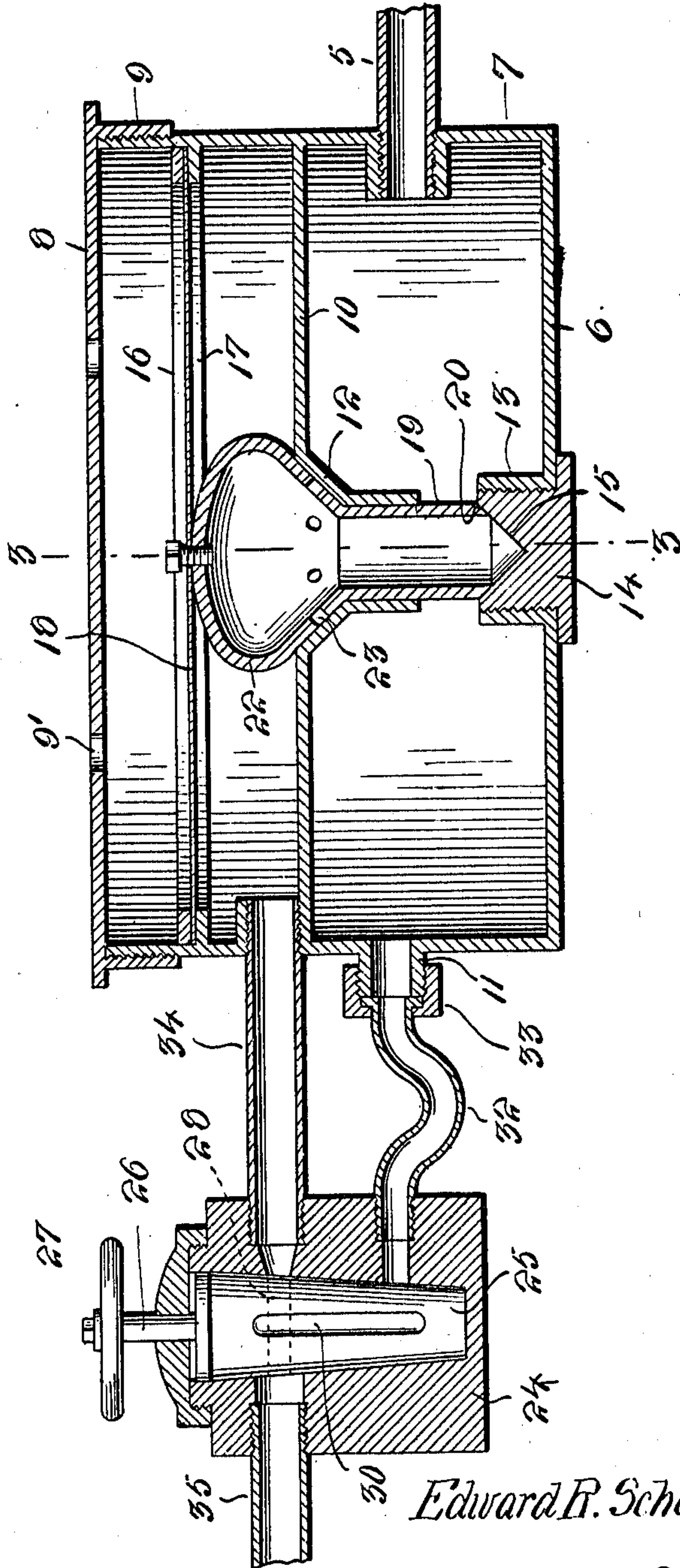


E. R. SCHOOLFIELD.
SAFETY ATTACHMENT FOR GAS PIPES.
APPLICATION FILED JULY 23, 1910.

992,069.

Patented May 9, 1911.
2 SHEETS—SHEET 1.

Fig. 1.



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Fig. 2.

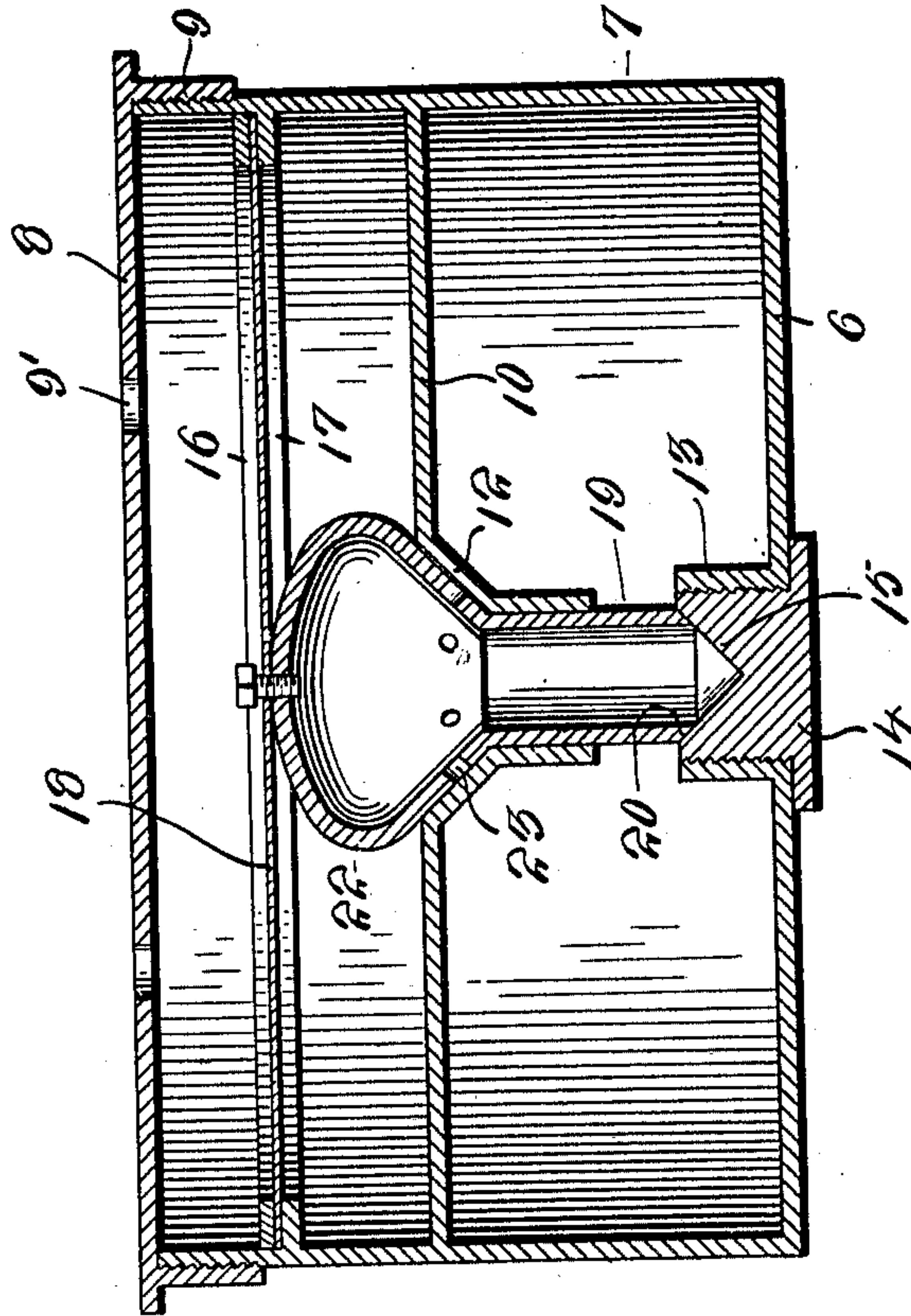
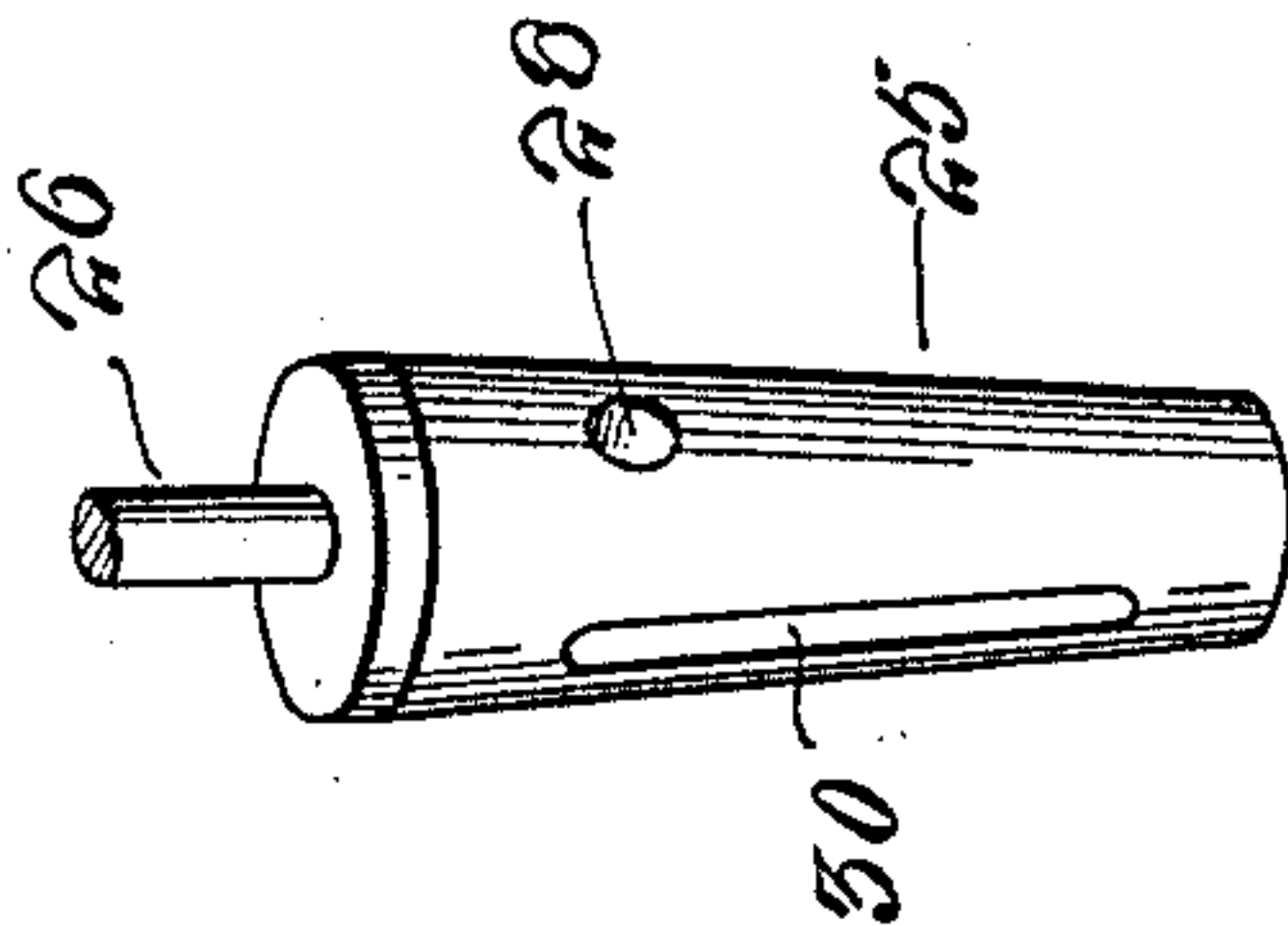


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SAFETY ATTACHMENT FOR GAS-PIPES.

992,069.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed July 23, 1910. Serial No. 573,507.

To all whom it may concern:

Be it known that I, EDWARD R. SCHOOLFIELD, a citizen of the United States, residing at Carbon, in the county of Kanawha and State of West Virginia, have invented new and useful Improvements in Safety Attachments for Gas-Pipes, of which the following is a specification.

This invention relates to improvements in safety attachments for gas pipes and has for one of its objects the provision of an attachment serving to automatically cut off the gas between the meter and burners after the flow of gas to the meter is for any reason discontinued.

While the invention may be used with any form of meter it is particularly intended to be employed with what are known as coin-controlled meters.

It is well-known that numerous accidents have occurred with the employment of coin-controlled meters, due to the fact that one or more burner cocks in the different rooms of a house have been turned on at the time that the gas is cut off by the coin-controlled apparatus in the meter so that when a coin is again deposited in the meter and starts the flow of gas through the pipes, the gas issuing through the open burner cocks fills the rooms in which the said burner cocks are located.

The present invention therefore aims at the production of a device which will automatically cut off communication between the meter and burners after the gas to the meter has been cut off so that when a coin is again deposited in the meter the gas will be positively prevented from flowing to the burners until the device in question is properly manipulated thus precluding the possibility of the accidental escapement of gas with the employment of a coin-controlled meter and further preventing escapement of gas with an ordinary meter when for any reason the gas in the mains has been turned off and after a short period again turned on.

With these and other objects in view, which will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims; it being understood that various changes in the form, proportion, size, and minor details of the device may be made,

within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, forming part of the specification;—Figure 1 is a vertical sectional view of the device. Fig. 2 is a detail perspective of the plug valve for setting the device in operation after the gas flows through the meter. Fig. 3 is a sectional end view on the line 3—3 of Fig. 1.

Similar numerals of reference are employed to designate corresponding parts throughout.

The pipe leading from the meter (not shown) is designated by the numeral 5. This pipe leads, from the outlet side of the meter, but inasmuch as it conducts the gas to the pipes about to be described the said pipe will subsequently be termed the inlet pipe.

The device forming one part of the subject matter of the present invention is shown to comprise a hollow cylindrical chamber the bottom of which is designated by the numeral 6 and the side wall of which is designated by the numeral 7. The upper end portion of the side wall 7 is exteriorly screw-threaded. A cap or cover is shown to include a plane circular body portion 8, of greater diameter than the chamber and from the peripheral portion of which depends an interiorly screw-threaded skirt 9, the threads of which engage with the threads at the upper end portion of the side wall 7. The body 8 is provided with a plurality of openings 9', the function of which will appear later. The chamber is interiorly divided into two compartments by means of a horizontally disposed circular partition 10, the periphery of which is secured to the inner surface of the side wall 7, and intermediate of the opposite ends of said side wall. The chamber is provided between the bottom 6 and partition 10 with an opening which receives the inner end of the inlet pipe 5, and is further provided at a point diametrically opposite the opening for the reception of the inlet pipe with a similar opening the outer end of which is surrounded by a threaded bushing 11. The central portion of the partition 10 is provided with a circular opening and depending from the side of this opening is a funnel-shaped valve seat designated by the numeral 12. Formed in the central por-

tion of the bottom 6 and in axial alinement with the valve seat 12 is an opening the inner end of which is surrounded by an interiorly threaded bushing 13. Threaded into the bushing 13 is a plug 14, the inner end of which is provided with a conical-shaped depression constituting a valve seat 15.

Formed on the inner surface of the side wall 7 and arranged between the partition 10 and the upper end of the side wall is a circular flange 16. Arranged on the flange 16 is the peripheral portion of a gas tight diaphragm 18. Snugly fitted in the chamber and bearing on the peripheral portion of the upper surface of the diaphragm is an annulus 17, serving to hold the diaphragm against bodily upward movement. Depending from the central portion of the diaphragm is a valve. The valve includes in its construction a tubular shank portion 19, one end of which is beveled, as shown at 20 and of a size to enter the seat 15 of the plug 14. The opposite end of the shank 19 terminates in an enlarged and inverted frusto-conical-shaped head 22, the lower portion of said head being of a size to nicely fit in the flared portion of the funnel-shaped seat 12, the shank portion 19 being of a size to slidingly fit in the vertical-shaped portion of the funnel-shaped seat 12, as clearly shown in Figs. 1 and 3. The head 22 like the shank is hollow and is provided with a plurality of spaced openings 23. The openings 23 are blanked by the flared portion of the funnel-shaped valve seat when the lower end of the shank 19 is seated in the flange 15 of the plug 14. When the valve is moved bodily upward however, owing to the configuration of the head 22 and flared portion of the funnel-shaped valve seat 12 a space will exist between the lower end portion of the head and flared portion of the valve seat 12 so that a substance passing upwardly through the shank 19 may exit through the openings 23 and into the space between the partition 10 and diaphragm 18.

Supported in any suitable manner at a point remote from the chamber is a valve casing 24. Arranged for turning movement in the valve casing 24 is a plug 25, one end portion of the plug being provided with a stem 26 the said stem having a hand wheel 27 by means of which the plug may be turned. The plug 26 is provided adjacent to its upper end with a transverse passage 28 and is provided on one side with a recess 30, the opposite ends of which extend to points adjacent to the opposite ends of the plug. Formed in one side of the casing 24 and adjacent to the upper end thereof is an opening to axially aline with the transverse passage 28 when the plug is turned to one position, and also to aline with the

upper end portion of the recess 30 when the plug is turned to one position. It might here be stated that the axis of the passage 28 is at right angles to the length of the recess 30, so that when the passage 28 is in alinement with the opening at the upper end portion of the casing the recess will be out of alinement with the openings at the upper and lower end portions of the casing. Communication between the chamber and valve casing is established by means of a tube 32 one end of which is tapped into the opening at the lower end portion of the valve casing and the opposite end of which is connected to the outer end of the bushing 11 on one side of the chamber by means of a coupling collar 33. Communication between the chamber and valve casing is further established by means of a pipe section 34 one end of which is tapped into the opening at the upper end portion of the valve casing and the opposite end of which leads through an opening in the gas chamber and between the diaphragm 18 and partition 10.

Formed in the valve casing 24 and at a point diametrically opposite to the opening which receives the pipe section 34 is an interiorly threaded opening which receives one end of a supply pipe 35, the opposite end of the supply pipe being connected with the system of pipes leading to the different parts of the house.

Having now described the construction of the device its operation will be given:— Assuming now that the valve in the chamber is seated, as shown in Fig. 1 and the plug 25 turned so that the passage 28 thereof is in axial alinement with the pipe sections 34 and 35 and further assuming that the device is used in connection with a coin-controlled meter, when the coin is placed in the meter the gas will flow through the pipe 5 and into the chamber thence out through the pipe 32 and will be prevented from further progress by the plug 25. Desiring now to have the gas flow through the supply pipe 35 the hand wheel 27 is turned so as to bring the opposite end portions of the recesses 30 into alinement with the pipes 32 and 34. It will be seen when the opposite ends of the recess are in alinement with the said pipes the passage 28 will be blanked, whereupon the gas will flow through the pipe 32 thence through the recess 30 into the space between the diaphragm and partition, through the pipe 34. The gas flowing into the upper compartment will now lift the diaphragm 18 and likewise the valve within the chamber, whereupon the gas in the lower compartment will flow upwardly through the shank 19 and exit through openings 23 into the upper compartment, after which the plug 25 is turned until the passage 28 therein alines with the pipes 34 and 35. After supply of gas to

the meter has been cut off by the coin-actuated mechanism in the meter, and the pressure in the gas chamber falls below that of the atmosphere and is insufficient to maintain the diaphragm 18 in raised position the valve within the chamber is moved to closed position, thus preventing the passage of the gas through the outlet pipe 35, after a coin has again been deposited in the meter until the plug 25 is operated in the manner before described.

From the foregoing, it is evident that I have provided a device which is comparatively simple in structure and inexpensive in manufacture, embodying few parts and these so arranged that the danger of derangement will be reduced to a minimum.

I claim:—

1. In a safety attachment for gas pipes, the combination with a gas chamber interiorly provided with a partition having a centrally disposed valve seat, an inlet pipe leading into the chamber and communicating with the space on one side of the partition, an outlet pipe leading from the space on the opposite face of the partition; of a plug arranged in one end of the chamber and provided at its inner end with a depression, a valve having a portion to seat

in the valve seat of the partition and another portion to enter the depression of the plug, and means connected with the valve and chamber and operated by the gas pressure in the chamber to yieldingly hold the valve in unseated position.

2. In a safety attachment for gas pipes, the combination with a gas chamber interiorly provided with a partition having a centrally disposed valve seat, an inlet pipe leading into the chamber and communicating with the space on one side of the partition, an outlet pipe leading from the space on the opposite face of the partition; of a plug arranged in one end of the casing and interiorly provided with a depression, and a hollow valve body including a shank portion to enter the depression of the plug, and a perforated head portion to enter the valve seat of the partition, and means connected with the head portion and operated by the gas pressure in the casing to yieldingly hold the valve in unseated position.

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

EDWARD R. SCHOOLFIELD.

Witnesses:

E. C. HANNA,
CECIL FORD.