

(No Model.)

T. M. FOOTE.
SPEED REGULATOR.

No. 453,591.

Patented June 2, 1891.

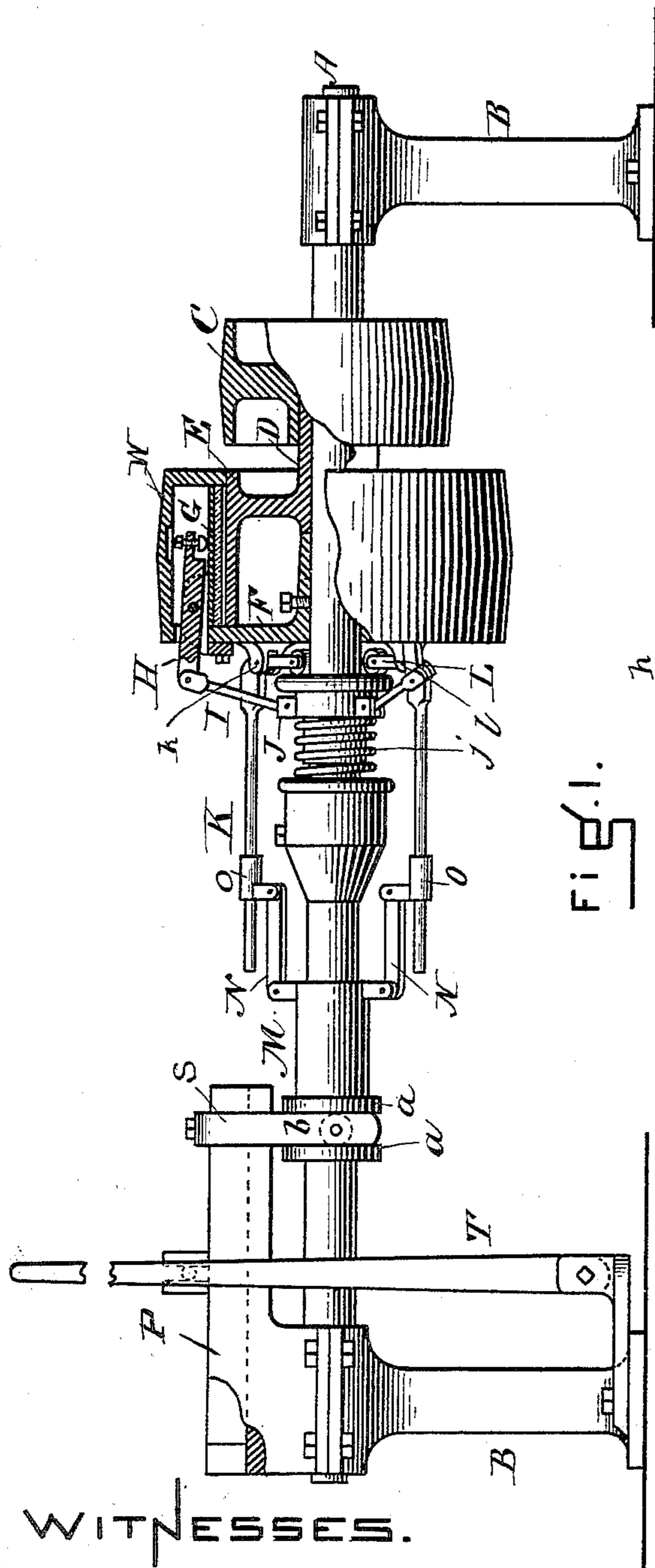


Fig. 1.

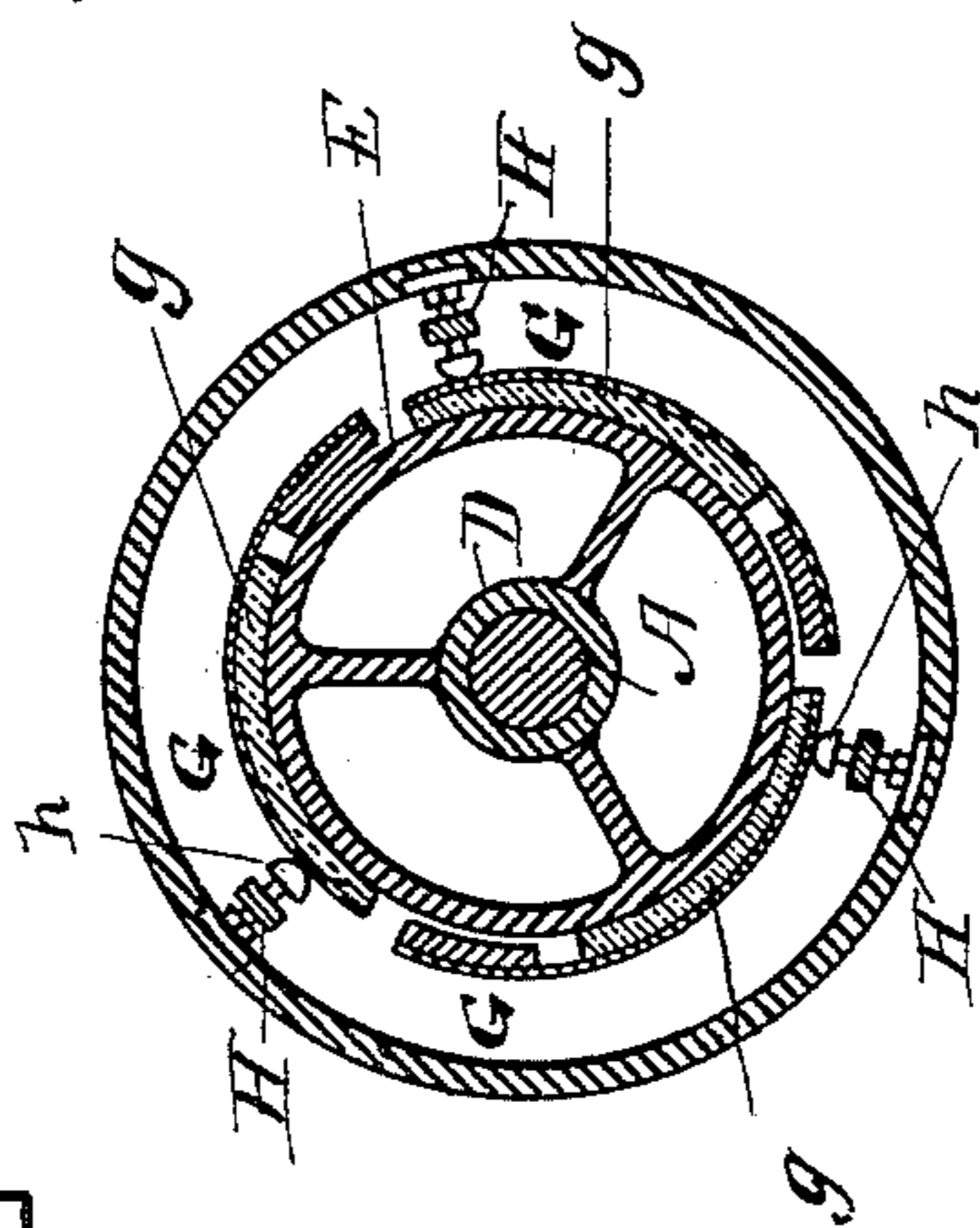


Fig. 3.

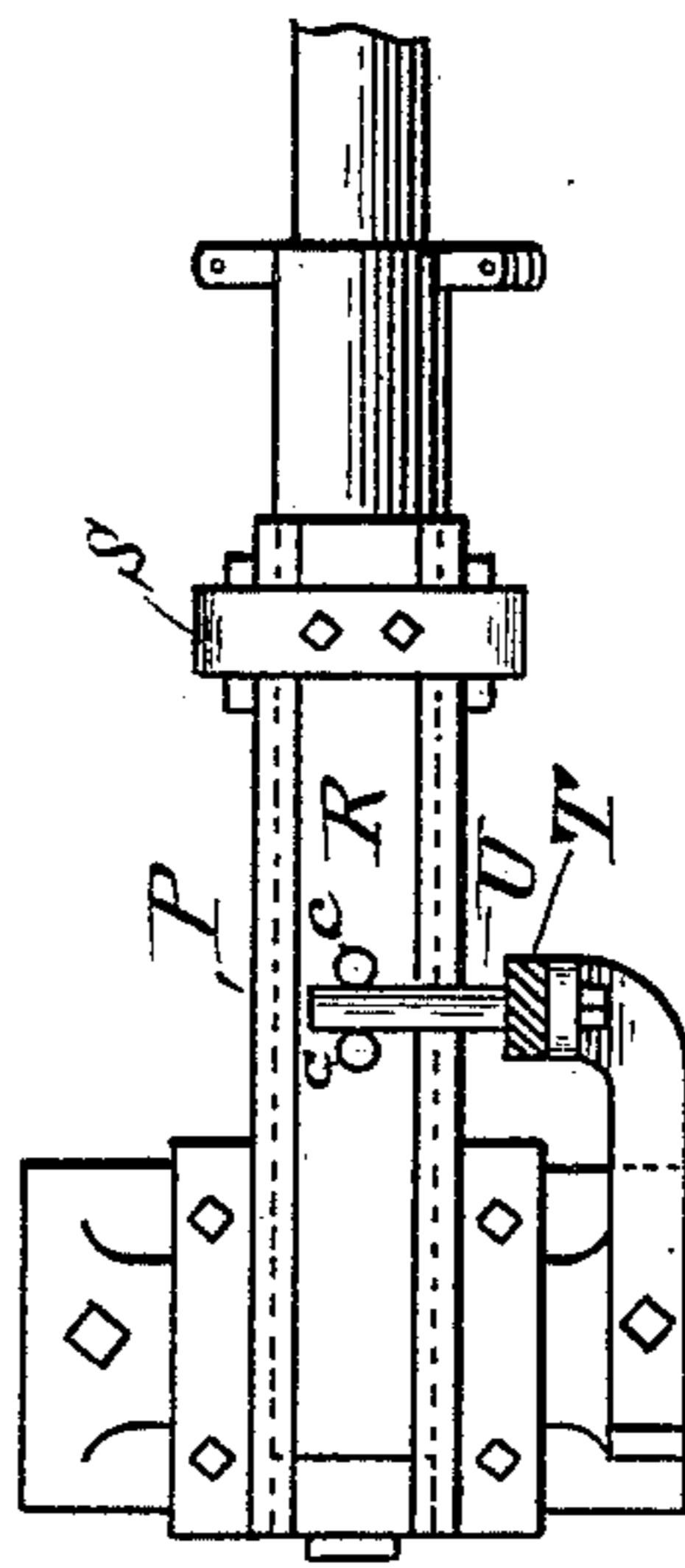


Fig. 2.

WITNESSES.

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THEODORE M. FOOTE, OF BOSTON, MASSACHUSETTS.

SPEED-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 453,591, dated June 2, 1891.

Application filed May 5, 1890. Serial No. 350,577. (No model.)

To all whom it may concern:

Be it known that I, THEODORE M. FOOTE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Speed-Regulators, of which the following, taken in connection with the accompanying drawings, is a specification.

The invention which forms the subject of this application for a patent of the United States is an improvement upon the speed-regulator described and claimed in Letters Patent No. 383,452, granted to me May 29, 1888, and has for its object to provide means for adjusting the weights on the arms of the governor while the machine is in motion and to enable one of the pulleys to be dispensed with.

To this end the invention consists in certain peculiarities in the construction, arrangement, and combination of parts, substantially as hereinafter described, and particularly pointed out in the subjoined claims.

In the accompanying drawings, Figure 1 is a view in elevation of the device, a part of the drum supporting the brake-shoes being shown in section. Fig. 2 is a plan view of the device for moving the sliding collar, and Fig. 3 is a transverse sectional view of the drum.

In these several figures the same letters refer to the same parts.

A designates the driving-shaft of a dynamo or of any other machine whose speed is to be regulated, suitably supported upon standards B B.

C is the driving-pulley; which rotates at a speed in excess of that desired for the shaft A and is fixedly secured to a sleeve D, which carries a cylindrical drum E. Said drum forms one member of a friction device, the other members of said friction device consisting of a series of brake-shoes G, constructed of springy material and bolted or otherwise suitably secured to a wheel F, which is fast on said shaft A, and has attached to it a shell W, which covers the drum E and has its face adapted to the reception of the belt by which it is connected to the dynamo or other driver mechanism. These brake-shoes G are each faced with a fabric *g*, the inner surface of which is at all times in frictional contact with the outer surface of wheel E, and each brake-shoe is controlled by a lever H, the inner ex-

tremity of which is so constructed or provided with a device, as *h*, as to be capable of bearing upon the upper surface of said brake-shoe, the outer end of each of said levers being connected with a sliding collar J by means of links I. The collar J is forced in one direction by the coiled spring *j*, one end of which is in contact with the outer end of said collar and in the other direction by the governor-arms K, with which the collar is connected by arms L, which bear against the inner end of the collar, said governor-arms being fulcrumed to the wheel F at *k*.

Thus far the construction is substantially similar to my former patent above referred to, and in said patent I have described a device for adjusting the weights on the governor-arms; but the device which I will now proceed to describe I have found to be better adapted for practical use. Said device consists of a sleeve M, sliding on the shaft A and connected by link-levers N to weights O on the governor-arms. In order to enable this sleeve M to be moved when the shaft A is rotating, I provide two plates P, supported above the shaft A and parallel therewith, said plates forming a guide for a slide R, which moves longitudinally between them. Attached to this slide is a U-shaped piece S, extending downward vertically, and the arms of this piece lie between flanges *a a* on the sleeve M, and each carries a roller *b*, against which the flanges bear. A vertical lever T, pivoted below the shaft, carries a horizontal bar U, which lies between pins *c c* on the slide R. By means of this lever the slide can be moved backward and forward.

The operation of my invention is as follows: The driving-pulley C is driven at a speed in excess of that desired for the shaft A. The sleeve M is so set that the spring *j* will cause collar J, by means of links I and levers H, to force the brake-shoes G against drum E, and thereby create sufficient friction to cause said shaft A to rotate with pulley C. When collar J is moved sufficiently near wheel F to force said shoes into greater frictional contact with drum E, links I will be brought into such relation to the levers H, pressing on said friction-shoes, that the members—drum E and friction-shoes—of the friction device will be held in the required frictional contact until

centrifugal force, acting upon the governor-arms K, moves collar J away from wheel F, thereby causing the inner ends of the levers H to move away from the brake-shoes, which
 5 then spring back very slightly, not as far as to become out of contact with drum E. The centrifugal force of course does not act until shaft A has attained the desired speed, and when said governor-arms have been properly
 10 weighted and adjusted to suit spring j the speed of shaft A is accurately adjusted.

With the above-described governor-regulating device the speed of shaft A is readily varied by moving the lever T in such direc-
 15 tion as to bring sleeve M nearer to or farther from the fulera of the governor-arms, whereby the force of springs j upon the governors is varied.

Having thus described my invention, what
 20 I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the shaft A, its driving mechanism, friction devices, a sliding collar connected with said friction devices,
 25 and means for forcing said collar in one direction, of means for forcing said collar in the opposite direction, consisting of governor-

arms, each pressing at one end against said collar, weights sliding on said governor-arms, a sliding sleeve on the shaft A, and links con- 30
 necting the weights to the sleeves.

2. The combination, with the shaft A, driving mechanism therefor, friction devices, a sliding collar connected with said friction de- 35
 vices, and a spring encircling said shaft and tending to force the collar in one direction, of governor-arms one end of each of which presses against the inner end of said sliding collar, a sleeve on the shaft, connected with said governor-arms and having flanges, plates 40
 supported above said sleeve, a slide between said sleeve, a slide between said plates, a U shaped piece connected to said slide, having its arms located between said flanges of the sleeve and provided with rollers, and a lever 45
 for moving said sleeve back and forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 25th day of April, A. D. 1890.

THEODORE M. FOOTE.

Witnesses:

FRANK G. PARKER,
 ALEX. L. HAYES.