No. 791,132. PATENTED MAY 30, 1905.

G. G. BOE.

DEVICE FOR CONTROLLING THE MOTIVE POWER OF VESSELS.

APPLICATION FILED MAR. 10, 1904.

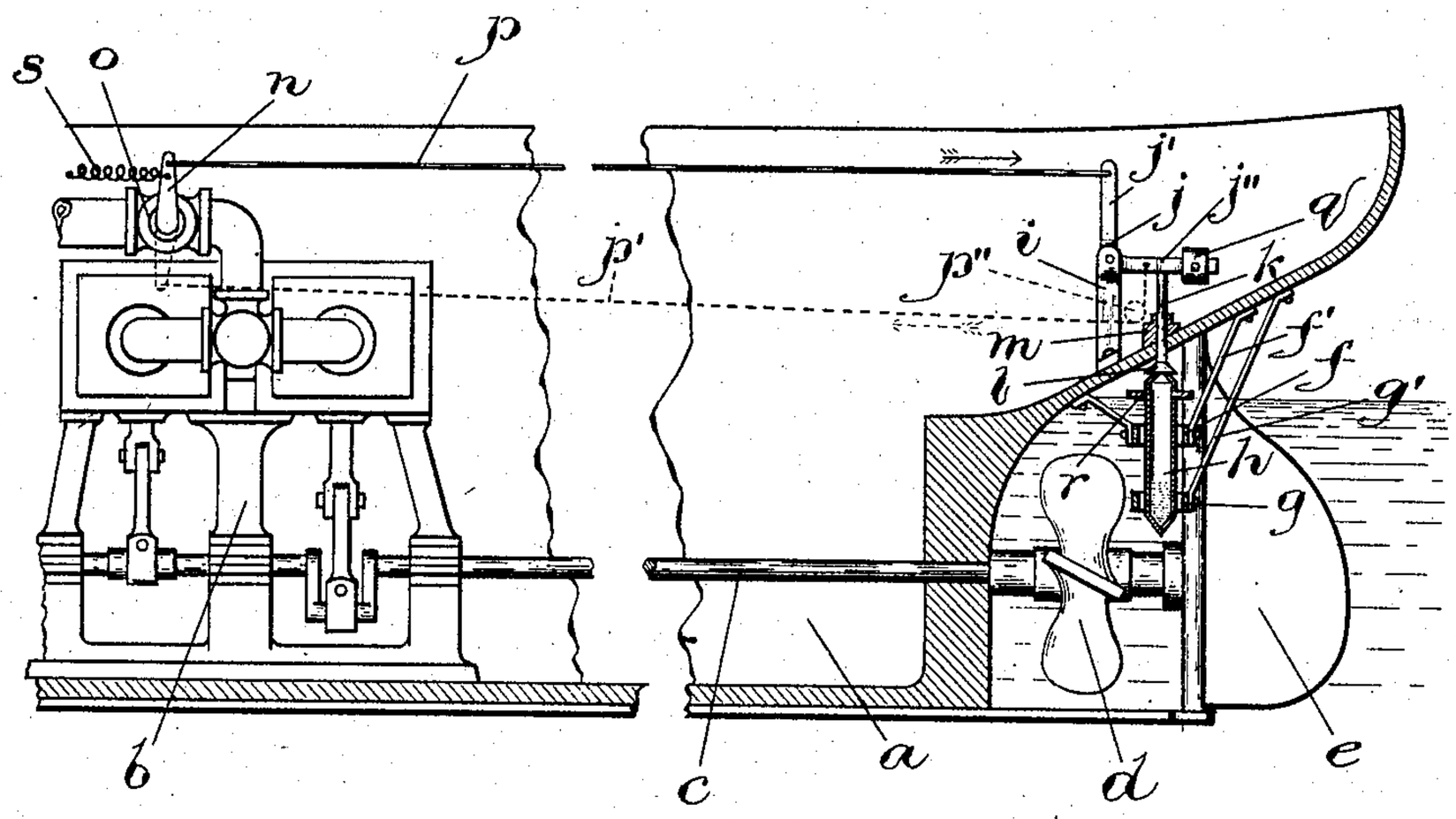

Fig. 1

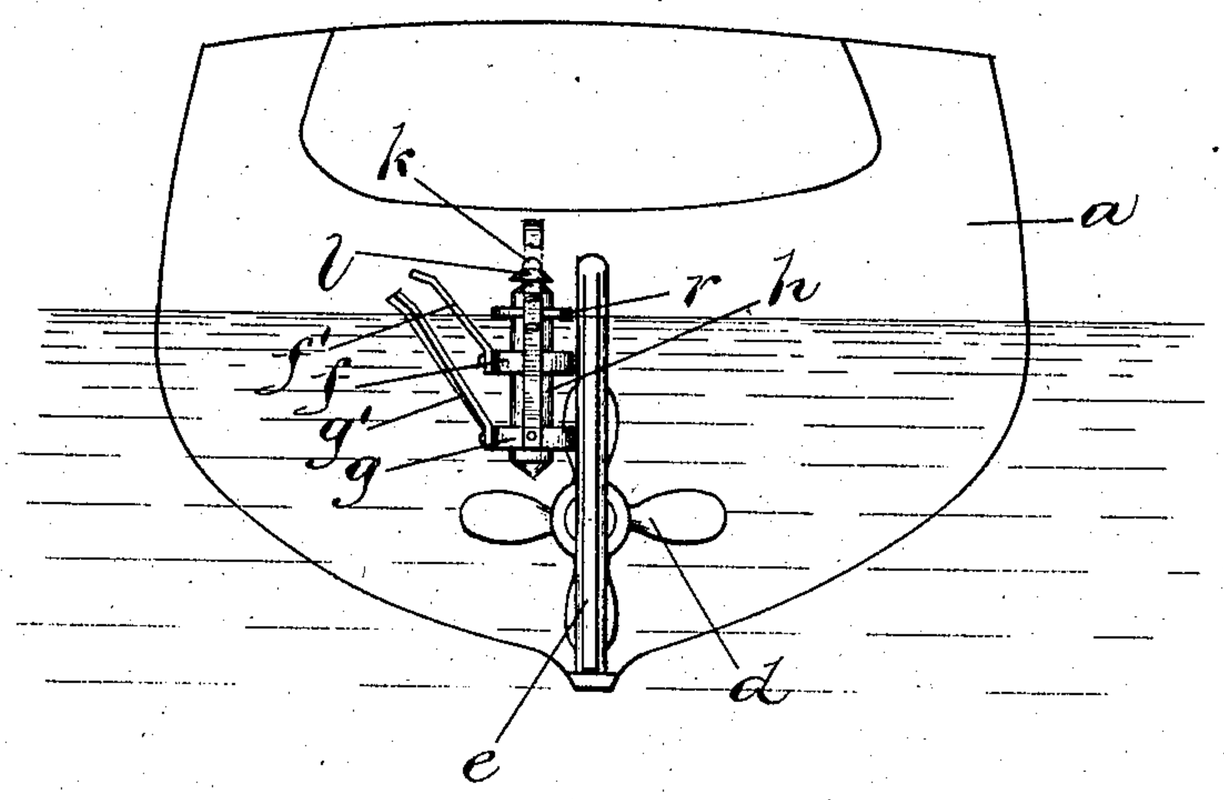

Fig. 2

Witnesses

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UNITED STATES PATENT OFFICE.

GUNNAR GULLIKSON BOE, OF TORONTO, CANADA.

DEVICE FOR CONTROLLING THE MOTIVE POWER OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 791,132, dated May 30, 1905.

Application filed March 10, 1904. Serial No. 197,599.

To all whom it may concern:

Be it known that I, GUNNAR GULLIKSON BOE, machinist, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Devices for Controlling the Motive Power of Vessels in Heavy Seas; and I do hereby declare that the following is a full, clear, and exact description of the same.

The objects of my invention are to arrange a device that will be self-acting or automatic and check or cut off the motive power from the screw or propeller in vessels known as the "propeller" class when pitching or rolling in heavy seas, as when a vessel is pitching in heavy seas the screw very often leaves the water, and when the resistance is removed from the screw the engines run away and very often cause considerable damage to themselves and to the hull of the vessel.

The device is so constructed and arranged at the stern of the vessel and in proximity with the screw that they will always work in combination.

By the nature of the device of my invention I do not interfere or check the progress of the vessel, but simply close the engine for the instant, allowing the propeller to act by impetus when cut off.

I attain these objects by the device as illustrated in the accompanying drawings, in which—

Figure 1 is a detailed sectional view through the stern part of a vessel, showing the device arranged in position. Fig. 2 is an end elevation view from the stern, showing the device in position.

Like letters refer to like parts throughout the specification and drawings.

In the drawings I show a detail sectional view of the stern part of the hull *a*, an engine *b*, shaft *c*, screw *d*, and rudder *e*, the parts being the same and arranged as in all ordinary vessels of the type known as "screw-propellers."

Arranged so as to rise and lower in hangers *f* and *g* is a metal float or buoy *h*. The hangers consist of a circular ring adapted to surround the buoy and have a series of brace-arms *f'* and *g'* radiating outward and upward and fastened to the hull of the vessel. The buoy *h* is preferably made in a cylindrical shape, terminating in conical-shaped ends and being hermetically sealed to assure perfect buoyancy. Pivoted in a bracket *i* in the interior of the hull in suitable relation to the position of the buoy *h* on the exterior is an L-shaped lever *j*, having two arms *j'* and *j''*. Passing through the hull *a* immediately above the buoy is a reciprocal rod *k*. The rod is constructed with a concaved circular head *l*, adapted to engage and receive the pointed end of the buoy *h*. The opposite end of the rod *k* engages with the arm *j''* of the lever *j*. Surrounding the rod is a suitable stuffing-box *m* to prevent leak and maintain the rod in perfect or vertical position. Connecting the lever-arm *j'* and a lever-arm *n* in operative connection with the throttle-valve *o* is a cable or connecting-rod *p*. The buoy *h* in its normal position and when the screw *d* is immersed in the water will float at the top and will press upward under the rod *k*, and the rod will in turn support the lever-arm *j''* and hold the lever *j* in such a position that the arm *j'* of the lever *j* and the rod *p* engages with the throttle-valve *o* and the valve remains open. It will be preferable that a supplementary throttle-valve be provided, so as to act only as an emergency cut-off and not interfere with the throttle-valve for the use of the engineer. It will be understood the valve *o* will be placed intermediate the regular cut-off valve and inlet-ports to the engine.

Slidably arranged on the end of the arm *j''* is a weight *q*. The weight acts as a compensator and balance and may be so adjusted to make up the weight of the cable or rod *p* so that the lever *j* will operate the instant the buoy *h* lowers a degree.

Surrounding the upper part of the buoy *h* is a radial flange *r*, that acts as a stop to check the lowering of the buoy *h* farther than is necessary to remove the support from the rod *k* and allows the rod to drop and the lever *j* to operate by the assistance of the weight

on the end of the arm j'''. I may balance or weight the lower end of the buoy by sand or any other suitable substance being placed in the interior of the buoy, which will assist to keep the buoy vertical and have one end pointing upward independent of the support of the hangers.

I do not wish to confine myself to the exact arrangement of the details as shown and described, as I may in the case of twin-screw vessels arrange two or more buoys to operate independently with one or the other screws in the case of the vessel rolling to any extent. I may also instead of supporting the buoy in hangers of the design as shown provide a cylinder with open ends and suspend within it a float or buoy of a suitable nature. It may also be advisable to directly connect the buoy h with the rod k instead of depending upon the buoy engaging with the said rod by contact. Such connection might consist of a flexible or pivotal tie-rod.

It will be understood from the nature of the invention that any suitable design of buoy or float may be provided and arranged to work in combination with the operating mechanism of the valve cut-off.

The details and description of the connections and operating mechanism between the buoy h and the valve o may be changed and varied to suit the requirements without deviating from the nature of the invention.

The operation of the invention is as follows: When the vessel pitches to any extent and causes the stern part to rise out of the water, the float or buoy will naturally lower through gravity of weight and buoyancy by floating at the water-line. As the buoy separates from the vessel the rod descends by gravity and allows the end of the arm j''' to lower by the effect of the weight q. As the arm j''' lowers it rocks the arm j', which draws the cable or rod p, as shown by arrows, and in turn trips the lever n and closes the valve o and closes down the engine and removes the motive power from the shaft c. The shaft and screw will still revolve by impetus, and therefore will not impede the progress of the vessel. When the stern of the vessel again lowers and the screw is again immersed, the buoy rises and forces the rod upward and in turn returns the lever j to its normal position. At the same time the valve o is again opened by the spring s engaging with the lever n of the throttle-valve o, or I may, as I have shown in dotted lines, extend the lever n and connect it with a cable p', passing around a pulley p'' and connected with the arm j''' of the lever j, so that on the return of the lever j to its normal position it will operate direct on the valve o and independent of the spring s. It will be understood from the nature of my invention that the parts may be so regulated that all or any desired amount of the steam may be cut off at the valve.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a device for controlling the motive power of vessels, a hanger attached to the stern part of the vessel, said hanger consisting of circular rings arranged one above the other, said rings having brace-arms extending therefrom and adapted to fasten to the said vessel, a cylindrical buoy encircled by the said rings, said buoy terminating in conical-shaped ends, a reciprocal rod extending through the said vessel, one end of said rod engaging with the upper end of said buoy, and the other end engaging with mechanism adapted to open and close the throttle-valve of the motive power, means by which the said buoy is supported in the said rings, substantially as specified.

2. A device for controlling the motive power of vessels, a hanger attached to the stern part of the vessel, said hanger consisting of metal rings arranged one above the other, said rings having brace-arms extending therefrom and fastened to the said vessel, a cylindrical-shaped metal buoy encircled by the said rings, a reciprocal rod extending through the said vessel, one end of said rod engaging with the upper end of said buoy, the other end engaging with an operating-lever, the said lever pivoted within said vessel, said lever engaging with the throttle-valve of the motive power, means for supporting the said buoy in the said hanger, substantially as specified.

3. A device for controlling the motive power of vessels, a hanger depending from the stern part of the vessel, said hanger consisting of circular rings arranged one above the other, brace-arms extending from the said rings, said brace-arms adapted to fasten to the hull of said vessel, a cylindrical-shaped buoy encircled by said rings, said buoy terminating in conical-shaped ends, a radial flange extending from the body part of said buoy, said flange adapted to engage with one of the said rings, a reciprocal rod extending through the stern part of said hull, one end of said rod engaging with the said buoy, the other end of said rod engaging with a lever pivoted within the said vessel, said lever engaging and adapted to operate the throttle-valve of the motive power of the vessel, substantially as specified.

4. A device for controlling the motive power of vessels, a hanger depending from the stern part of the vessel, said hanger consisting of circular rings arranged one above the other, brace-arms extending from the said rings, said arms adapted to fasten to the hull of said vessel, a cylindrical-shaped buoy encircled by said rings, said buoy terminating in conical-shaped ends, a radial flange extending from the said buoy, said flange adapted to engage with the uppermost of said rings, said flange adapted to check the descending movement of said buoy, a reciprocal rod extending through the hull of said vessel, one

end of said rod adapted to engage with the upper end of said buoy, the other end adapted to engage with one arm of an L-shaped lever pivoted in the said vessel, the other arm of said lever coupled with the throttle-valve of the motive power of the vessel, all of the parts adapted to be actuated by the rising and lowering of the said buoy in the said hangers, substantially as specified.

Toronto this 5th day of March, 1904.

GUNNAR GULLIKSON BOE.

In presence of—

A. A. ADAMS,

GEORGE B. MACCONNELICE.