(No Model.)

L. H. NASH.

CENTRIFUGAL SPEED REGULATOR.

No. 578,111. Patented Mar. 2, 1897.

Fig. 1

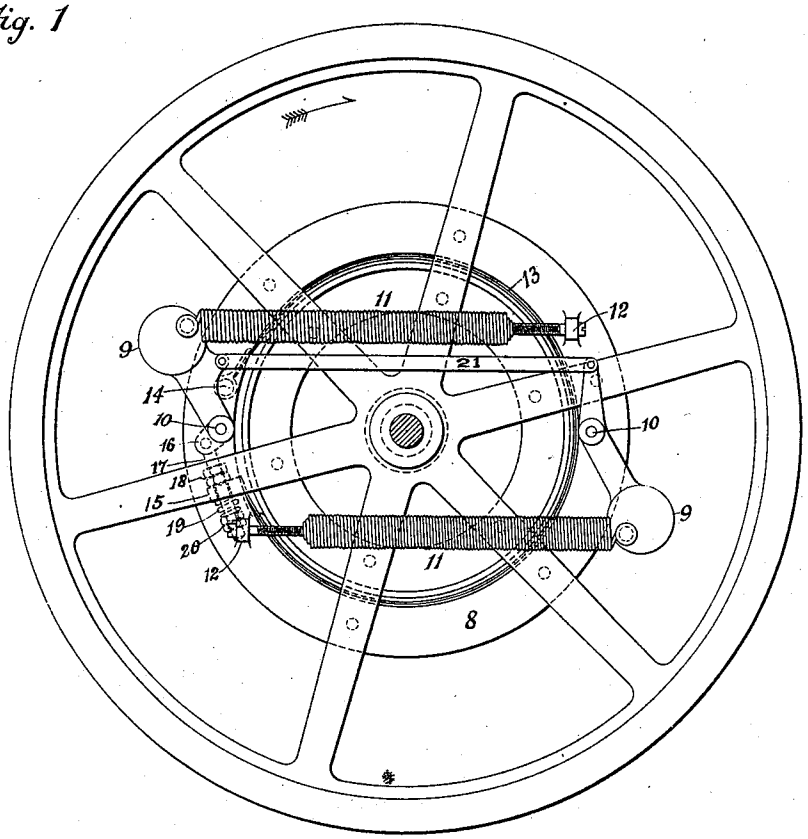
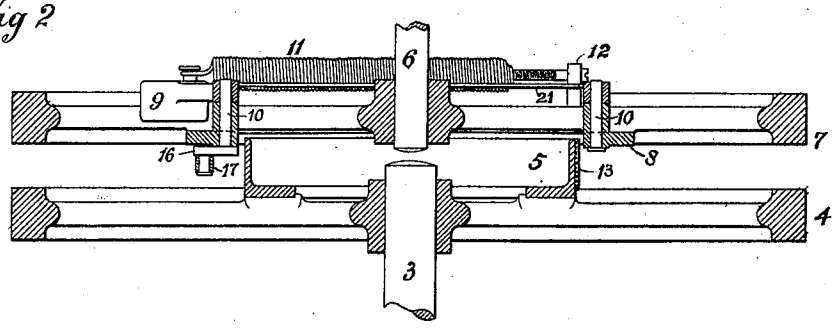


Fig 2



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CENTRIFUGAL SPEED-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 578,111, dated March 2, 1897.

Application filed January 19, 1895. Serial No. 535,523. (No model.)

To all whom it may concern:

Be it known that I, LEWIS HALLOCK NASH, a citizen of the United States, and a resident of South Norwalk, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Methods of and Means for Governing Speed-Transmitting Devices, of which the following is a specification.

My invention relates to centrifugal speed-governors; and it consists of certain novel methods and certain novel parts and combinations of parts particularly pointed out in the claims concluding this specification.

My invention is, among other things, especially adapted to the driving of dynamo-electric machinery by means of a gas-engine, and in this connection it has the advantage that pulsations due to explosions in the cylinder of the engine are not transmitted to the dynamo, so as to cause variation in the light. It is not, however, confined to this use, but may be employed for any purpose where a steady or controlled motion is required, as, for instance, in the running of machinery of flour-mills or for any other purpose. I have, however, in this specification described the invention as applied to the shaft of a gas-engine and the shaft of a dynamo, as this example will instruct those skilled in the art of the nature of my invention.

I will now describe the structure shown in the drawings, which illustrate in its preferred form one means of carrying out my invention.

Figure 1 represents an end view of the governing device, and Fig. 2 a section through the fly-wheels.

3 is the driving-shaft of a gas-engine or other device. 4 is a fly-wheel. 5 is a pulley-wheel attached to said fly-wheel. These parts are rigidly connected.

6 is a dynamo-shaft; 7, a fly-wheel rigidly secured to said shaft.

8 is a ring bolted to the arms of the fly-wheel and serving as a support for the governing device.

9 9 are governor-weights pivoted to the ring at 10 10.

11 11 are springs connecting the weights with lugs 12 12 to balance the centrifugal force.

13 is a flexible band preferably formed in two parts, the outer face being of metal and the inner face being of leather. This is secured to a stud 14, fixed upon the ring 8. The other end of the band is secured to an angle-piece 15, which is connected to a crank 16 by a rod 17. This rod has jam-nuts 18 to adjust it as to length, and a spring 19, which is also adjustable by means of the jam-nuts 20. The spring 19 prevents jamming or the application of more than a determined strain upon the band by the lug 15. When the force exerted by the spring 11 exceeds the resisting power of this spring 19, the spring is compressed, and as the same has a range of motion sufficient to allow the spring 11 to come to a state of equilibrium before the spring 19 is entirely compressed it is obvious that the amount of pressure exerted upon the band and attendant parts is regulated by the interposition of this spring. The crank 16 is secured to the weight 9 through a shaft, and the two weights are joined so as to act in unison by the link 21. The whole constitutes a fly-wheel governor operating a friction-clutch, which is in this instance a flexible band.

The operation of the device is as follows: Suppose the parts to be rotating in the direction of the arrow, Fig. 1. It will be seen that any increase of speed will cause the weights 9 to move outward and thereby move the crank 16, so as to slacken the flexible band in contact with the pulley 5 and reduce the friction between the two or entirely remove such friction; but, on the other hand, any reduction in the speed of rotation would cause the weights 9 to move inward under the action of the springs, and this would produce a tension through the crank 16 upon the flexible band and cause the speed of the wheel 7 to be accelerated. In this way any increase or decrease of speed of the wheel 7 will instantly increase or decrease the power which drives the said wheel. It is the intention that the fly-wheel 4 should ordinarily revolve somewhat faster than the wheel 7, allowing a certain amount of slip, so that the wheel 7 shall be driven at all times at what is the lowest speed of the wheel 4. It therefore follows that no matter how fast the wheel 4 may revolve the wheel 7 will never exceed the speed

at which the governor-weights 9 release the clutch.

It will be understood that I do not limit my invention to any particular form of governor.

In the foregoing specification I have incidentally referred to some of the modifications which might be adopted in the practice of my invention, but I have not endeavored to specify all the modifications which might be employed, the object of this specification being to instruct persons skilled in the art to practice my inventions in their present preferred forms and to enable them to understand their nature; and I desire it to be distinctly understood that mention by me of a few modifications is in no way intended to exclude others not referred to, but which are within the spirit and scope of my invention.

Many of the details and combinations illustrated and above described are not essential to the several inventions broadly considered. All this will be indicated in the concluding claims, where the omission of an element or the omission of reference to the detail features of the elements mentioned is intended to be a formal declaration of the fact that the omitted elements or features are not essential to the inventions therein severally covered.

What I claim is—

1. The combination with a driving part and a separate driven part of a pulley-wheel, a flexible friction-band, a spring or yielding member between said friction member and its actuating parts and a governor attached to the driven part controlling the tension of said friction member on the driving part to regulate the speed of the driven part.

2. In a governor device the combination with the friction member of a spring or yielding member such as 19 between said friction member and the governing member.

LEWIS HALLOCK NASH.

Witnesses:

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