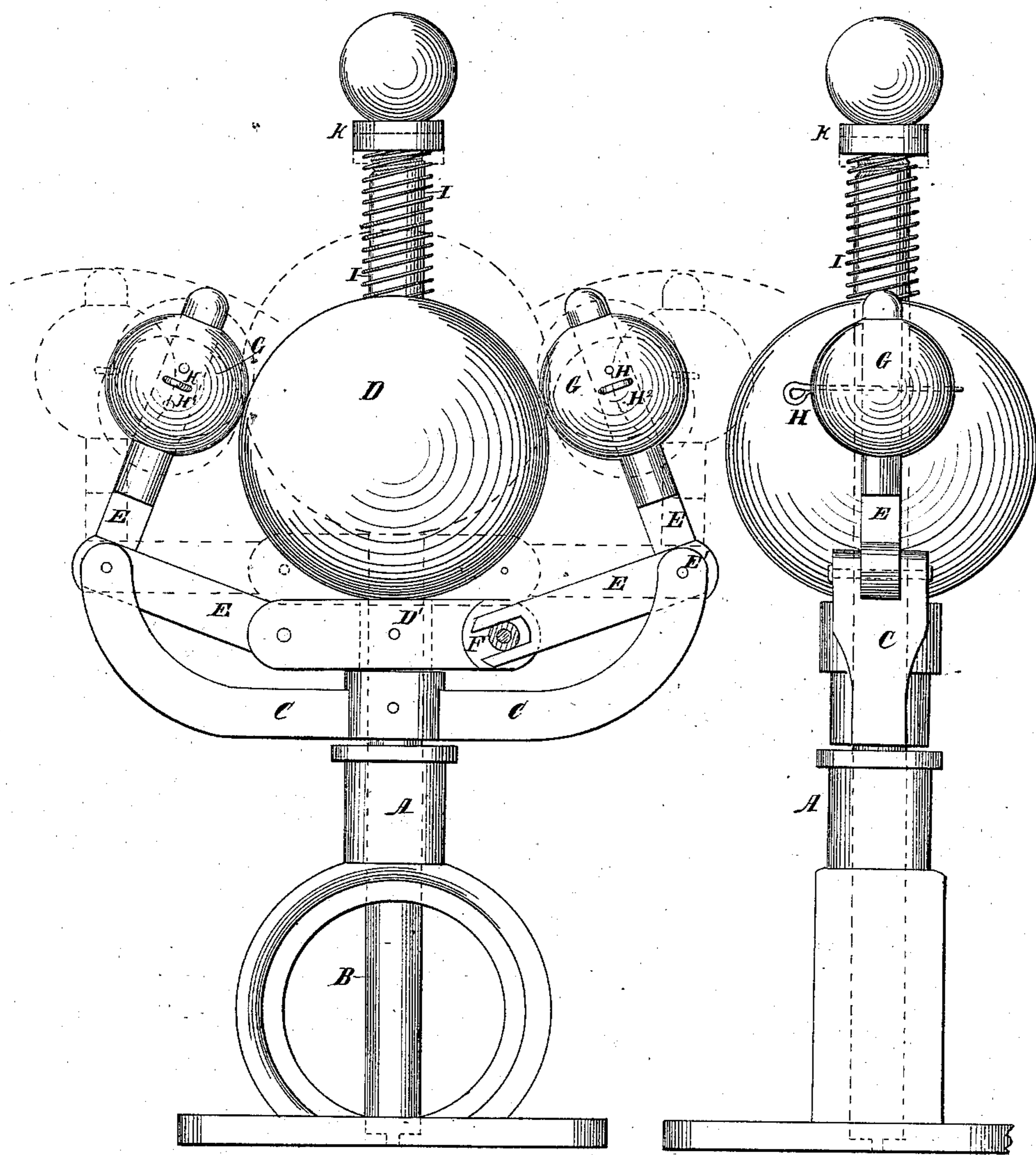


T. S. LaFrance,

Governor.

N^o 56,956.

Patented Aug. 7, 1866.



Witnesses:
Chas. A. Murphy
Lawrence A. Murphy

Inventor:
T. S. LaFrance

UNITED STATES PATENT OFFICE.

T. S. LA FRANCE, OF ELMIRA, NEW YORK.

IMPROVEMENT IN STEAM-ENGINE GOVERNORS.

Specification forming part of Letters Patent No. 56,956, dated August 7, 1866.

To all whom it may concern:

Be it known that I, TRUCKSON S. LA FRANCE, of Elmira, in the county of Chemung and State of New York, have invented a new and useful Improvement in Governors for Steam-Engines; 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 drawings, made part of this specification, in which—

Figure 1 is a side elevation. Fig. 2 is an end elevation.

The same letters are used in referring to different parts.

This invention relates to improvements on my improved governor as heretofore patented, for the purpose of simplifying and cheapening the construction of the same.

A represents the governor-stand, in the circular part of which is arranged the bevel-gearing for driving the governor, which, being common, is not shown. B is the spindle, which is made hollow so as to permit the valve-rod to pass through its center from the ball D to the arm of the valve. This spindle receives its motion from suitable gearing, as mentioned.

C C are arms attached to a collar bolted to and turning with the spindle, and so formed as to afford a suitable fulcrum for the levers E E, as shown. D is a ball through which the spindle passes, sliding freely vertically. This is represented as a sphere. It may be of any form, as may also the balls G G. The flanges D' are attached to and form part of the ball D, being cast separately and united, as represented, or cast in one piece. The arms of this flange are slotted in their ends to receive the revolving collars F, which turn freely on the bolts by which they are suspended.

The bent levers E are slotted at the end and fitted on the collars F, so as to relieve the action of the governor from loss by friction as much as possible. The levers E are bent at right angles, or nearly so, and are pivoted at the angle to the arms C at E'. The perpendicular arms are fitted to receive the balls G G, which are fastened by a pin, H, passing

through one of a series of holes, H', in the lever, or by any other equivalent mode. The position of the balls on the perpendicular portions of the levers E determines, by increasing or diminishing the amount of their leverage, the amount of their action on the valve.

The valve-rod is attached to the flange D' by a bolt passing through both and through a slot in the hollow spindle B long enough to afford all necessary vertical play to the valve-rod.

The spiral spring I increases the resistance of the weight D as it rises, and the collar K should be made to screw down upon the spindle, compressing the spiral spring, so as to increase its tension, as may be desired.

The centrifugal action of the balls G is indicated by the red lines in Fig. 1.

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

1. A governor for a steam-engine having balls G, supported upon the vertical arms of bent levers E, which, with the divergence of the balls when in action, raise the weight D and actuate the valve-rod, substantially in the manner set forth.

2. In the mechanism of such a governor, the arms C, attached to the spindle B and forming the fulcrum for the bent levers E, substantially as set forth.

3. Arranging the balls G upon the vertical arms of the bent levers E so as to regulate their action by altering their distance from the fulcrum, substantially as set forth.

4. In combination with the flange D' and lever E, the friction-roller F, the said parts being arranged substantially as and for the purpose set forth.

5. In combination with the ball D and balls G, the spiral spring I, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

T. S. LA FRANCE.

Witnesses:

D. P. HOLLOWAY,
C. F. CLAUSSEN.