

(No Model.)

P. BIGELOW.
ENGINE GOVERNOR.

No. 415,664.

Patented Nov. 19, 1889.

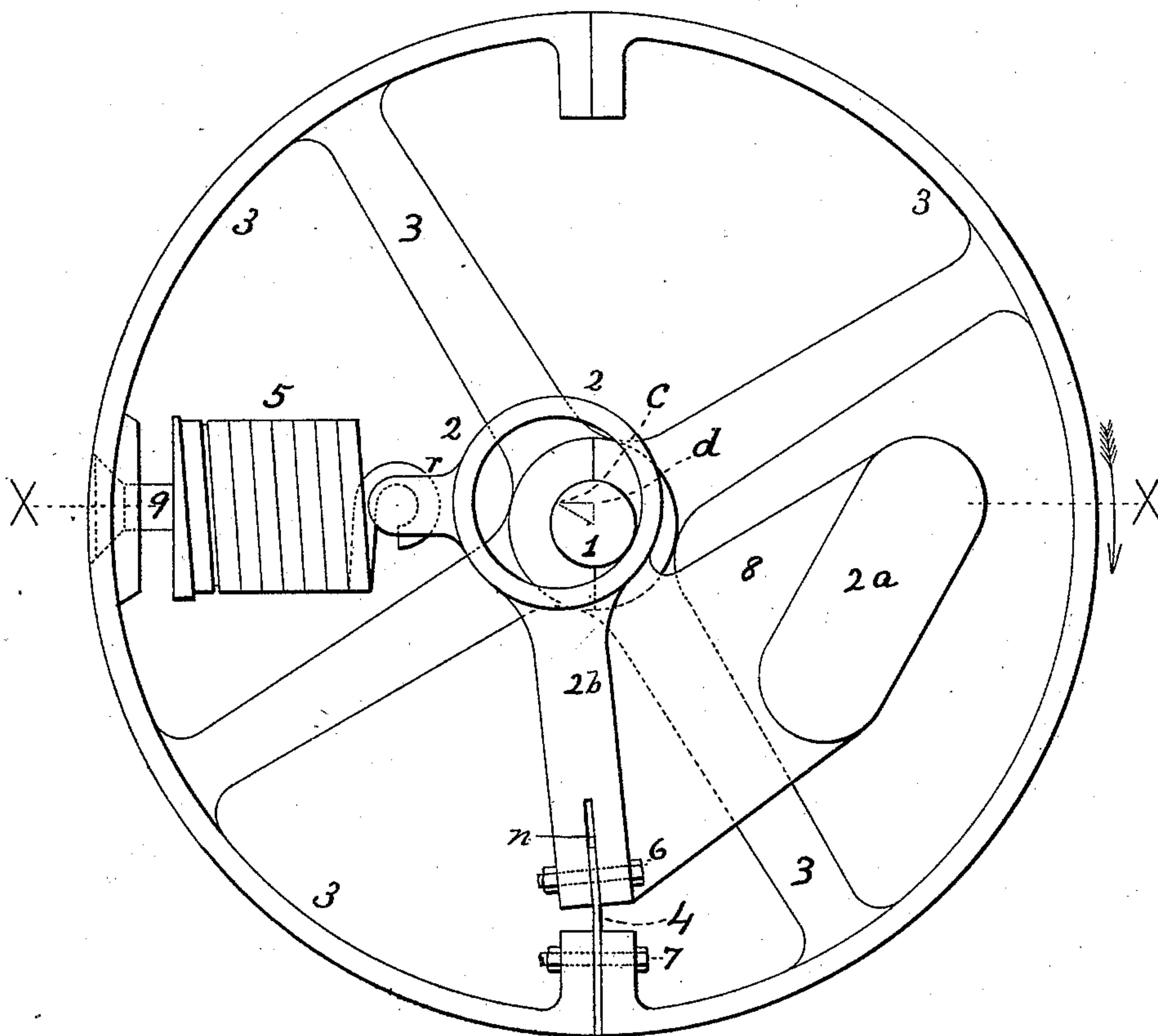
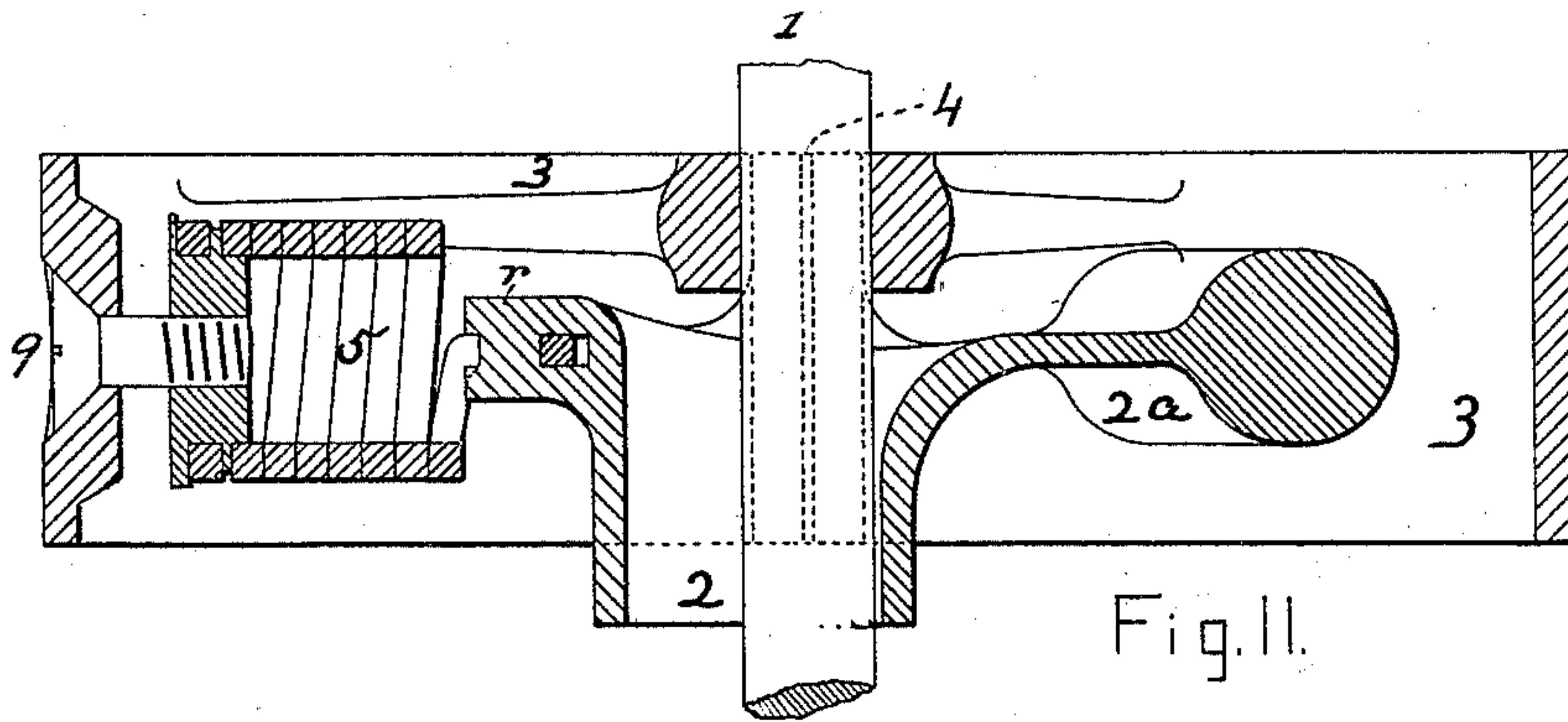


Fig. I.

Witnesses:

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att'y.

UNITED STATES PATENT OFFICE.

PAUL BIGELOW, OF CHARLOTTE, NORTH CAROLINA.

ENGINE-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 415,664, dated November 19, 1889.

Application filed February 23, 1889. Serial No. 300,871. (No model.)

To all whom it may concern:

Be it known that I, PAUL BIGELOW, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented certain new and useful Improvements in Engine-Governors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in that type of engine-governor in which the eccentric is moved as the engine varies its speed; and the objects of my improvements are, first, to simplify the construction; second, to reduce the number of bearing-surfaces, thus reducing friction and consequent sluggishness of action, and, third, to afford facilities for more effectual balancing of the revolving mass. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents an end view or elevation of the entire governor, and Fig. 2 a horizontal sectional view of the governor at the line XX, Fig. 1.

Similar letters refer to similar parts throughout.

The engine-shaft 1 carries a pulley or fly-wheel 3, which may or may not be spilt.

The eccentric 2 is fastened rigidly to the weight 2^a, which, when the engine is running, has a tendency to move away from the center of the shaft, thus changing the center of the eccentric from the point *c* to the point *d*, and consequently reducing the throw of the eccentric, lessening the travel of the valve, and allowing less steam to enter the engine-cylinder. The tendency of the weight 2^a to move the eccentric is counteracted by a spring 5, which is adjusted to various tensions by the bolt 9. The eccentric is provided with a large longitudinal opening, and has projecting from its outer periphery a short arm or lug *r*, having an eye for attaching spring 5, and a fulcrum-arm 2^b, which projects nearly at right angles to arm *r*, and has in its outer end a slot *n*, for receiving the edge of the flexible metallic fulcrum-strip 4.

In practice I preferably cast the eccentric, the fulcrum-arm, and weight in one piece, the weight being connected to the eccentric and fulcrum-arm by web 8, as shown in the drawing. The eccentric and weight move in arcs whose center is adjusted so that the center of the eccentric ranges from *c* to *d* as its extreme limits of travel. I use for the center of this motion either a common circular bearing, or, as shown in the drawings, a strip of spring sheet-steel 4, one edge of which is firmly held in the pulley or fly-wheel casting 7, and the other edge firmly held in slot *n* in the end of the fulcrum-arm 2^b by means of bolts and nuts. This gives a fulcrum or center of motion in which there is no appreciable friction; consequently no oiling is required, as in the common circular bearing.

In practice the mechanism is balanced when the valve has just enough travel to keep the engine up to speed, and the change of the weight when running slow is of immaterial consequence.

My governor is simple and compact in construction, efficient in operation, and is not liable to get out of order in use.

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

1. In an engine-governor, the eccentric provided with a lug for attachment of a spring, a fulcrum-arm having a slot in its outer end for receiving the flexible fulcrum-strip, and the weight, all constructed in one rigid piece.

2. In an engine-governor, the eccentric fulcrumed to the wheel by means of a strip of flexible metal, for the purpose described.

3. In combination with a pulley or fly-wheel, the valve-moving mechanism consisting of an eccentric having a fulcrum-arm and weight, and connected to the wheel in one direction by a spring and in another direction by a flexible metal fulcrum-strip, for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

PAUL BIGELOW.

Witnesses:

W. G. ERWIN,
JOHN P. HUNTER.