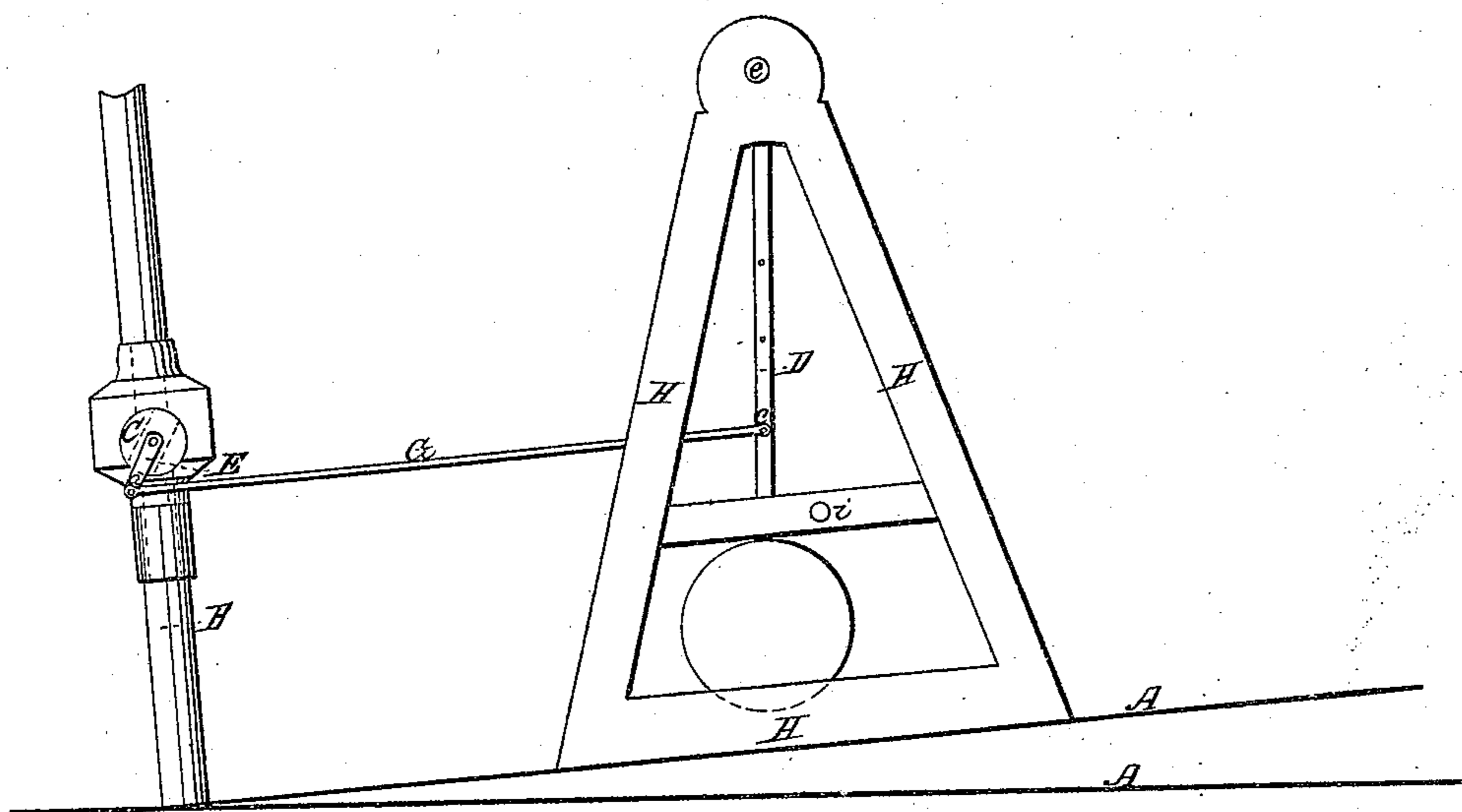
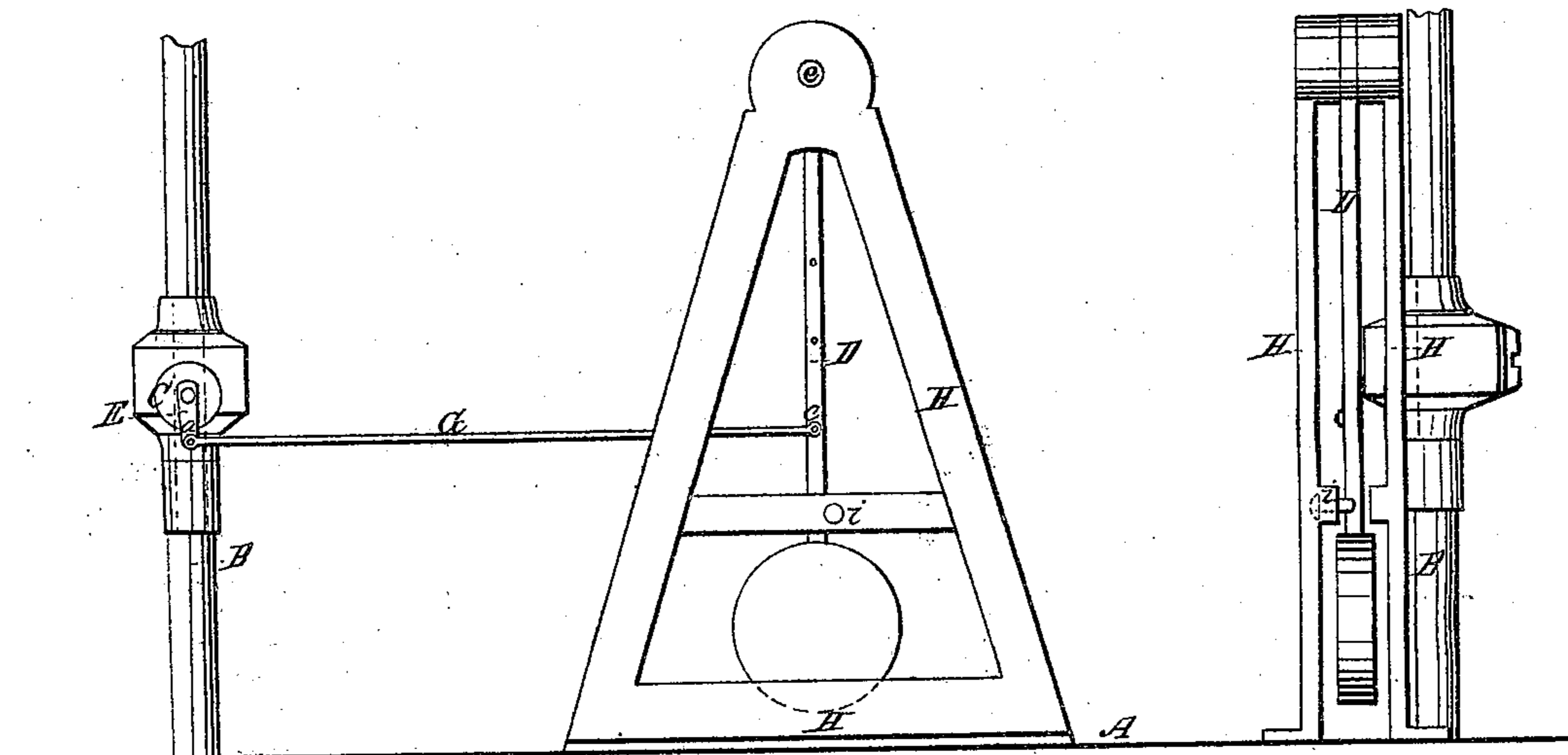


J.L. Cathcart,
Marine Governor,
No. 23,755, Patented Apr. 26, 1859.



Witnesses:

Emmanuel
W. M. Bryant

Inventor:

James L. Cathcart

UNITED STATES PATENT OFFICE.

JAMES L. CATHCART, OF GEORGETOWN, DISTRICT OF COLUMBIA.

MARINE GOVERNOR FOR STEAM-ENGINES.

Specification of Letters Patent No. 23,755, dated April 26, 1859.

To all whom it may concern:

Be it known that I, JAMES L. CATHCART, of Georgetown, in the county of Washington and District of Columbia, have invented
5 a certain new and useful Improvement in Marine Governors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making a part of this specification, in
10 which—

Figure 1 represents my improvement applied to the pipe that conducts the steam to the engine, the valve being open as when the vessel is in its normal position. Fig. 2 represents a similar view but showing the position of the valve as the propeller is being raised out of the water; and Fig. 3 an end view of the same.

My improvement relates to marine engines, as well to screw propellers as to vessels propelled by side or paddle wheels. In the former case as the vessel rises and falls with the undulations of the waves the propeller is thrown at times either partially or
15 entirely out of the water; and so with the latter, for as the vessel rolls, while the one wheel is at times half submerged the other is thrown for an equal distance out of the water; hence as the resistance to the revolution of the propeller (either screw or side wheels, each of the latter being operated by an independent engine) is withdrawn it is made to revolve very rapidly to the great damage of the engine; and, again, as the
20 propeller is submerged or brought in contact with the water the collision takes place with such violence as frequently to break or otherwise damage the blades or paddles, thereby in a great measure destroying the
25 efficiency of the propeller.

The object of my invention is to obviate these defects; and it consists in combining with the steam pipe a valve and automatic governor in such manner that the same action or motion which raises the propeller or one of the side wheels out of the water, shall gradually close the valve, that admits the
30 steam to the engine and vice versa.

To enable others skilled in the art to make,
35 construct, and use my invention, I will now proceed to describe its parts in detail, omitting a description of such parts of the engine, boiler, and propeller as are common to others and non essential to a full understanding of my present improvement, here
40 premising that the drawings do not repre-

sent the parts of a working machine, but only of such parts as are necessary to illustrate the principle of the invention and its mode of operation.

“A” represents a part of the deck on which the engine is erected, and B the steam pipe communicating with the steam chest or boiler and engine in which is arranged a valve (C), in this instance of the faucet
45 variety; but which may be made of the slide or throttle variety; in which event a suitable arrangement of the governor (D) must be made so as to operate the valve in accordance with the plan to be hereafter described. On the end of the valve (C) in this instance is formed a crank (d) and wrist pin (a), on which is mounted one end of a connecting rod (G), the other end of which is pivoted to a stud (e), secured to the side of a
50 pendulum (D), vibrating on an axis (e), mounted in standard frames (H). Or instead of the weighted pendulum vibrating on the standards (H) and being connected to the valve by means of the rod (G) it may
55 if deemed advisable be mounted directly on the end of the valve, where such is of the throttle or faucet variety. Or any other suitable arrangement of it may be made either to operate those or any other kind of
60 valve so long as it is so arranged as that when the vessel is in trim the action of the weighted pendulum shall be such as to maintain the valve open for the free admission of steam to the engine, and so that when the
65 screw propeller is being gradually raised out of the water it shall cause the valve as gradually to close, by means of which the motion or speed of the propeller will be graduated, according as it is raised above the surface of
70 the water; hence preventing the jarring and straining of the engine by its rapid motion when the propeller is raised out of the water, and at the same time preventing injury to the propeller on its again being submerged
75 while in rapid motion.

As the vessel gradually assumes its normal position the valve is again gradually opened by the action of the pendulum, as it accommodates itself to the altered position
80 of the vessel. Here it may be remarked that where my improvement is applied to a screw propeller the plane of motion of the pendulum will be in a plane with a line drawn midship from stem to stern; but
85 where applied to side or paddle wheel steamers its plane of motion will be at right angles

thereto—that is to say, in a plane with a line drawn transversely to the length of the ship, or from side to side. In its application to paddle wheel steamers it will act more efficiently where each wheel is revolved by an independent engine; although it may be beneficially applied in some instances where both wheels are driven by the same engine, as where the vessel is rolling very heavily and the one wheel nearly submerged while the other is entirely out of the water, in which event it may at times be of great importance to stop both, as the additional strain thrown upon the engine at that time in working might be greater than it was capable of withstanding, and it is also to be remarked that where two or more cylinders are used for each engine one of these governors must be applied to the steam pipe of each cylinder.

In all cases where the action of this improvement can be dispensed with it may be so constructed as that the pendulum can at any time be disconnected from the valve and reconnected when occasion should require. Again, the stoppage of the screw propeller and of the paddle wheels, each driven by an independent engine, can also be effected when too deeply submerged by withdrawing the pin (*i*), arranged immediately in the rear of the pendulum when at its normal position, and the vessel in like condition on a smooth sea, so as to allow

the pendulum to close the valve during both motions of the vessel—that is to say, while the bow both rises and falls or the vessel rolling on either side, but such would be merely used in very rough and rolling seas. The pendulum only as a rule being allowed to vary from a full to a closed passage in one direction—that is to say, so as to gradually shut off the steam as the propeller is being raised out of the water, the stop pin (*i*) being inserted at such point as that when the arm of the pendulum rests against it the passage for the steam through the pipe shall be open to its fullest capacity. It may also be remarked that instead of applying the governor or pendulum to the valve in the steam pipe as above described, it may be applied with the same effect in any suitable manner to the “cut off” directly.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is—

Regulating the supply of steam to marine steam engines by means of a pendulum arranged and operated in the manner substantially as herein described and for the purposes set forth.

In testimony whereof, I hereunto set my hand to this specification.

JAMES L. CATHCART.

Witnesses:

JOHN S. HOLLINGSHEAD,
F. W. RISQUE.