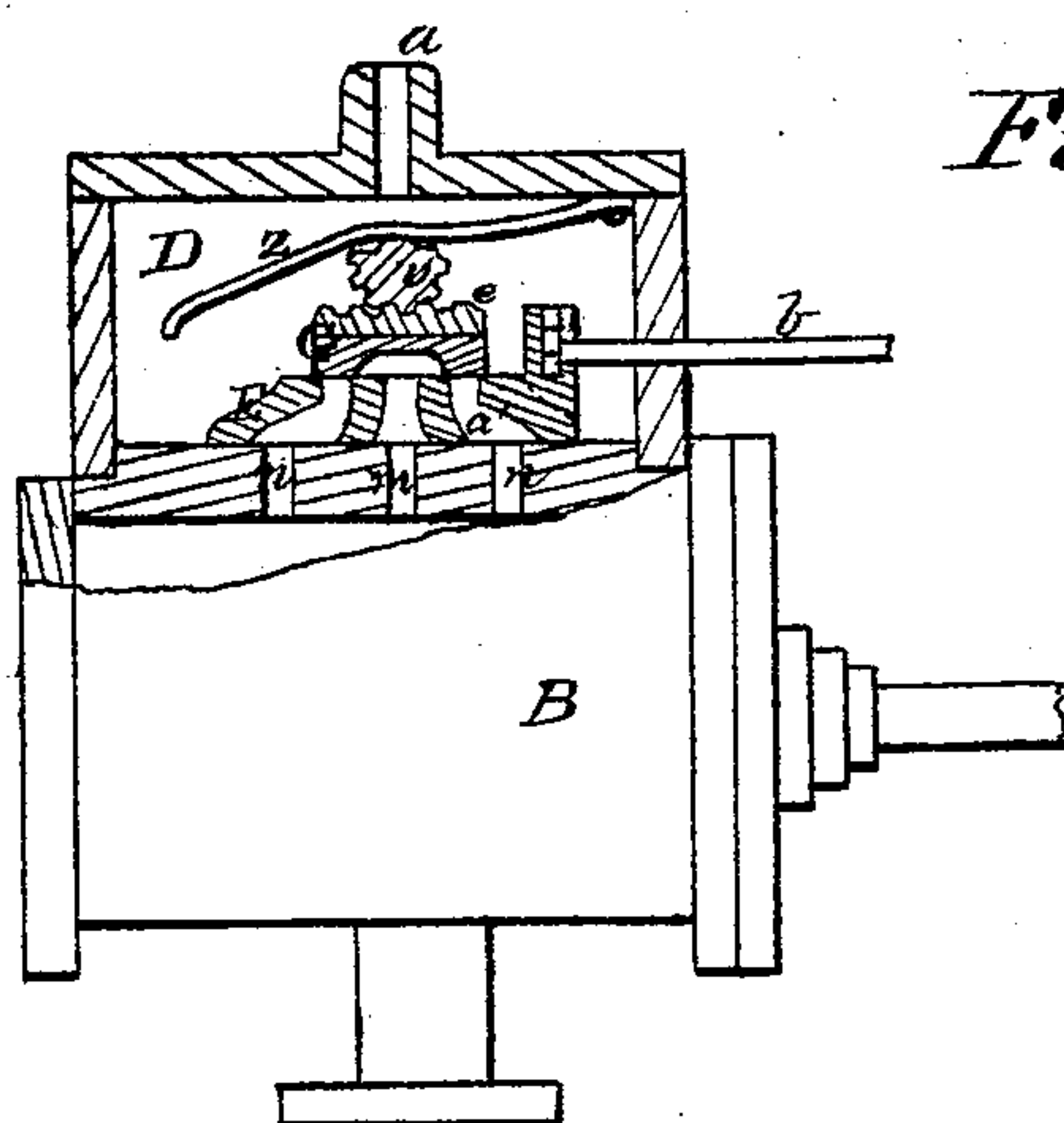
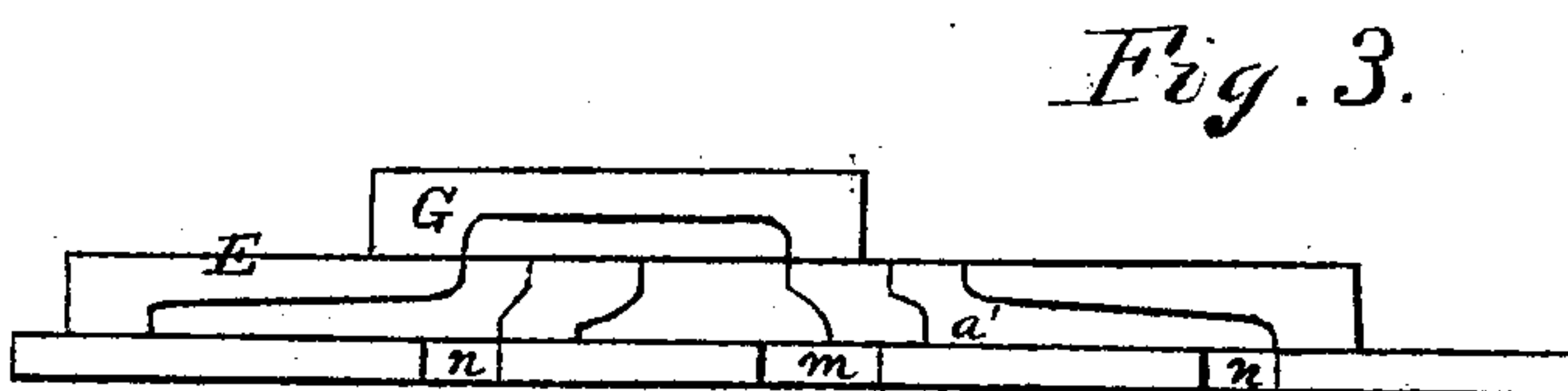
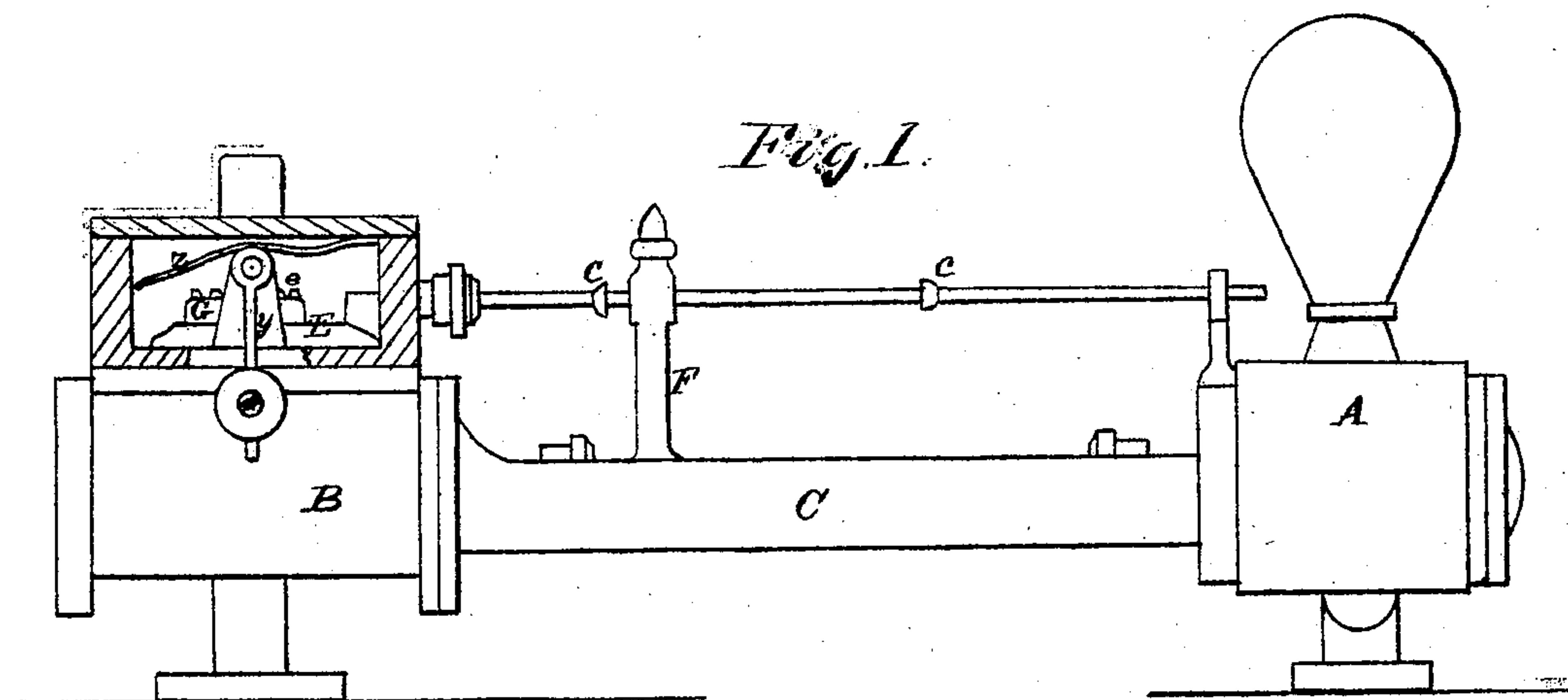


W. ALDRICH.
Steam-Pumps.

No. 139,103.

Patented May 20, 1873.



Witnesses.

E. A. Bates
Chas. J. Stiles

Inventor.

Wales Aldrich
Chipman & Son Co
Atty

UNITED STATES PATENT OFFICE.

WALES ALDRICH, OF DAYTON, OHIO.

IMPROVEMENT IN STEAM-PUMPS.

Specification forming part of Letters Patent No. **139,103**, dated May 20, 1873; application filed March 22, 1873.

To all whom it may concern:

Be it known that I, WALES ALDRICH, of Dayton, in the county of Montgomery and State of Ohio, have invented a new and valuable Improvement in Steam-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a longitudinal section of my invention. Fig. 2 is a cross-section of the same. Fig. 3 is a detail view.

This invention has relation to a cut-off for steam-pumps and steam-engines; and it consists in the construction and novel arrangement of a spring or weighted lever for changing the motion of the auxiliary valve, in connection with the main valve and valve-rod, the stops, and steam-ports.

In the accompanying drawing, the letter A indicates the pump; B, the piston-cylinder, connected therewith by the frame C. D represents the valve-chest, supplied with steam through the pipe *a*. E indicates the main valve, connected with which is the valve-rod *b*, having the stops *c c*, which engage with the check-standard F. G represents the auxiliary valve, provided on its back with a rack, *e*, with which a segment-pinion, *v*, having its chord uppermost, engages. A spring, *z*, secured to the valve-chest, presses upon the chord of the segment-pinion in such a manner as to tend to keep it in a central or balanced position

with reference to the rack; or a weighted arm, *y*, may be secured to the axis of the pinion, with the same object in view. The exhaust is indicated at *m*, and the steam-ports at *n*.

The operation is as follows: The piston being at the further end of the cylinder, steam is admitted, through the passage *a'* of the main valve, to the steam-port. As the piston commences to traverse the cylinder back to its starting-point, the auxiliary valve is relieved from the pressure of the stop *c* of the main valve-rod, and is forced by the spring *z*, in connection with the rack and segment-pinion, backward to its central or balanced position, connecting the passage *a'* of the main valve with the exhaust. The valves remain in this relative position until the piston reaches the end of its course, when the stop *c* throws the main valve, opening the opposite steam-port, to be closed by the auxiliary valve, under the action of the balance-spring, so soon as the valve-rod is released from the stop.

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

The combination, with the auxiliary valve G, main valve E, valve-rod, and stop-connections, of the rack *e*, pinion *v*, and balance-spring *z*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WALES ALDRICH.

Witnesses:

SAML. B. SMITH,
JOSEPH CLEGG.