

G. F. BARNARD.

GAS VALVE.

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906,852.

Patented Dec. 15, 1908.

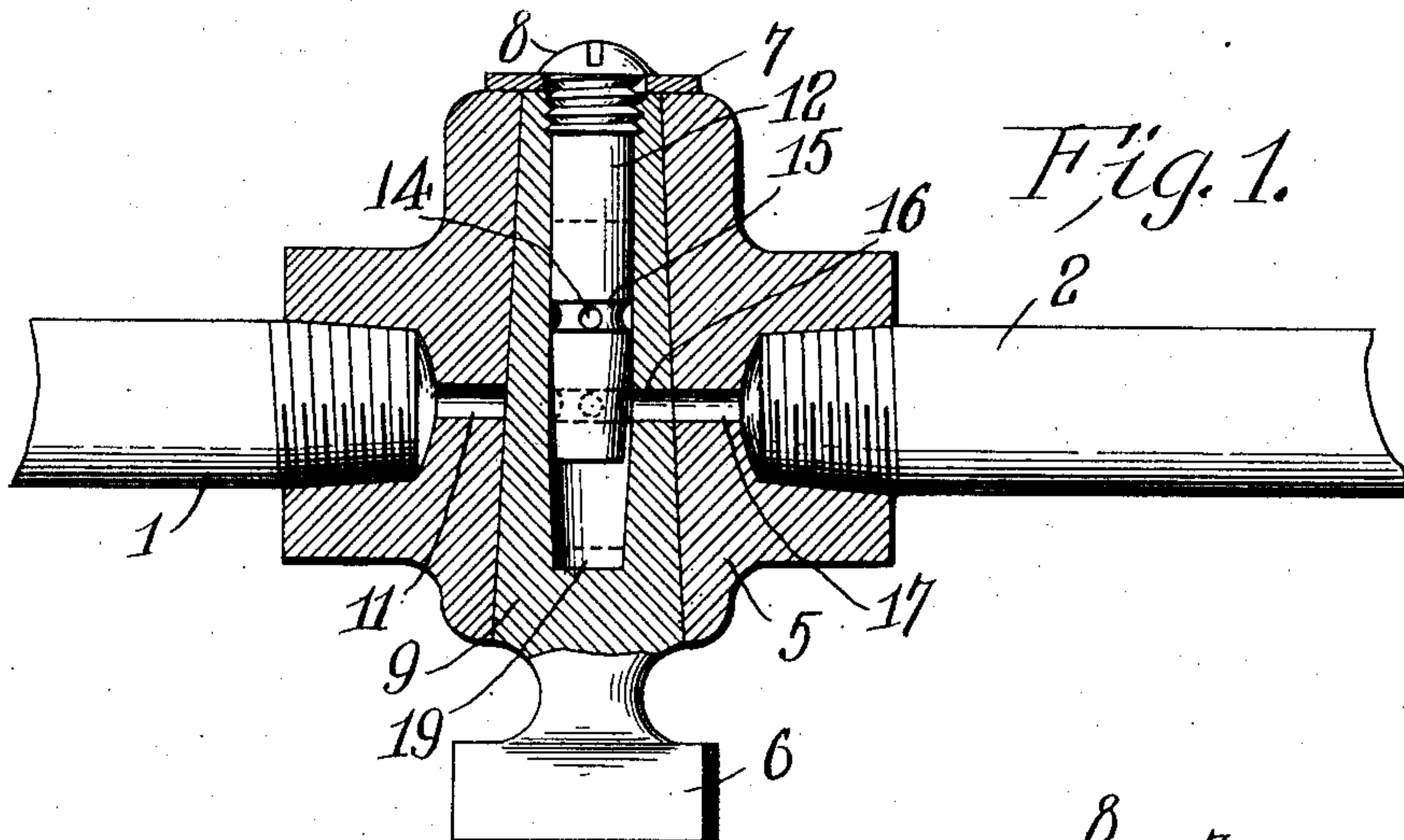


Fig. 1.

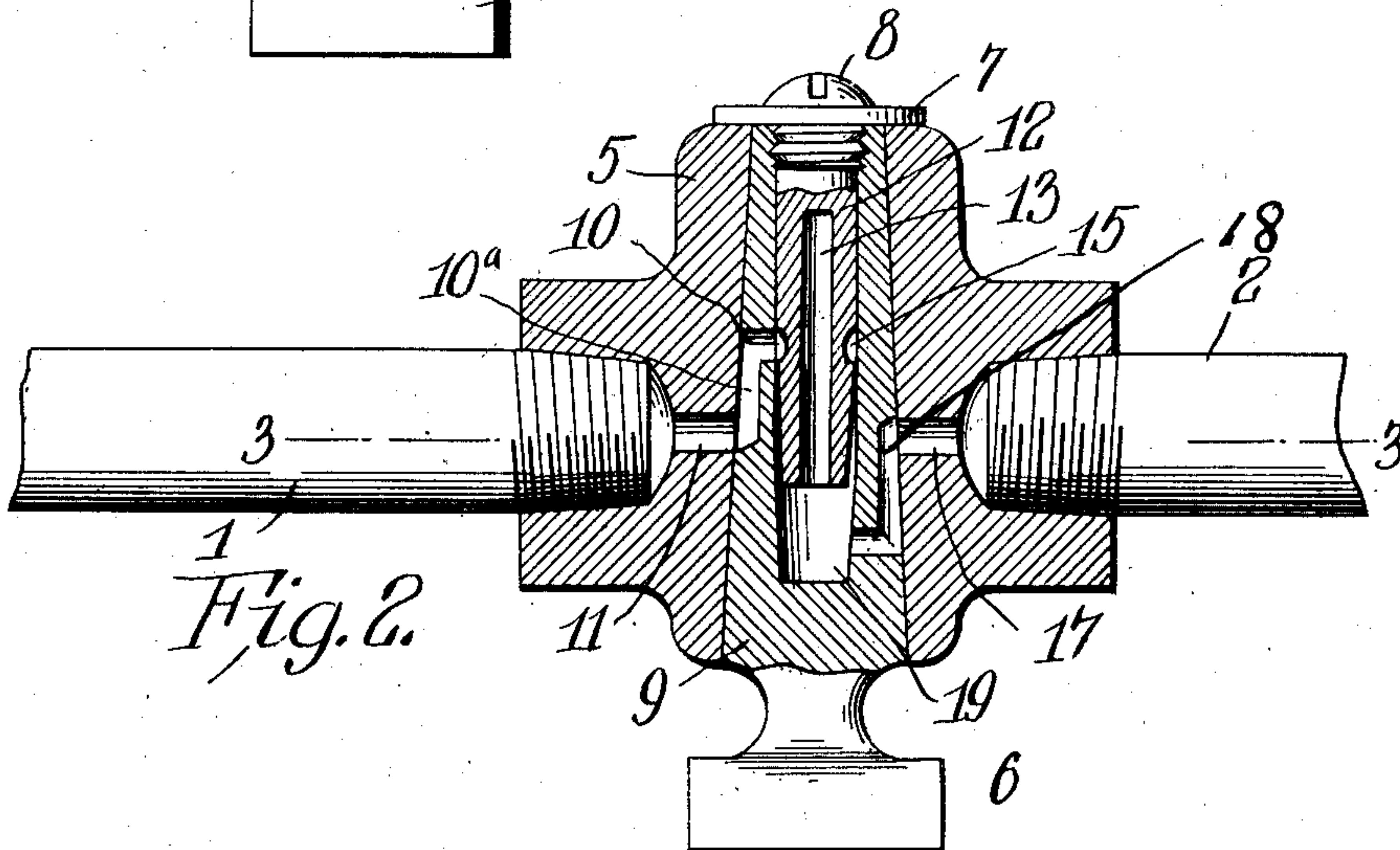


Fig. 2.

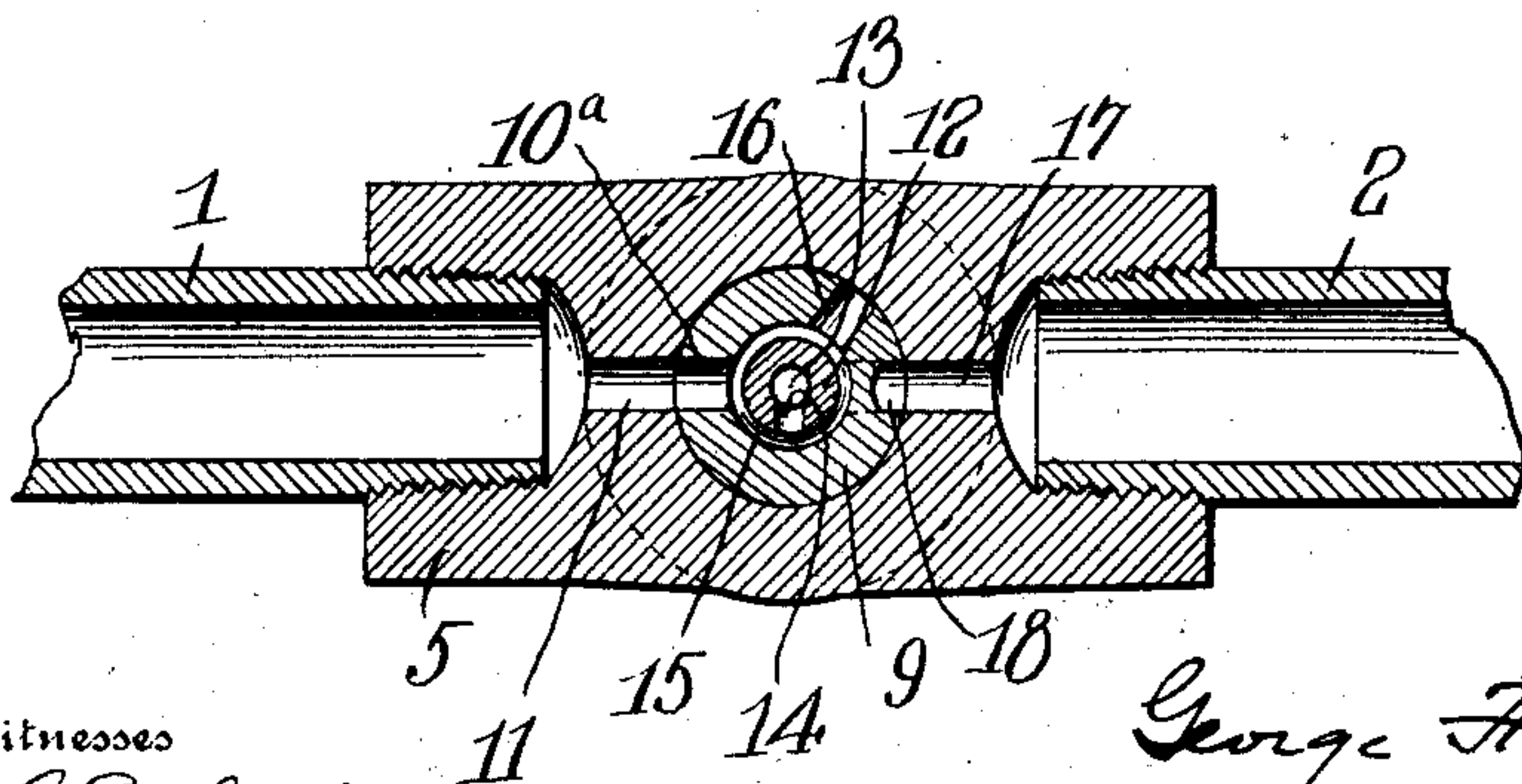


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE F. BARNARD, OF LORAIN, OHIO, ASSIGNOR OF ONE-HALF TO WM. J. HENDERSON,
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GAS-VALVE.

No. 906,852.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE F. BARNARD, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Gas-Valves, of which the following is a specification.

This invention is a safety gas valve provided with an automatic cut off which will close on failure of the gas supply and which will not again open except by manipulation from the outside.

The object of the invention is to provide an improved device for preventing accidents incident to sudden stoppage of the gas supply and the renewal of the flow thereafter.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section showing the valve in the first position for opening the same. Fig. 2 is a similar view with the valve fully open. Fig. 3 is a section on the line 3—3 of Fig. 2.

Referring specifically to the drawings, 2 indicates the inlet pipe to the valve and 1 the outlet pipe therefrom. These pipes are connected to the valve casing 5 comprising a tube which contains the valve plug 9. This plug is held in place by a washer 7 and screw 8 at the top, and has a finger piece 6 at the bottom by which it may be turned. The plug has a hollow or longitudinal chamber therein and is provided with ports 16 and 18 at the lower end, either of which may be registered with a port 17 leading through the casing from the inlet pipe 2. On the opposite side, nearer the top thereof, the valve has a port 10 with an outer recess 10^a establishing communication between the hollow of the plug and the outlet port 11 and the delivery pipe 1.

Located within the hollow of the plug 9 and movable up and down therein is an inner plug 12 which is tapered at the lower end to fit the tapered part 19 at the bottom of the chamber in the turning plug 9. This inner plug 12 has a central longitudinal hollow or recess 13 which is open at the bottom and closed at the top and which is connected by a hole 14 to a circular groove 15 extending around the lower tapered end of the plug. The groove 15 registers with the port 16 when the inner plug is in lower position.

When the valve is closed the ports 16 and 18 do not register with the port 17. When

the valve is turned to open the same the ports 16 and 17 are first registered and this allows the gas to enter through said ports and into the groove 15 from which it passes through the hole 14 into the recess 13, and the pressure of the gas lifts the plug 12 to the upper part of the chamber in the valve, as shown in Fig. 2, allowing the gas to flow through the port 10 and recess 10^a to the outlet 11, the slot 10 being of such length that the lower end thereof is open or uncovered when the plug 12 is in raised position. Then the valve 9 is completely turned, registering the port 18 with the port 17. Said port 18 is located in a lower position than the port 16, and enters the chamber of the valve 9 at a point below the location of the groove 15 when the plug 12 is at the bottom of the chamber.

While the gas pressure continues it holds the plug in raised position and the gas flows through the ports 17 and 18 and into the chamber in the turning plug and out through the passages 10 and 11 to the delivery pipe. If the gas pressure drops below a safe amount, the plug 12 drops and covers and closes the port 18, and inasmuch as said port is thereby closed, no upward pressure is exerted on the plug 12 in case of a return of the flow, and consequently the valve remains closed. It may be reopened by turning the plug to register the ports 16 and 17 which lifts the inner plug in the manner above described and thus reopens the valve.

I claim:

1. The combination in a gas valve, of a hollow turning plug having an outlet port in the upper part thereof and primary and secondary inlet ports in the lower part thereof and adapted to be respectively registered with the supply inlet to the valve, one inlet port being at a higher position than the other, and a hollow cut off member in the plug and adapted to be raised by gas pressure entering the same and having an inlet passage which registers with said primary port and covers said secondary port when the member is in lower position.

2. The combination in a gas valve, of a hollow casing having an inlet in one side and an outlet in the other, a hollow turning plug in said casing having primary and secondary inlets in one side and adapted to successively register with the inlet in the casing as the

valve is turned on, the secondary inlet being out of line with the primary inlet, and a hollow cut-off plug slidable up and down in the hollow of the said turning plug and controlling the passage from the secondary inlet to the outlet and adapted to be supported in raised position by gas pressure in the valve, and having a passage communicating with the primary inlet when in lower position.

3. The combination in a gas valve, of a casing having an inlet in one side and an outlet in another, a turning plug in said casing having a chamber therein tapered at the lower end, and inlets 18 and 16 near the bottom thereof, the former entering the tapered portion and the latter entering above the same, the plug also having a slot 10 in the upper part thereof adapted to communicate with the outlet in the casing, and a hollow cut off plug located and slidable up and down within the said chamber and having a tapered lower end and provided with a groove communicating with the hollow therein and adapted to register with the inlet 16 when in lower position, the cut off plug being supported in raised position by gas pressure within the valve and adapted to drop and close the inlet 18 when the pressure fails.

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

GEORGE F. BARNARD.

Witnesses:
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JOHN A. BOMMhardt.