

W. W. H. Mead,

Governor.

No 14,967.

Patented May 27, 1856.

Fig 1

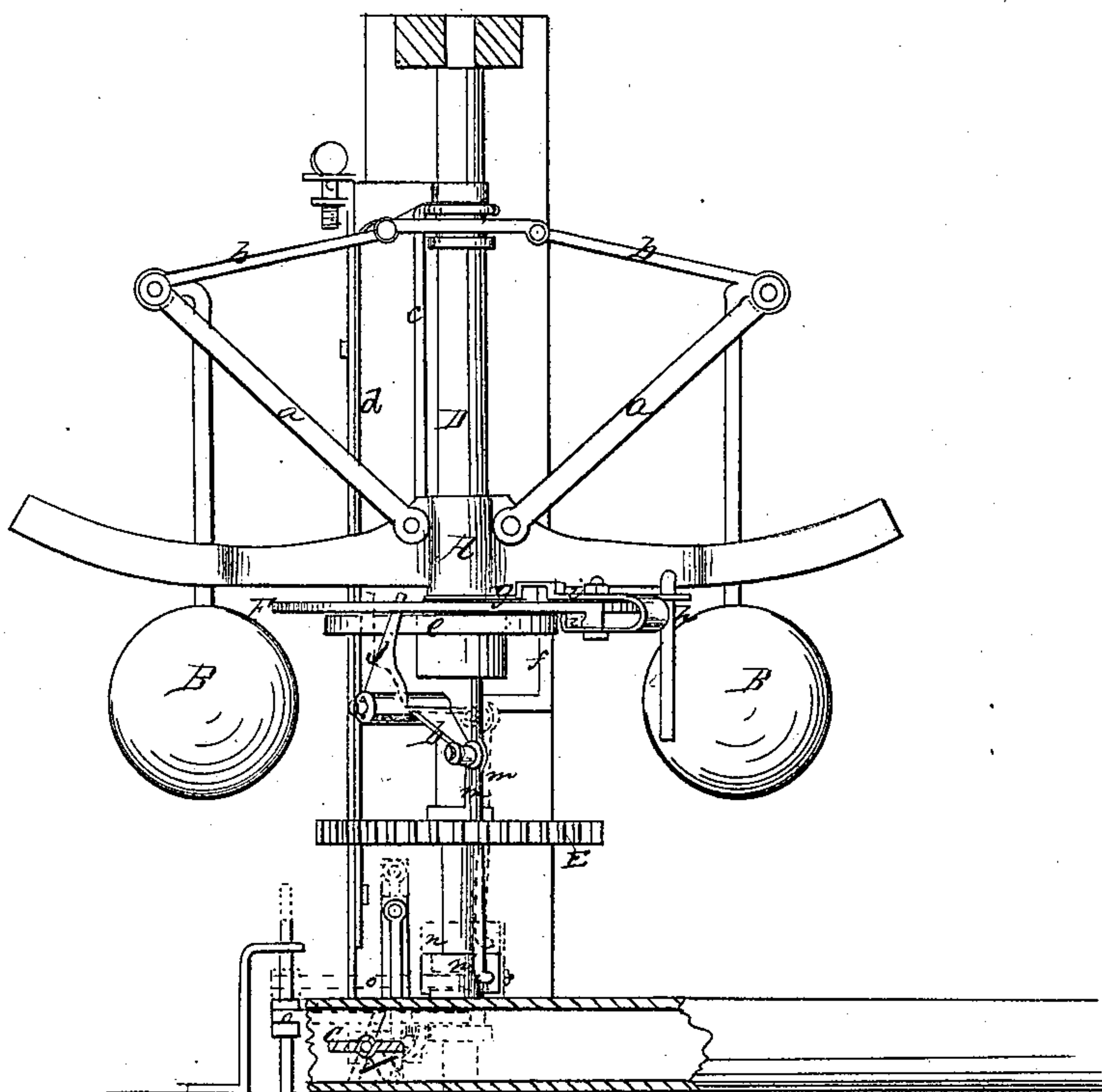
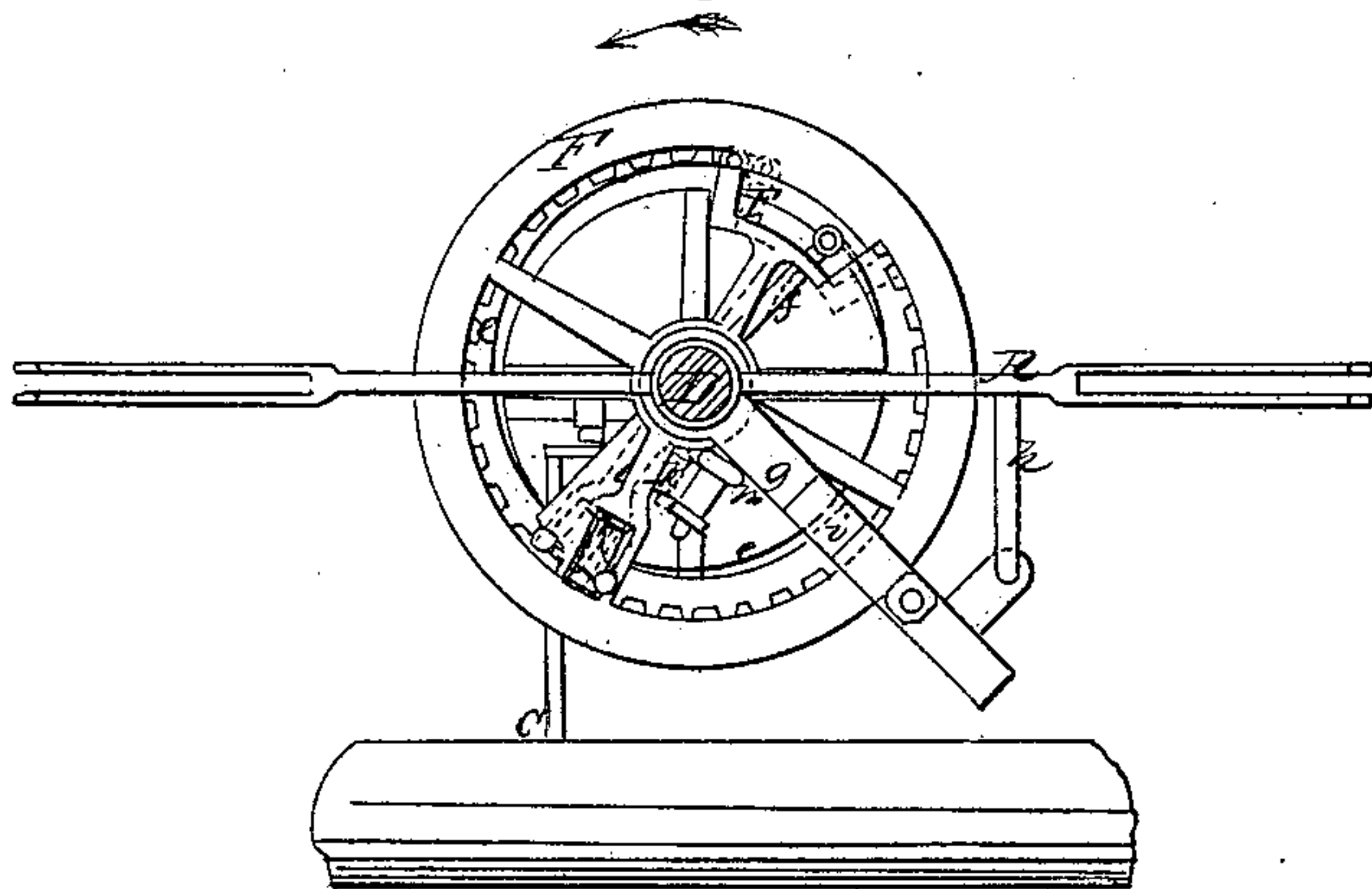


Fig 2



UNITED STATES PATENT OFFICE.

WM. W. H. MEAD, OF CHESTERTOWN, NEW YORK.

INSTANTANEOUS GOVERNOR FOR STEAM-ENGINES, &c.

Specification of Letters Patent No. 14,967, dated May 27, 1856.

To all whom it may concern:

Be it known that I, WM. W. H. MEAD, of Chestertown, in the county of Warren and State of New York, have invented a new and useful Improvement in Governors for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is an elevation of a governor constructed according to my invention, and Fig. 2, a horizontal section of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in a novel mode of combining a centrifugal governor or fly with a throttle valve or cut off whereby the movement of the inertia of the said governor or fly will act upon the valve in such a way that any tendency toward increased speed of the engine will cause the supply of steam to be diminished and vice versa. This invention may be applied either to marine or stationary engines but is particularly designed for marine engines.

To enable those skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, B, B, *a*, *a*, *b*, *b*, *c*, and *d*, represent the different parts of a common centrifugal governor acting upon a throttle valve C. This governor instead of being firmly secured to its spindle D, in the usual manner so as to have no rotary movement independent of it, is loose upon the spindle and connected therewith by the following means.

F, is a wheel with a smooth rim hung loosely upon the spindle between the wheel F, and the governor. This wheel F, is connected with the shaft by means of a spring *e*, one end of which is secured to the wheel and the other to an arm *f*, which is secured to the spindle D. It is also connected with the governor by means of a friction clamp *i*, which embraces its smooth rim and which is secured to the governor by an arm *g*, and a stay *h*.

The spindle is driven by power derived from the engine through a spur wheel E, or its equivalent. The wheel F, is driven by power transmitted from the spindle to it through the spring *e*, and it drives the governor by the friction of the clamp *i*, upon it. The spring in driving the governor is always more or less contracted by

the movement of inertia thereof, the effect of which in contracting the spring will increase with any increase of the speed of the engine and the governor spindle, and diminish with any diminution of the speed, the increase of speed driving the spindle in advance of the wheel F, and the governor, and the diminution allowing the wheel F, and governor to get on in advance of the spindle. This advance of the governor or spindle acts upon the throttle valve by means of a lever *j*, *k*, working on a fulcrum pin *l*, secured in the spindle D, the point of the arm *j*, of the said lever being received in a slot or hole in the wheel and acted upon by the wheel to raise or lower the arm *k*, and thus by means of a rod *m*, attached to the said arm to raise and lower a loose sliding collar *n*, on the spindle, which is embraced by a fork O, which connects with and operates the valve.

When the speed of the engine is very suddenly increased as it is frequently in marine engines by one or both paddles being left almost entirely out of water, the governor spindle D, immediately advances far enough to close the valve to shut off the steam entirely, but in many cases this will not for some time materially check the speed, and the governor spindle after getting as far in advance of the wheel F, as is allowed by the spring *e*, until the arm *f*, comes in contact with some part of the wheel, causes the wheel to move with it, but the movement of inertia of the governor resisting the increased speed of the wheel F, overcomes the friction of the clamp, *i*, and the spindle and wheel both move on at a greater speed than the governor until the force of the engine is expended or meets with greater resistance. When the engine meets with such resistance as to diminish its speed to a very great degree, the arm *f*, after the valve has been opened wide and the spring *e*, has expanded as far as allowed, holds back the wheel F, but the movement of inertia of the governor will be sufficient to overcome the friction of the clamp *i*, and the governor will continue to rotate faster than the spindle until the extra resistance of the movement of the engine is overcome. In this way the governor is prevented being subject to the sudden changes in the velocity of the engine.

The centrifugal governor is not essential to this invention as the balls are intended to serve merely as an equalizing reservoir

of momentum, and the place of the governor as far as has been described may be just as well supplied by a fly wheel, which for marine engines would always be adopted. But by employing a centrifugal governor as described, it may be used in the common way or as herein before described. In the former case, the governor should be secured to its spindle D, by a pin provided for the purpose, and in the latter case the governor should be unfastened from the shaft and the balls secured to prevent their centrifugal action.

What I claim as my invention and desire to secure by Letters Patent, is:—

Combining the fly governor with the throttle valve, by fitting it loosely to the

spindle D, and driving it by friction from a wheel F, which is loose on the same spindle and which derives its motion from the said spindle through a spring e, the said wheel F, being connected in any convenient manner with the throttle valve or cut off, so that it may be caused by the retarding or advancing effect of the moment of inertia of the governor or fly, as the speed of the engine is suddenly increased or diminished, as to diminish or increase the supply of steam to the engine substantially as herein described.

WM. W. H. MEAD.

Witnesses:

WILLIAM HOTCHKISS,
BRYAN MEAD.