

(No Model.)

A. HALL.
GOVERNOR FOR GAS BURNERS.

No. 516,328.

Patented Mar. 13, 1894.

Fig. 1.

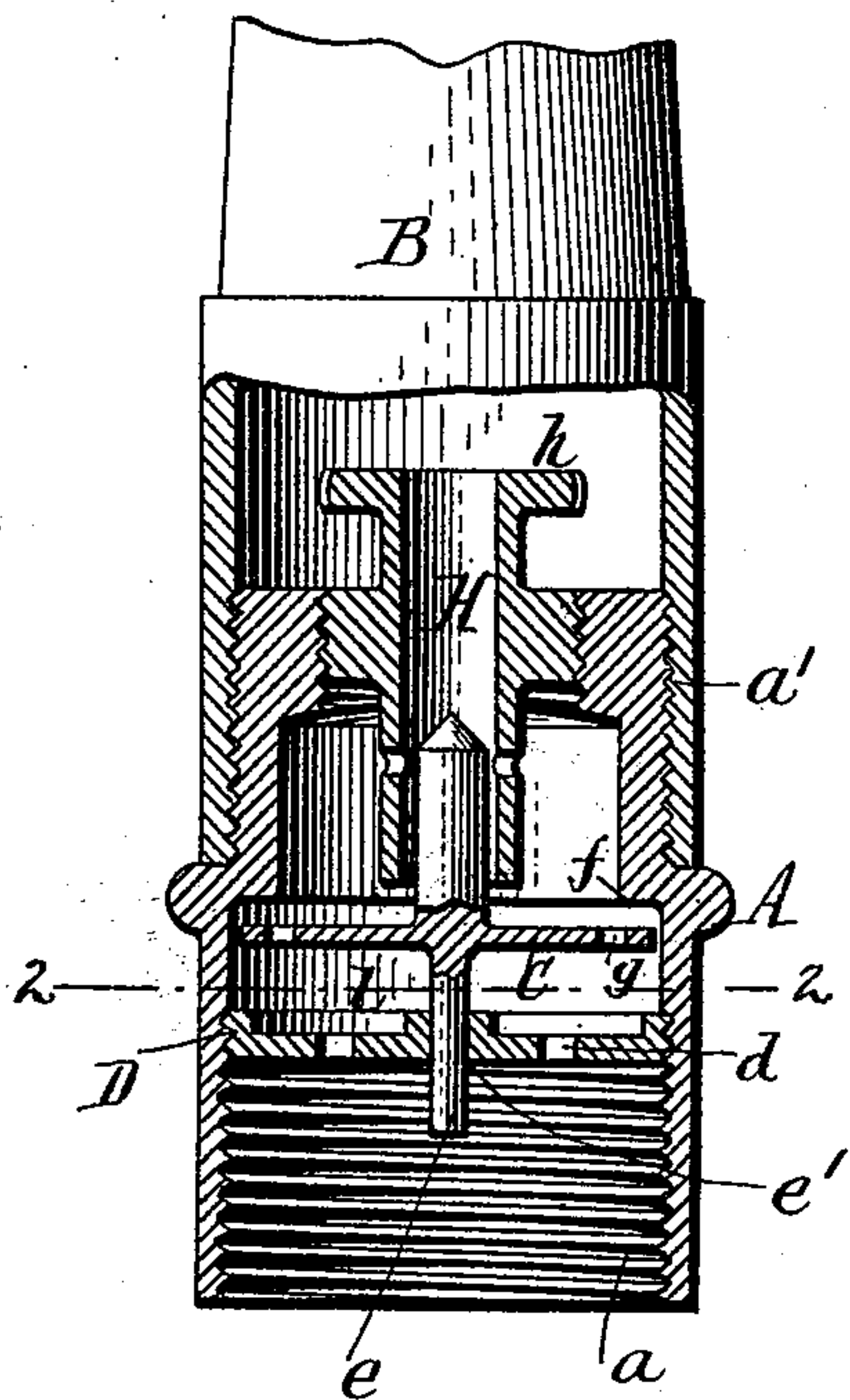


Fig. 2.

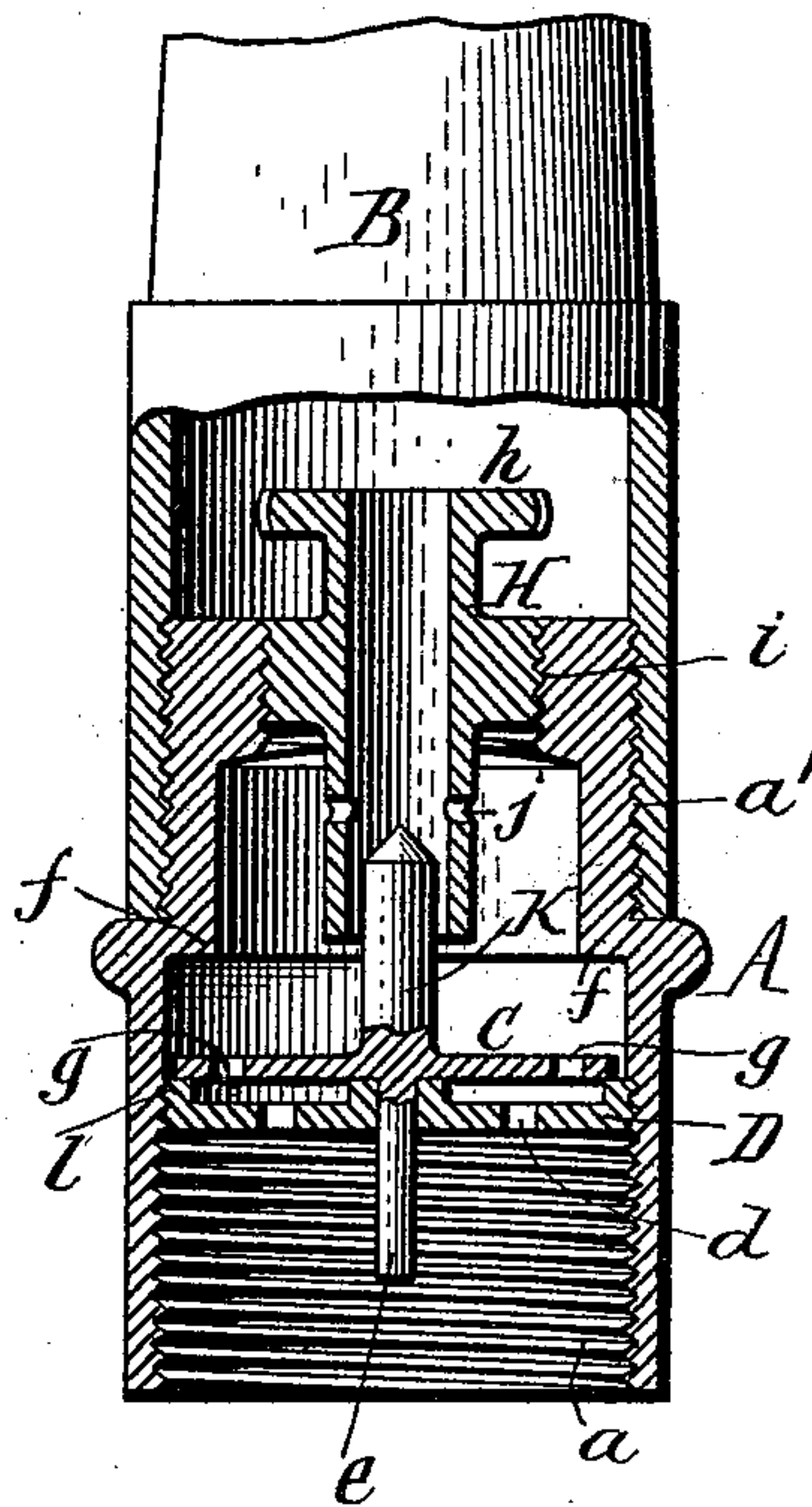


Fig. 3.

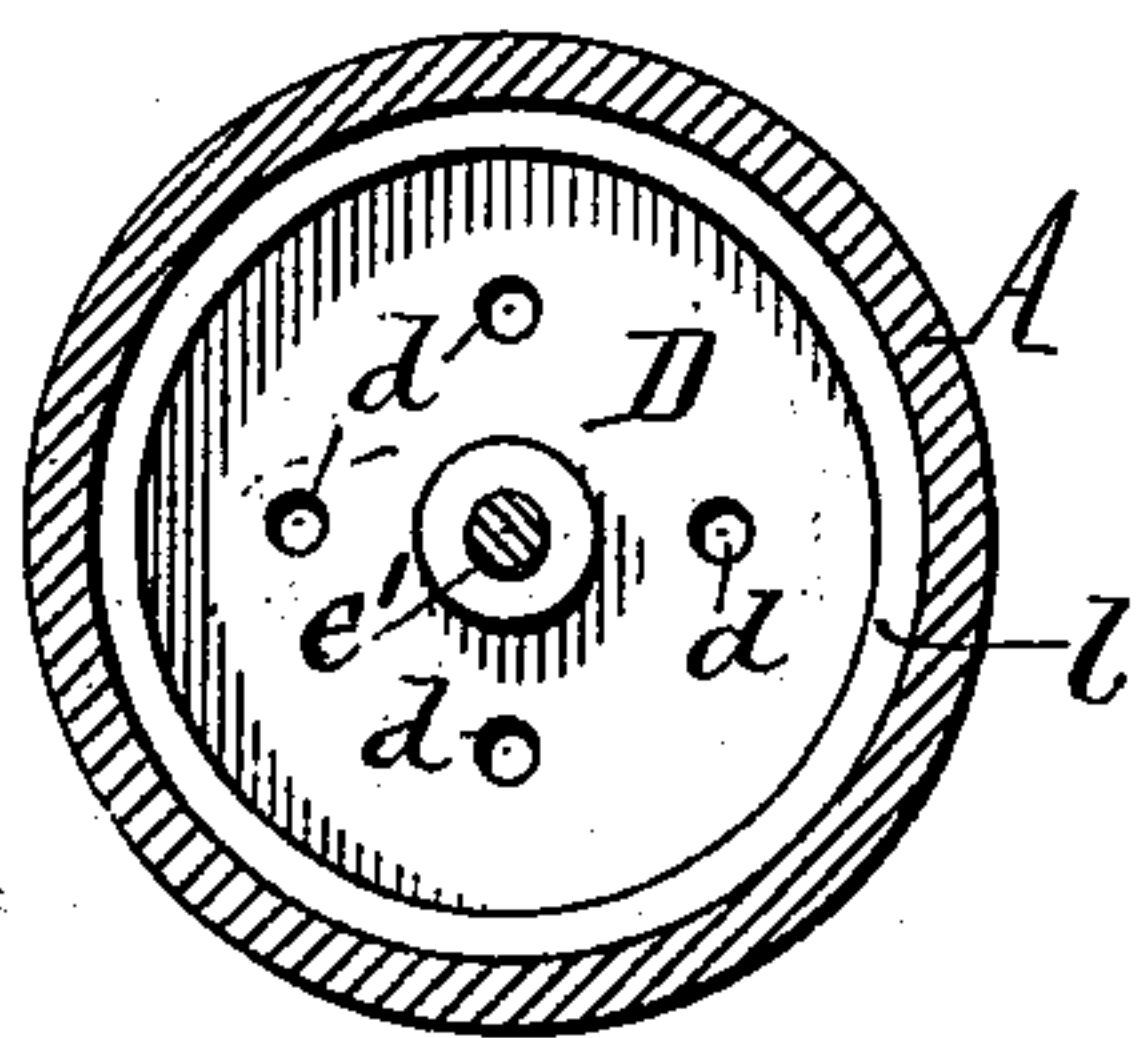
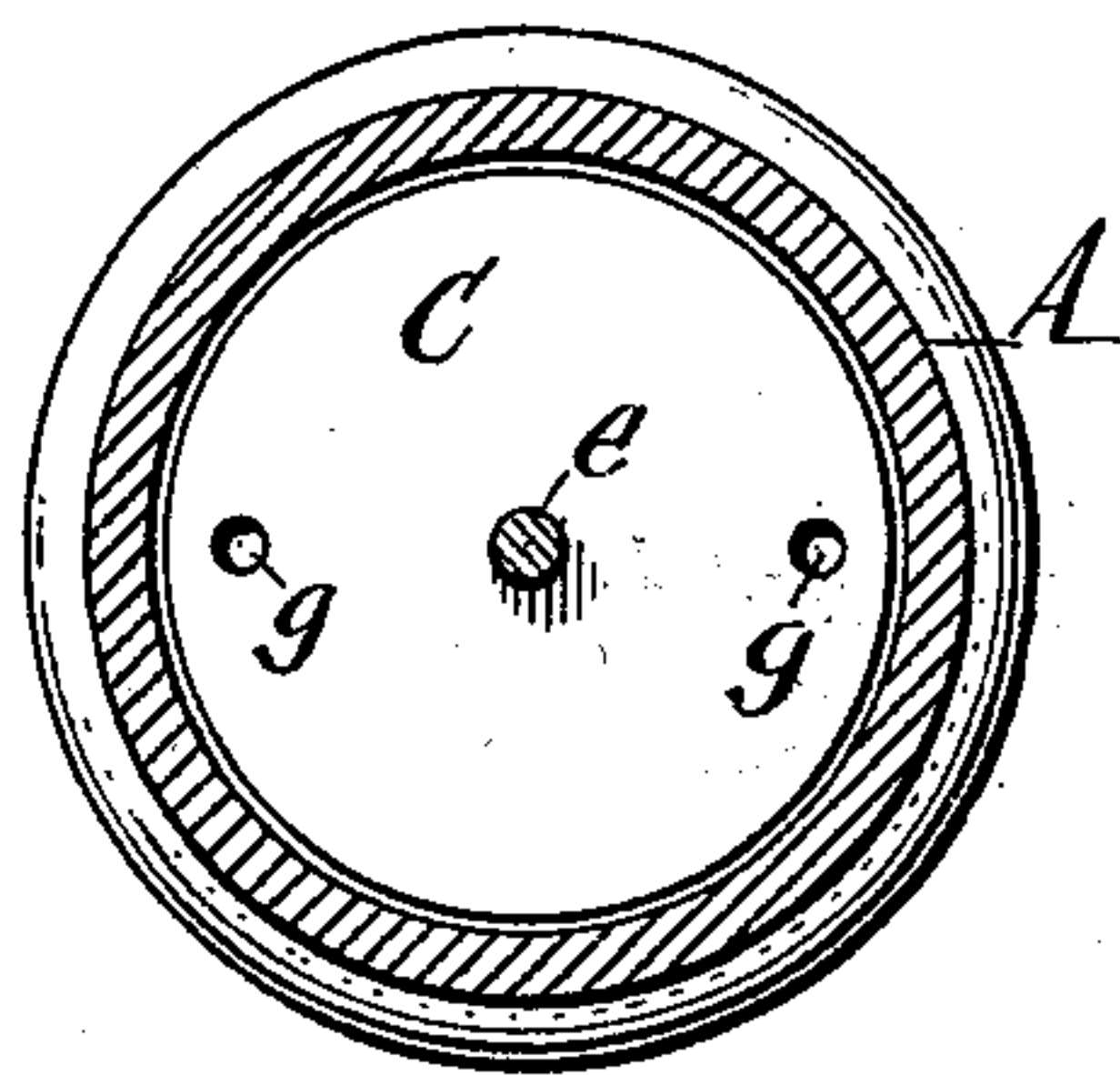


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

ALFRED HALL, OF BUFFALO, NEW YORK, ASSIGNOR OF THREE-FOURTHS TO
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GOVERNOR FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 516,328, dated March 13, 1894.

Application filed September 13, 1893. Serial No. 485,379. (No model.)

To all whom it may concern:

Be it known that I, ALFRED HALL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Governors for Gas-Burners, of which the following is a specification.

This invention relates to the governors or regulating devices which are employed in connection with gas burners for automatically regulating the supply of gas thereto, and more especially to governors of this kind which are adjustable, so that the supply of gas may be increased or diminished.

My invention has for its object to construct a compact governor of simple construction, in which the gas is permitted to pass freely to the burner at a very low as well as at a high pressure, thus always insuring a sufficient supply of gas.

In the accompanying drawings:—Figure 1 is a sectional elevation of my improved gas governor, on an enlarged scale showing the valve in a raised position. Fig. 2 is a similar view showing the valve in its lowest position. Fig. 3 is a horizontal section of the governor in line 2—2, Fig. 1 looking downward. Fig. 4 is a similar section in line 2—2 Fig. 1 looking upward.

Like letters of reference refer to like parts in the several figures.

A represents the cylindrical shell or casing of the governor, provided in its lowest portion with an internal screw thread *a* for attaching it to a gas pipe, and at its upper end with an externally screw threaded stem *a'* for the attachment of the burner B.

C is a governor float or disk arranged within the casing and fitted sufficiently loose in the same to permit it to rise and fall freely in the casing in response to the fluctuations of the gas pressure.

D is a horizontal diaphragm arranged in the casing below the float and having a number of gas passages *d*. The float is provided on its under side with a central guide stem *e* which slides in an opening *e'* formed centrally in the diaphragm D.

f is an abrupt annular shoulder or offset arranged above the float, at the junction of

the body of the casing with its contracted hollow screw stem *a'*, and forming a valve seat.

The float C is provided opposite the shoulder or valve seat *f* with a number of gas ports *g* which are adapted to be restricted by said valve seat, so as to reduce their area and diminish the supply of gas to the burner. The gas ports of the float are so arranged with reference to the shoulder *f*, that when the float is in contact with the latter, the gas ports are only partly closed, so as to reduce the supply of gas to the burner, but not entirely shut it off. This shoulder also forms a stop which limits the upward movement of the float, thereby dispensing with a head or other stop device on the guide stem of the float.

H is a vertically adjustable sleeve arranged in the tubular stem *a'* of the casing and provided with an external screw thread which engages with the internal thread of an opening *i* formed in the closed upper end of said tubular stem. This adjustable sleeve is open at both ends and is provided in its sides, near its lower end, with gas ports *j* whereby the interior of the sleeve communicates with the surrounding portion of the casing.

K is an upright cylindrical stem or valve projecting upward from the float and entering the lower portion of the sleeve. The bore of the latter is somewhat larger than the valve K, so as to leave a narrow annular passage between the valve and the sleeve. The sleeve is provided at its upper end with a milled head *h* for turning it, so as to raise or lower it with reference to the valve.

l is a raised marginal flange or rim formed on the upper side of the diaphragm, whereby the float, when in its lowermost position, is held out of contact with the diaphragm and prevented from adhering to the same from any cause and interfering with the operation of the governor. This flange also forms with the upper side of the diaphragm a shallow chamber or space which allows the gas to pass from the portion of the casing below the diaphragm into the adjusting sleeve when the pressure is so low as to permit the float to rest upon the flange of the diaphragm.

When the gas is turned off, the governor

float rests loosely upon the marginal flange of the diaphragm. Upon turning on the gas, the float is lifted to a greater or less extent according to the pressure of the gas, causing the ports *g*, of the float, to approach the shoulder or valve seat *f* and restricting the passage of the gas through the ports correspondingly, thus governing the supply to the burner. The fluctuations of the float cause the valve *K* to project into the adjustable sleeve *H* a greater or less distance according to the gas pressure, thus allowing a corresponding quantity of gas to enter the sleeve through its side ports *j* and pass to the burner. When the gas pressure rises, the float is lifted higher, causing the valve to project farther into the sleeve and reducing the supply to the burner, while when the pressure diminishes, the float descends, causing the valve to recede and permitting an increased supply. In order to increase the supply, the sleeve is turned in the proper direction to raise it with reference to the valve, and when it is desired to reduce the supply the sleeve is lowered. The governor can thus be adjusted with great nicety to supply any desired number of cubic feet of gas per hour. As the ports in the diaphragm are never entirely closed, neither in the lowest nor in the highest position of the float, a supply of gas to the burner is always maintained, even when the gas pressure is very low.

By effecting the adjustment of the governor from a point above the float and also locating the stop shoulder *f* above the float, the upward movement of the float is limited without the necessity of riveting or heading the lower end of its guide stem and the disturbance of the adjustment liable to occur from the blows of the riveting machine, is obviated.

When the governor is used in connection with artificial gas, the adjusting sleeve is preferably provided with the lateral gas ports,

but when the same is used in connection with natural gas, they may be omitted. In the latter case, the supply of gas is regulated partly at the open lower end of the sleeve by the approach and recession of the float and partly by the valve seat *f* and the ports in the float.

I claim as my invention—

1. In a governor for gas burners, the combination with the casing, of a transverse diaphragm arranged in the casing and having gas passages, a governor float arranged above said diaphragm and having a gas port, a shoulder arranged above said float, opposite said gas port and forming a valve seat, a stem depending from the under side of said float and guided in an opening in said diaphragm, a vertically adjustable sleeve arranged above the float and a valve or stem projecting upward from the float and entering said sleeve, substantially as set forth.

2. In a governor for gas burners, the combination with the casing, closed at its upper end by a head having a screw threaded opening, of a transverse diaphragm arranged in the casing and having gas passages, a governor float arranged above said diaphragm and having a gas port, a shoulder arranged above said float opposite said gas port and forming a valve seat for said port, a guide stem depending from the under side of said float and guided in an opening in said diaphragm, a screw threaded, open-ended sleeve, arranged in the threaded opening in the top of the casing and having a lateral gas port, and a valve or stem projecting upward from the float and arranged in said sleeve, substantially as set forth.

Witness my hand this 9th day of September, 1893.

ALFRED HALL.

Witnesses:

CARL F. GEYER,
JNO. J. BONNER.