

*H. Webster,
Governor.*

N^o 13,019.

Patented June 5, 1855.

Fig. 2.

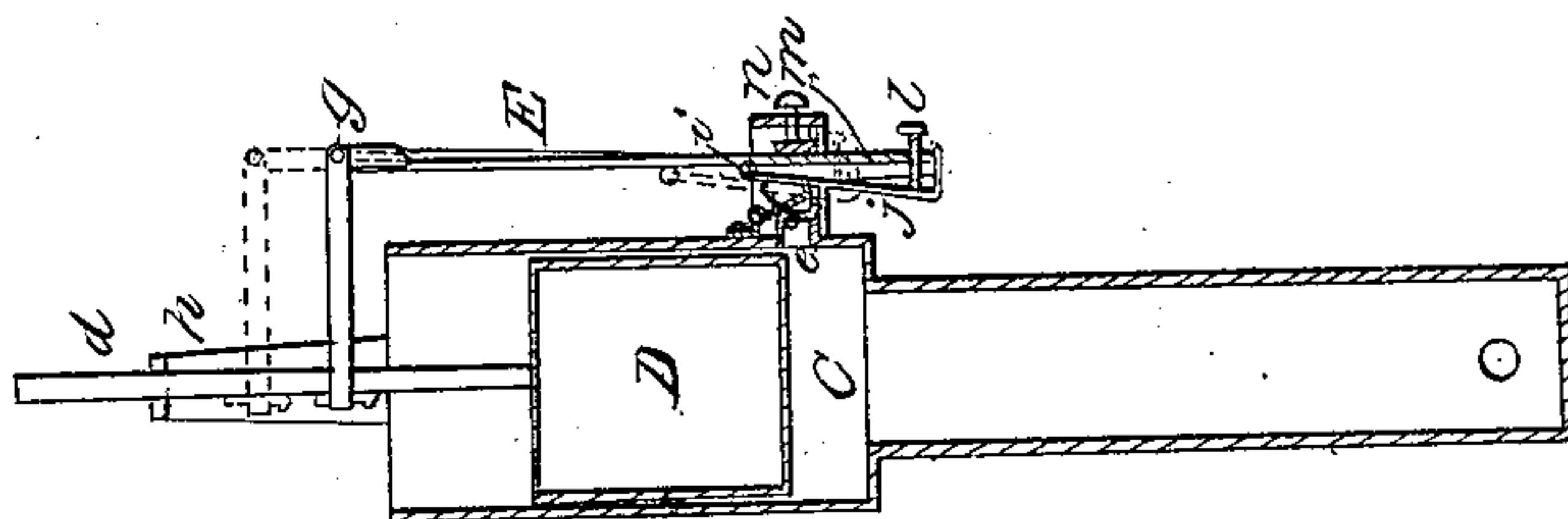
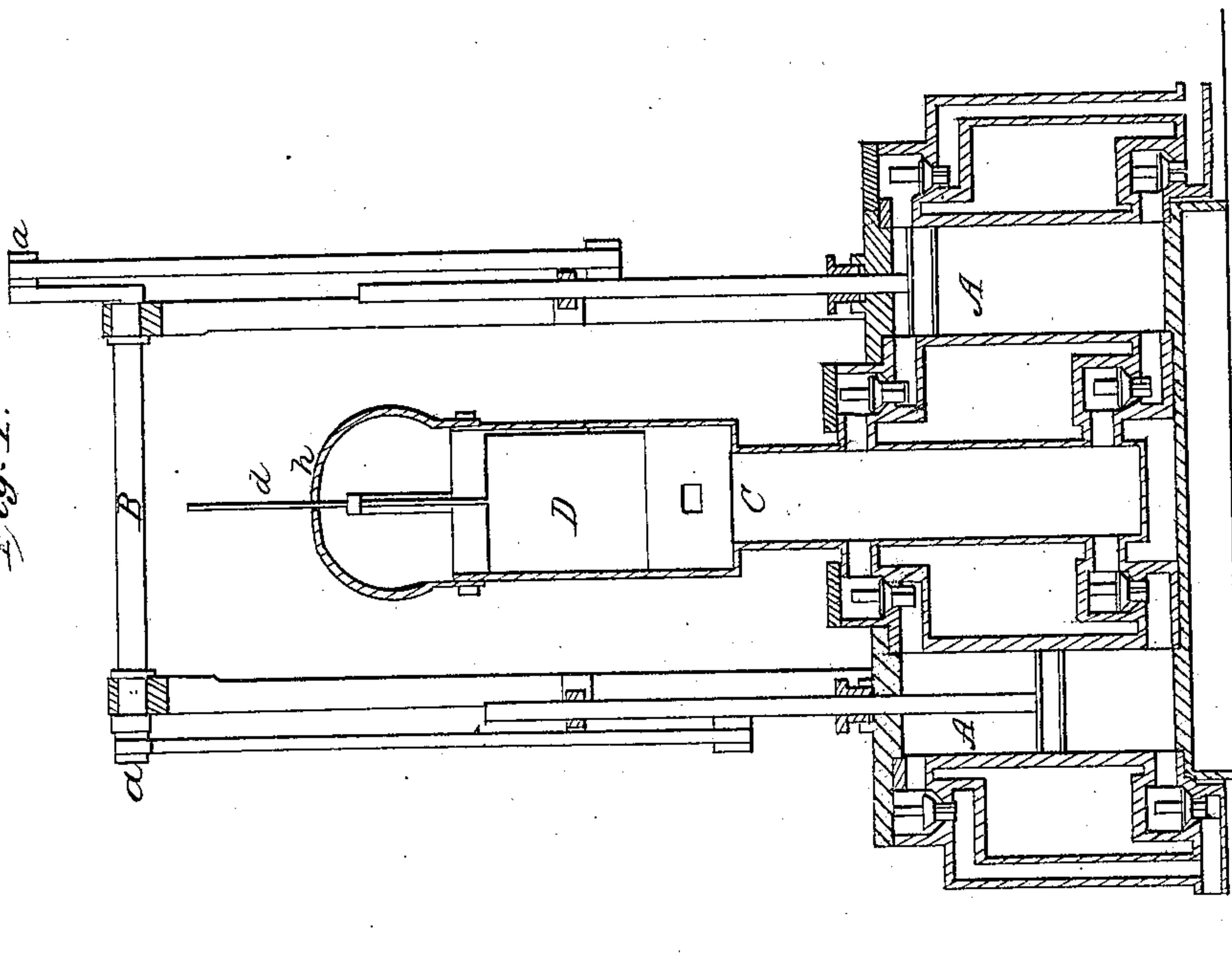


Fig. 1.



UNITED STATES PATENT OFFICE.

HENRY WEBSTER, OF BEETOWN, WISCONSIN.

STEAM-ENGINE REGULATOR.

Specification of Letters Patent No. 13,019, dated June 5, 1855.

To all whom it may concern:

Be it known that I, HENRY WEBSTER, of Beetown, in the county of Grant and State of Wisconsin, have invented a new Governor for Marine and other Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a vertical section of the governor and Fig. 2, a vertical section of part of the same at right angles to Fig. 1.

Similar letters of reference indicate corresponding parts in both figures.

This governor consists of a float placed within a vessel which is kept constantly supplied with water by a small pump or pumps driven by the engine, and which is provided with a suitable aperture from which there is a constant escape which is regulated by a valve. The float is connected with a throttle valve or cut off. When the engine continues to run at the desired velocity the water escapes from the vessel as fast as it is pumped in, but if the speed of the engine increases, the water is pumped in faster than it can escape and the float rises and by its action on the throttle or cut off causes the supply of steam to be diminished or if necessary stopped altogether, and if the speed of the engine diminishes the level of the water in the vessel falls and with it the float thus acting on the throttle or cut off to increase the supply of steam.

To enable those skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, A, are two double acting force pumps whose pistons are driven by two cranks *a, a*, set at right angles to each other on the shaft B, so as to keep as nearly as possible a continuous flow of water into the vessel C. The shaft B, is to be driven by a belt or gearing from the main shaft of the engine so that the velocity of the pumps always corresponds with that of the engine.

D, is a float resting on the column of water in the vessel C, and *d*, is a rod attached to the float and working through a guide *h*, to connect with the throttle valve or cut off.

e, is the escape opening of the vessel C, fitted with a flap valve *f*.

E, Fig. 2, is a rod suspended loosely from an arm *g*, which is secured to the rod *d*. This rod has attached to its lower part by a hinge joint *i*, a variable inclined piece *j*, which regulates the opening of the valve *f*. This variable inclined piece is adjusted at a suitable inclination by a set screw *l*, in the rod D, and the rod D, is adjustable toward or from the valve by a screw *m*, which works in a fixed guide piece *n*.

The valve *f*, hangs quite free but when the governor is in operation will be forced by the escaping water into contact with the inclined piece *j*. The rod E, with the inclined piece are so adjusted by the screw *m*, that when the engine works at the desired speed the valve *f*, will open just wide enough for the escape of the water pumped up to the vessel C, by the pumps and allow the float to remain stationary but when the velocity of the engine increases the water being pumped up faster will rise in the vessel and cause the float D, to rise and carry up the rod E, whose inclined piece *j*, in rising will gradually close the valve thus checking the escape of water and causing the float to rise still faster so that its action on the throttle valve or cut off will be very quick, and if the velocity of the engine is not almost immediately reduced the steam will be shut off altogether. When the velocity of the engine is diminished, the level of the water in the vessel C, begins to descend and with it the float D, which brings down the rod E, and allows the valve *f*, to open wider, thus facilitating the escape of water and causing the float to descend still faster to give a greater supply of steam. The quickness with which the valve opens and closes as the float rises depends on the inclination of the variable piece *j*.

This governor is very sensitive and quick in its action and would be well adapted for marine engines. Owing to the small size required for the pumps the escape water will be so small as to be productive of no inconvenience and to be easily carried away.

Instead of the flap valve *f*, a slide valve may be employed, connected with the float

in such a way as to contract the opening as the float rises and enlarge it as it falls. This float would be the equivalent of the flap valve represented though in some respects
5 might not work as well.

What I claim in this class of regulators is—

Controlling the escape of water by the

flap valve *f*, and the rod *E*, with its inclined piece *j*, all applied and operating substantially as herein set forth. 10

HENRY WEBSTER.

Witnesses:

DAN. STEWART,
MOSES A. ROGERS.