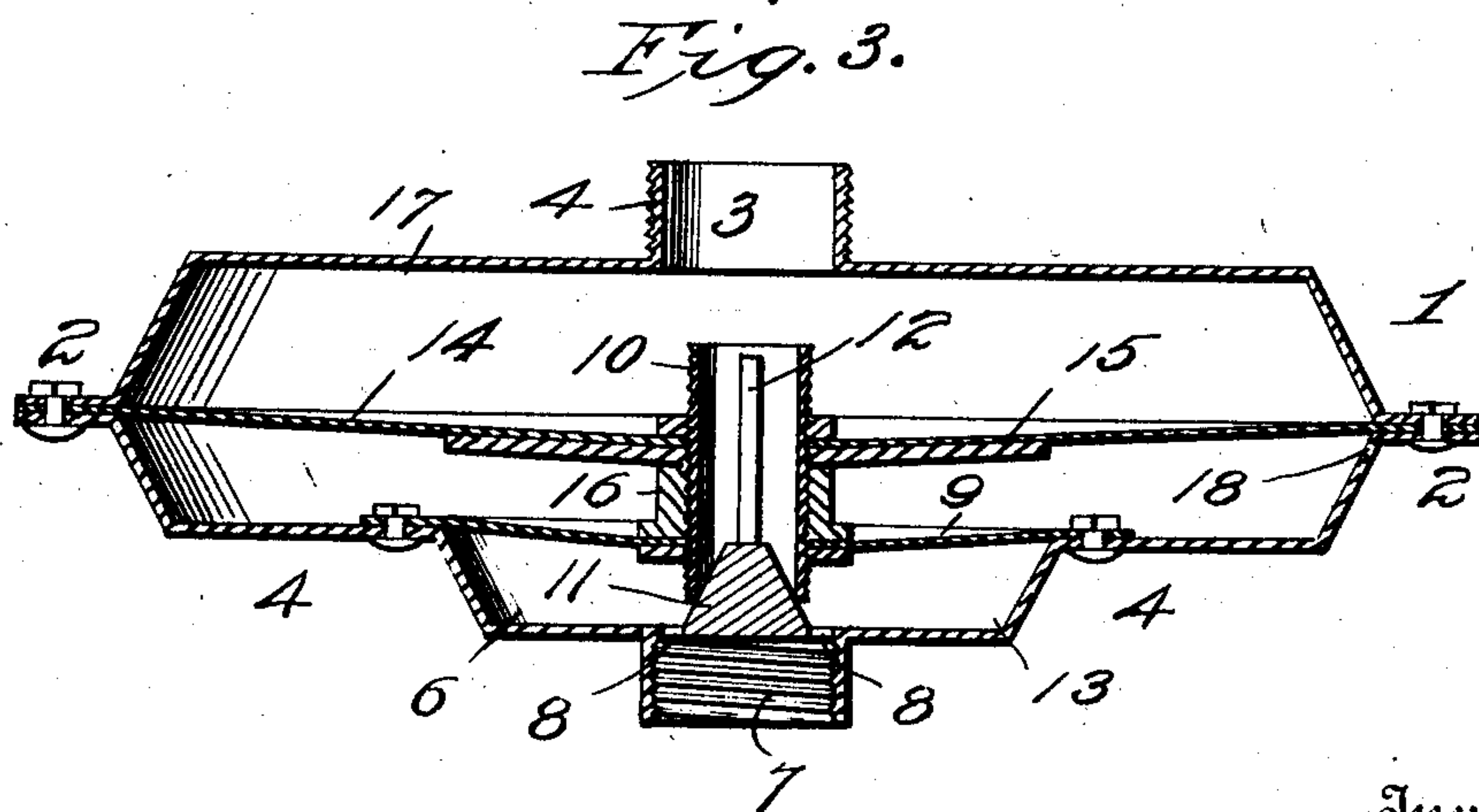
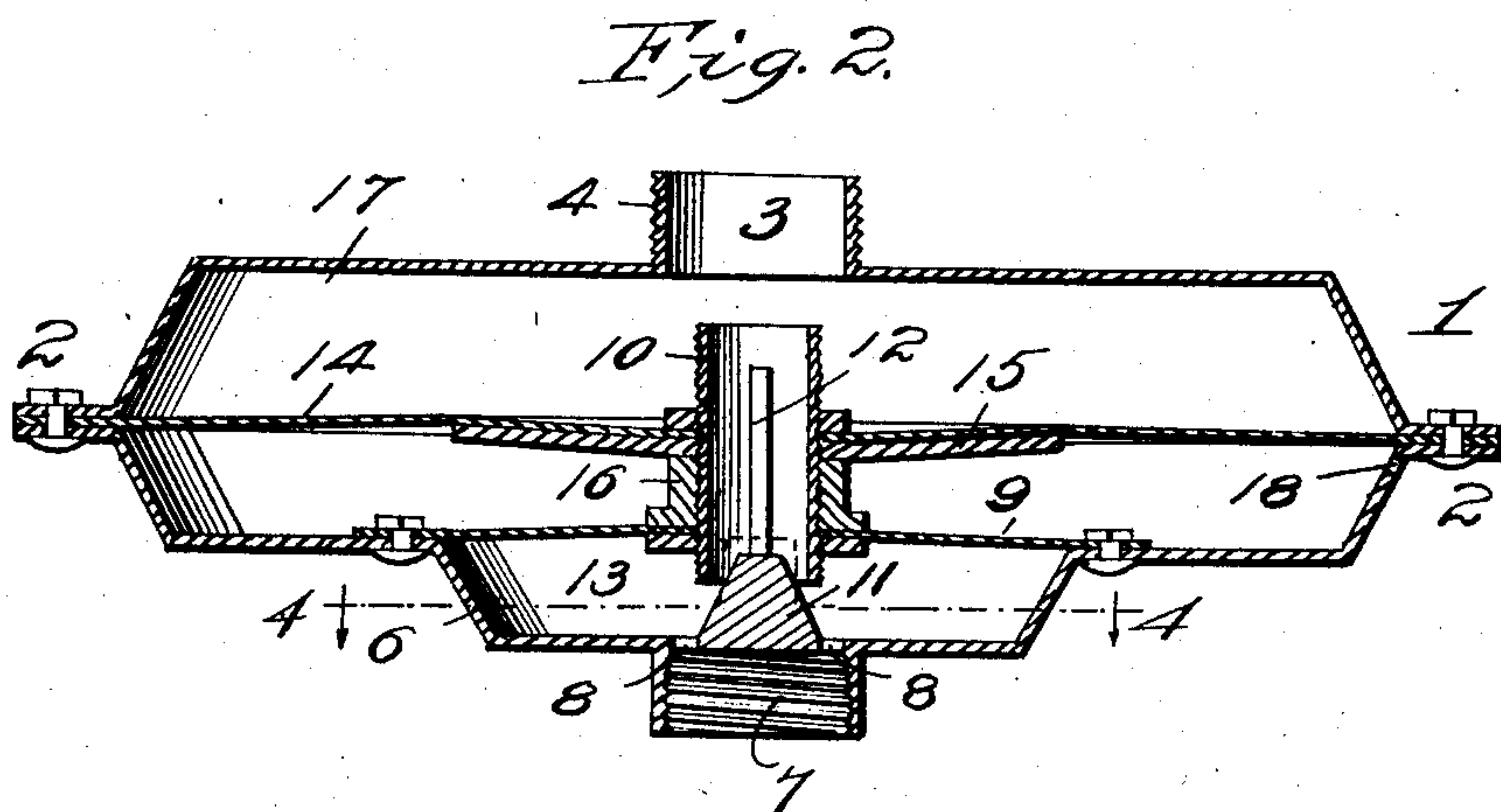
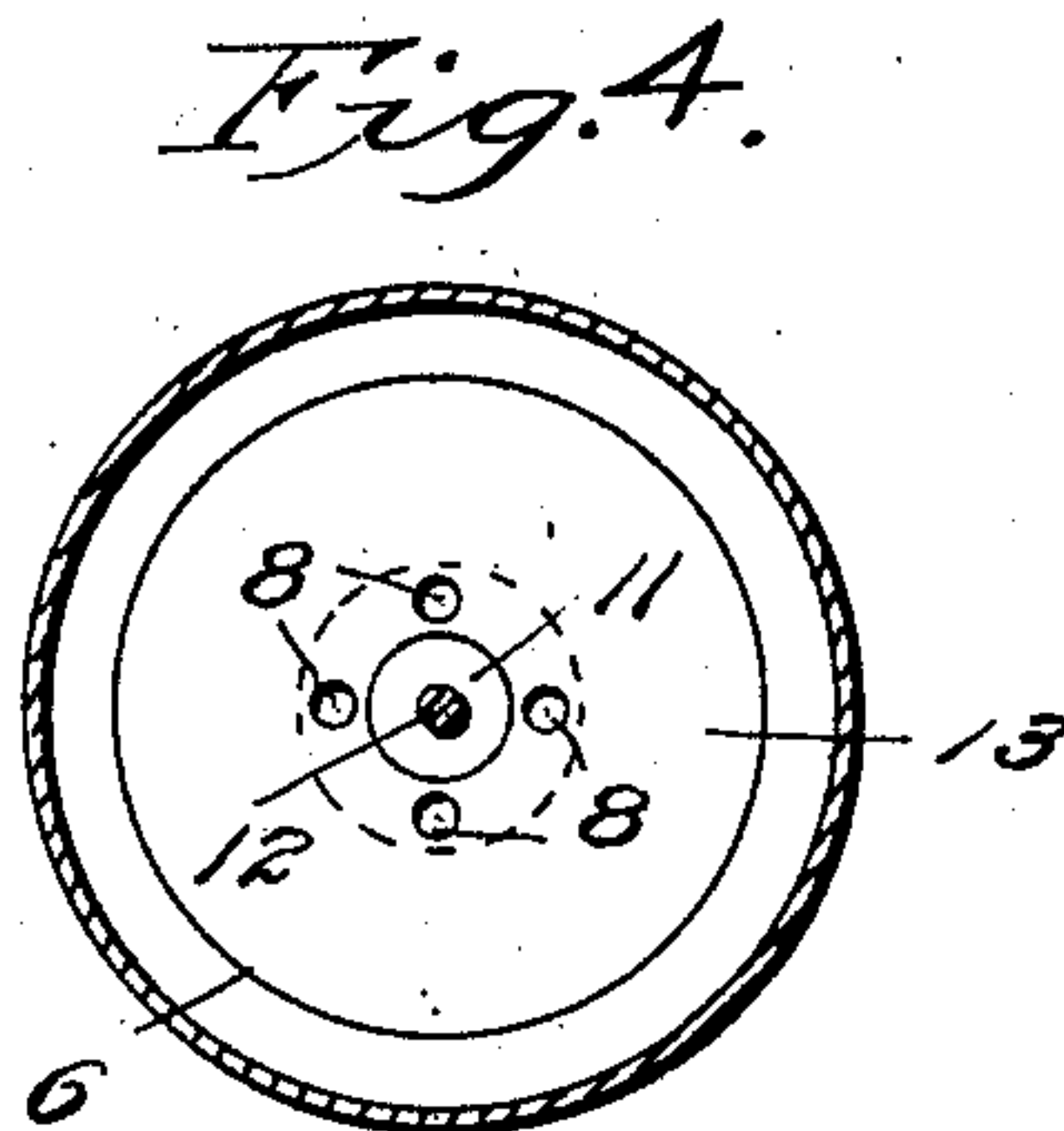
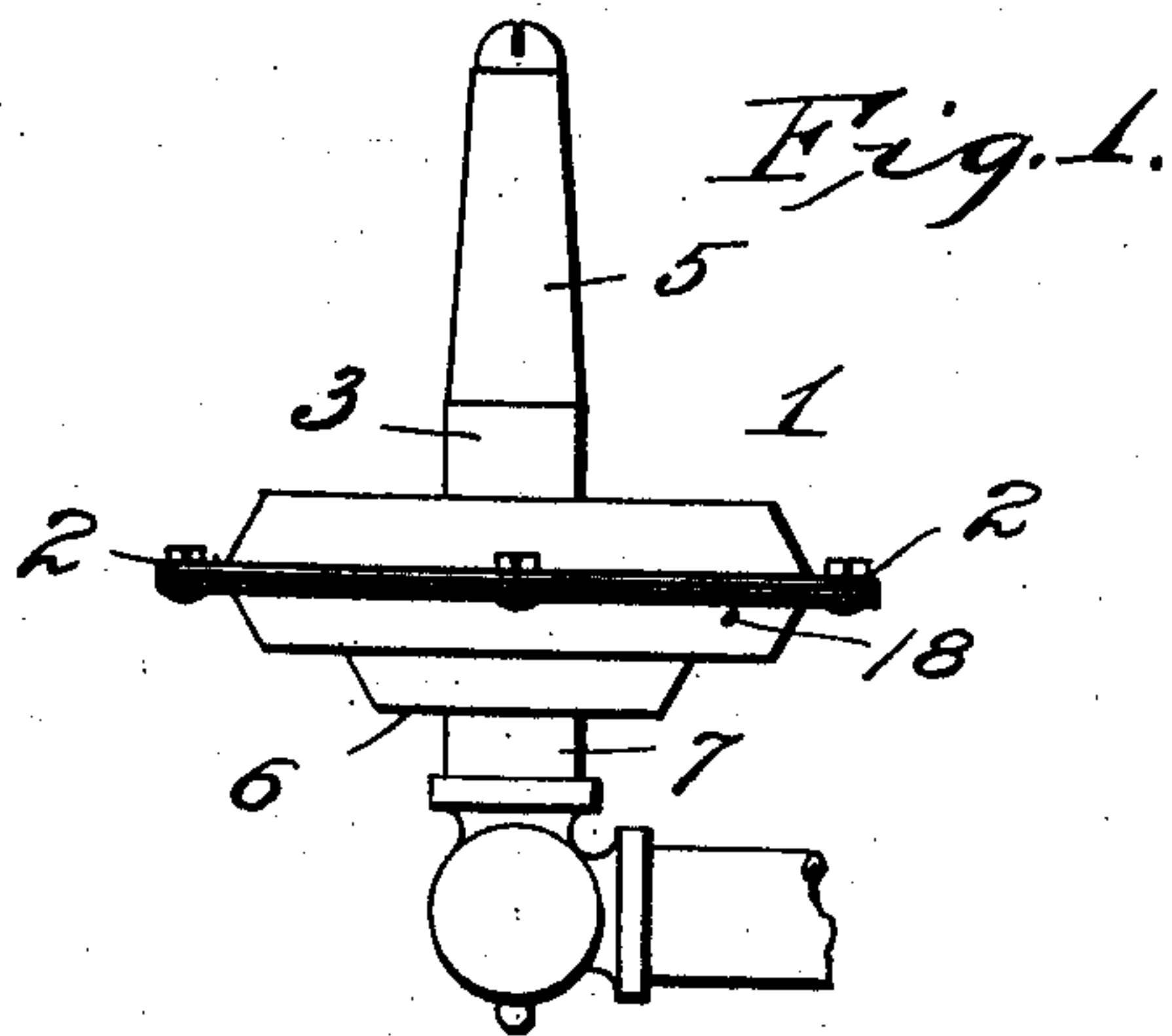


J. A. ABRAMS.
PRESSURE REGULATING VALVE FOR GAS BURNERS.
APPLICATION FILED APR. 25, 1910.

973,609.

Patented Oct. 25, 1910.



Witnesses

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JOHN A. ABRAMS, OF WADSWORTH, OHIO.

PRESSURE-REGULATING VALVE FOR GAS-BURNERS.

973,609.

Specification of Letters Patent. Patented Oct. 25, 1910.

Application filed April 25, 1910. Serial No. 557,472.

To all whom it may concern:

Be it known that I, JOHN A. ABRAMS, a citizen of the United States, residing at Wadsworth, in the county of Medina and State of Ohio, have invented certain new and useful Improvements in Pressure-Regulating Valves for Gas-Burners; 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 improvements in automatic pressure regulating valves for gas burners.

One object of the invention is to provide a regulator of this character adapted to be applied directly to a burner to regulate the pressure or flow of gas to the burner.

Another object is to provide a regulating valve for gas burners which will be simple, strong and durable in construction, efficient, reliable and automatic in operation and well adapted to the purpose for which it is designed.

With these and other objects in view the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1 is a side view of a burner showing the regulator applied thereto; Fig. 2 is an enlarged central vertical section of the same showing the valve in open or operative position; Fig. 3 is a similar view showing the valve in closed position; and, Fig. 4 is a horizontal section on the line 4—4 of Fig. 2.

In the embodiment of the invention I provide a casing 1 formed in two sections which are bolted together around their edges as shown at 2. In the center of the upper section is formed a gas discharge passage 3 surrounded by an upwardly projecting threaded nipple 4 with which the burner 5 is connected. In the center of the lower section of the casing is formed a depression 6 on the outer side of which is arranged a downwardly projecting interiorly threaded coupling 7 which is adapted to be screwed onto the bracket or other form of gas fixture. In the depression 6 within the coupling 7 is formed a series of gas inlet passages 8.

Secured to the inner face of the bottom of

the lower section of the casing around the edge of the depression 6 and covering said depression is a small diaphragm 9 in the center of which is secured one member of a gas valve said member being preferably constructed in the form of a short tube 10 the lower end of which is adapted to be engaged with and disengaged from the stationary member of the valve said member being preferably in the form of a cone 11 which is secured to the center of the depression 6 and projects upwardly therein as shown. On the upper end of the cone 11 is formed a guide pin 12 which projects upwardly into the tube 10 and serves as a guide for said tube. By arranging the diaphragm 9 over the depressed portion of the lower section of the casing said depressed portion forms a gas inlet chamber 13 into which the gas passes through the apertures 8 in the bottom of the depression. The pressure of the gas in the chamber 13 will act on the diaphragm 9 causing the same to raise the tubular portion 10 of the valve thus permitting the gas from the chamber 13 to pass into the upper portion of the casing and from thence to the burner.

Arranged between the two sections of the casing 1 and secured at its outer edges between the edges of said sections is a diaphragm 14 through the center of which the tubular member 10 of the valve projects. The diaphragm 14 is secured to the tubular member 10 of the valve and to said member below the central portion of the diaphragm is also secured an annular diaphragm supporting and bracing plate 15 which engages and braces the under side of the diaphragm 14. On the tubular member of the valve 10 between the plate 15 and the diaphragm 9 is arranged a spacing washer 16. The diaphragm 14 when arranged as herein shown and described separates the upper portion of the casing into a gas receiving chamber 17 into which the gas enters after passing through the valve and from whence the gas passes to the burner as hereinbefore described. By thus arranging the diaphragm 14 and connecting the same with the tubular portion of the valve said diaphragm will close the valve when the gas in the chamber 17 accumulates more rapidly than can be used at the burner said accumulation of gas creating a pressure on the diaphragm. When this pressure of the gas in the chamber 17

overcomes the pressure of the gas in the chamber 13 the valve will be closed by the diaphragm 14 in the manner described. It will be noted that the diaphragm 14 has a much greater area or working surface than the diaphragm 9 this difference in the area of the diaphragms being necessary to compensate for the high pressure of gas in the chamber 13. In one side of the lower portion of the casing between the diaphragms 9 and 14 is arranged an air vent or relief port 18 which prevents the accumulation of air in the space between the diaphragms which would interfere with the proper working of the same.

By means of a regulator constructed as herein shown and described it will be seen that the flow of gas may be regulated at each individual burner and that so much gas as can be readily consumed by the burner is allowed to pass thereto.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claim.

Having thus described my invention what I claim is:

In a gas regulator a casing adapted to be secured to the gas burner, a gas receiving chamber formed in said casing, said chamber having gas inlet passages, a stationary valve member secured in said chamber, a diaphragm arranged over said chamber, a movable valve member connected with said diaphragm and adapted to be operated thereby to disengage said stationary valve member whereby the valve is opened by the pressure of gas in said chamber, a guide pin on said stationary member adapted to engage and guide said movable valve member, a diaphragm arranged in said casing and operatively connected with said movable member of the valve, said diaphragm forming a chamber adapted to receive the gas passing through said valve, said diaphragm being adapted to close said valve when the pressure and accumulation of gas in said chamber is greater than the consumption thereof at the burner.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN A. ABRAMS.

Witnesses:

PAUL S. GOSS,
S. P. HARTZELL.