

No. 720,934.

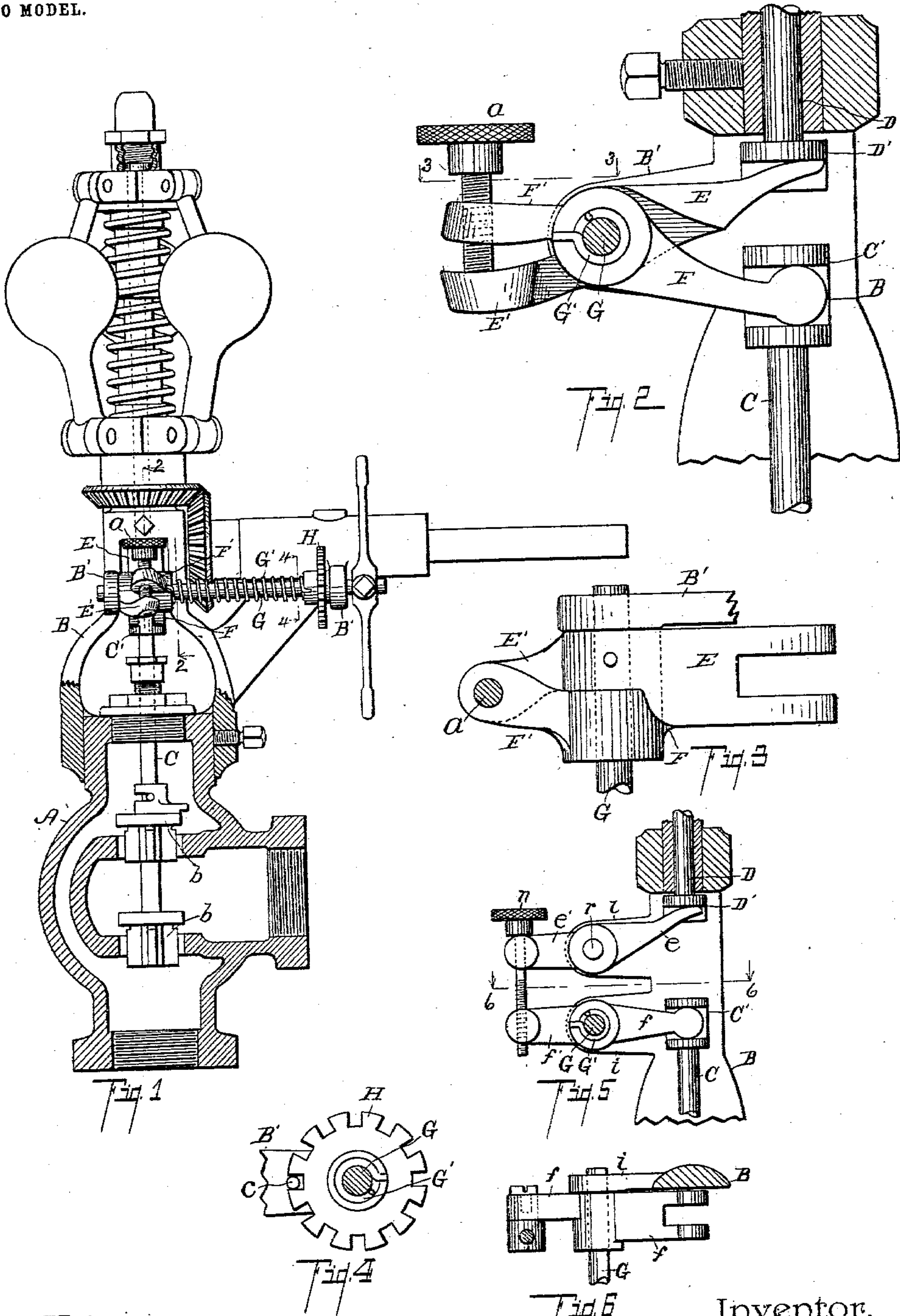
PATENTED FEB. 17, 1903.

R. C. KIMBLE.

SPEED REGULATING DEVICE FOR ENGINE GOVERNORS.

APPLICATION FILED FEB. 18, 1902.

NO MODEL.



Witnesses:

*W. E. Wood*  
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Inventor,

*Roy C. Kimble*  
By *Fred L. Cappel*  
Att'y.



# UNITED STATES PATENT OFFICE.

ROY C. KIMBLE, OF VICKSBURG, MICHIGAN.

## SPEED-REGULATING DEVICE FOR ENGINE-GOVERNORS.

SPECIFICATION forming part of Letters Patent No. 720,934, dated February 17, 1903.

Application filed February 18, 1902. Serial No. 94,662. (No model.)

*To all whom it may concern:*

Be it known that I, ROY C. KIMBLE, a citizen of the United States, residing at the village of Vicksburg, in the county of Kalama-  
5 zoo and State of Michigan, have invented certain new and useful Improvements in Speed-Regulating Devices for Engine-Governors, of which the following is a specification.

This invention relates to improvements in  
10 speed-regulating devices for engine-governors. It is particularly adapted for use as a speed-regulating device in connection with engine-governors of the class described in United States Letters Patent No. 654,007,  
15 issued to James E. Kimball July 17, 1900, although by proper structural variations it may be applied to any engine-governor which throttles the steam.

The object of my invention is to provide  
20 an improved speed-regulating device for governors which is simple in its construction and operation.

A further object is to provide an improved speed-regulating device capable of accurate  
25 and quick adjustment and which may be adjusted while the engine is in operation.

Still further objects will definitely appear in the detailed description to follow.

I accomplish the objects of my invention by  
30 the devices and means described in the following specification.

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

A structure embodying the features of my  
35 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 structure embodying the features of my in-  
40 vention. Fig. 2 is an enlarged detail longitudinal sectional view taken on a line corresponding to line 2 2 of Fig. 1. Fig. 3 is a detail cross-sectional view taken on a line corresponding to line 3 3 of Fig. 2. Fig. 4 is a  
45 detail sectional view taken on a line 4 4 of Fig. 1. Fig. 5 is a detail longitudinal sectional view of a modification of the view corresponding to that shown in Fig. 2. Fig. 6 is a detail view taken on line 6 6 of Fig. 5.

50 In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the sectional lines, and

similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the draw- 55  
ings, A represents the valve-casing; B, the framework which supports the governor mechanism. The valve-stem extends upwardly from the valve *bb* to the governor mechanism. In this structure the valve-stem is divided 60  
into two parts C and D. These parts are connected by the arm or lever E, which is carried by and keyed to the shaft G, the shaft G being supported in suitable bearings in the brackets B' B' on the frame B and the arm or 65  
lever F pivoted on the said shaft G. The arm E is adapted to engage the head D' on the rod D, while the arm F engages the head C' on the rod C. These levers or arms project at E' F', and a thumb-screw *a* is provided by 70  
means of which the relative position of the arms E and F is accurately controlled, and the length of the valve-stem may be increased or diminished according as is desired to de- 75  
crease or increase 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. A coiled spring G' is provided on the shaft G, which engages the lever or arm F to put proper tension on the 80  
valve. This tension may be accurately adjusted by means of the ratchet-wheel H and the pin *c*.

In the modified structure shown in Figs. 5 and 6 the arms *e* and *f* are supported on separate pivots or shafts *r* and *G*, brackets *ii* being provided to support the same. A thumb-screw *n*, through the projecting ends *e' f'*, is provided by means of which the relative po- 90  
sition of the arms *e f* may be adjusted to regulate the length of the valve-stem, and thus accurately control the speed. The adjustment and operation are substantially the same as those of the preferred structure.

It is evident that the adjustments may be 95  
made while the engine is in motion and that the same is under complete control of the operator. The spring G' not only serves to put proper tension on the valve, but also serves to remove any slack motion that may result 100  
through the connections.

I have illustrated and described my improved speed-regulator device for governors in the form preferred by me. I am aware, how-



ever, that other modifications than that illustrated will readily appear to those skilled in the art to which my invention appertains without departing from my invention.

5 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 engine-governors, the combination of a suitable governor-valve; a valve-stem divided in two  
10 parts C and D; a shaft G; an arm or lever E secured to said shaft engaging the upper part D of the valve-stem; an arm or lever F pivoted on said shaft, engaging the part C of the  
15 valve-stem; a spring G' on said shaft engaging said lever F and arranged to put tension on the same; means for adjusting said spring; and a thumb-screw through the projecting  
20 end of one of said arms and adapted to engage the other, whereby the relative position of said arms is controlled, all coacting for the purpose specified.

2. In a speed-regulating device for engine-governors, the combination of a suitable governor-valve; a valve-stem divided into two  
25 parts C and D; a shaft G; an arm or lever E secured to said shaft, engaging the upper part

D of the valve-stem; an arm or lever F pivoted on said shaft, engaging the part C of the valve-stem; a spring G' on said shaft engaging the said lever F; means for adjusting said  
30 spring; and means of adjusting said arms in relation to each other whereby the length of the valve-stem is controlled, all coacting for the purpose specified. 35

3. In a speed-regulating device for steam-engine governors, the combination of a suitable valve with a governor; a divided valve-stem; a connection for said parts consisting of a pair of arms, or levers, suitably supported, each lever engaging a part of the said  
40 valve-stem; and means by which said levers may be adjusted in their relations to each other to change the relative position of the parts of the valve-stem to regulate the length  
45 thereof, for the purpose specified.

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

ROY C. KIMBLE. [L. S.]

Witnesses:

J. H. STOFFLER,  
J. E. KIMBLE.