No. 675,969. Patented June 11, 1901.

J. T. PARRY.

DEVICE FOR PREVENTING RACING OF MARINE ENGINES.

(Application filed Feb. 9, 1901.)

(No Model.)

Fig. 1.

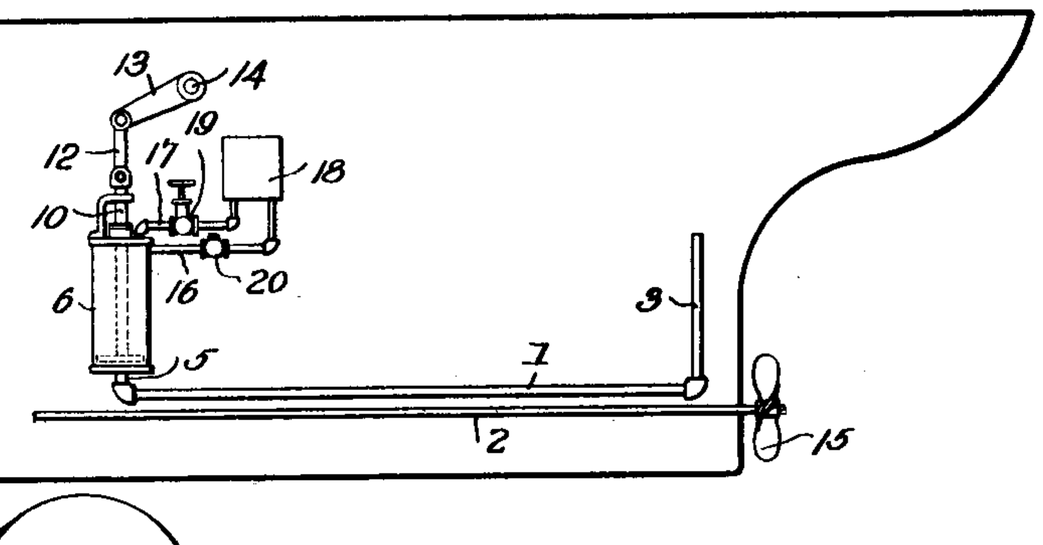
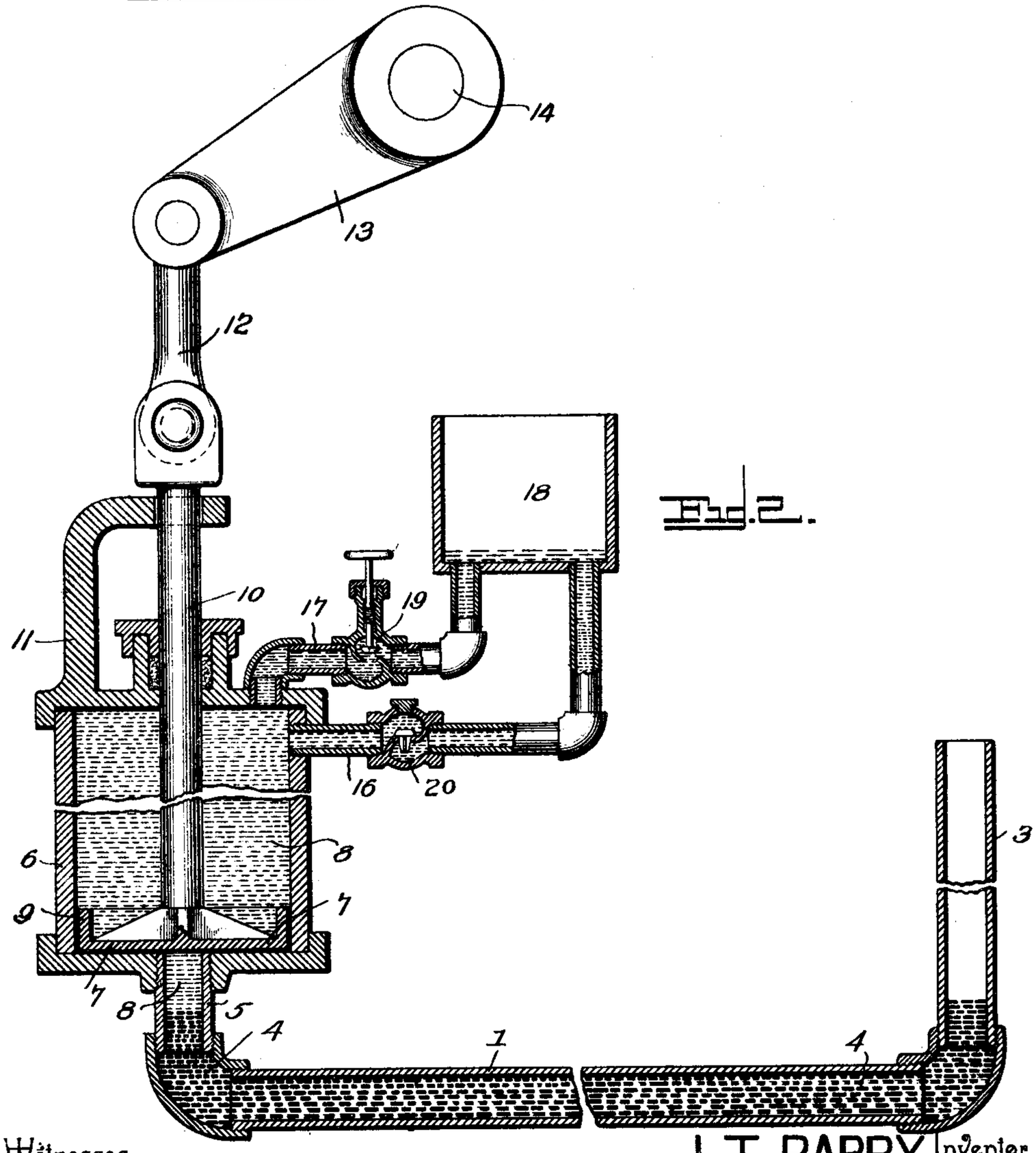


Fig. 2.



Witnesses

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DEVICE FOR PREVENTING RACING OF MARINE ENGINES.

SPECIFICATION forming part of Letters Patent No. 675,969, dated June 11, 1901.

Application filed February 9, 1901. Serial No. 46,694. (No model.)

To all whom it may concern:

Be it known that I, JOHN TAYLOR PARRY, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented a new and useful Device to Prevent Racing of Marine Engines, of which the following is a specification.

The invention relates to a device for preventing racing of marine engines.

The object of the present invention is to provide a simple, inexpensive, and efficient device designed to be located wholly within a vessel and to be operated by the rise and fall or pitching of the same and capable when a vessel pitches or rises sufficiently to throw the propeller to a greater or less extent out of the water, of anticipating such condition, and of automatically shutting off the steam to a greater or less extent before the propeller leaves the water, whereby the engine will have its power reduced when the resistance to the rotation of the propeller is decreased, thereby preventing the racing which occurs when the marine engine is driving at full power under such conditions.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a side elevation of a device constructed in accordance with this invention, the position of the parts being indicated with relation to the vessel. Fig. 2 is an enlarged longitudinal sectional view of the device.

Like numerals of reference designate corresponding parts in both figures of the drawings.

1 designates a longitudinal pipe or tube designed to be arranged in the shaft-alley of a vessel adjacent to the propeller-shaft 2 of the same; but it may be mounted in any other desired position, and it is provided at its rear end with a vertical arm or branch 3. The pipe or tube 1, which extends longitudinally of the stern of the vessel, contains a quantity of mercury, and this mercury 4 is adapted to flow backward and forward through the tube or pipe, according to the position of the stern of the vessel. The front or forward end of the longitudinal pipe or tube is provided with a short vertical arm 5, which is centrally connected with a vertical cylinder 6 at the lower end thereof. The lower end of the vertical cylinder is provided with a central threaded aperture to receive the upper end of the short arm 5, which is threaded and which is adapted to contain a quantity of oil when a piston 7, which operates in the cylinder 6, is down, as illustrated in Fig. 2 of the accompanying drawings. The oil 8 of the short arm 5 of the longitudinal tube or pipe is interposed between the mercury and the piston.

The piston is provided at the periphery of its head with an annular upwardly-extending flange 9, and its stem 10, which extends through a suitable stuffing-box at the upper end of the cylinder, passes through an aperture of an approximately L-shaped guide-arm 11 and has its upper end bifurcated for the reception of a connecting-rod 12. The L-shaped guide-arm extends upward from the top of the cylinder, as clearly shown in Fig. 2, and the link connects the piston with an arm 13 of a rock-shaft 14, which is designed to be connected with the starting-engine of the vessel, whereby when the piston is moved upward, as hereinafter explained, the steam will be cut off to a greater or less extent from the marine engine to prevent the latter from driving at full power when the propeller 15 of the vessel is more or less out of the water and the resistance to the rotation of the same entirely removed or greatly reduced. When the piston moves downward, the starting-engine is returned to its normal position and the power of the marine engine is rendered normal.

The cylinder 6 is filled with oil, which is adapted to be compressed and forced out of the cylinder to a greater or less extent, and connected with the top of the cylinder are inlet and outlet connections 16 and 17, consisting of suitable tubes or pipes and extending from the cylinder to an elevated tank or reservoir 18. The outlet conduit or connection 17 extends from an aperture of the top of the cylinder to an opening of the bottom of the tank, and it is provided at a point between its ends with a suitable valve 19, adapted to constrict to a greater or less extent the pas-

sage through the connection 17 to retard the flow of the oil or other liquid to a greater or less extent to control the movement of the piston, and thereby regulate the action of the device on the marine engine to adapt the device to the character of the sea at any particular time. The return or inlet connection or conduit is provided with a check-valve 20, adapted to prevent the liquid in the cylinder from passing outward through the connection or conduit 16 to the tank or trough and capable of enabling the said liquid to return readily to the cylinder when the piston is down. By regulating the valve the apparatus may be rendered more or less sensitive, so that it will respond quickly to the movement of the stern of the vessel, and the said valve is designed to be arranged within easy reach of the engineer to permit the apparatus to be instantly regulated. When the stern of the vessel rises, the tube or pipe will incline downward or forward and the mercury will flow forward, and thereby force the piston upward, and this upward movement of the piston, and the consequent effect of the apparatus on the marine engine, will occur before the propeller reaches the surface of the water or leaves the same, so that the condition of a reduced resistance to the rotation of the propeller will be anticipated and provided for to prevent the racing which usually occurs when the propeller is thrown to a greater or less extent out of the water by the upward movement of the stern of a vessel. When the stern of the vessel drops back into the sea and the tube or pipe 1 assumes its normal horizontal position, the mercury will flow backward and the parts of the apparatus will assume their initial position, and the full power of the marine engine will be applied when the propeller is properly submerged and in a position for driving the vessel forward.

The head of the piston is preferably provided at its upper face with diametrically-arranged flanges or webs 21; but it may be constructed in any other suitable manner. The upwardly-extending branch or arm at the rear end of the pipe or tube 1 is of sufficient length to prevent any of the liquid within the said pipe or tube 1 from being thrown out of it by the tossing of a vessel, and its upper end is open.

It will be seen that the apparatus is exceedingly simple and inexpensive in construction, that it is adapted to be arranged wholly within a vessel, and that it is operated entirely by the movement of the same. It will also be apparent that it is capable of anticipating and providing for the reduction of the resistance to the rotation of the propeller resulting from the latter being raised to a greater or less extent out of the water, that it is capable of effectually preventing a marine engine from racing, and that it may be readily adjusted to render it more or less sensitive, so that it will respond promptly to the movement of the stern of a vessel.

What I claim is—

1. An apparatus of the class described comprising a tube or pipe designed to be arranged wholly within a vessel and provided with a suitable liquid adapted to be operated by the movement of the stern of a vessel, a cylinder connected with the tube or pipe and provided with a piston arranged to be operated by the said liquid, and adapted to be connected with the means for controlling a marine engine, said cylinder being also provided with a liquid for resisting the movement of the piston, and means for controlling the resistance of the liquid in the cylinder to the movement of the piston, substantially as and for the purpose described.

2. An apparatus of the class described comprising a tube or pipe designed to be arranged wholly within a vessel and adapted to extend longitudinally of the stern of the same and provided at its rear end with an upwardly-extending arm, said tube or pipe being provided with a suitable liquid, a cylinder connected with the forward end of the tube or pipe and provided with a cylinder arranged to be operated by the said liquid when the tube or pipe assumes an inclined position incident to the upward movement of the stern of the vessel, said piston being adapted to be connected with the means for controlling a marine engine, a liquid arranged within the cylinder for resisting the movement of the piston, and means for controlling the resistance of the liquid within the cylinder to the movement of the piston, substantially as described.

3. An apparatus of the class described comprising a tube or pipe designed to be arranged within a vessel and provided with a suitable liquid, a cylinder connected with the tube or pipe and provided with a piston arranged to be operated by the said liquid and adapted to be connected with the means for controlling a marine engine, a reservoir or tank located above the cylinder, an outlet connection extending from the cylinder to the tank or reservoir, a return connection extending from the tank or reservoir to the cylinder, a liquid arranged within the cylinder and adapted to be forced out of the same by the piston, and means for controlling the passage of the liquid from the cylinder, to regulate the resistance to the movement of the piston, substantially as described.

4. An apparatus of the class described comprising a tube or pipe designed to be arranged within a vessel and provided with a suitable liquid, a cylinder connected with the tube or pipe and having a piston arranged to be operated by the said liquid and designed to be connected with the means for controlling a marine engine, a tank or reservoir located

above the cylinder, an outlet-pipe or connection extending from the cylinder to the tank or reservoir and provided with a valve for controlling the passage of a liquid, a return-pipe or connection provided with a check-valve and extending from the tank or reservoir to the cylinder, and a liquid arranged within the cylinder and adapted to be forced through the outlet-pipe or connection by the piston, whereby the movement of the latter will be retarded, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOIIN TAYLOR PARRY.

Witnesses:

MADISON POST,

L. J. LIETER.