J. JUDSON.

GOVERNOR.

No. 187,017. Patented Feb. 6, 1877.

Fig. 1.

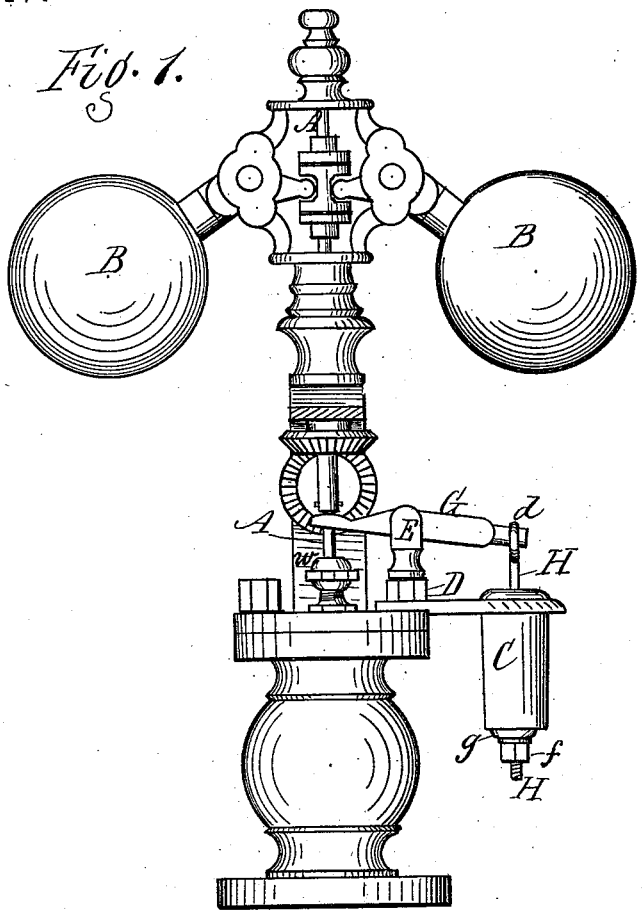
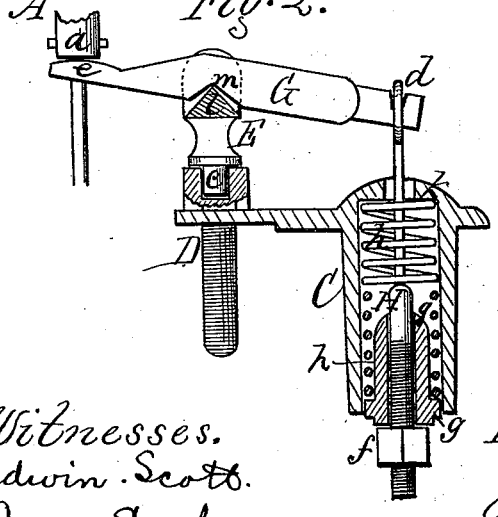


Fig. 2.



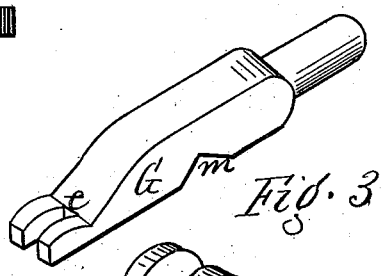
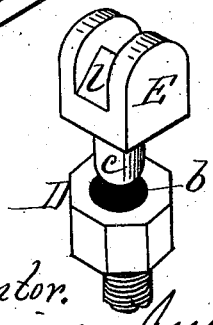


Fig. 3.



Witnesses.
Edwin Scott.
Jacob Spuhr

Inventor.
Junius Judson,
per R. F. Osgood,
Atty.

UNITED STATES PATENT OFFICE.

JUNIUS JUDSON, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN GOVERNORS.

Specification forming part of Letters Patent No. **187,017**, dated February 6, 1877; application filed June 26, 1876.

To all whom it may concern:

Be it known that I, JUNIUS JUDSON, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Governor-Valves; 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 accompanying drawings, in which—

Figure 1 is an elevation of a governor-valve provided with my improvement. Fig. 2 is a section of the attachment which forms the subject of my invention. Fig. 3 is a perspective view of the lever and its swivel-bearing.

This invention is an improvement on what is known as the "Judson governor." It relates to an attachment that bears upward against the valve-rod, and counter to the action of the balls when running, the object being to steady the valve against vibrations. Various devices for this purpose are now known. The most common consists of a lever with a weight sliding on the outer end. Another consists of a lever with a spring, producing upward pressure on the rod. I therefore disclaim the broad principle herein described; but my invention consists in the special construction and arrangement of the attachment, whereby it is easily applied and removed, is cheap, and effective in action.

A represents the valve-rod of an ordinary Judson governor. B B are the balls, connected with the rod so as to force the latter down to close the valve under centrifugal action. The rod is preferably made in two parts, pivoted together, as shown at *a*, Fig. 2. C is a cylinder or case, attached on top the globe by the ordinary bolt D. This bolt has a hole, *b*, drilled in its top, in which rests and turns the journal *c* of a swivel-bearing, E. G is a lever, resting in the bearing E, its front end being forked, as shown, at *e*, and resting under the enlarged end *a* of the valve-rod, while its rear end extends outward over the case C, and has hooked over it the loop *d* of the screw-rod H. This rod passes down through the case, and is threaded at its lower end, to receive the nut *f*. On top the nut, and within the case, is a shouldered slide, *g*, which rests on the rod, and on this slide is a coiled spring, *h*, which has its bearing at the top against a shoulder, *k*, of the case.

By turning the nut *f* up or down, it will be seen that the power of the spring will be increased or lessened, and its tension upon the lever will be correspondingly changed; consequently the upward pressure of the lever against the valve-rod, and counter to the balls, may be adjusted as desired.

The swivel-bearing E has a knife-edge, *l*, and the lever G has a corresponding notch, *m*, the one fitting loosely over the other, and forming the fulcrum of the lever without the use of the pivot. The bearing is thereby more sensitive, and the parts can be separated by simply lifting the lever off.

Instead of a knife-edge, a pivot or other joint might be used without affecting the operation of the swivel-head or the other parts composing the attachment.

One advantage of my invention consists of the bearing E, swiveled into the top of the clamping-screw D, by which means, when the screw is turned down tight in place to clamp the flanges, the swivel may be adjusted to position to prevent binding of the lever, by simply turning its journal in the socket of the screw-head. If the bearing were solid with the screw, it would not always come to the right position to allow the lever to be applied. Another feature consists of the arrangement of the screw-rod H, nut *f*, hollow slide *g*, and the spring *h*, by which means the tension of the spring is regulated. These parts are constructed so as all to rest loosely within the case, the nut projecting below, so as to be easily reached. They are all disconnected from the case by unhooking the eye from the lever and turning the nut off, when the rod H is drawn up through the top, and the other parts fall through the bottom.

The attachment above described serves as a speeder to the engine. With a stiff spring the tension can be so increased as to counteract the motion of the balls from thirty to forty per cent. This is desirable under some circumstances. The constant counteraction of the spring to the balls prevents, in a great degree, the vibration or jumping of the engine, produced by the varying action of the ball

under motion, particularly when the engine is running light.

I do not claim, broadly, a lever and spring for producing upward pressure on the valve-rod, counter to the balls, as I am aware that the same is not new.

What I claim herein as new is—

1. The attachment for governor-valves, consisting of the lever G, screw D, swivel-bearing E, and case C, provided with the rod H, slide *g*, nut *f*, and spring *h*, the whole combined and arranged to operate in the manner and for the purpose specified.

2. The combination, with the lever G, screw D, and valve-rod A, of the swivel-bearing E, constructed and arranged to operate as and for the purpose specified.

3. The combination, with the lever G, of the screw-rod H, provided with a loop, *d*, fitting over the end of a lever, a hollow slide, *g*, resting upon the screw-rod, a nut, *f*, resting below the slide, and a spring, *h*, resting between the slide and the top of the case, the whole forming a device for regulating the upward pressure of the lever against the valve-rod, as herein described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JUNIUS JUDSON.

Witnesses:

EDWIN SCOTT,

R. F. OSGOOD.