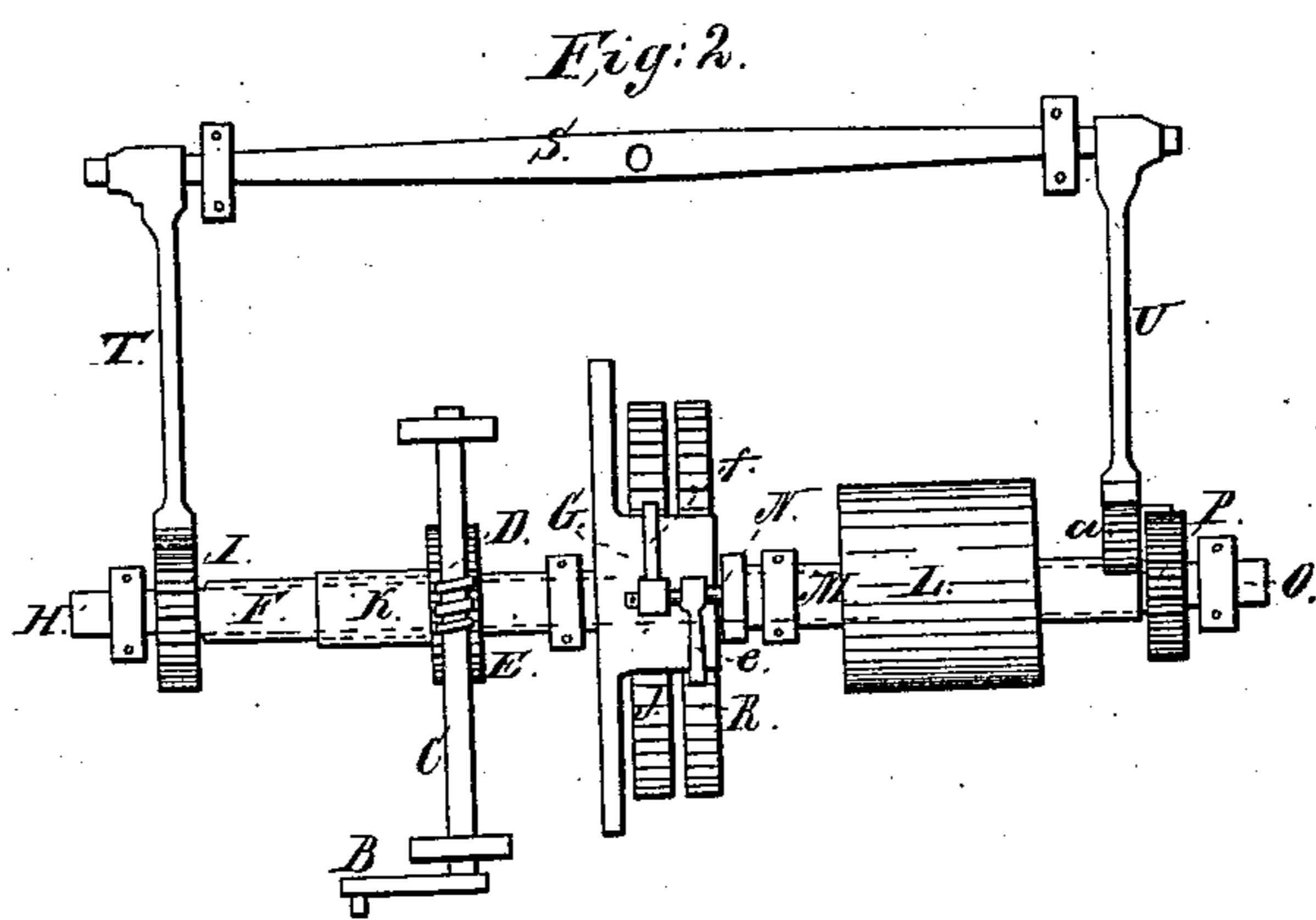
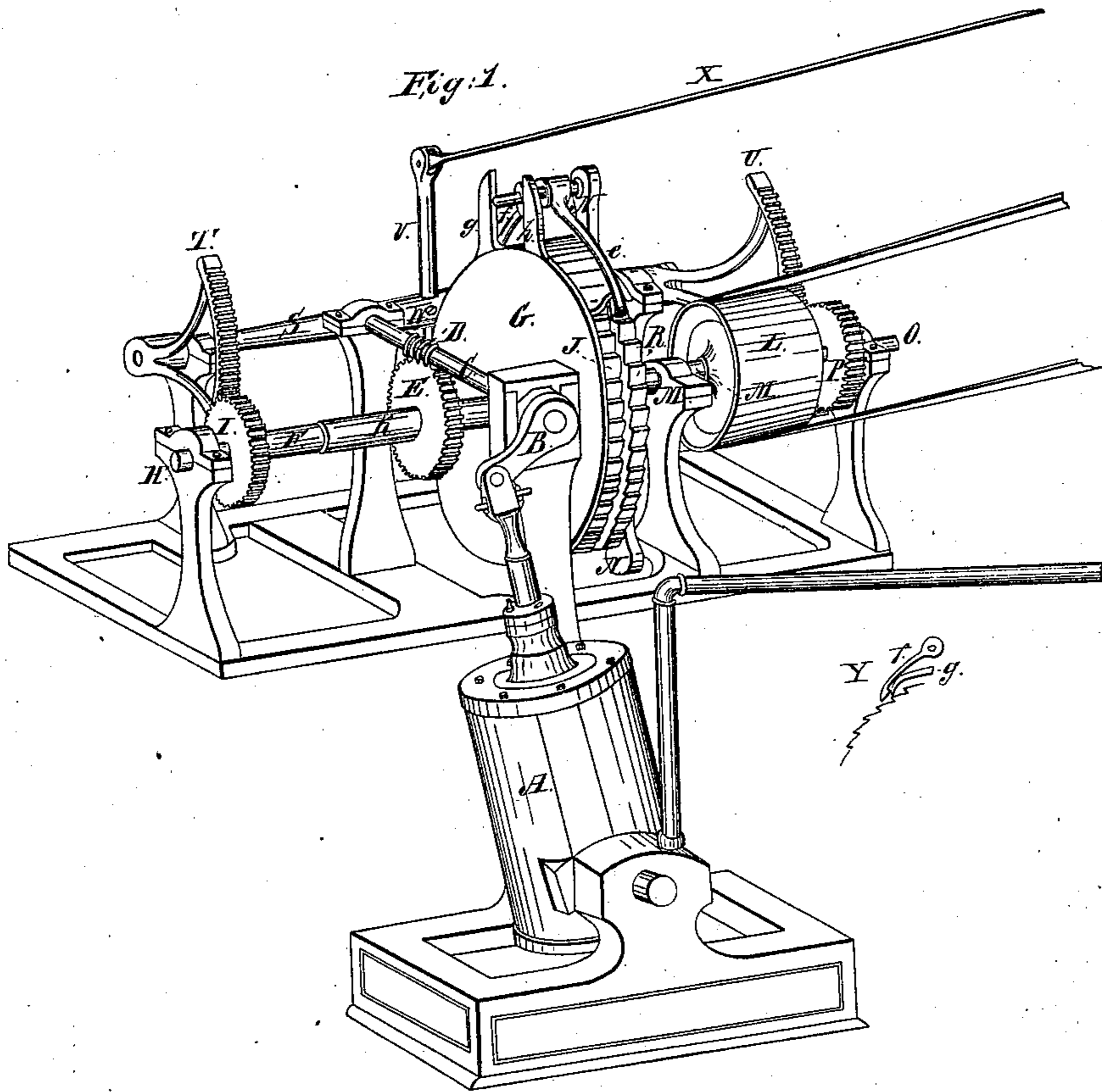


R. D. Jacobus,

Governor.

N^o 19,995.

Patented Apr. 20, 1858.



Witnesses:

*Wm. M. Gooding
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Inventor.

R. D. Jacobus

UNITED STATES PATENT OFFICE.

R. D. JACOBUS, OF NEWARK, NEW JERSEY.

STEAM-GOVERNOR.

Specification of Letters Patent No. 19,995, dated April 20, 1858.

To all whom it may concern:

Be it known that I, ROSWELL D. JACOBUS, of the city of Newark, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Governors for Steam-Engines, which I have described in the following specification and illustrated in the accompanying drawings with sufficient clearness to enable others skilled in the business to make and use the same.

The nature of my invention consists in obtaining an action of the throttle valve simultaneous with the change of speed of the engine by means of a governing power separate from the engine.

In the accompanying drawings Figure 1 is a perspective view of the machine with the extra governing power. Fig. 2 is a top view of the machinery, the same letters referring to the same parts in each.

A is a small oscillating steam engine, (which for governors of the largest class of marine engines will not require to be a full one horse power). This through the crank B the shaft C and the worm D moves the shaft F by the wheel E. This shaft is hollow and has on its extreme end the shield G. Through this shaft passes the shaft H which has upon it the wheel I and on the opposite end is the ratch wheel J, the shaft extending no farther.

The worm wheel E has a long eye or sleeve K which being bored tapering and smaller than the shaft on which it is placed is slit lengthwise forming springs which cling to F tight enough to drive it with all the work it has to perform. At the same time it will allow the worm wheel to slip on the shaft as it often is required to do when the governor is in operation.

The pulley L is driven by a belt from the crank shaft of the main engine. This like the worm wheel is loose upon the shaft yet tight enough to drive it against the necessary resistance. It is proposed to use for this pulley, friction plates adjustable as to pressure by set screws. The shaft of this pulley is hollow. It is shown by M in Figs. 1 and 2. This shaft has on its extreme end the pawl holder N. Through this shaft another shaft O has to work; on one end of O is the wheel P and on the other at its extreme is the ratch wheel R.

The wheel I works in a segment T on one end of the shaft S. The wheel P works

on an intermediate *a* Fig. 2, the intermediate working in the segment U which is on the other end of shaft S.

The lever V is loose in the shaft S and held in position by the set screw W to allow adjustment needed to make the rod X give exact the movement required to open and close the throttle valve of the big engine with which the rod X is intended to be connected.

The shield G, when the pawl holder and the center line of the shield are paralleled, holds up both the pawls so that they cannot touch either of the ratch wheels until the position of the shield or of the pawl holder changes, upon the shield are two projections which prevent the pawl holder from traveling away from the shield by carrying the shield with it when the movements require such action.

It will be seen that the two parts of this machine are disconnected except as each part is connected by the segments with the shaft S, and that so long as the pawls do not touch either ratch wheel all the parts upon the shafts F and M can be in motion while the remainder of the machine stands still,—that is to say the worm wheel and shield the pulley and pawl holder can be and are kept in continuous rotary motion, the worm and shield by the oscillator or other power and the pulley and pawl holder by the main engine, while the ratch wheels, cogwheels, segments, and shaft S with its lever and rod are standing still. Now if the motion from the oscillator and from the main engine are exactly equal the pawls *e* and *f* will never touch the ratch wheels at all. The oscillator or other power is calculated to be rendered as invariable in its speed as is possible, while the speed of the main engine must of necessity vary with the change of power required and therefore as the governor as drawn is calculated to revolve toward us if the main engine goes slower than the oscillator the pawl *f* which is hooked at its end, as shown at Y, will slip off the shield and catch on the ratch wheel J carrying it along in the same direction as it is itself traveling. This will turn the cog wheel I in the same direction and make the segment T rise giving to the rod X a pulling motion by turning V in a back direction. This opens the throttle valve; as the wheel P the intermediate *a* and the segment U are at liberty they move and turn the ratch wheel

R in the contrary direction to the ratch J. As soon as the wheel I comes to the end of the segment T the pulley L and the worm wheel E slip on their shafts for a short time; as the valve being wholly open will soon make the large engine move as fast as the oscillator, releasing the pawl and restoring the motion of the machine. When the main engine goes faster than the oscillator then the pawl e slips forward and catches the ratch wheel R and carries it in its own direction. This by the wheel P and the intermediate a works the segment U in a downward direction bringing the lever V forward and pushing the rod X closes the valve, and has the same effect upon the other parts of the governor as above described causing the slipping on the shaft of both worm wheel and pulley until the pawl lets go its hold on the ratch wheel. Thus the engine cannot make half a revolution of its shaft ere the valve is opened or closed as the speed may require, unlike all ball governors which require the engine to make a number of revolutions before they begin to affect the valve. The slipping of both pulley and worm

wheel at one and the same time is caused by the pin of the pawl holder coming in contact with g and h projections on the shield which are just far enough apart to alter the pawls to catch on the ratch wheels on either side as the speed of the main engine may vary. As the variation of speed and motion of valve are thus rendered simultaneous this is peculiarly adapted to large marine engines. 30 35

Aware that shields to hold up pawls in governors are no novelty of course that feature is not claimed.

What I claim as my improvement and invention and desire to secure is— 40

Using a distinct motive power from the main engine, with the motive power of the main engine to operate a governor, in combination with machinery constructed in the same or similar manner and for the purposes hereinabove specified. 45

R. D. JACOBUS.

Witnesses:

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CYRUS CURRIER.