

(No Model.)

W. H. WHEELER.

GOVERNOR.

No. 343,683.

Patented June 15, 1886.

Fig. 1.

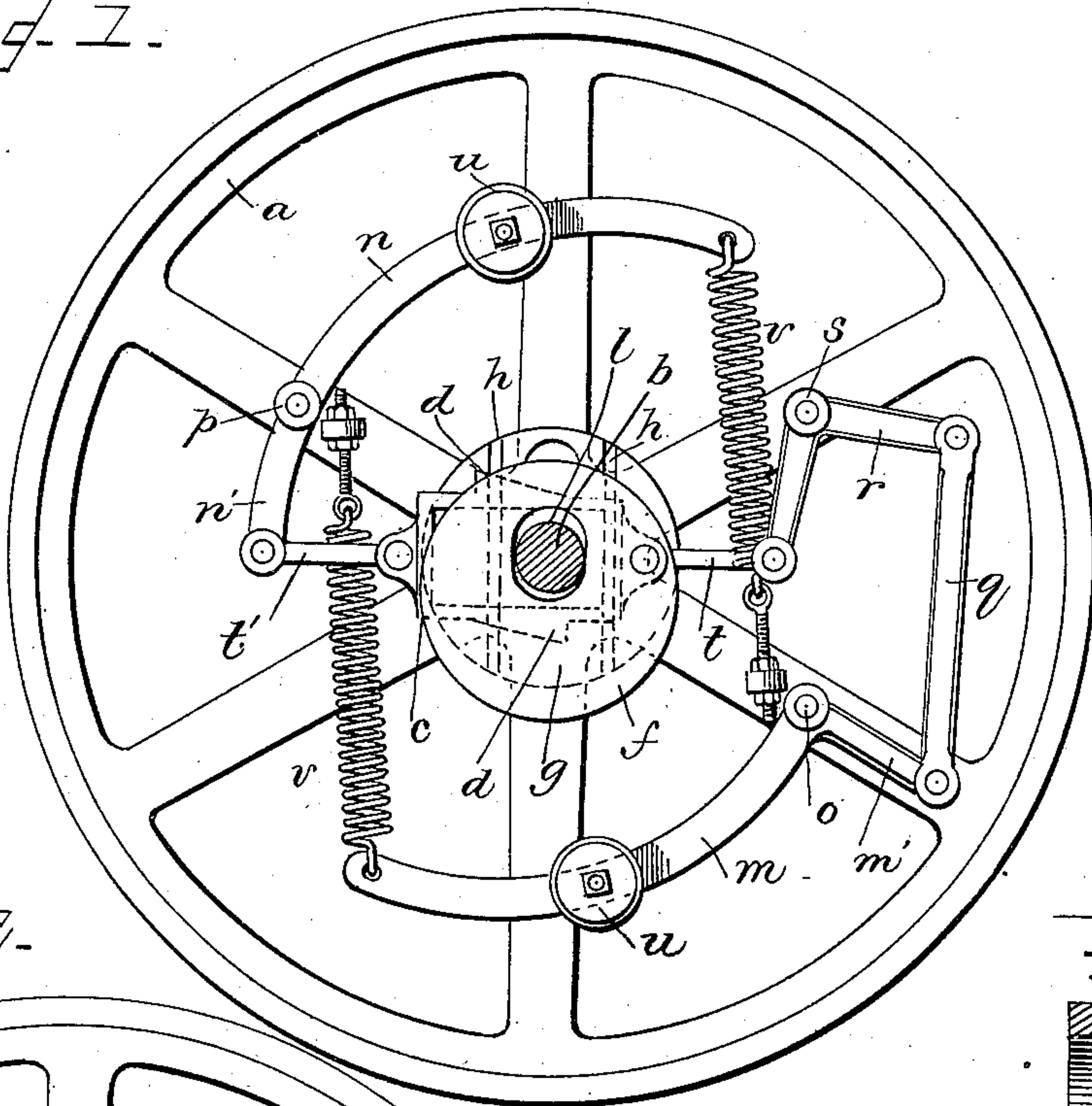
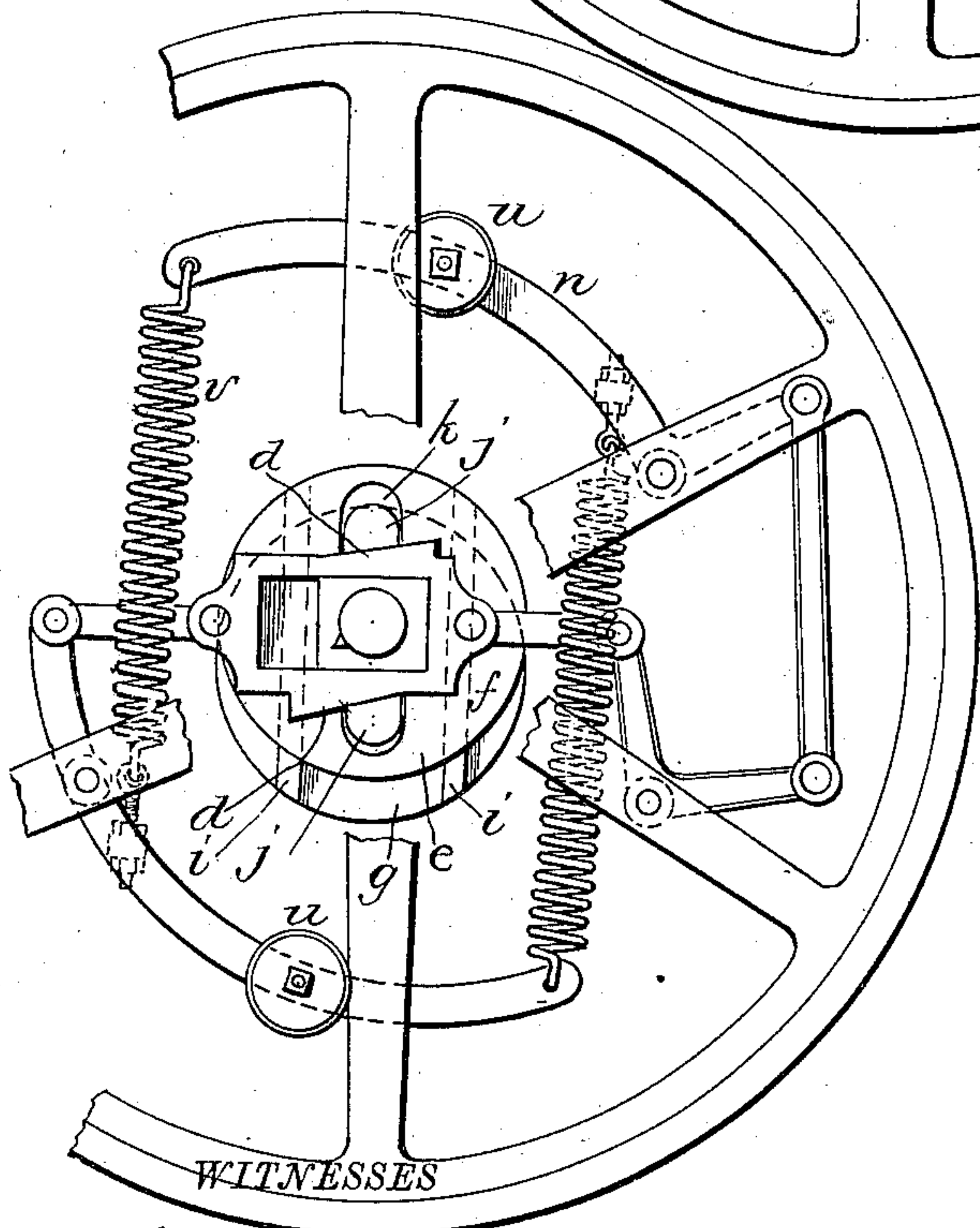


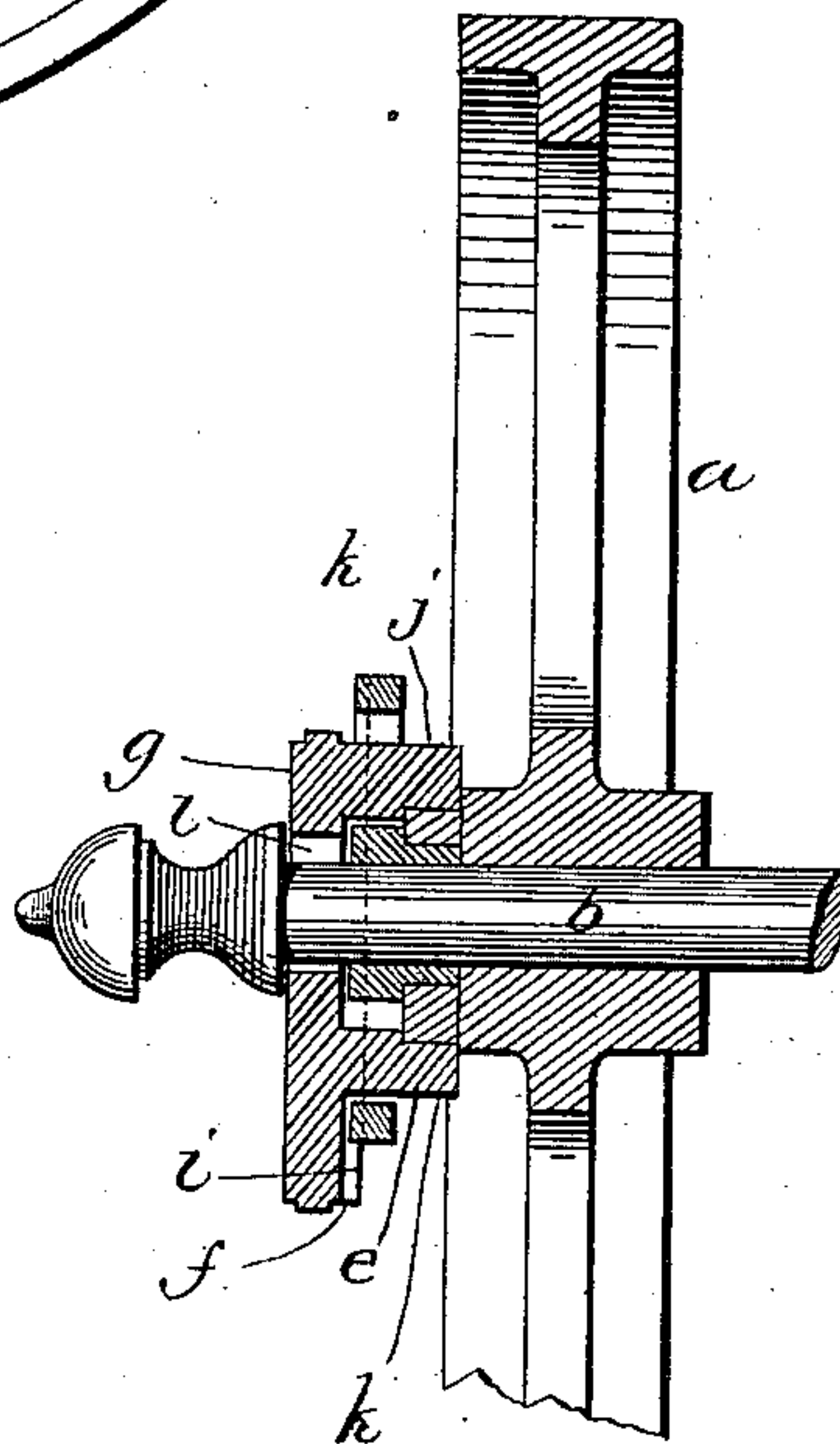
Fig. 2.



WITNESSES

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Fig. 3.



INVENTOR

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UNITED STATES PATENT OFFICE.

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GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 343,683, dated June 15, 1886.

Application filed April 17, 1886. Serial No. 199,209. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WHEELER, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Governors, of which the following is a full, clear, and exact description.

This invention relates to that class of governors which are applied directly to a fly-wheel, provided with a shifting eccentric to vary the throw or stroke of the valve-stem commensurately with the rapidity of revolution of the fly-wheel, and so automatically control the machinery driven.

The invention consists in the eccentric-shifting devices, as hereinafter particularly set forth and claimed.

In the accompanying drawings, in the several figures of which like parts are similarly designated, Figure 1 is a front elevation; Fig. 2, a rear elevation showing also a modification of the arrangement of the springs, and Fig. 3 is a vertical section.

The drawings show a governor constructed for a vertical or horizontal engine, though obviously the invention is not so limited.

The fly-wheel *a* is of ordinary construction. *b* is the shaft to which it is keyed or otherwise affixed. *c* is a yoke, rectangular in outline, and having on opposite sides inclines *d* of reverse inclination, the said yoke inclosing the shaft and having a rectilinear movement on a squared boss, *e*, of a guide-plate, *f*, for the shifting eccentric *g*. The guide-plate *f* has upon its face, at right angles to the length of the yoke, certain grooves, *h*, which engage parallel ribs *i* on the back of the eccentric *g*, and said eccentric is provided with beveled or inclined lugs *j*, projecting from its rear face through openings *k* in the guide-plate *f*, and matching and engaging the inclines *d* on the yoke *c*, so that the movement of the yoke is transmitted to the said eccentric, and as said yoke is shifted the eccentric is correspondingly operated. The opening *l* in the eccentric for the shaft *b* is elongated in the direction of the movement or shift of the eccentric, as will obviously be necessary to permit such movement. The yoke is shifted by centrifugal levers, *m* *n*, pivoted respectively at *o* and *p* to the spokes of the wheel *a*. The

lever *m* is provided with an elbow extension, *m'*, from its pivoted end, and this is connected by a link, *q*, to an elbow-lever, *r*, pivoted at *s* to a spoke next the pivotal spoke of the lever *m*, the pivots of the two being on substantially the same chord drawn through the wheel or at equal distances from the center of the wheel.

The elbow-lever *r* is connected by a jointed link, *t*, to one end of the yoke. The lever *n* has an extension, *n'*, connected by a jointed link, *t'*, to the opposite end of the yoke. Each lever is provided with the customary speed-weights *u* upon its free end, and is further restrained by a coiled spring, *v*, connected by one end to one lever, and swiveled at its other end to the spoke to which the opposite lever is pivoted, so that said springs draw evenly upon the levers. As indicated in Fig. 2 the springs might connect the opposite levers. The introduction of the elbow-lever *r* and link *q* not only takes the place of a dash-pot or equivalent device heretofore employed, but serves to permit the proper arrangement of the levers with respect to the eccentric shifting medium, and insures against any binding of the parts, thus being, in fact, a positive motion. It will be seen that as the levers fly off from the center of the wheel, they both assist in moving the yoke in the same direction, and hence effect the shifting of the eccentric. The springs make the return movement when the centrifugal force is relieved or removed.

What I claim is—

1. In a governor, a fly-wheel, a yoke provided with inclines, and weighted spring-levers pivoted to said fly-wheel and connected to the yoke to shift it with the change in speed of the machinery, and a shifting eccentric engaging said yoke and shifted by it, substantially as described.

2. In a governor, a fly-wheel, a shifting yoke, *c*, provided with oppositely-inclined sides, *d* *d*, a guide-plate, *f*, connected by a squared boss therewith, and a shifting eccentric movable in ways on said guide-plate and provided with beveled or inclined lugs engaging said yoke, combined with centrifugal levers pivoted to said fly-wheel, and connected to opposite ends of the yoke, substantially as described.

3. In a governor, a fly-wheel, a shifting yoke, *c*, provided with oppositely-inclined

- sides, *d d*, a guide-plate, *f*, connected by a squared boss therewith, and a shifting eccentric movable in ways on said guide-plate and provided with beveled or inclined lugs engaging said yoke, combined with centrifugal levers and weights pivoted to said fly-wheel to move said eccentric, and an elbow-lever, *r*, and link *q*, interposed between one of said levers and the yoke, substantially as described.
- 10 4. In a governor, a shifting mechanism comprising the yoke and its inclined sides, the carrier or guide plate having ways for the eccentric at right angles to the yoke, and the eccentric mounted upon said plate and having
15 inclined lugs extending through the plate and engaging the inclined sides of the yoke, the centrifugal counter-weighted levers pivoted to the fly-wheel and connected together by springs, and the link *t*, elbow-lever *r*, and link *q*, connecting one end of the yoke and one of the counter-weighted levers, substantially as described.
5. The combination, with the fly-wheel and shifting eccentric, of the counter-weighted levers *m n*, having their pivotal points on the fly-wheel in line with the shaft of the fly-wheel, and the elbow-lever *r*, pivoted at substantially the same radius as the counter-weighted levers and the yoke and carrier, substantially as described.
- 30 In testimony whereof I have hereunto set my hand this 16th day of April, A. D. 1886.
- WILLIAM H. WHEELER.
- Witnesses:
L. C. STALNAKER,
GEO. W. S. LOUCKS.