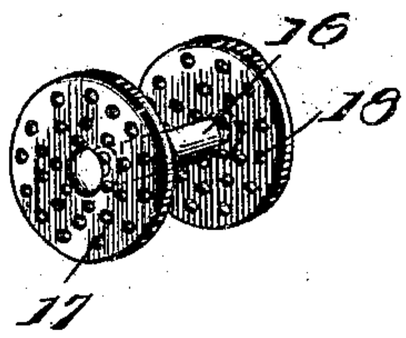


Fig. 3.



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UNITED STATES PATENT OFFICE.

LATHAM M. OSBORNE, OF APOLLO, PENNSYLVANIA.

GAS-SERVICE SAFETY-VALVE.

SPECIFICATION forming part of Letters Patent No. 705,125, dated July 22, 1902.

Application filed November 30, 1901. Serial No. 84,255. (No model.)

To all whom it may concern:

Be it known that I, LATHAM M. OSBORNE, a citizen of the United States, residing at Apollo, in the county of Armstrong and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Service Safety-Valves; and I do hereby 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 provides a valve of novel construction for automatically cutting off the supply of gas in the event of the pressure in the supply-pipe being reduced from any cause, thereby preventing asphyxiation and the other casualties resulting from a temporary cessation of gas to lighted burners without affording an opportunity for shutting off the open burner or burners.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of a safety-valve embodying the invention, the valve proper being unseated, so as to allow for a flow of gas through the valve-casing. Fig. 2 is a view similar to Fig. 1, showing the valve seated. Fig. 3 is a perspective view of the strainer.

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

The body or casing 1 of the valve is provided at opposite points with coupling ends 2 and 3, whereby attachment is had between the valve and the inlet-pipe 4 and outlet-pipe 5. The valve body or casing comprises a cylinder or barrel 6, open at its upper end and having a valve-seat 7 at its lower end. This barrel or cylinder is bored perfectly true and a valve 8 is freely movable therein and fits the seat 7 by a ground joint. This valve 8 is cup-shaped and of metal and does not bear against the walls of the barrel or cylinder in such a manner as to interfere with the automatic action of the valve or necessitate the provision of a spring or weight to insure seating of the valve when the pressure supporting the same ceases. A passage 9 communicates at one end with the lower portion of the barrel or cylinder 6 and at its opposite end with the coupling end 2, whereby communication between the inlet and outlet pipes is established under normal conditions. An opening 10, provided in a side of the barrel or casing intermediate of the ends thereof, is in communication with the coupling end 3. When the valve 8 is unseated, as shown in Fig. 1, the gas from the inlet-pipe 4 passes into the cylinder 6 through the opening 10, thence outward from said cylinder into the outlet-pipe 5 by way of the passage 9. The valve 8 is held open by the pressure of the gas in the casing, and in the event of the pressure being reduced by reason of a break in the gas-flow or other cause, shutting off the supply of gas, the valve 8, being no longer supported, will fall by its weight and the weight of the stem 11 attached thereto and become seated, thereby preventing a further flow of gas through the valve even though the supply should be reëstablished. When the supply of gas is shut off, the flame of the open burner or burners is extinguished, and if no means were provided for preventing the gas reaching said burners when the supply is established the room or apartment would become filled with escaping gas, thereby endangering life by asphyxiation or damage by means of explosion and fire. The present invention prevents the gas reaching the open burner or burners when the supply is reëstablished, and it is incumbent upon a person to positively move the valve for unseating the same before the supply can be reëstablished through the valve to the outlet-pipe 5.

The upper end of the barrel or cylinder is closed by the head or cover 12, threaded thereto, and this cover has a boss 13 at its top side apertured to receive the upper end of the valve-stem 11, and the opening through which said stem passes is enlarged at its upper end, as shown at 14, to admit of the stem being conveniently grasped when it is required to

lift the valve. A cap 15 is threaded to the boss 13 and incloses the upper end of the stem 11 and protects the same and the opening in the cover 12, through which said stem moves. This cap 15 is removed from the cover 12 when it is required to unseat the valve 8 and is replaced to afford protection to the stem and prevent dirt and foreign matter finding access into the opening in the cover 12 and into the barrel or cylinder, which would be liable to cause the valve 8 to stick, and thereby defeat the purpose of the invention.

A strainer is located in the coupling end 3 to prevent scale and other foreign matter entering the cylinder and interfering with the free movement of the valve. This strainer consists of a pin 16, having its end portions reduced, and foraminous plates or disks 17 and 18, fitted to opposite ends of the pin and secured in place by riveting the reduced end portions thereof. These plates or disks 17 and 18 may be of wire-gauze or perforated sheet metal or other material suitable for the purpose aforesaid.

The valve 8 fits the cylinder 6 sufficiently close to move freely therein by gravitative action when the pressure of gas passing through the cylinder below the valve is suspended from any cause, yet prevent the passage of gas thereby to neutralize the up pressure supporting the valve under normal conditions. The cap 15 may fit sufficiently loose to prevent the formation of a vacuum in the upper part of the cylinder when the valve descends and to allow escape of any gas passing by the valve into the upper portion of the cylinder and cap. The same result may be effected by venting the upper portion of the cylinder or cap.

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

A gas-service safety-valve comprising a casing having a vertical cylinder, offstanding coupling ends intermediate of the upper and lower ends of the cylinder, the inlet-coupling end having communication with the cylinder at a point between its ends, a passage connecting the outlet-coupling end with the bottom of the cylinder, a strainer located in the inlet-coupling end, a cover closing the upper end of the cylinder and having a vertically-apertured boss, the upper end of the opening being enlarged, a valve freely movable vertically within the cylinder and having its stem passing loosely through the opening of the cover, said valve being held above the inlet by the pressure of the gas and adapted to be held seated when closed by the same pressure, the inlet being wholly below the valve when the latter is open and entirely above the said valve when the latter is seated, and a cap fitted to the boss of the cover for inclosing the upper end of the valve-stem, substantially as specified.

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

LATHAM M. OSBORNE. [L. S.]

Witnesses:

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GEORGE H. JOHNSTON.