(No Model.)

L. O'HARA.

CENTRIFUGAL GOVERNOR.

No. 540,455. Patented June 4, 1895

Fig. 2.

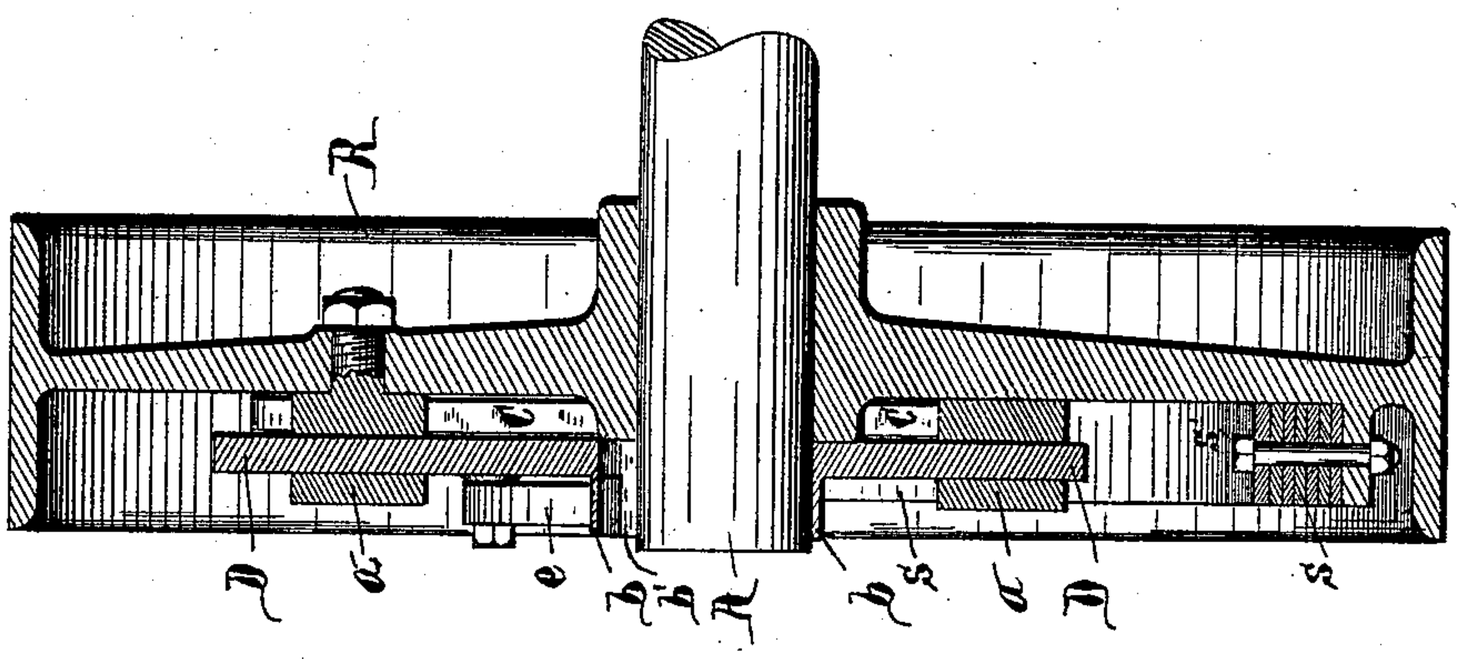


Fig. 1.

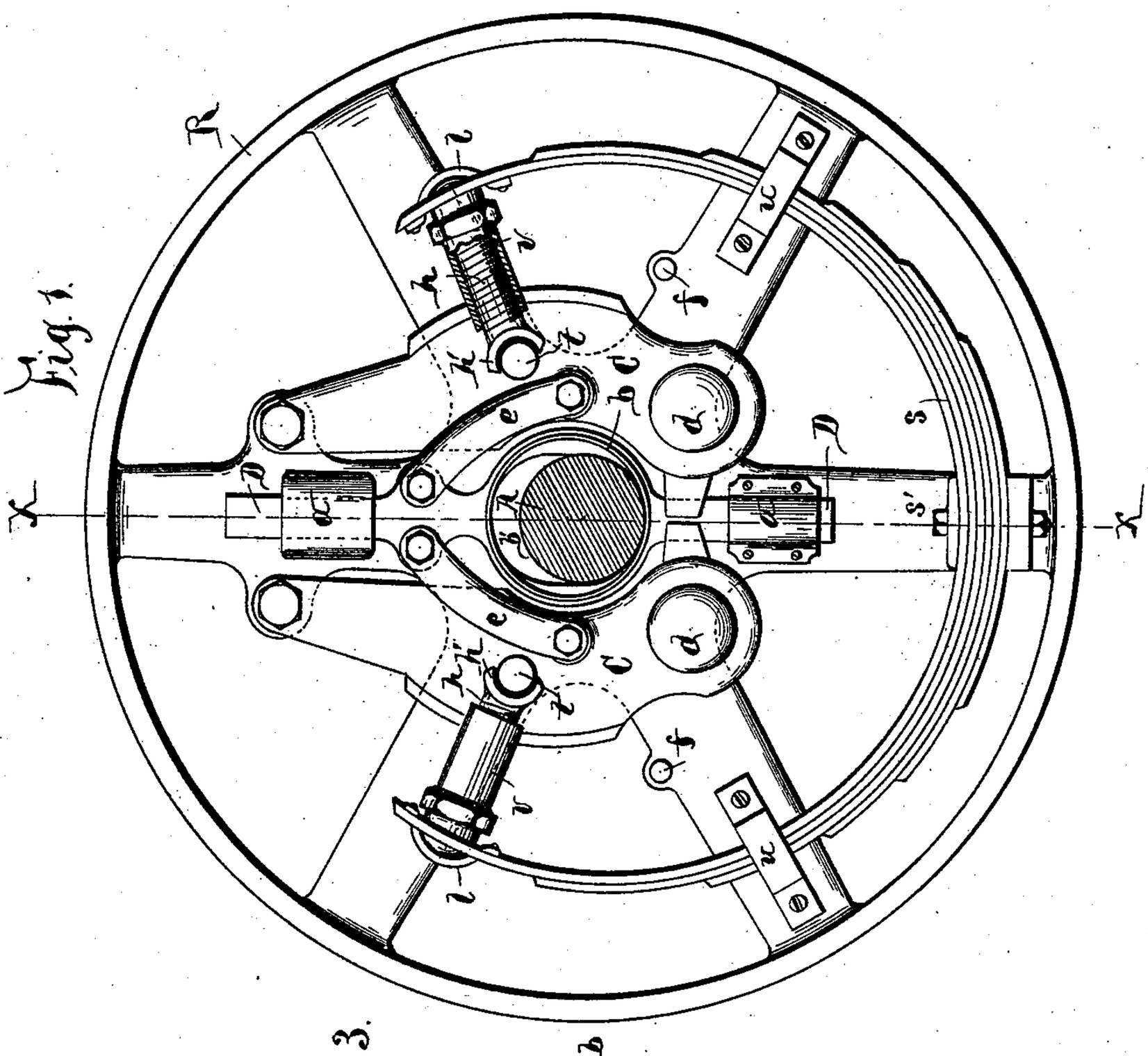
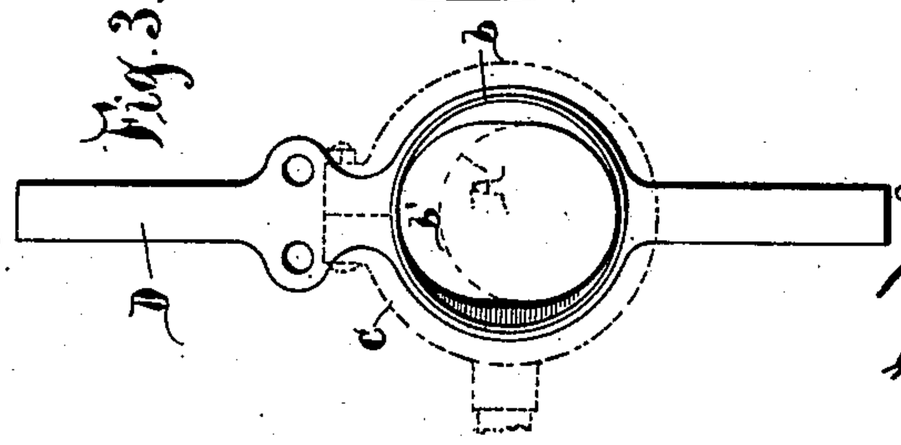


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LEWIS O'HARA, OF AUBURN, NEW YORK, ASSIGNOR OF ONE-HALF TO FRED. L. O'HARA, OF SAME PLACE.

CENTRIFUGAL GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 540,455, dated June 4, 1895.

Application filed September 4, 1894. Serial No. 522,083. (No model.)

To all whom it may concern:

Be it known that I, LEWIS O'HARA, of Auburn, in the county of Cayuga, in the State of New York, have invented new and useful Improvements in Centrifugal Governors, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of centrifugal governors in which the eccentric is carried on a radially movable slide mounted on the side of the fly-wheel or driving-pulley, and centrifugal levers pivoted to said wheel or pulley actuate the slide and by centrifugal force of said levers move said slide toward concentricity with the axis of the wheel or pulley.

The object of the invention is to simplify the construction and, by reducing the number of the constituent members of the governor, reduce the cost of its manufacture and expenses of its repairs; and to that end the invention consists in the improved construction and combination of parts as hereinafter fully described and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a face view of my improved centrifugal governor. Fig. 2 is a transverse section on line X X in Fig. 1, and Fig. 3 is a detached face view of the slide.

Similar letters of reference indicate corresponding parts.

—R— represents the fly-wheel or main driving-pulley mounted on the shaft —A— in the usual manner. To one side of said wheel or pulley are secured the rectilinear guides —*a*—*a*— which are arranged respectively at opposite sides of the center or axis of the wheel and in line therewith. In said guides moves a slide —D— which is thus maintained in a diametric line in relation to the axis of the wheel. This slide is formed with a hub —*b*— which either partly or wholly surrounds the axis or shaft —A—, and is provided in said hub with an opening —*b'*— through which the shaft passes, said opening being elongated to permit the slide to move longitudinally in the aforesaid guides.

—*c*— denotes the eccentric strap which is mounted on the hub —*b*— in the usual manner, as indicated by dotted lines in Fig. 3.

—C—C— designate the centrifugal levers which are pivoted to the wheel respectively at opposite sides of one end of the aforesaid slide and have their free ends extending across opposite sides of the eccentric and weighted as indicated at —*d*—*d*—. The free end portions of these levers are connected to the slide —D— by links —*e*—*e*— pivoted thereto to permit said levers to oscillate freely and transmit rectilinear reciprocating motion to the slide. The free ends of said levers are forced toward the axis of the wheel by means of the bow-spring —*s*— which is secured at its center to the side of the wheel or pulley —R— as shown at —*s'*—, and has its free ends guided by metallic straps —*u*—*u*— fastened to the wheel and extending across the end portions of the spring. Each end of the spring is provided with a concave seat —*l*— in which is stepped a correspondingly shaped end of a socket —*v*— which is thus adapted to be turned on its axis. Said socket is screw-threaded internally and has inserted in it a a screw —*h*— the protruding end of which is provided with a concaved foot —*h'*— by which it rests upon a trunnion —*t*— attached to the lever —C—. The foot embraces the trunnion and thereby prevents the screw from turning on its axis. By turning the sockets —*u*—*u*— on their seats —*l*—*l*— said sockets are caused to move longitudinally on the screws and thus the resistance of the spring —*s*— is either diminished or increased to render the action of the governor more or less sensitive.

—*f*—*f*— represent stops or lugs projecting from the side of the wheel in the path of the levers —C—C— to limit the outward swinging movement of the latter.

In the operation of said governor the levers —C—C— are caused to swing outward by the centrifugal force received from the revolution of the wheel —R—. In said movement of the levers the slide —D— is drawn along rectilineally and caused to carry the eccentric toward concentricity with the shaft or axis of the wheel and consequently the stroke of the valve of the engine is reduced to check the

motion of said engine which drives the wheel —R—. The eccentric is held normally in its extreme eccentric position by the pressure of the spring —*s*— on the levers —C—C—.

What I claim is—

1. The combination, with the wheel, of rectilinear guides at opposite sides of and in line with the axis of the wheel, a slide moving in said guides, the eccentric secured to said slide, centrifugal levers pivoted to the wheel at opposite sides of one end of the slide, straps connecting the weighted or free ends of said levers to the slide, and a spring forcing the free ends of the levers toward the axis of the wheel as set forth.

2. The combination with the wheel, of guides secured to the wheel at opposite sides of the center thereof and in line therewith, a slide moving in said guides and formed with a hub surrounding the axis of the wheel and provided with an elongated opening in the hub, the eccentric secured to said hub, centrifugal levers pivoted to the wheel at opposite sides of one end of the slide and extending with their free ends across opposite sides of the eccentric, links connecting the free ends of the levers to the slide, a bow-spring secured at its center to the wheel and forcing with its free ends the aforesaid levers toward the axis of the wheel, and stops on the wheel in the path of the free ends of the levers to limit the outward movement thereof as set forth.

3. In combination with the wheel, eccentric-carrying slide and centrifugal levers actuating said slide, the trunnions —*t*—*t*— attached to said levers, the spring —*s*— secured at its center to the wheel, the straps —*u*—*u*— attached to the wheel and extending across the end portions of the spring, internally screw-threaded sockets —*v*—*v*— stepped revolubly on the ends of the spring, and screws —*h*—*h*— inserted in said sockets and provided with concaved feet resting upon the trunnions substantially as set forth.

In testimony whereof I have hereunto signed my name this 20th day of August, 1894.

LEWIS O'HARA. [L. S.]

Witnesses:

J. J. LAASS,

C. E. TOMLINSON.