

(No Model.)

A. WILSON.
GOVERNOR FOR MARINE ENGINES.

No. 579,204.

Patented Mar. 23, 1897.

Fig. 1.

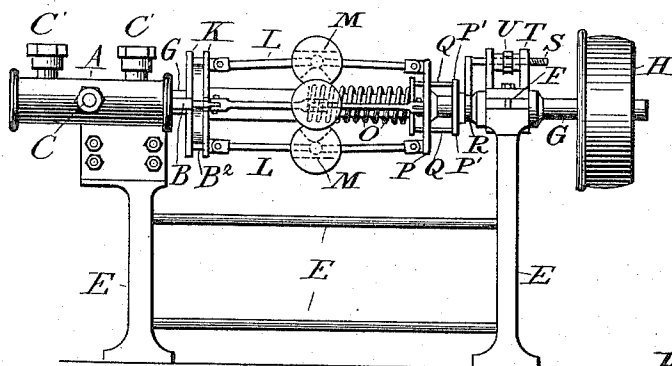


Fig. 2.

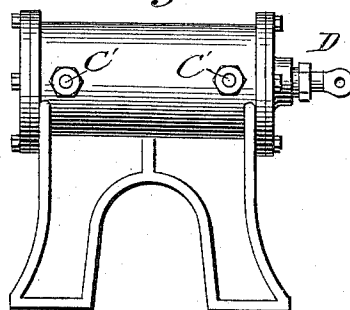


Fig. 3.

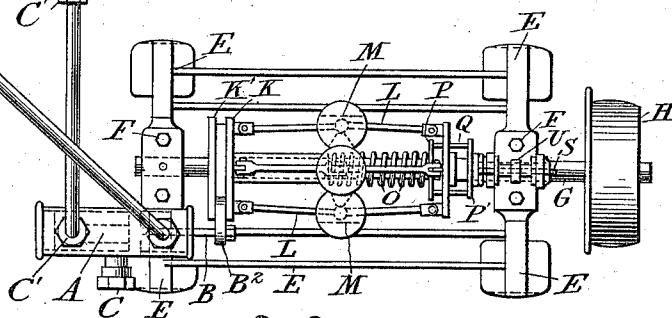
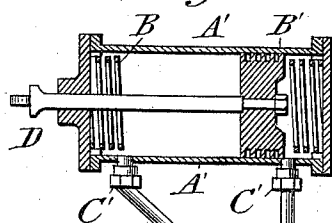
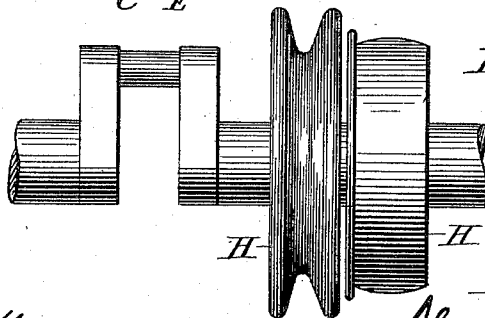


Fig. 4.



Witnesses:

Robert Conley
Harry B. Loudon

Inventor:

Alexander Wilson
by Wm. Linn
stay in fact.

UNITED STATES PATENT OFFICE.

ALEXANDER WILSON, OF HULL, ENGLAND.

GOVERNOR FOR MARINE ENGINES.

SPECIFICATION forming part of Letters Patent No. 579,204, dated March 23, 1897.

Application filed February 10, 1896. Serial No. 578,811. (No model.) Patented in England July 16, 1894, No. 13,662.

To all whom it may concern:

Be it known that I, ALEXANDER WILSON, marine engineer, a subject of the Queen of Great Britain and Ireland, residing at 24 Norwood Street, Spring Bank, Hull, England, have invented a new and useful Governor for Marine Engines, (for which I have obtained a patent in Great Britain, No. 13,662, bearing date July 16, A. D. 1894,) of which the following is a specification.

The object of my said invention is to provide compact, efficient, and easily-worked apparatus for the prevention of racing in marine engines by governing the said engines. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 shows vertical elevation of my improved apparatus for governing marine engines to prevent them from racing. Fig. 2 is a vertical elevation of large cylinder. Fig. 3 is a plan of Figs. 1 and 2, showing small and large cylinders connected; and Fig. 4 shows driving-pulley H suitable to receive either belt or rope.

For the purpose of my invention I provide two cylinders A and A' of different areas. The small cylinder A is fitted with a small piston valve and rod B and three pipes, one the inlet-pipe C and two outlet-pipes C', the inlet-pipe C being connected to the center of the small cylinder and to the condenser, the pipe being fitted with a tap-valve or the like for the purpose of turning on or off to create or destroy vacuum. The center of the small cylinder is preferably open to the condenser or induction-pipe. In this small cylinder, between the two ends of the piston-valve B, is an area for vacuum to impart motion to the second or large cylinder-piston D. This large cylinder is provided with one or more springs, cushions, or the like B' at each end. (See Fig. 3.) The aforesaid outlet-pipes are connected to the said large cylinder from each end of the small cylinder to each end of the large cylinder for admission-passages and so deliver at each end and feed such large cylinder and give motion to the piston D within it, thus actuating the throttle-valve, which is connected to such piston direct or by bell-cranks or any suitable means.

I employ a suitable framework E, having

suitable bearings F for carrying horizontal shaft G, upon which is mounted a suitable driving-pulley H, motion being imparted to this pulley by means of a belt, rope, or the like from the engine-shaft. The said horizontal shaft G is provided with two disks J and K. The disk J is permanently fixed to the shaft, and K is loose, but is connected to the disk J by four sets of arms L, jointed in the center to four balls M—a set of two arms to each ball. To give freedom to the motion of such balls M, a helical or the like spring O encircles the shaft G between the said disks J and K. The said disk K has a groove K' formed on its periphery to receive the forked or concave end B² of the piston-rod B of the small cylinder A, by which means motion is imparted to the said piston-valve of small cylinder.

For the purpose of regulating the throw of the balls I employ two rings P and P', mounted on the horizontal shaft G, the said rings being connected by two or more pins, screws, or the like Q, which pass through the fixed disk J. The said rings therefore turn with the said disk J, the inner ring P bears against the spring O, and a fork R, having a threaded end S working in brackets T, bears against the outer ring P', a milled nut U being fitted on the threaded part within the bracket for the purpose of allowing the said fork R to be moved backward and forward on the shaft, thus compressing or allowing the spring to be extended, by which means the throw of the balls can be regulated.

The framework E of the apparatus is provided with feet for it to stand upon, such feet having holes through them for allowing the apparatus to be bolted to the floor or any convenient place. The large cylinder may be provided with feet also, for a like purpose, and it may be bolted to a bulkhead or in any suitable position.

The driving-pulley of the apparatus may be made as shown at Fig. 4, having a surface for a strap or a groove to receive a rope, so that it is applicable to engines driven by either strap or rope.

The action is as follows: When it is required to prevent the engine's racing, a strap or the like is run from the shaft of the engine to the pulley H of my apparatus, by which means the shaft G is driven. The fixed disk J

turns with the shaft, and being connected to the loose disk K by means of arms L, pivoted to the balls M, it also causes the said disk K to turn at the same time, and as speed is attained the balls M fly outward, drawing the disk K inward on the shaft G, compressing the spring O, and drawing out the piston of the small cylinder A by means of the forked end B² of the piston-rod B, working in the groove K' in the disk K as the said disk K moves inward on the shaft, the spring O preventing it going too far. As the piston-valve of the small cylinder moves it opens one of the outlet admission-passages to give motion to the piston D of the large cylinder. One of these admission-passages is always open to the condenser and the other to the atmosphere alternately. When the action takes place efficaciously, the throttle-valve is closed and kept shut until the engine stops racing. When this takes place, the helical spring O moves back the free disk K and at the same time the piston-valve B of small cylinder A, and thus cuts off the vacuum from the top end of large cylinder and supplies the bottom end, so that there is a reaction which opens the throttle-valve.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I now declare that what I claim is—

1. An apparatus for governing marine engines to prevent them racing, consisting of a large cylinder A' and a small cylinder A with piston-valves B and D and inlet and outlet pipes C and C' respectively operated by means

of arms L and balls M, shaft G having disks J and K, the piston-valve of small cylinder A being operated by fork B² working in the groove K' of loose disk K, the whole being driven by means of pulley H connected by strap, rope or the like to pulley on driving-shaft of engine substantially as shown and described.

2. In apparatus for preventing marine engines racing the employment of a fork R having screwed end S adjusted by means of nut U or the like and bearing against connected disks P and P' for compressing the spring O so regulating the movements of the balls M, and in connection with cylinders A and A' with pistons and piston-valves and pipes C and C' operated by arms L and balls M and shaft G driven by pulley H connected to driving-shaft of engine substantially as shown and described.

3. The apparatus for governing marine engines and to prevent them racing, consisting of cylinders A' and A having pistons B and D, springs B', pipes C and C'; the pistons being operated by the fork B², disks K and J, rods L, balls M, shaft G, driving-pulley H, spring O, fork R, adjusting-nut U, disks P and P' all operating in the manner and for the purposes substantially as shown and described.

Dated December 27, 1895.

ALEXANDER WILSON.

Witnesses:

JNO. C. REESE,

ROBERT F. CONLEY.