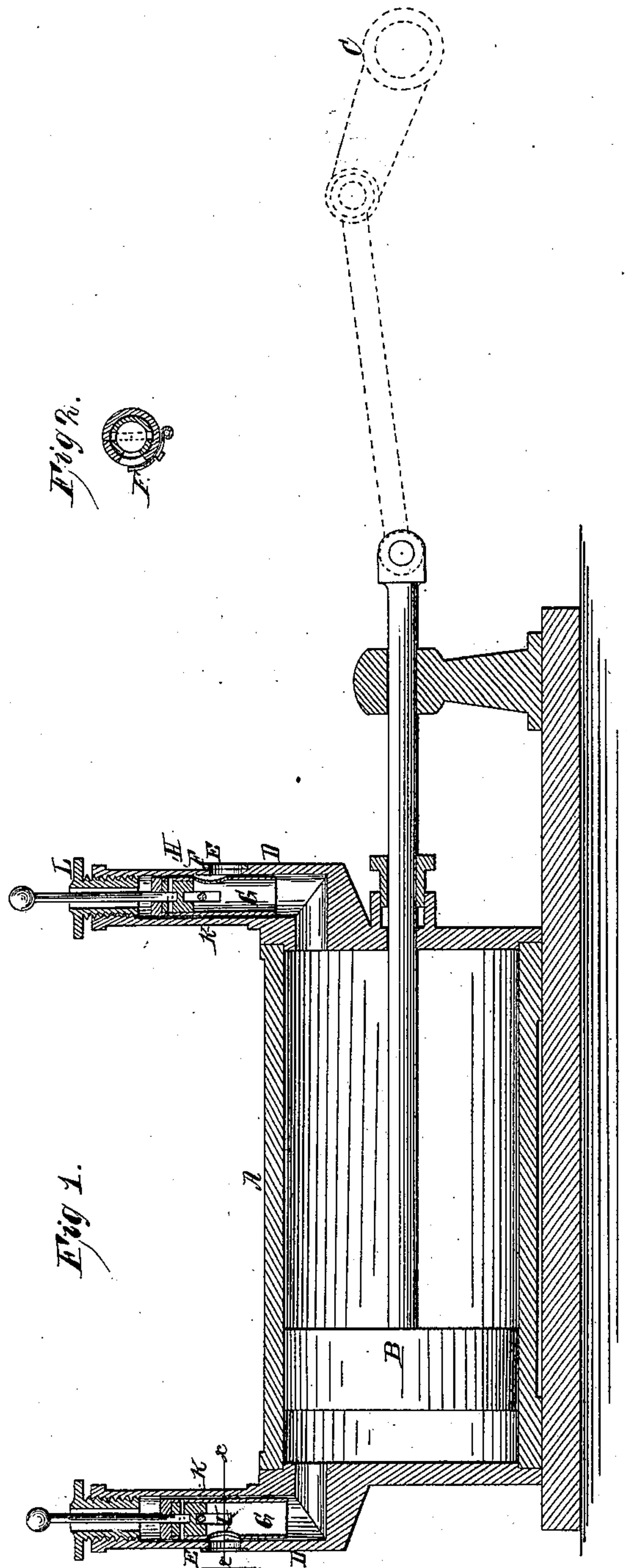


B. Mackerley,

Governor,

No 85,113

Patented Dec. 22, 1868.



Witnesses.
Amos Morgan
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BENJAMIN MACKERLEY, OF PAINT, OHIO.

Letters Patent No. 85,113, dated December 22, 1868.

IMPROVEMENT IN GOVERNORS FOR STEAM AND OTHER ENGINERY.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, BENJAMIN MACKERLEY, of Paint, in the county of Highland, and State of Ohio, have invented a new and useful Improvement in Atmospheric Governors; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a sectional elevation of my improved governor, and

Figure 2 represents a section of one of the valve-tubes, taken on the line *xx* of fig. 1.

Similar letters of reference indicate like parts.

The object of this invention is to provide a simple and effective atmospheric governor, for regulating the motion of prime movers, but adapted more especially to machines actuated by animal power.

It consists of a cylinder, having a piston actuated by a crank, or other suitable means, connected to the machine or motor for which it is to act as a governor; the cylinder being provided at each end with weighted valves, which govern the ingress and egress of air to the cylinder, and thereby the resistance of the piston to the machine by the force of the blast on the valves.

A represents a cylinder, having a piston, B, which is designed to be connected to the machine or motor, the motion of which is to be regulated by a crank and connecting-rod, C, or by any other suitable means.

D represents valve-tubes at each end of the cylinder, having passages, E, open to the atmosphere, which are provided with gates or slides, F, to vary the area of the same. There may be, if preferred, two of these openings for one valve, one opposite to the other, whereby the lateral pressure of the air on the valves will be balanced.

G represents weighted tubular valves, arranged to work vertically in the tubes, having lateral passages,

H, corresponding to the passages E, and also slots, I, in the side, whereby their vertical movement is limited by the pins, K.

The weight of the said valves is intended to be such that, when the machine is running at its required velocity, they will rest on the pins K, when the passages H and E will be coincident with each other, and the least resistance will be offered to the passage of the air, but if the speed increases, the increased pressure of air under the valves will raise them, so as to contract the area of the passages, and thereby give greater resistance to the piston, which, in turn, resists the motion of the machine or motor from which it receives motion.

In this manner, the more the speed increases, the greater is the resistance on the piston. A very slight movement of the valves causes a material variation of the pressure.

Of course, when the speed slackens, the valves will fall, and the passages open, and reduce the resistance. The valves may be provided with a balance-weight, if preferred.

L represents adjusting-screws in the upper ends of the tubes, for the purpose of regulating the upward movement of the valves.

Having thus described my invention,

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

1. The combination, with the air-cylinder A and plunger B, of the tubes D, having passages E and the weighted valves G, substantially as described.

2. The tubes D, provided with the gates F, adjustable plugs L, and pins K, substantially as described.

The above specification of my invention signed by me, this 24th day of July, 1868.

BENJAMIN MACKERLEY.

Witnesses:

J. C. FERGUSON,

JAMES E. MACKERLEY.