No. 780,429. PATENTED JAN. 17, 1905.

J. E. KIMBLE.

ENGINE GOVERNOR.

APPLICATION FILED MAY 13, 1904.

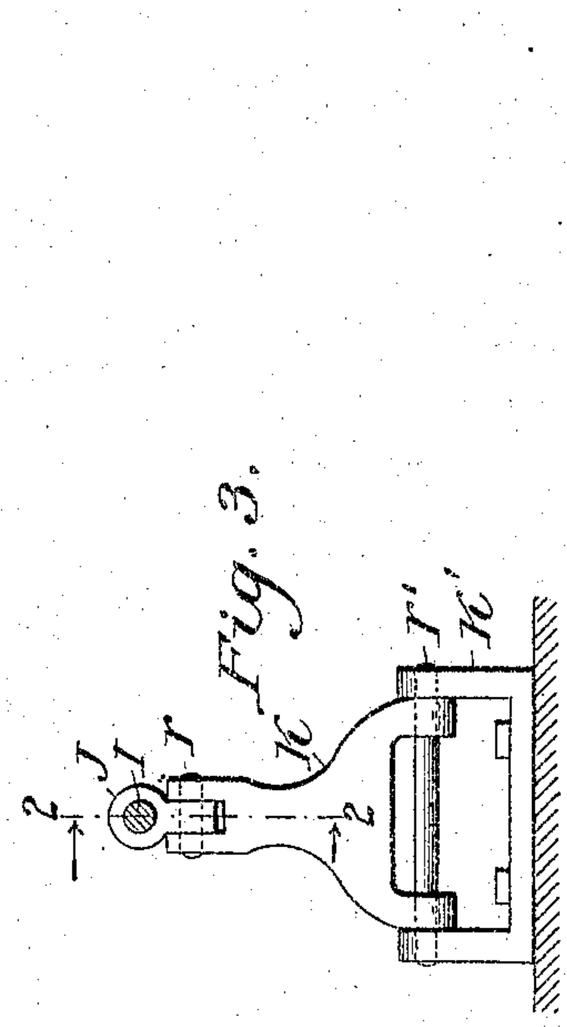

Fig. 3.

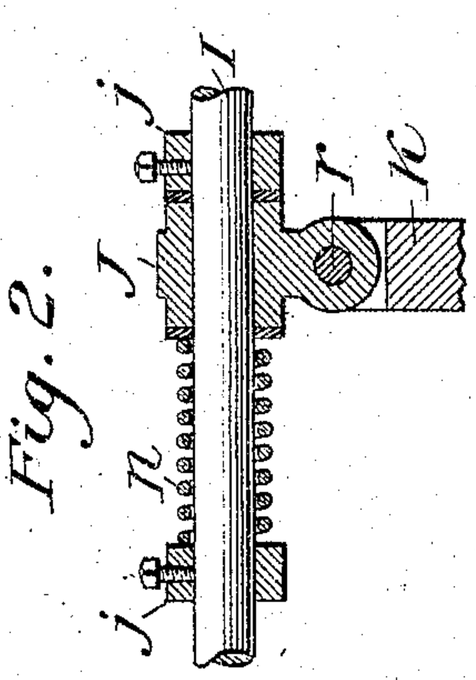

Fig. 2.

Fig. 1.

Witnesses:
Otis A Earl
Ethel a. Tiller

Inventor:
James E. Kimble
By Fred L. Chappell.
Atty.

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UNITED STATES PATENT OFFICE.

JAMES E. KIMBLE, OF VICKSBURG, MICHIGAN.

ENGINE-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 780,429, dated January 17, 1905.

Continuation of application Serial No. 117,299, filed July 28, 1902. This application filed May 13, 1904. Serial No. 207,791.

To all whom it may concern:

Be it known that I, JAMES E. KIMBLE, a citizen of the United States, residing at the village of Vicksburg, county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Engine-Governors, of which the following is a specification.

This invention relates to improvements in speed-regulating devices for engine-governors.

The objects of the invention will fully appear from the following specification, and the devices and means by which they are accomplished are fully described therein.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail side elevation view of a governor embodying the features of my invention. Fig. 2 is a detail longitudinal sectional view taken on line 2 2 of Fig. 3, the rod I being shown in full lines. Fig. 3 is a detail cross-sectional view taken on line 3 3 of Fig. 1.

In the drawings the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A represents the valve-casing. Upon this the governor mechanism is mounted. The valve-stem is divided into two parts B and C. The part B is connected to the valve and the part C to the governor mechanism.

The parts of the valve-stem are connected by a lever structure. The arm or lever D engages the head B′ of the part B of the valve-stem and the lever E the head C′ of the part C of the valve-stem. The lever D is keyed to the shaft F and the lever E is pivoted thereon. The ends D′ E′ of these arms or levers are bent downwardly, substantially at right angles, and a screw G is provided by means of which the relative positions of the arms D and E are accurately controlled, and the length of the valve-stem may be increased or diminished as it is desired to increase or diminish the speed of the engine, it being apparent that the longer the valve-stem the less the motion required of the governor-balls to close the valve.

Connected to the screw G by a universal joint H is a rod I, having a hand-wheel I′ at its end.

It is intended that the rod I shall be of such length and be so placed that it will be in convenient reach of the operator. This is designed particularly for use with traction-engines. As traction-engines are ordinarily constructed the governor is arranged toward the forward part of the engine and it is necessary for the engineer to leave his customary position on the engine to adjust the same. It is intended that the rod I shall be of such length and be in such position as to be within convenient reach of the engineer without his leaving his station.

Pivotally supported on the bracket K′, which may be secured in any convenient place on the engine, is a bracket K, the parts being secured together by a rod or shaft r', so that the bracket K is free to rock back and forth. On the rod is a collar J, having a downwardly-extending lug pivotally secured to the bracket K by the pin r. A coiled spring n is provided to put tension upon the rod I, so that it will not be accidentally rotated. The collars j j, which are adjustably secured to the rod I by suitable set-screws, are provided to hold the parts in their proper relation.

The tension-spring holds the rod in its adjusted position, so that it is not necessary to provide a catch or the like, and prevents the displacement by jarring or the bending or sagging of the rod.

It would be possible to make a practical structure without the universal joint H as connection for the screw G to the rod I. It would, however, require very careful adjustment, which is not necessary in this structure. The rod may be placed in any position for convenience of the operator without any special adaptation. The pivoted bracket K allows for any movement which may be necessarily due to the adjustment, and this without

strain on any of the parts. It is also found in the practical operation of engines—for example, of the traction-engine class—that a perfect control of the speed while in operation is very desirable. By this arrangement of parts it is successfully accomplished. In cases of emergency should the throttle refuse to operate or a great amount of power be suddenly demanded a pull on the rod I will close the valve or a thrust on the rod will hold the valve open against the action of the governor.

I have illustrated and described my improved engine-governor in detail in the form preferred by me. I am aware, however, that it is capable of considerable variation in structural details without departing from my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; a screw for adjusting said connections; a rod having a suitable hand-wheel; a universal joint for connecting said rod to said screw; a pivotally-supported bracket; a collar J on said rod pivotally secured to said bracket; a collar *j* adjustably secured on said rod; and a coiled spring arranged between said collars, for the purpose specified.

2. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; a screw for adjusting said connections; a rod having a suitable hand-wheel; a universal joint for connecting said rod to said screw; a pivotally-supported bracket; and a collar J on said rod pivotally secured to said bracket, for the purpose specified.

3. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; a screw for adjusting said connections; a rod having a suitable hand-wheel; a universal joint for connecting said rod to said screw; a pivotally-supported bracket; and a tension-spring for said rod, for the purpose specified.

4. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; a screw for adjusting said connections; a rod having a suitable hand-wheel; and a universal joint for connecting said rod to said screw, for the purpose specified.

5. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; a screw for adjusting said connections; a rod having a suitable hand-wheel; and a pivoted support for said rod, for the purpose specified.

6. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; means for adjusting said connections; a rod having a suitable hand-wheel, suitably connected to said adjusting means; a pivotally-supported bracket; a collar J on said rod pivotally secured to said bracket; a collar *j* adjustably secured on said rod; and a coiled spring arranged between said collars, for the purpose specified.

7. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; means for adjusting said connections; a rod having a suitable hand-wheel suitably connected to said adjusting means; a pivotally-supported bracket; and a tension-spring for said rod, for the purpose specified.

8. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; means for adjusting said connections; a rod having a suitable hand-wheel, suitably connected to said adjusting means, and a pivoted support for said rod, for the purpose specified.

9. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; connections for said valve to said governor; means for adjusting said connections; and a rod having a suitable hand-wheel, suitably connected to said adjusting means, for the purpose specified.

10. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; means for adjusting said governor, whereby said valve is controlled; a rod having a suitable hand-wheel connected to said adjusting means by a universal joint; and suitable means for supporting said rod, for the purpose specified.

11. In a speed-regulating device for steam-engine governors, the combination of a valve with the governor; means for adjusting said governor, whereby said valve is controlled; and a rod having a suitable hand-wheel connected to said adjusting means by a universal joint, for the purpose specified.

12. In an engine-governor, the combination of a speed-adjusting mechanism; a screw for adjusting said mechanism and a rod connected to said screw, for the purpose specified.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JAMES E. KIMBLE.

Witnesses:
A. J. ALBER,
OTIS A. EARL.