

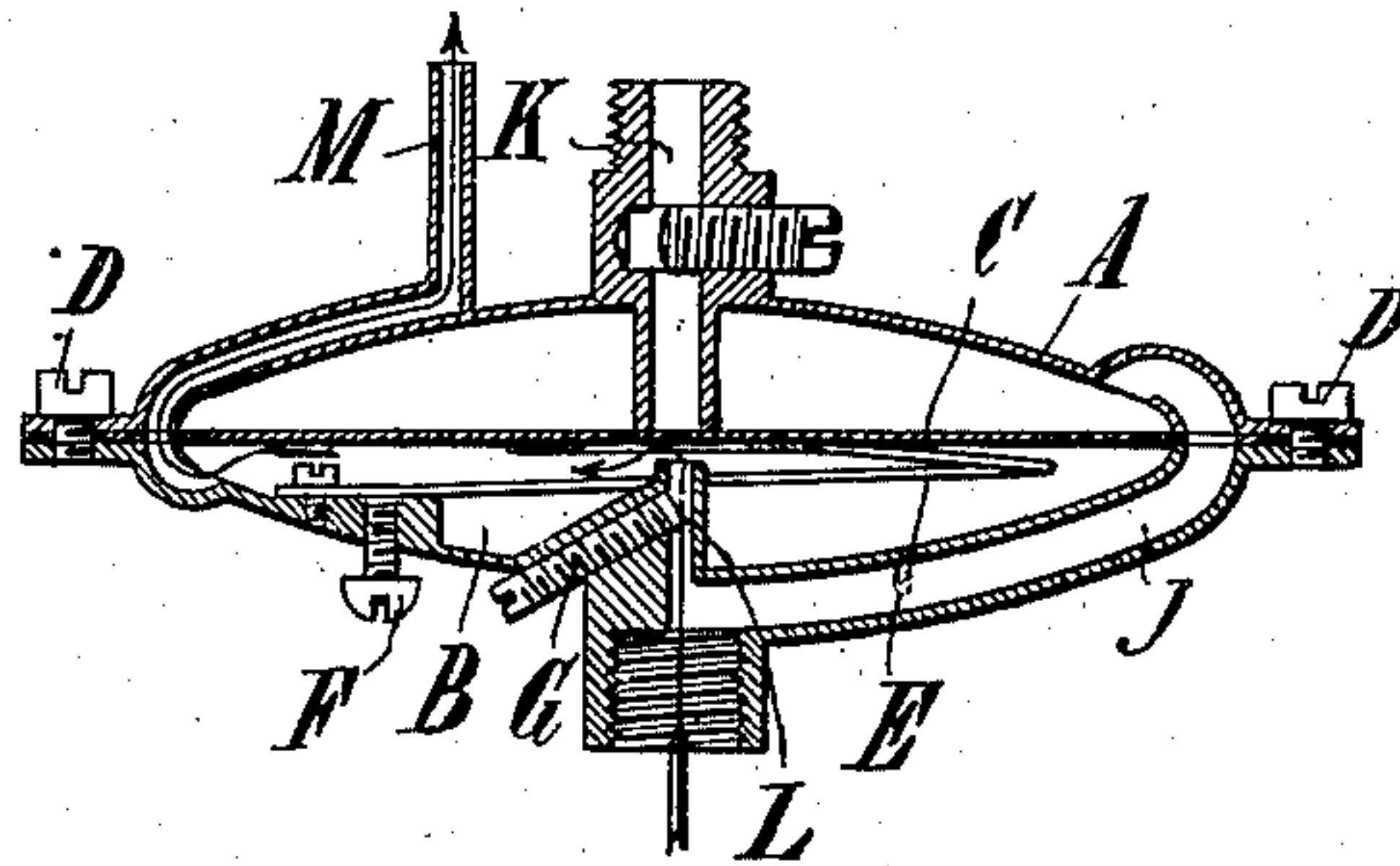
No. 702,311.

Patented June 10, 1902.

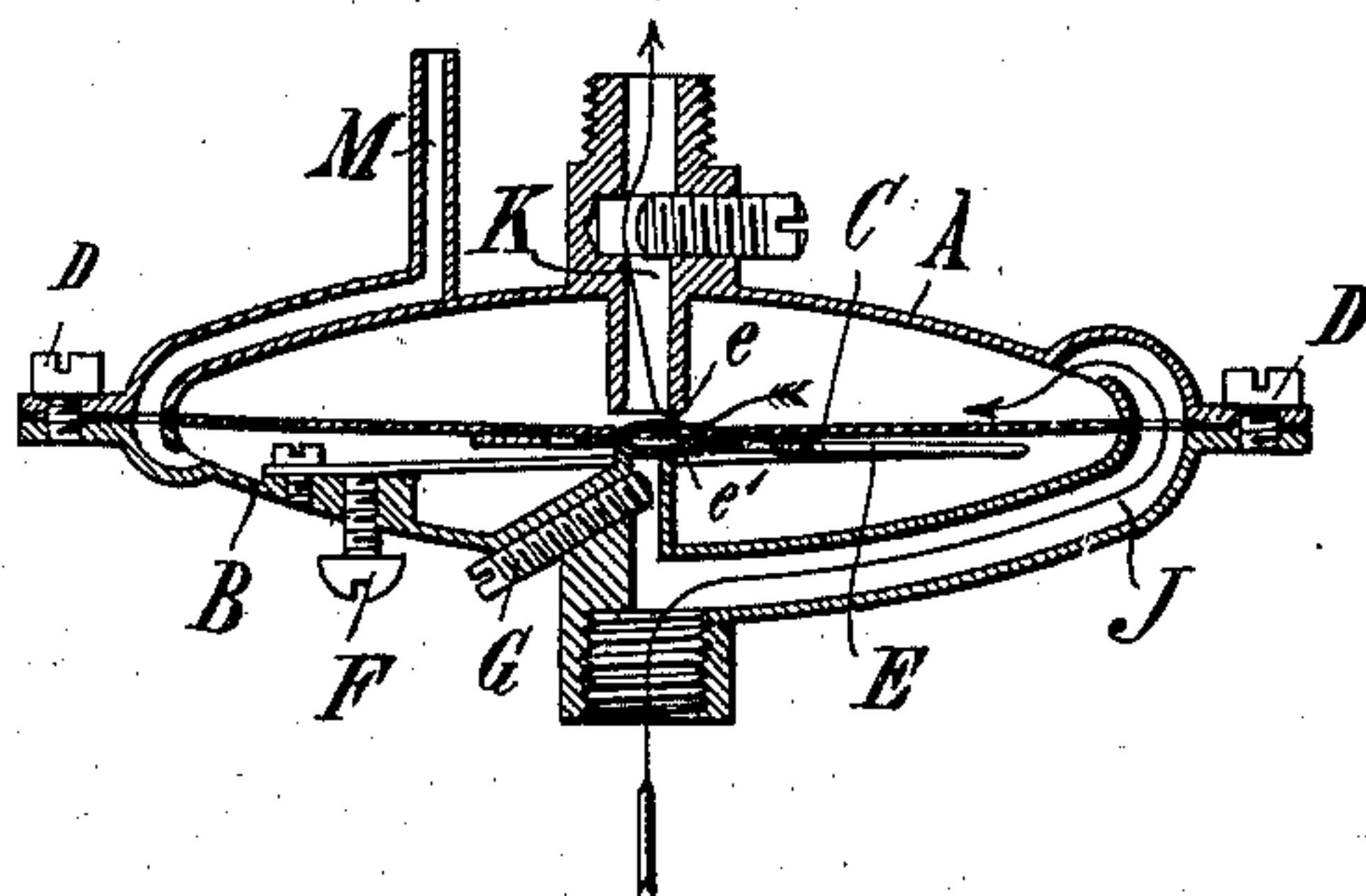
G. MEIER.  
GAS LIGHTING DEVICE.  
(Application filed Jan. 11, 1902.)

(No Model.)

*Fig. 1.*



*Fig. 2.*



Witnesses:  
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# UNITED STATES PATENT OFFICE.

GEORG MEIER, OF BERLIN, GERMANY.

## GAS-LIGHTING DEVICE.

SPECIFICATION forming part of Letters Patent No. 702,311, dated June 10, 1902.

Application filed January 11, 1902. Serial No. 89,344. (No model.)

*To all whom it may concern:*

Be it known that I, GEORG MEIER, engineer, a subject of the Emperor of Germany, residing at 77 Potsdamerstrasse, Berlin, in the Empire of Germany, have invented a new and useful Gas-Lighting Device, of which the following is a specification.

My invention relates to improvements in gas-lighting devices; and the object of my improvements is to so arrange the gas-burner that the gas is changed from the chief burner to the subsidiary burner, and vice versa, by the alteration of the pressure of the gas in the pipe. In the hitherto-known gas-lighting devices of a similar kind the gas may be either admitted to a diaphragm not perforated, which is on the one side open to the atmosphere, so as to operate the valves of the main pipe and of the subsidiary pipe in accordance with the variations of the pressure of the gas, or the gas may be admitted to both sides of a perforated diaphragm working in a similar manner, the gas-passages leading to the chambers above and beneath the diaphragm being so arranged that the moment the pressure of the gas is raised an excess of the same acting upon one side of the diaphragm will result and cause the valves to be reversed. In gas-lighting devices of the former kind gas will escape to the atmosphere if there is a leak in the diaphragm. In the devices of the latter kind the slide-valves employed are apt to become choked and useless. These defects are to be avoided in the gas-lighting device hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of my gas-lighting device, in which the pipe leading upward to the chief burner is shown as being shut off, while the gas is taking its way through the small passage and the small pipe leading to the subsidiary or igniting burner. Fig. 2 is a similar vertical longitudinal section, where the gas is shown as being turned on to the chief burner.

Similar letters refer to similar parts throughout the several views.

The gas-lighting device consists of the two parts A and B, joined together by screws D and holding between them a diaphragm C, made of any suitable material. The lower

part B is provided with a narrow central pipe L, reaching upward to a short distance beneath the diaphragm C, and with a wide lateral passage J. The area of the narrow pipe L may be regulated by a screw G. The upper part A is provided with a short lateral passage J', forming a continuation of the passage J; further, with a wide central pipe K, leading upward to the chief burner, and finally with a narrow passage M, leading from a similar short passage in the part B through a vertical pipe to the subsidiary or igniting burner. The area of the pipe K may equally be regulated by a screw H. In the chamber below the diaphragm C a leaf-spring E of a suitable shape is secured for bearing against the diaphragm, so as to press it against the lower edge of the pipe K, leading to the chief burner. The tension of the spring E may be regulated by the adjusting-screw F. If so preferred, the diaphragm C may be provided with bolsters or valves *e e'* for closing the pipes K and L, respectively.

The gas may take its course either through the wide lateral passage J, the upper chamber A, and the pipe K to the chief burner or through the narrow passage L, the lower chamber, and the narrow passage M to the subsidiary burner.

The device works as follows: When the pressure of the gas is normal, the gas will take its course as indicated by the arrows in Fig. 2—i. e., through the wide passage J to the upper chamber A—and press the diaphragm C and the leaf-spring E downward, whereby on the one side the narrow central pipe L is closed by the diaphragm or its bolster or valve *e'*, so that no gas is admitted to the subsidiary burner, and on the other side the wide pipe K is opened and the gas allowed to pass upward to the chief burner. If, however, the pressure of the gas is diminished, the diaphragm C will no longer be kept in its position described above, but pressed by the spring E against the lower end of the upper pipe K. The latter will thereby be closed and the gas shut off from the chief burner. The lower pipe L, on the contrary, will be opened and the gas allowed to go through the pipe L, the lower chamber B, and the passage M to the subsidiary burner.

It is easy to so determine the areas of the



inlet and outlet orifices beneath and above the diaphragm or to regulate the areas of the pipes L and K by means of the adjusting-screws G and H, respectively, that any increase of the gas-pressure will exert its influence only in the upper chamber A, leading to the chief burner.

Having fully described my invention, I declare that what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a diaphragm, of a chamber arranged on each side of said diaphragm and inclosing same, the lower chamber having a gas-inlet and a narrow central pipe reaching therefrom to near the diaphragm, the upper chamber having a wide central pipe reaching inward to near the diaphragm and leading outward to the chief burner, said pipes separated by said diaphragm a wide passage leading from the gas-inlet of said lower chamber to said upper chamber, a narrow pipe leading from said lower chamber to the subsidiary or igniting burner, and yielding means for pressing said diaphragm against the end of the central pipe of said upper chamber at a low gas-pressure and allowing said diaphragm to bear against the central pipe of said lower chamber at the normal gas-pressure, substantially as set forth.

2. In combination, a diaphragm having a chamber arranged on each side thereof, an outlet-pipe for one of said chambers, an inlet-pipe for the other of said chambers, a passage opening into the inlet-pipe of one chamber and opening into the other of said chambers for supplying gas thereto, a gas-outlet

passage communicating with one chamber and extending partly around the other of said chambers, and valves carried by the diaphragm and engaging the said pipes for suitably closing them.

3. In combination, a casing, a diaphragm mounted therein and dividing the casing into an upper and a lower chamber, an outlet-pipe for the said upper chamber, an inlet-pipe for the said lower chamber, a passage communicating with the inlet-pipe of the lower chamber and opening into the upper chamber for supplying gas thereto, a gas-outlet passage for said lower chamber, and a pair of valves connected approximately centrally to the said diaphragm and adapted to engage with said pipes for suitably closing them.

4. In combination, a casing, a diaphragm mounted therein and dividing the casing into an upper and a lower chamber, an outlet-pipe for said upper chamber, an inlet-pipe for said lower chamber, a passage communicating with the inlet-pipe of the lower chamber and opening into the upper chamber for supplying gas thereto, an outlet-passage for said lower chamber, means extending in the inlet-pipe for regulating the passage of gas there-through, and means extending in the said outlet-pipe for regulating the passage of gas therethrough.

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

GEORG MEIER.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.