

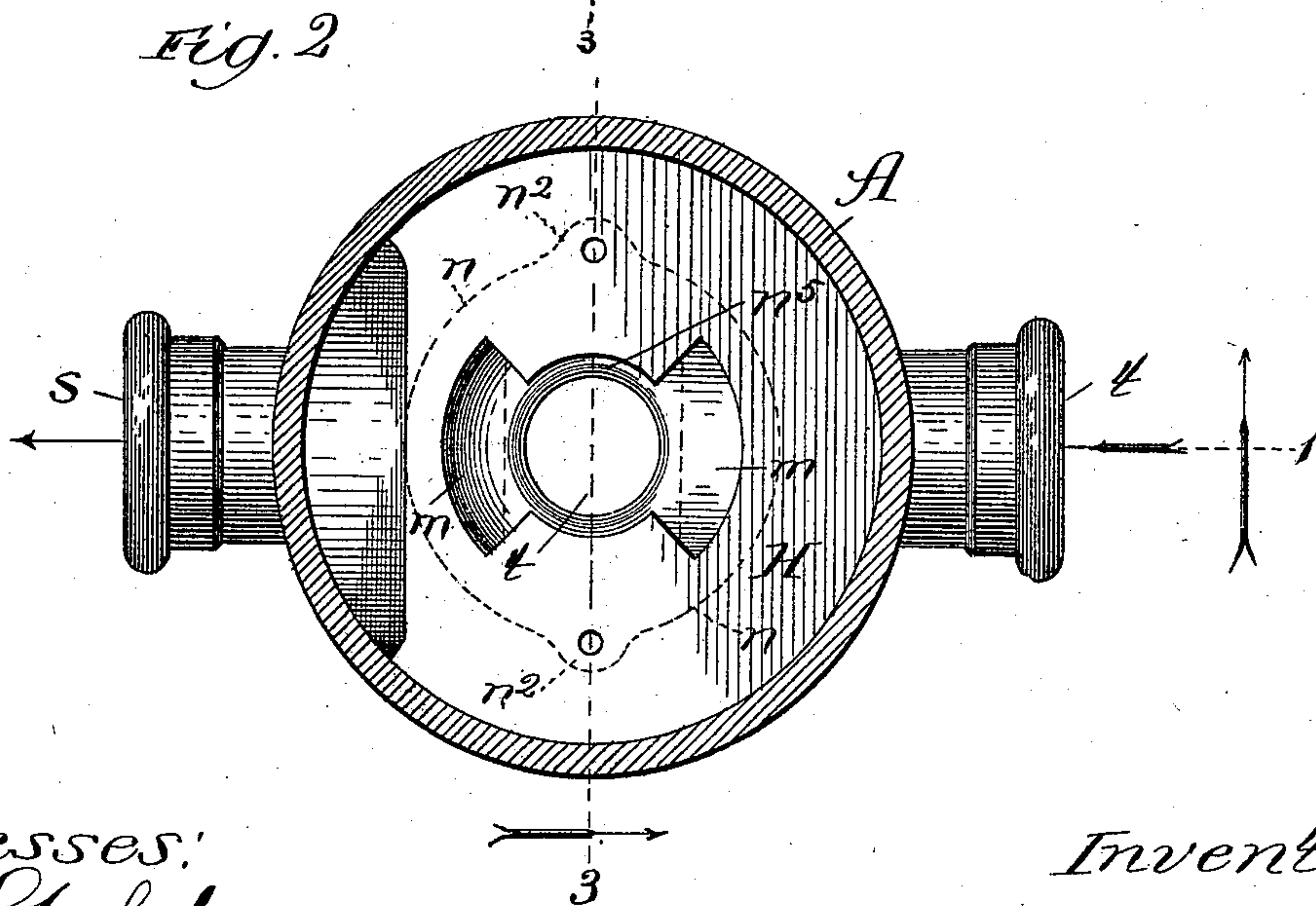
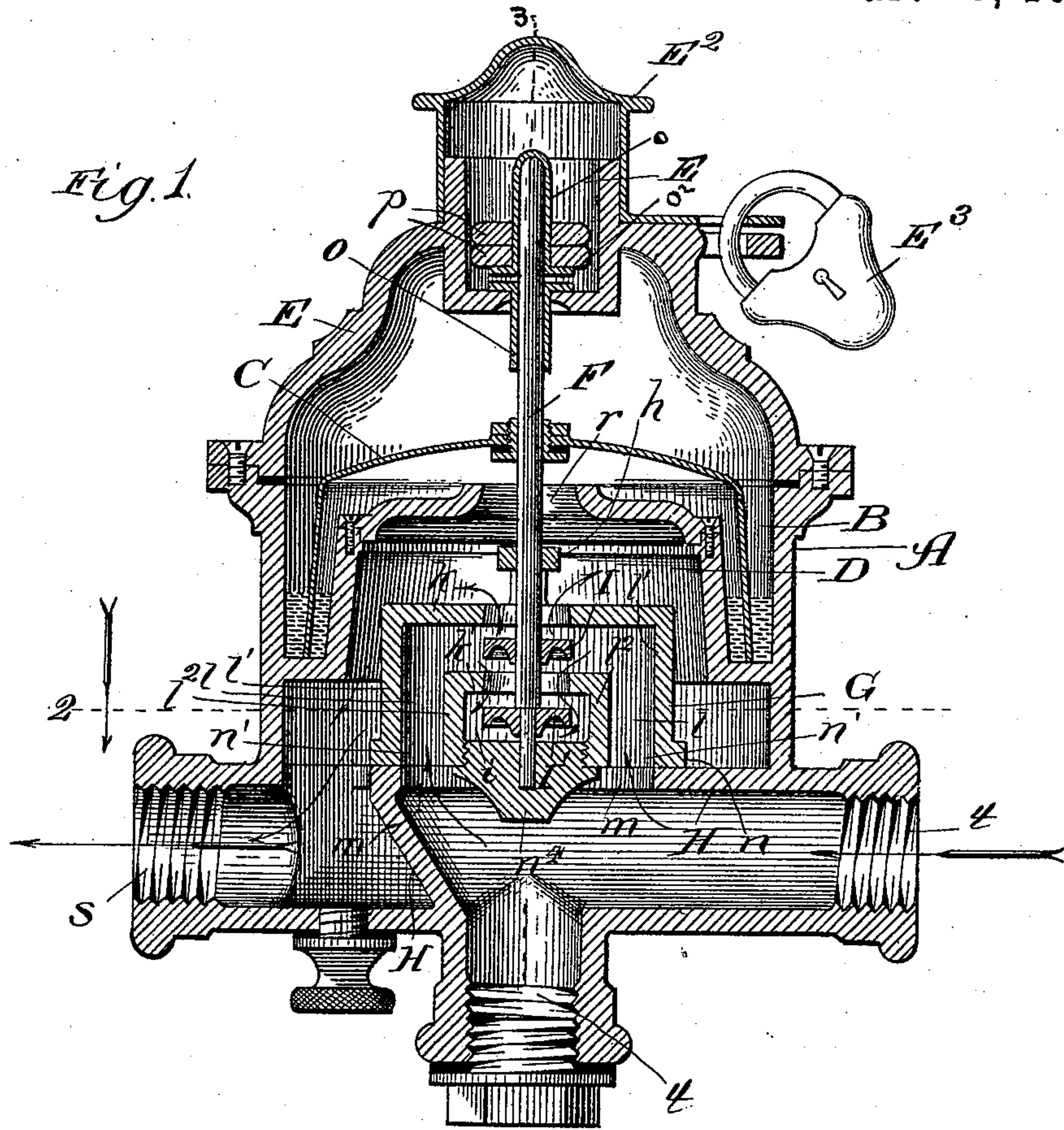
(No Model.)

2 Sheets—Sheet 1.

E. BROWNHILL.
GAS CONTROLLER.

No. 516,798.

Patented Mar. 20, 1894.



Witnesses:
Chas. E. Gaylord,
C. J. Zimmerman.

Inventor.
Ernest Brownhill,
By *Alpenputh & Alpenputh*
Attys

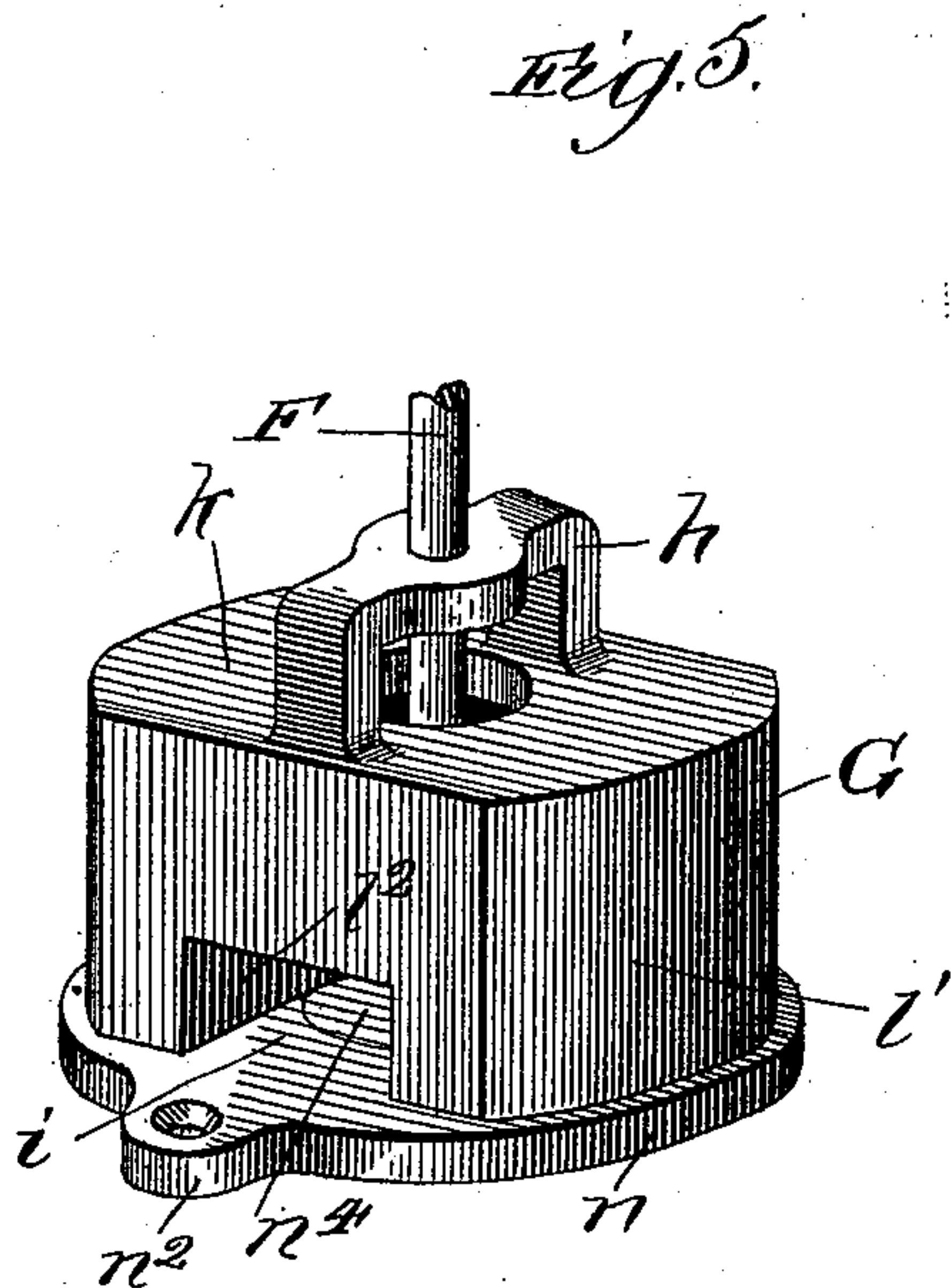
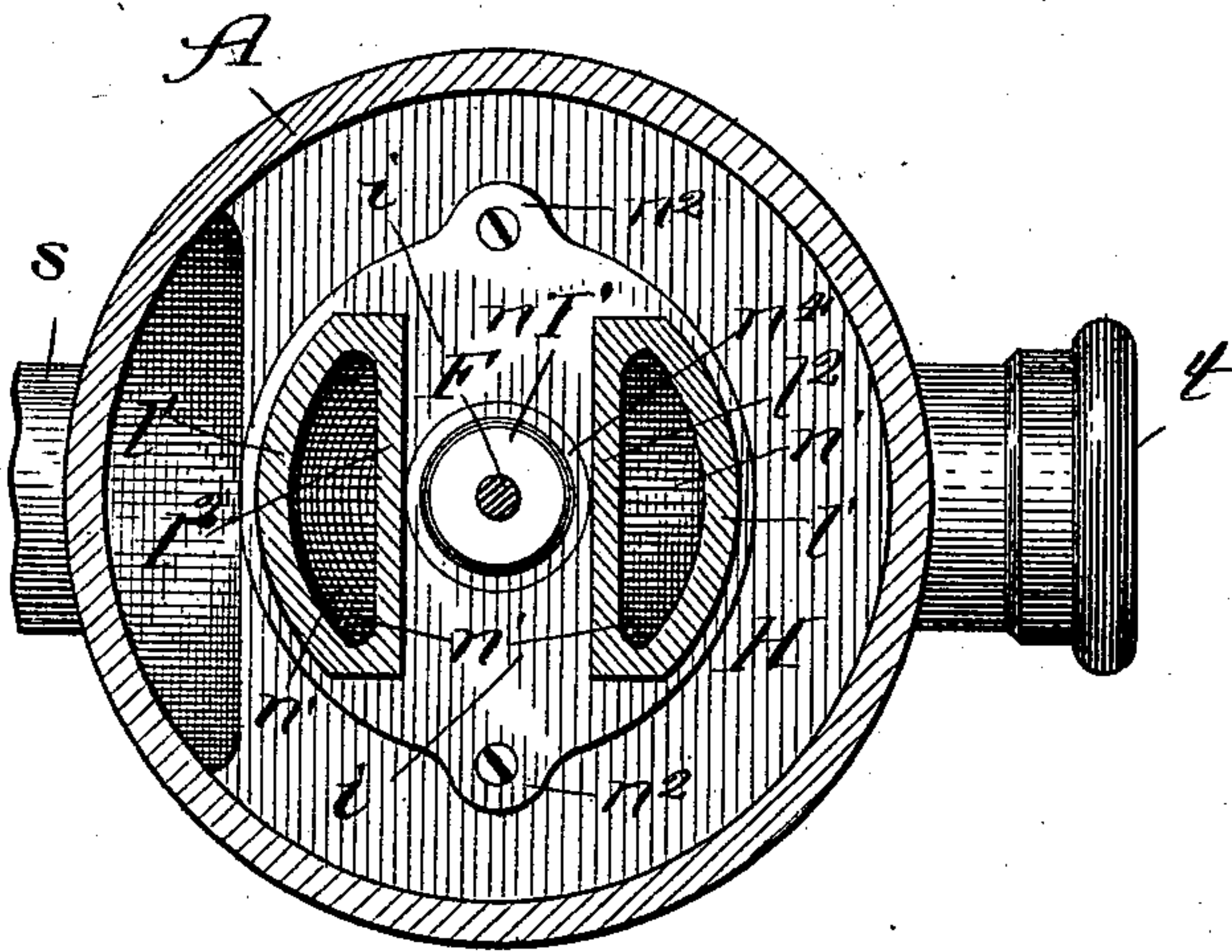
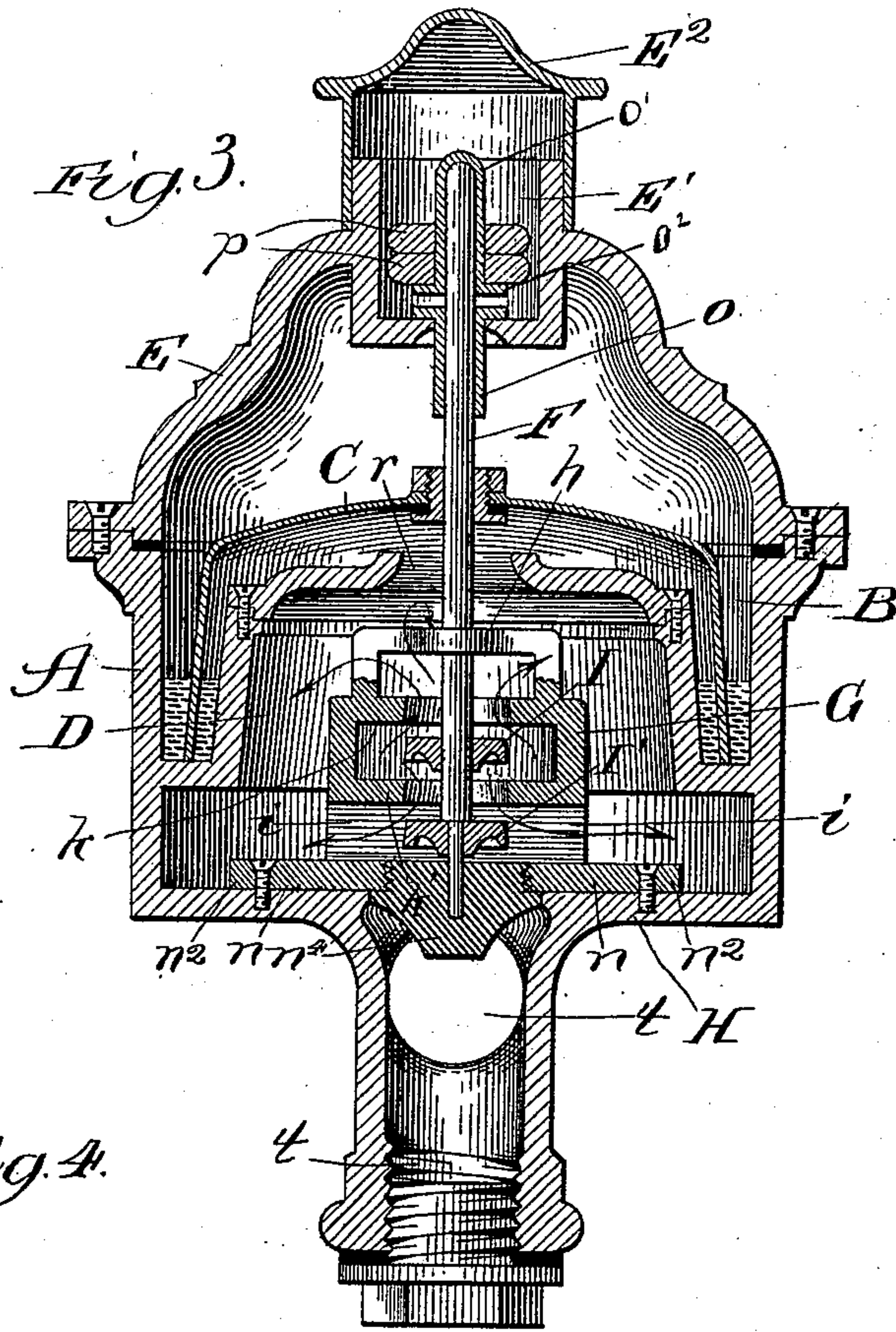
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UNITED STATES PATENT OFFICE.

ERNEST BROWNHILL, OF LONDON, ENGLAND, ASSIGNOR TO THE BROWN-
HILL COMPANY, OF CHICAGO, ILLINOIS.

GAS-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 516,798, dated March 20, 1894.

Application filed June 24, 1893. Serial No. 478,768. (No model.) Patented in England February 10, 1891, No. 2,423.

To all whom it may concern,

Be it known that I, ERNEST BROWNHILL, a subject of the Queen of Great Britain, residing at "Holmlea," Fairfax Road, Hornsey, N., London, in the county of Middlesex, England, have invented a new and useful Improvement in Gas-Controllers, of which the following is a specification.

This invention is patented in Great Britain by Letters Patent No. 2,423, dated February 10, 1891.

My invention relates to an improvement in gas controllers, the purpose of which is to regulate or govern the supply of gas under pressure; and the object of my invention is to produce a construction, simpler than those heretofore in use, which shall afford greater steadiness in the action of the regulating valve, and which shall obviate the danger of choking the supply when the inlet pressure is increased; and a further object of my invention is to permit a supply from two or more inlet pipes to pass freely, subject to the action of the regulating valve, to a single outlet pipe.

To the foregoing ends my invention consists in the general and specific details of construction and combination of parts, all as hereinafter set forth.

In the drawings—Figure 1 is a vertical sectional view of a gas controller constructed in accordance with my invention taken on the line 1 of Fig. 2. Fig. 2 is a horizontal section taken on the line 2 of Fig. 1, the valve-box being removed for the purpose of the view. Fig. 3 is a vertical sectional view on the line 3 of Figs. 1 and 2. Fig. 4 is a horizontal sectional view similar to Fig. 2, showing the valve-box in horizontal section; and Fig. 5 is a perspective view of the valve-box.

All sectional views are to be taken as indicated by the arrows.

A is the outer casing or shell of the controller, made preferably of cast-iron, and presenting the inlet ports t t , and outlet s . The shell A is provided, preferably in casting, with the annular mercury cup B receiving the lower edge of the float C, which receives the pressure of the gas moving through the shell through the free opening r in the top of the valve chamber D. The upper part of the

shell is closed by a cap E centrally in which is the weight chamber E', closed by a lid E², which is adapted to be locked in position by a padlock E³. For the weights p a spring may be substituted, or both omitted under certain conditions, as when the float C is sufficiently heavy.

The bottom of the weight chamber E' is centrally perforated to receive a fixed guide tube o , which receives the valve-spindle, F, presently described, and within the weight-chamber is a thimble o' having the lower flange o^2 , said thimble receiving the upper extremity of the valve spindle F, and serving to carry the weights p .

Located in the valve chamber D is the valve-box G, which is formed preferably in a single casting, and comprises the following parts: The base, n , has the ports n' for the inflowing gas from the inlets t t , and screw-tapped ears n^2 for securing the box to the platform or partition H, which affords the partition between the inlet and outlet openings of the controller; the base has also a central screw-threaded perforation, which receives the externally threaded plug n^4 extending upward from a central point in the partition H and filling and closing the central aperture n^5 in said partition. The plug n^4 serves as the lower support for the valve-spindle F, to receive which it is centrally recessed, as shown. The partition is provided with ports m m which coincide with the ports n' n' . The ports n' n' open into passages l l formed by the vertical walls l' l^2 of the valve-box G. These walls terminate at their upper ends in centrally perforated horizontal partitions k k' which afford valve-seats for the balance valves I I'. The space between the partitions k and k' is entirely inclosed by the outer walls l' of the valve-box, while the space between the lower partition k' and the bottom n of the box has free communication at each end through the openings i with the interior of the shell A, and hence with the outlet s . The valve box is surmounted with the perforated spider h which serves as a guide for the valve-stem F.

From the foregoing description it will be apparent that communication between the inlet ports t t and the outlet port s is entirely

through the partitions k and k' , the openings in which are contracted or closed by the balance valves I I' . It will also be apparent that inflowing gas, at the same time that it presses against the float C , presses downward upon the valve I' and upward upon the valve I , whereby the pressure on the two valves is balanced; and that an opening for the passage of gas from the inlet to the outlet is obtained amounting to the available area of both valve openings.

The operation of the controller thus constructed is as follows: Gas admitted through the inlet ports t t passes upward through the ports m m , n' n' and passages l , to the balance valves; thence upward and downward through both partitions k k' into the interior of the shell A and to the outlet s . In the course of movement of part of the gas it passes through the aperture r to press upward the float C against the resistance of the weights p , if employed. The degree of pressure, as usual in this class of controllers, determines the size of opening for the gas through the partitions k k' , by determining the position of the valves I I' .

It is an important feature of my improvement that whatever may be the pressure in the inlet ports t t a free opening for gas to the outlet s is always presented, contracted to the needful degree to reduce the pressure to the gage. This is owing to the fact that the movement of the controlling valves I I' is produced by pressure of gas, after it passes these valves, upon the float C .

What I claim as new, and desire to secure by Letters Patent, is—

1. In a gas controlling device, the combination with the shell having inlet and outlet ports and a partition H , provided with apertures m m , of the valve-box presenting the closed passages l l communicating with the apertures m m , and open inner chamber communicating with the shell, said valve-box having central perforations constituting opposite valve seats and affording the sole means of communication between the inlet and outlet ports, valves I I' on a common stem F , seating in the valve seats respectively, and a float C supported on said stem and receiving the pressure of gas after it emerges from the valve-box, substantially as described.

2. In a gas controlling device, the combination with the shell A , partition H having the ports m and central opening n^5 and plug n^4 recessed as described, of the valve box having passages l and inner chamber, and having a screw threaded opening to receive the plug n^4 , and central apertures affording valve seats and affording communication between the passages l and the interior of the shell, a float C , valve stem F supported at its lower end in the plug n^4 and at an intermediate point in the spider h , and valves I I' on said stem, the parts being arranged substantially as described.

ERNEST BROWNHILL.

In presence of—

M. J. FROST,

W. N. WILLIAMS.