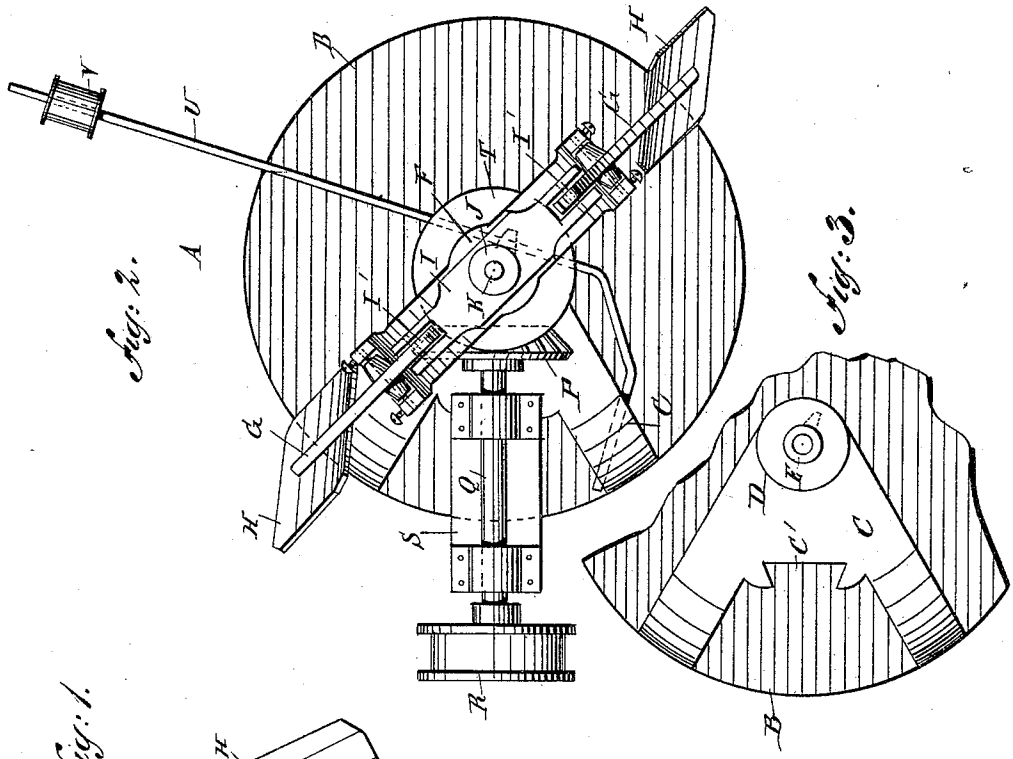
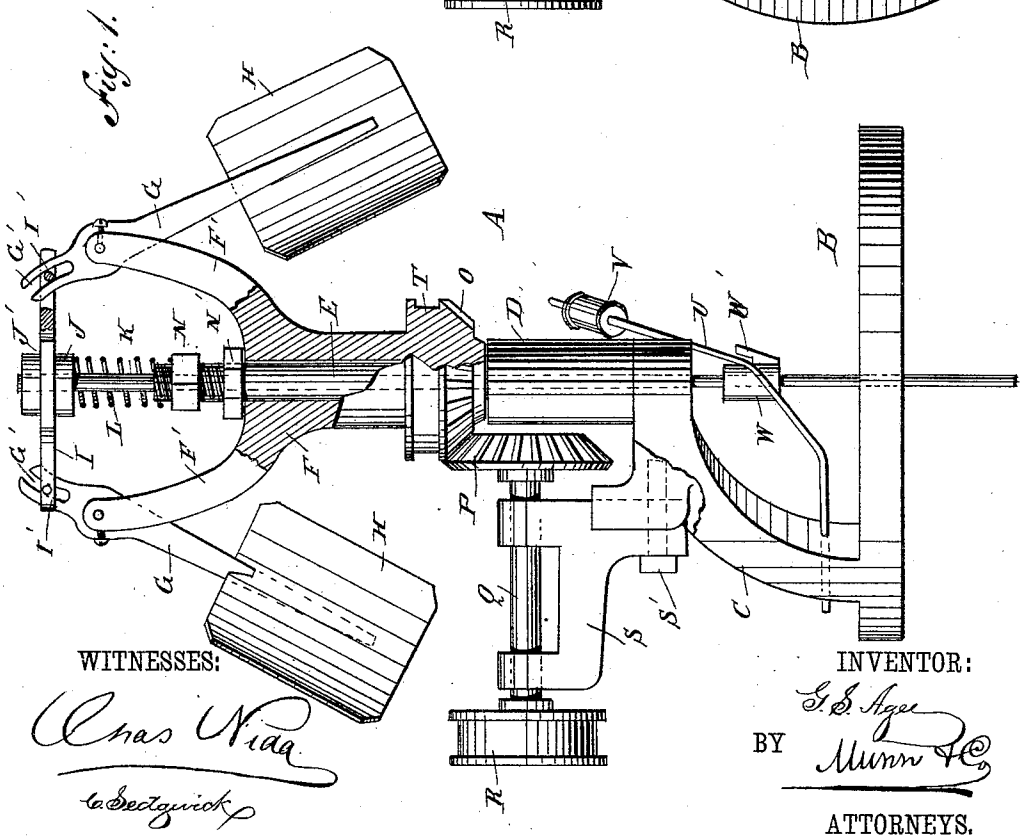
(No Model.)

G. S. AGEE.

GOVERNOR.

No. 409,093. Patented Aug. 13, 1889.





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GEORGE S. AGEE, OF BURNHAM, MISSOURI.

GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 409,093, dated August 13, 1889.

Application filed June 27, 1888. Renewed July 17, 1889. Serial No. 317,752. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. AGEE, of Burnham, in the county of Howell and State of Missouri, have invented a new and Improved Governor, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved governor which is simple and durable in construction, very effective in operation, and which for an increase of speed has a corresponding reduction of friction and inertia.

The invention consists of a revolving governor-frame carrying levers provided with fans.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement, parts being in section. Fig. 2 is a plan view of the same, and Fig. 3 is a plan view of part of the governor-stand.

The improved governor A is provided with a base B, carrying a bracket C, on which is formed a vertical bearing D, terminating in a reduced portion E, on which turns the governor-frame F, provided with the usual arms F′, the upper ends of which are pivoted in any suitable manner to the levers G, carrying at their lower ends the fans or paddles H, slightly inclined, as shown in Figs. 1 and 2.

The upper end of each lever G is provided with a slot, G′, in which fits a pin I′, held on the outer forked ends of an arm I, mounted to turn in an annular recess J′ of a head J, secured to the upper end of the valve-stem K, having its bearing in the reduced portion E of the bearing D, and connected at its lower end in the usual manner with the steam-inlet valve. A spring L is coiled on the upper end of the valve-stem K and presses with its upper end against the under side of the head J, and with its other end on a nut N, screwing on the upper threaded portion of the part E and serving to regulate the tension of the said spring L. A second nut N′ also screws on the upper end of the reduced part E, so as to hold the frame F in place on its bearing. In the lower end of the frame F is formed a bevel gear-wheel O, which meshes into a bevel gear-wheel P, secured to one end of a shaft Q, carrying at its outer end a pulley R, connected in the usual manner by a belt with the main driving-shaft of the engine on which the governor is applied. The shaft Q is mounted to rotate in suitable bearings on a bracket S, fitted into a dovetail C′, formed in the bracket C, and held in place by a bolt S′, screwing through the bracket S into the bracket C.

The bevel gear-wheel O and its connections, as above described, are employed when the driving-power is derived from a horizontal shaft; but when a vertical shaft is used I disconnect the bracket S from the bracket C and attach a driving-belt over a pulley T, formed next to the bevel gear-wheel O on the frame F. A lever U is pivoted in the bracket C, and carries at its outer end a pulley V, which rides on the governor-belt. The said lever U fits into a lug W′, formed on a collar W, secured to the valve-stem K. This lever U closes the valve in case of breaking of the governor-belt, as the said pulley V will act as weight on the lever U and move the same downward, carrying along the valve-stem.

The operation is as follows: The frame F is rotated in the usual manner, and carries the fans H around with it, so that the said fans act against the air, which offers sufficient resistance, so that the fans act on the valve-stem in a similar manner to the governor-balls usually employed. The spring L presses the arm I upward, so as to hold the fans H closed; but when the speed of the engine increases the fans fly outward and the upper ends of the levers G act on the pins I′ of the arm I, so that the latter is pressed downward and decreases the opening of the steam-inlet.

The fans H may be of any desired shape or weight and fitted on any kind of governor, in lieu of the balls now employed. The spiral spring L acts directly on the valve-stem K, and not on the levers G, so that the latter are free to act at an increase of the speed of

the engine, thereby avoiding all unnecessary friction or lost motion.

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

1. The herein-described governor, comprising the base B, provided with a vertical bearing D, terminating in a reduced upper portion E, the governor-frame F, journaled on said reduced portion and having a gear on its lower end and forked arms F′ on its upper end, the levers G, pivoted in said forked ends, slotted at their upper ends, as at G′, and provided with inclined fans H at their lower ends, the governor-rod K, extending down through the bearing D E and having a cross-arm I at its upper end, provided with pins I′, entering the slots G′, and the spring L, between the under side of arm I and a collar or nut on the part E, and pressing the arm I and governor-rod upward, substantially as set forth.

2. The combination, with the base having a bracket C, provided with a vertical bearing D, the governor-frame F, mounted on said bearing and having the governor-arms at its upper end and a pulley T and gear O at its lower end, of the detachable bracket S, secured to the said bracket C and having a horizontal shaft Q, provided with a gear P at its inner end meshing with gear O, and a pulley R at its opposite end, substantially as set forth.

3. In a governor, the combination, with the governor-frame, its arms, and the vertical governor-rod K, having a lug W′ below the governor-frame, of a lever pivoted at its inner end, extending across said lug and having a pulley V at its outer end, substantially as set forth.

4. The combination, with the base B, having a bracket C on its upper side provided with a vertical bearing D, the governor-frame on said bearing, and the governor-rod K, extending down through the bearing D, upper end of the bracket, and the base, of the collar W, having a lug W′ and mounted on the governor-rod between the base and the bracket, and the lever U, pivoted to the bracket C, extending across the lug W′ and having a pulley on its outer end, substantially as set forth.

GEORGE S. AGEE.

Witnesses:
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