

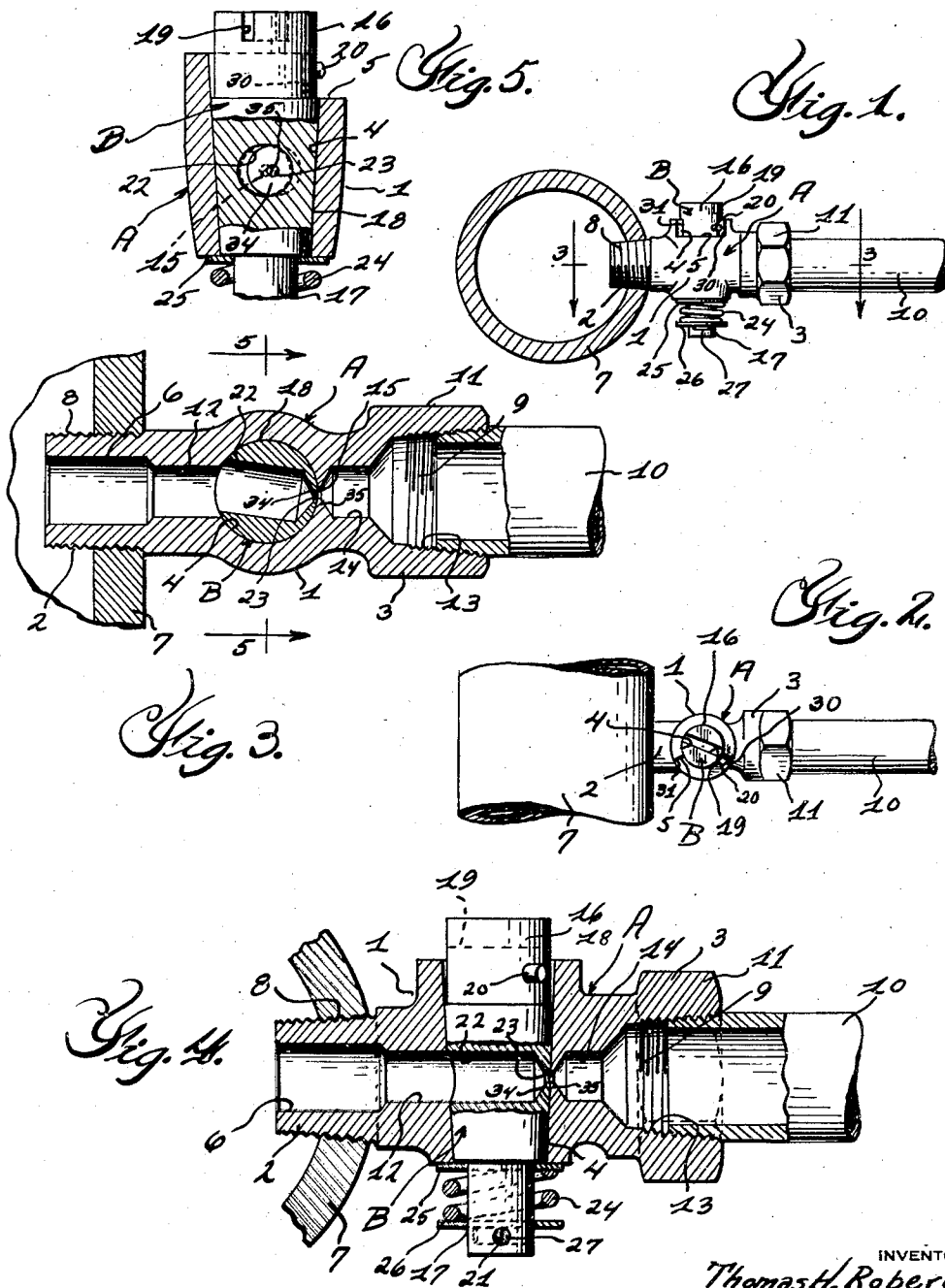
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PILOT REGULATING COCK

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PILOT REGULATING COCK

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1 Claim. (Cl. 251—92)

This invention relates generally to gas cocks and refers more particularly to gas pilot regulator cocks.

It is well known that the gas pressures vary in different localities and that the gas pressures in any one locality may vary from time to time. Consequently, to compensate for such differential in gas pressures it has been customary in the past to provide restricted gas orifices with needle valves which were adjustable relative to tapering seats about said orifices depending upon the gas pressure to control the height of the flames at the gas jets. However, in practice, such control means became clogged and required adjustment due primarily to the presence in the gas of a brown substance or other foreign matter which collected on the valve and on its seat and which, being relatively cold at such points, often congealed and blocked or otherwise impeded the passage of gas to the jets. In fact, the accumulation has been so bad at times that it has been necessary to disassemble the gas cocks or control devices and clean them before they could be used again.

In the present instance, however, the difficulties just mentioned have been overcome entirely by (1) the elimination of such needle valves and their seats, and (2) the provision in a gas cock of pressure regulating means that is self-cleaning and that may be readily adjusted to maintain the proper height of the flame.

In the accompanying drawing:

Figure 1 is a side elevational view of a gas cock embodying my invention;

Figure 2 is a plan view thereof;

Figure 3 is an enlarged horizontal sectional view taken substantially on the line 3—3 of Figure 1 and showing the valve in an intermediate position;

Figure 4 is an enlarged vertical longitudinal sectional view and showing the orifices in registration;

Figure 5 is a sectional view taken substantially on the line 5—5 of Figure 3.

Referring now to the drawing, A is the casing and B is the rotary plug of a gas cock embodying my invention. As shown, the casing A is a casting having a central portion 1 and laterally projecting portions 2 and 3, respectively. Preferably the central portion 1 has a tapered bore or opening 4 and is provided at the upper end and around a portion of said bore with an arcuate recess 5. The lateral portion 2 has a longitudinally extending inlet passage 6 for conducting gas from a suitable source such as a gas manifold 7 to the

bore 4 and is provided with an exteriorly threaded portion 8 for engagement with such manifold. The lateral portion 3 has a longitudinally extending outlet passage 9 for conducting gas from the bore 4 to a gas supply tube or pipe 10 for a pilot light or other appliance (not shown) and is provided with a polygonal portion 11. Preferably the passage 6 has a slightly reduced portion 12 at its inner end opening into the bore 4, while the passage 9 has an enlarged interiorly threaded portion 13 at its outer end for engagement with the pipe 10, a materially reduced portion 14 at the inner end of said interiorly threaded portion 13 and an orifice 15 at the inner end of said reduced portion opening into the bore 4.

The plug B is also a casting and has a substantially cylindrical head 16, a reduced substantially cylindrical stem 17 and a tapered intermediate portion 18. As shown, the head 16 is provided at its outer free end with a diametrically extending slot 19 and is provided at one side adjacent its inner end with a laterally projecting pin 20. The stem 17 is provided adjacent its lower free end with a transversely extending opening 21, while the tapered intermediate portion 18 is provided substantially midway of its ends with a transversely extending passage 22 and an orifice 23.

When the parts are assembled the pin 20 is received and is adapted to move in the arcuate recess 5 in the casing while the tapering intermediate portion 18 of the plug is received and is adapted to turn in the tapering bore 4 in the casing. Any suitable means such as a coil spring 24, washers 25 and 26 and a cotter pin 27 may be used to retain the parts in assembled relation. As shown, the cotter pin 27 engages the transversely extending opening 21 in the stem while the washers 25 and 26, respectively, are sleeved on the stem at opposite ends of the spring between the cotter pin and the central portion 1 of the casing.

Preferably the assembly is such that the passage 22 in the plug is in alignment with the passages 6 and 9 so that the orifices 15 and 23 are in registration when the pin 20 abuts the end of the arcuate recess and the passage 22 in the plug is disposed at substantially right angles to the passages 6 and 9 when the pin 20 abuts the other end 31 of said recess. In this connection it will be observed that the orifices 15 and 23 are very small and are formed in relatively thin webs 34 and 35, respectively, of the plug and casing. Preferably the orifices 15 and 23 are uniform in size and are in line with the centers of the passages 6 and 9. In fact, the orifices 15 and 23 are

of such size and the webs 34 and 35 are so thin that any foreign substances in the gas will be carried by the gas from the passage 6 through the orifices 15 and 23 to the passage 9 when the orifices are in registration without collecting upon the walls of such passages and without plugging the orifices. In other words, the construction is self-cleaning. Preferably the side of the orifices 15 and 23 is determined in relation to the average gas pressure, while the webs 34 and 35 are each $1/64''$ thick, making an over-all thickness of $1/32''$ when the orifices are in registration.

In use, any suitable tool such as a screw driver (not shown) may be engaged with the slot 18 in the head 16 of the plug to turn the latter so that the orifice 23 may be moved relative to the orifice 15. For example, if the gas pressure were to fall or rise causing the flame to be too low or too high with the plug B set in a mid-position, as illustrated in Figure 3, then the proper flame may be readily obtained by merely turning the plug in the proper direction to regulate the flow of gas. There would be no accumulation of foreign substances in the passages as heretofore,

hence the flame would not be lowered on that account. Moreover, it would be unnecessary to take the gas cock apart to remove such foreign substances as heretofore when needle valve adjustments were used. The self-cleaning feature of my construction obviates this entirely.

What I claim as my invention is:

In a gas cock, a body having substantially cylindrical bores forming inlet and outlet passages, and a rotary plug for controlling the flow of gas from the inlet to the outlet passage, said plug having a cylindrical bore adapted to communicate with said inlet and outlet passages, the bore in the plug and one of the bores aforesaid having cooperating walls provided with complementary restricted registrable orifices, the thickness of each wall at the edges of each orifice being less than the diameter of the orifice therein, whereby the over-all thickness of said walls at said orifices when the latter are in registration is approximately equal to the diameter of one of said orifices.

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