No. 846,814. PATENTED MAR. 12, 1907.

J. C. ANDERSON.

SPEED GOVERNOR.

APPLICATION FILED JUNE 30, 1906.

Fig. 1.

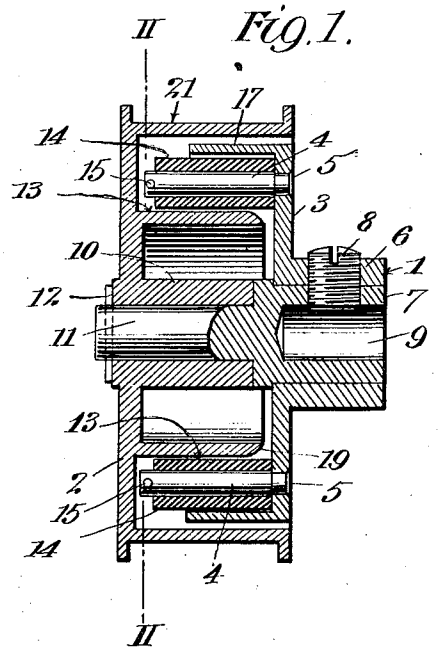
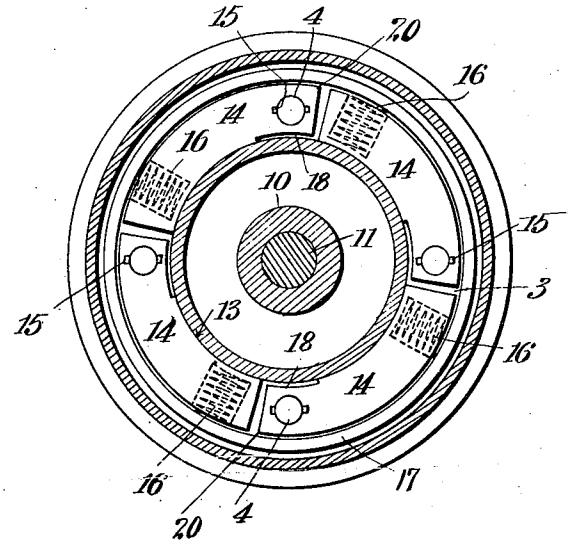


Fig. 2.



Witnesses

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JAMES C. ANDERSON, OF RUTHERFORD, NEW JERSEY, ASSIGNOR TO THE AUTOCOIL COMPANY, A CORPORATION OF NEW JERSEY.

SPEED-GOVERNOR.

No. 846,814. Specification of Letters Patent. Patented March 12, 1907.

Application filed June 30, 1906. Serial No. 324,119.

To all whom it may concern:

Be it known that I, JAMES C. ANDERSON, a citizen of the United States, residing at Rutherford, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Speed-Governors, of which the following is a full, clear, and exact description.

My invention relates to a speed-governor of the friction-clutch type which slips above a certain speed, so that the speed of rotation of the driven shaft remains constant.

The principal object of the invention is to improve and simplify the details of construction and the general efficiency of the mechanism.

With this in view the invention consists in the construction, combination, in the location, and in the arrangement of parts, as hereinafter set forth and shown and finally particularly pointed out in the appended claims.

In the drawings, Figure 1 is a sectional view of a speed-governor embodying the principles of my invention. Fig. 2 is a section on the line II II of Fig. 1.

In the operation of many mechanical appliances, and particularly for the purpose of driving magneto-generators from gas-engines which move at varying speeds, it is desirable to have a speed-governor which shall compensate for the speed variations of the driving member, so that the driven shaft and the generator rotate at a uniform rate or a rate which is substantially uniform. This is commonly accomplished in practice by a form of clutch connection which has centrifugal devices to cause it to slip when rotating above a certain speed. In carrying out my invention I make use of this principle by a compact and simple mechanism having few parts, which is easy to construct, and which is not liable to get out of order.

Referring now to the drawings, in which like parts are designated by the same reference-sign, 1 indicates the driven and 2 the driving member of the speed-governor. The driven member 1 is conveniently in the form of a disk 3, with pins 4 projecting perpendicularly from its face and anchored thereto by a riveted connection 5. The disk is supported by a central hub 6 on the driven shaft 7, the two parts being keyed or fixed together by a set-screw 8 or other means. This set-screw also serves to fix the shaft 7 upon any convenient rotating spindle or part of the generator or driven device, the shaft 7 being recessed at 9 for this purpose.

The driving member of the governor has a central hub 10 loose upon a reduced extension 11 of the shaft 7 and held in place thereon by a pin 12. The essential characteristic of the driving member 2 is the cylindrical surface or drum 13, which is conveniently formed to be received between or among the various pins 4, already described. The cylindrical surface or drum 13 constitutes a clutch-surface, and I provide a series of spring-pressed shoes pivoted on the pins 4 to engage this surface. These shoes are indicated in the drawing at 14 and are shown held in position on the pins 4 by the cotter-pins or other limiting devices 15. 16 indicate springs received within recesses in the various shoes 14 and bearing against a peripheral flange 17 of the driven member 1. The relation is such that all of the pivoted shoes 14 are impelled inward about their fulcrums with a predetermined spring-pressure.

A feature of the invention relates to the form of the shoes, which are generally curved to correspond to the curvature of the drum 13 and are of rectangular section throughout. The surfaces which engage the drum are cut away, as shown at 18, adjacent to the pivot-points, so that the shoes can contact with the drum only at their free ends. The inner edge of the drum 13 is beveled, as shown at 19, so that the shoes will not impede the entrance of the drum when the parts are assembled. The bevel need not be very extensive, because the fingers do not have a wide angle of movement, owing to the limiting action of the corners 20 against the flange 17.

The power may be transmitted to the driving member 2 in any desired way, conveniently by a pulley 21, integral with the member 2 and formed to overlie and inclose the mechanism of the governor and clutch. The relation is clearly indicated in Fig. 1, in which it will be seen that the pulley wholly surrounds and protects all the mechanism and at the same time furnishes a very compact construction.

The operation is as follows: Under normal conditions the various shoes 14 are pressed

inward by their springs 16, so as to frictionally engage the surface of the drum 13. Under these circumstances as the driving member 2 rotates the movement is transmitted to the driven member and to the shaft 7 by such frictional engagement. As the speed of the driven member increases, however, a point is finally reached where the centrifugal force of each of the shoes 14 overcomes the tension of its spring 16, so that the various shoes are thrown outward and do not transmit any further rotation to the driven devices until the speed thereof falls to the predetermined or normal value. In this action the annular flange 17 in addition to acting as an abutment prevents the shoes from flying outward far enough to contact with the inner wall of the pulley 21, and thus impelling the clutch to continue its driving relation in excess of its proper speed. In actual practice the speed regulates itself very closely and the shoes slip just enough to keep the speed of the driven member at a substantially constant value regardless of the speed of the driving-pulley and its drum 13.

What I claim is—

1. In a speed-governor, a member comprising a drum having a pulley surrounding said drum and protecting the same, and another member comprising a disk having pins projecting therefrom, a plurality of rigid curved shoes pivoted on said pins and adapted to firmly engage the outer surface of said drum, and springs for normally impelling said shoes inward into frictional engagement with said drum.

2. In a speed-governor, a member comprising a drum and having a pulley surrounding said drum and protecting the same, and another member comprising a disk having pins projecting therefrom and a flange surrounding all of said pins, and shoes on said other member loosely pivoted on said pins and spring-pressed inward toward said drum from said web.

3. In a speed-governor, a member having a drum and a pulley surrounding and protecting said drum, and another member having a central shaft, a disk on said shaft and having pins projecting from its face, and having a flange surrounding said pins, and shoes pivoted upon said pins and curved to fit said drum and spring-pressed into contact therewith.

4. In a speed-governor, a shaft having a reduced portion, a driving member on said reduced portion and having a drum, said driving member also having a pulley surrounding and protecting said drum, a disk secured to said shaft and pins projecting from said disk, a flange also projecting from said disk and surrounding said pins, shoes on said pins and curved to correspond to the curvature of said drum, and springs between said shoes and flange.

5. In a speed-governor, a shaft having a reduced portion, a driving member on said reduced portion and having a drum, one end of which is beveled or coned inward, a pulley integral with said driving member and surrounding and protecting said drum, a driven member on said shaft and having a peripheral flange lying within said pulley, pins projecting from said driven member, shoes curved to conform to said drum and pivoted on said pins and springs between said shoes and said flange for moving the shoes toward said drum.

In witness whereof I subscribe my signature in the presence of two witnesses.

JAMES C. ANDERSON.

Witnesses:

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