

J. S. ADAMS.  
GOVERNORS FOR REGULATING THE SPEED OF MACHINERY.

No. 195,322.

Patented Sept. 18, 1877.

Fig. 1.

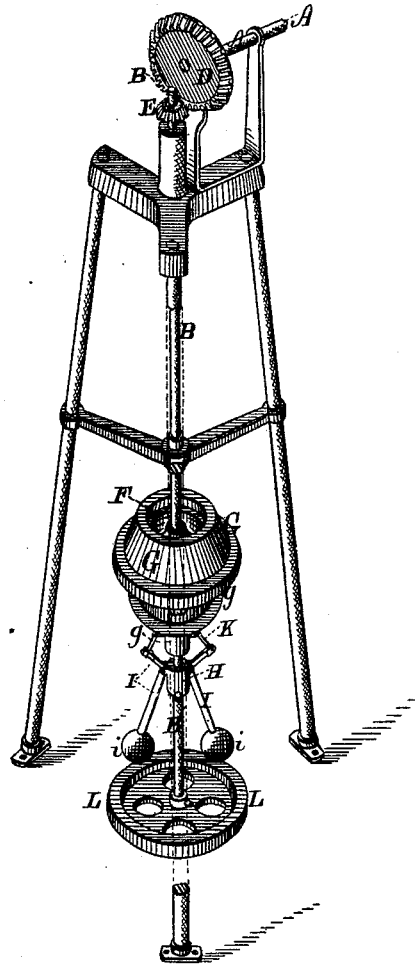
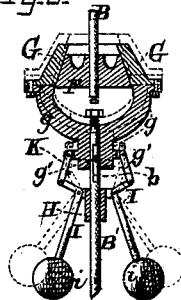


Fig. 2.



WITNESSES-

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# UNITED STATES PATENT OFFICE.

JOHN S. ADAMS, OF ELGIN, ILLINOIS.

## IMPROVEMENT IN GOVERNORS FOR REGULATING THE SPEED OF MACHINERY.

Specification forming part of Letters Patent No. 195,322, dated September 18, 1877; application filed February 16, 1877.

### *To all whom it may concern:*

Be it known that I, JOHN S. ADAMS, of Elgin, in the county of Kane, and in the State of Illinois, have invented certain new and useful Improvements in Governors for Regulating the Speed of Shafts; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a perspective view of my improved governor as applied to the driving-shaft of a windmill, and Fig. 2 is a vertical central section of said governor.

Letters of like name and kind refer to like parts in each of the figures.

In the use of windmills the varying force of the wind will cause material variations in the velocity of the driving-shaft in spite of the mechanism employed for relieving the wind-vanes from sudden or excessive pressure, a frequent result being the derangement or breakage of some of the machinery that is being driven.

To prevent such injury is the design of my invention, which consists in the peculiar construction of the friction-collars employed for connecting the sections of the driving-shaft, and their combination with said sections, and with the means employed for moving said collars toward or from each other, substantially as and for the purpose hereinafter specified.

In the annexed drawing, A represents the horizontal shaft of a windmill, which is journaled within suitable bearings, and is connected with a vertical driving-shaft, B, by means of a bevel-gear, D, and pinion E, all in the usual manner.

Near its lower end the shaft B is divided horizontally, so as to form two sections, and upon the lower end of the upper section B is rigidly attached a collar, F, which has the form of the frustum of a cone, while around or over the same is fitted a second collar, G, which corresponds in interior shape to, and embraces the periphery of, said collar F.

From the lower side of the collar G a sleeve, g, extends downward to and is fitted loosely over the upper end of the lower shaft-section B', and is held in circumferential position upon the same by means of a pin or key, g',

which passes transversely through said sleeve, and through a longitudinal slot, b, that is provided in and through said shaft-section, the arrangement being such as to enable said collar G to be moved vertically upon said shaft, so as to cause its inner bearing-surface to be engaged or released from engagement with the bearing-surface of the collar F.

Pivoted within opposite sides of a collar, H, which is secured to or upon the shaft-section B' at a point below the sleeve g, are two bars, I, that have the forms shown in Fig. 2, the largest portion of each being below its pivotal bearing, while the portion which is above said bearing is turned outward at nearly or quite a right angle to said lower portion.

Secured upon the lower end of each bar I is a ball, i, while to the upper end of said bar is pivoted one end of a bar, K, which from thence extends upward to and is pivoted upon the periphery of the sleeve g, constituting the common form of speed-governor.

A balance-wheel, L, (which may also be employed as a band-wheel,) secured upon the lower portion of the shaft-section B', completes the device, the operation of which is as follows:

The weighted arms of the governor cause the contiguous faces of the collars F and G to remain in contact, so that the motion of the upper section of the shaft B will be communicated to the lower section B' by the friction between said faces until the rotary speed of said governor is sufficient to move said weighted arms outward and upward, when, by the raising of said collar G, its bearing-face is removed from contact with the face of said collar F, after which the velocity of said lower section B', being maintained only by the momentum of its attachments, gradually decreases until, by the falling of its governor-arms, said friction-collars are once more in contact.

The operation described takes place whenever there is an increase of velocity sufficient to lift the weighted governor-arms from their normal positions, and, as the connection between the upper and lower sections of the driving-shaft is severed at such instant, it will be seen that no damage from overspeed can result to the machinery being driven.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

In combination with the sections B and B' of the driving-shaft, the conical collar F, secured rigidly upon the lower end of said section B, the collar G, arranged to embrace the periphery of said collar F, and connected with said lower section B' by means of the sleeve *g* and the pin *g'*, that passes through the slot *b* of the latter, and a centrifugal governor

connected with said section B', and arranged to raise said collar G, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of October, 1876.

JOHN S. ADAMS.

Witnesses:

GEO. S. PRINDLE,  
JAS. E. HUTCHINSON.