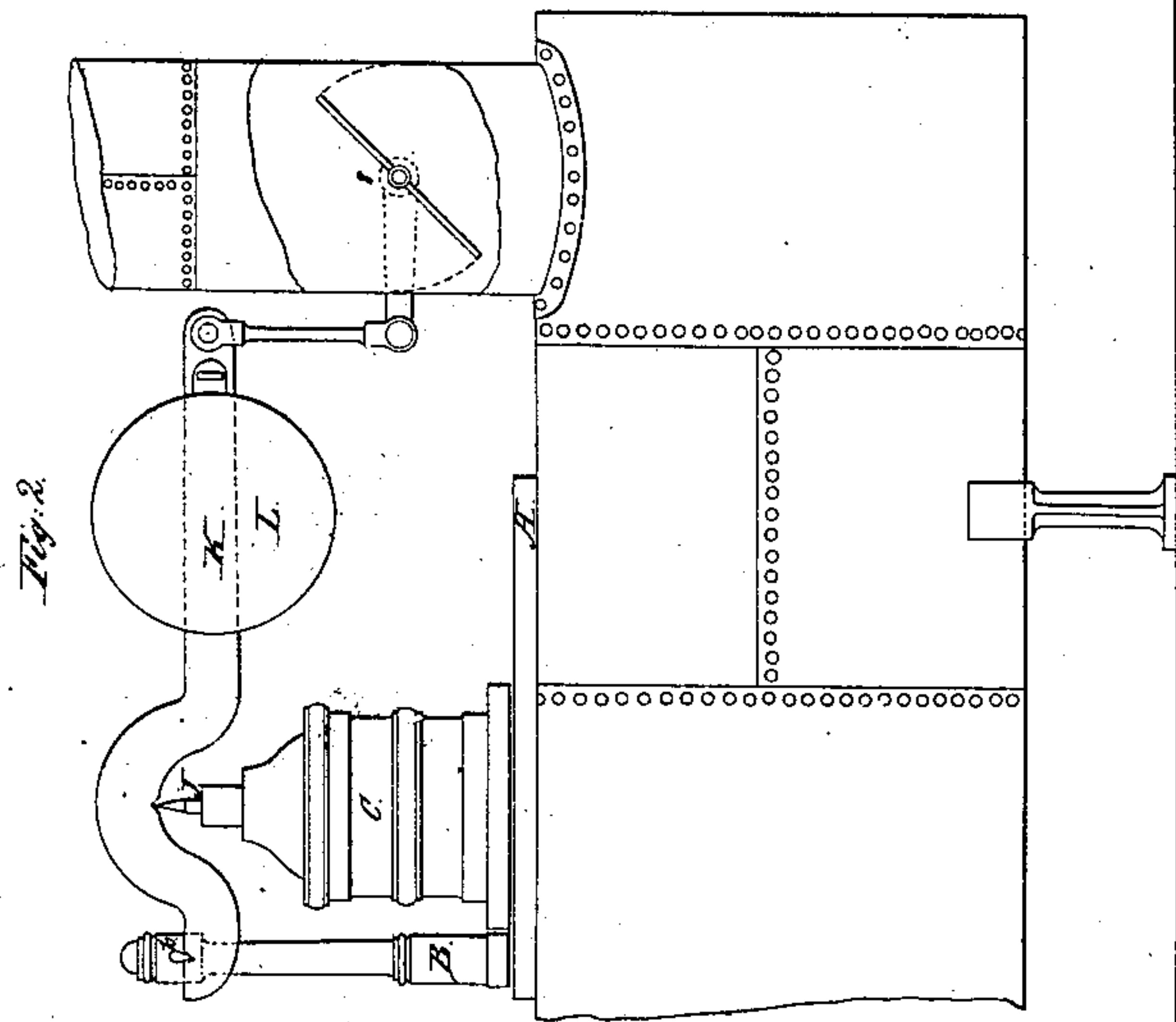
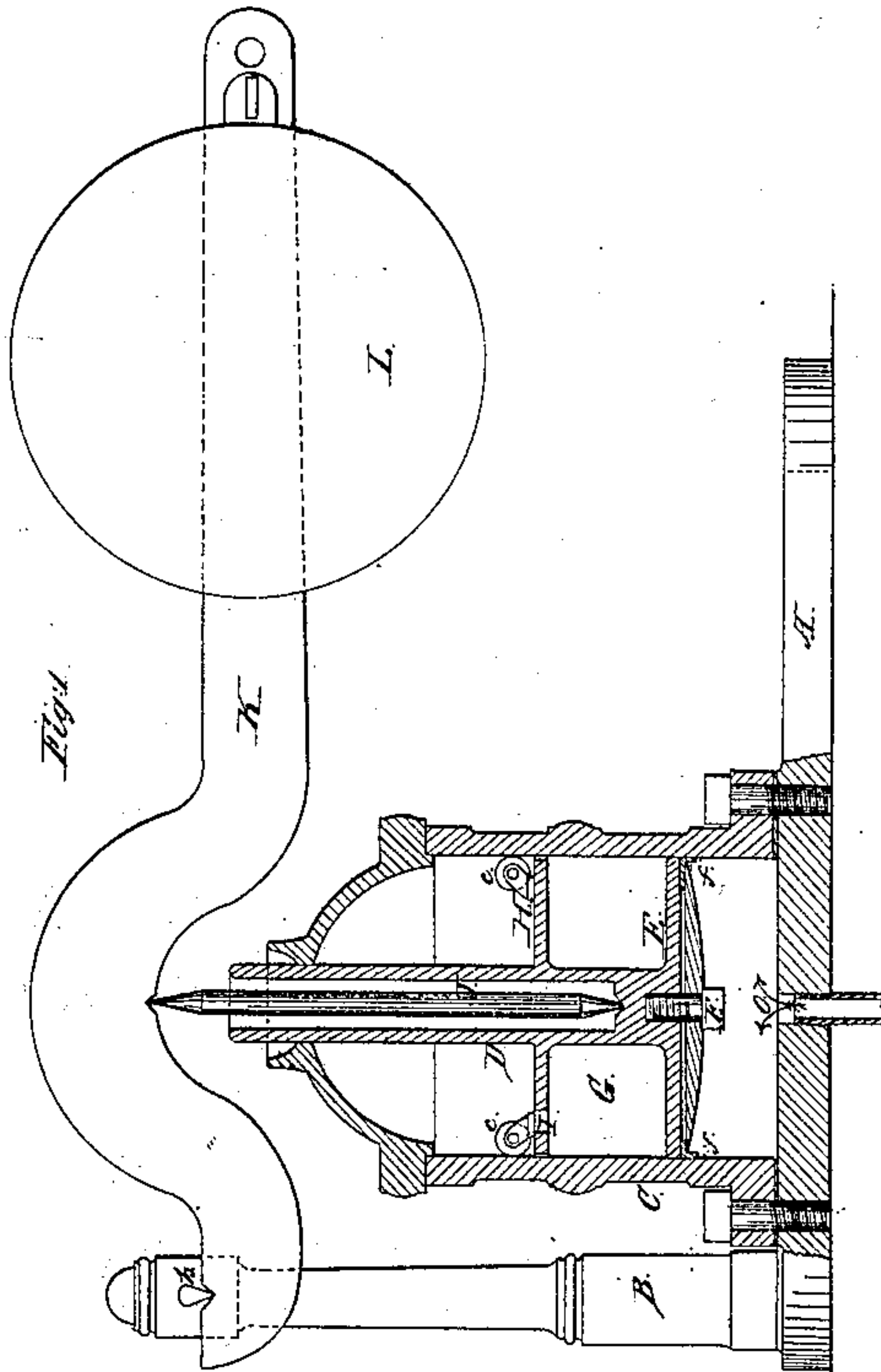
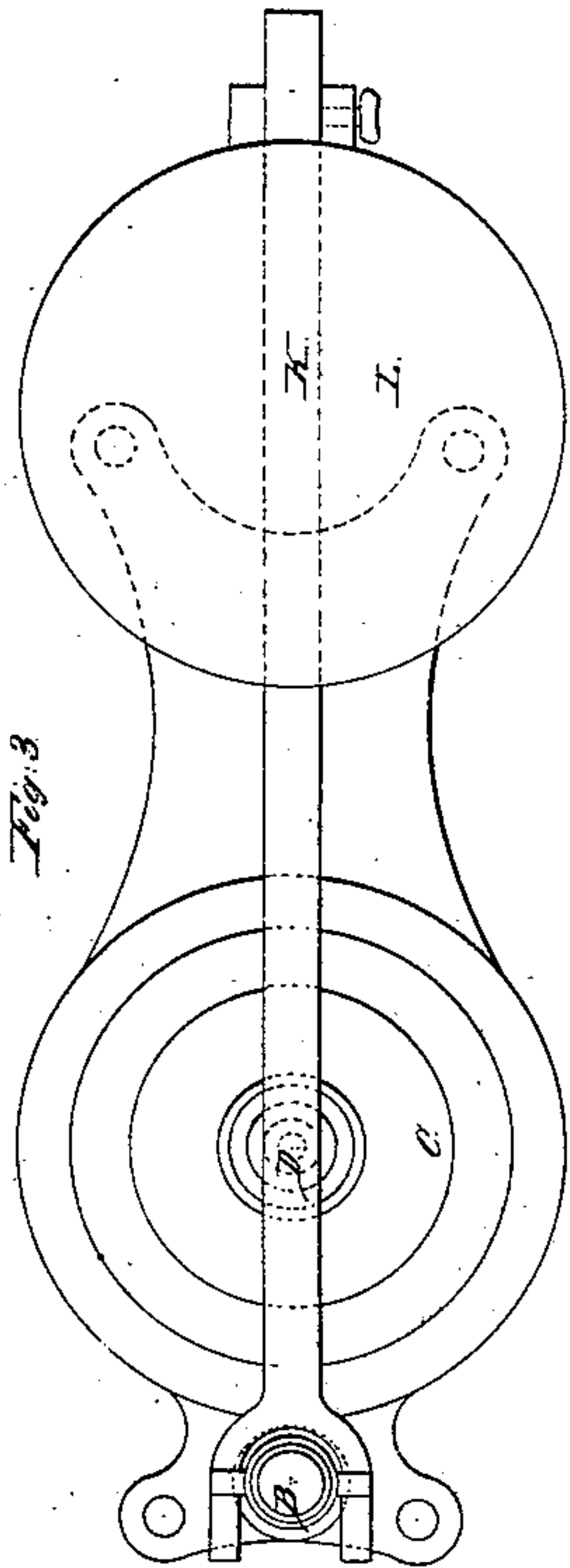


J. Rozell,
Boiler-Furnace Draft-Regulator.

N^o 40,147.

Patented Sep. 29, 1863.



Witnesses,
Geo. S. Jones,
A. Dunn.

Inventor,
John Rozell, by his Attorney,
Adelung & Co.

UNITED STATES PATENT OFFICE.

JOHN ROZELL, OF BROOKLYN, NEW YORK, ASSIGNOR TO FELIX CAMP-
BELL AND HENRY Y. DAVISON, OF SAME PLACE.

IMPROVED FIRE-REGULATOR.

Specification forming part of Letters Patent No. **40,147**, dated September 29, 1863; antedated
September 11, 1863.

To all whom it may concern:

Be it known that I, JOHN ROZELL, of Brooklyn, Kings county, in the State of New York, have invented, made, and applied to use certain new and useful Improvements in Steam Fire-Regulators for Steam-Boilers, Steam-Heating and other Apparatus; and I do declare the following to be a full, clear, and correct description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a side elevation of my improved fire-regulator; Fig. 2, a view showing the same connected to a damper; Fig. 3, a top view of the regulator.

In the drawings like parts of the invention are designated by the same letters of reference.

The nature of my invention consists in the construction, substantially as set forth, of the improved steam fire-regulator hereinafter described and represented in the accompanying drawings, by which great sensibility, certainty, and steadiness of action are secured.

To enable those skilled in the arts to make and use my invention, I will speak of the construction and operation of the same.

A shows a bed-plate for supporting the working parts of my improved regulator.

B shows a standard attached at one end of the bed-plate A, which standard B is provided with the centers *b b* and forms the fulcrum for the lever K.

C is a cylinder bolted to the bed-plate A, which bed-plate A forms the bottom of the cylinder C.

D is a piston inserted within the cylinder C, having its bearing directly upon that portion of the bed-plate A which forms the bottom of the cylinder C. This piston D has placed on the under side of its bottom head, E, the packing *f*, of leather, india-rubber, or other suitable flexible material, which packing *f* is held in its place by the washer F. The outer edge of this packing *f* is allowed to project downward for the purpose of rendering the piston D steam and water tight. The open space G between the upper, H, and lower, E, heads of the piston D, forms a chamber for the introduction of oil, applied through

the opening I in the upper head, H, of the piston D, which oil is intended to prevent, in a great measure, friction in the operation of the apparatus, and obviate the objection heretofore made to the employment of a piston in the construction of a steam fire-regulator. The upper head, H, of the piston D is made smaller in circumference than the lower head, E, and serves to protect the oil and support the rollers *c c*, which rollers *c c* bear against the inner side of the cylinder C and facilitate the movement of the piston D within the same, thus preventing any contact between the upper head, H, of the piston D and the inner side of the cylinder C.

J is a double-pointed pin, inserted within the piston D and bearing upon the bottom of the same while its upper end supports and operates the lever K.

K' is a lever supported by the standard B and pin J, which latter operates it.

L is an adjustable ball, slotted so as to be placed upon the lever K, and allow its position upon the lever K' to be varied as may be desired.

O is an opening in the bed-plate A, for the purpose of connecting the regulator with the apparatus with which it is to be used.

The apparatus thus constructed is connected in any suitable manner with a steam-boiler, steam-heating apparatus, or any apparatus with which it may be advantageously used. The end of the lever K' is connected with the damper, as shown in Fig. 2. The ball L is adjusted upon the lever K' by means of a steam-gage to the pressure of steam it may be desired to carry. The piston is well supplied with oil through the opening I, and the regulator is ready for use. As steam enters the connection formed between the regulator and apparatus to which it is attached, and reaches the opening O in the bed-plate A, it (the pressure of the steam) raises the piston D within the cylinder C. The cup-packing employed renders the piston D steam and water tight, while the oil placed within the chamber between the upper H, and lower, E, heads of the piston D prevents, as much as possible, friction, and in connection with the wheels *c c* greatly facilitates the movement of the piston D. As the piston D ascends, the double-

pointed pin J raises the lever K', which lever K', connected with the damper, as shown in Fig. 2, closes the same. When leather as a packing is used, the pipe connecting the regulator and apparatus is first charged with water or oil, and the steam behind the same operates the piston as just described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combined hollow piston and piston-rod D H E with the cup-shaped packing *f*, all constructed and operating substantially in the manner described.

2. The combination, with the upper and smaller head, H, of the hollow piston, of the guide-rollers *c*, arranged and operating substantially as described.

3. In combination with the hollow piston-rod D, the pointed rod J, lever K, and weight L, constructed, arranged, and operating substantially as set forth.

JOHN ^{his} × ROZELL.
mark.

In presence of—

JOHN LEAVENS,
FELIX CAMPBELL.