

T. W. FANCY.
GOVERNOR FOR MARINE STEAM ENGINES.
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Patented July 4, 1911.

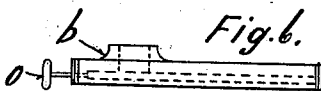
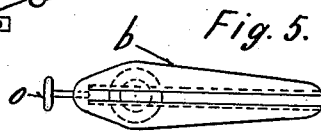
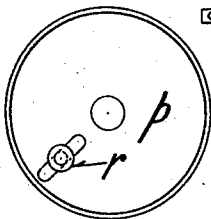
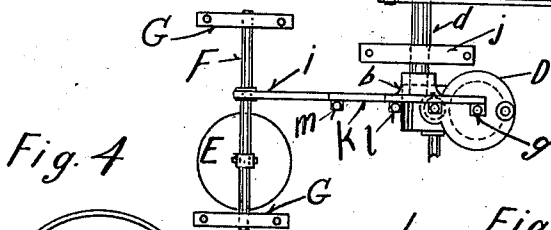
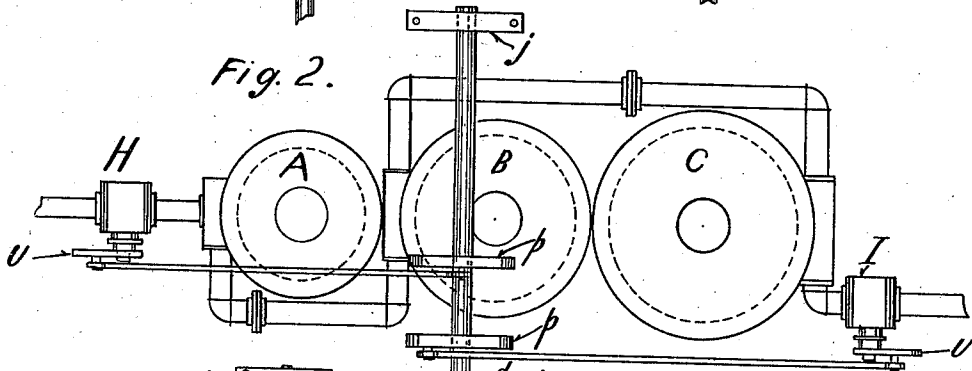
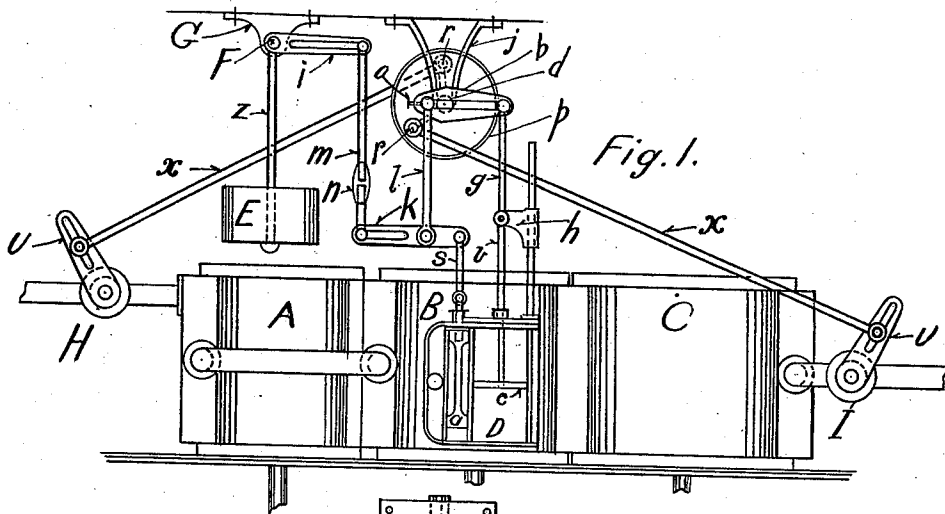
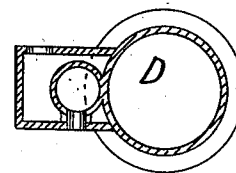


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS W. FANCY, OF MOSERS RIVER, NOVA SCOTIA, CANADA.

GOVERNOR FOR MARINE STEAM-ENGINES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS W. FANCY, a British subject, residing at Mosers River, in the county of Halifax, in the Province of Nova Scotia and Dominion of Canada, have invented a new and useful Governor for Marine Steam-Engines, of which the following is a specification.

My invention relates to marine engines which are used for the propulsion of steam vessels and the object of my invention is to prevent the racing of the engine consequent on the propeller becoming uncovered or partially uncovered by the pitching of the vessel in rough weather. I attain this object by the mechanism illustrated in the accompanying drawing, in which—

Figure 1, is a side elevation of my invention showing the method of its connection with the steam pipes of the cylinders of a triple expansion marine engine. Fig. 2, is a plan of the same. Fig. 3, is a cross section of the operating steam cylinder. Fig. 4, is an enlarged elevation of the crank disks. Fig. 5, is a front elevation of the slotted crank which operates the rock shaft. Fig. 6, is a plan of the same.

Similar letters refer to similar parts throughout the several views.

In the drawing A, B and C are the three cylinders of a triple expansion marine engine.

D is a small steam operating cylinder which furnishes the power required to operate the mechanism of my invention.

a is a piston steam valve which controls the movements of the piston *c* in the cylinder D.

b is a slotted double armed crank rigidly secured to the shaft *d* which has a reversible rotative motion communicated by the reversible movements of the piston *c* through the piston rod *v* its jointed extension *g* and the slotted crank *b*, the connection of the extension *g* with the crank *b* being adjustable in order to increase or decrease the rotative motion of the shaft *d*.

h is a guide for the piston rod *e*.

j, j, are hangers which carry the shaft *d*.

E is a weight suspended from and rigidly connected with the shaft F.

G G are brackets which carry the shaft F. *i* is a slotted one armed lever which is also rigidly secured to the shaft F in a horizontal plane.

k is the slotted fulcrum lever which is suspended from the short arm of the crank *b* by the suspension rod *l*, said rod being horizontally adjustable in the slotted crank *b* by means of the screw *o*.

m is a rod connecting the lever *i* and the fulcrum lever *k*, said rod being horizontally adjustable in both levers and vertically adjustable in length by means of the turn-buckle *n*.

S is the jointed extension of the stem of the valve *a* and is connected to the short arm of the fulcrum lever *k*.

p p are disks carrying adjustable pins *r* and rigidly secured to the shaft *d*.

H is a cut off valve inserted in the steam pipe leading to the high pressure cylinder A.

I is a cut off valve inserted in the exhaust pipe leading from the low pressure cylinder C.

u u are slotted cranks connected to said valves H and I.

x x are connecting rods between the cranks *u* and the disks *p* said rods being adjustable in the cranks *u* and on the disks *p*.

The operation of my invention is as follows: The weight E and its connecting rod *z* maintain a vertical or approximately vertical position by the force of gravity and the lever *i* a corresponding horizontal position, and as the stern of the vessel rises with the sea the lever *i* the connecting rod *m*, and the fulcrum lever *k* combine to open the piston valve *a* at the bottom admitting steam to the bottom of the cylinder D moving the piston *c* upward which through its connections with the shaft *d* will cause said shaft with its rigidly connected disks to give a partial revolution which by means of the connecting parts *r, x* and *u* will also cause the cut off valves H and I to make a partial revolution thus effectually shutting off the live steam with the exhaust and vacuum and instantly depriving the engine of all power. The disks *p* are so adjustable as to close the valve H in the live steam pipe slightly in advance of the valve I and open

the valve I slightly in advance of the valve H as the reverse movement of the ship reversely operating the mechanism again admits steam into the high pressure cylinder

5 A. The upper end of the fulcrum suspension rod *i* is adjustable in the crank *b* by means of the screw *o* to suit the stroke of the piston *c* to the varying conditions of draft and weather. *

10 I am aware that marine engine governors have been operated by weights or pendulums and I therefore do not broadly claim such as my invention, but

What I do claim and desire to secure by patent is—

15 1. In a marine engine governor, the combination of a horizontal journaled shaft, means adapted to partially rotate said shaft, crank disks adjustable on said shaft, with a
20 cut off valve in the main steam pipe of the engine, a cut off valve in the exhaust or vacuum pipe and rods connecting said valves and said crank disks on said horizontal journaled shaft; substantially as described.

25 2. In a marine engine governor the combination of a cut off valve in the main steam pipe, a cut off valve in the exhaust pipe, a journaled shaft carrying a rigidly connected double armed slotted crank, crank disks adjustable on said shaft, rods connecting said
30 cut off valves and said adjustable disks, with an operating steam cylinder and rods connecting the long arm of said double armed slotted crank with the piston of said operating steam cylinder; substantially as described and set forth.

3. The combination in a marine steam engine governor of a cut off valve in the main steam pipe, a cut off valve in the exhaust or
40 vacuum pipe, a horizontal journaled shaft, a double armed slotted crank rigidly connected to said shaft, crank disks adjustable on said shaft, rods connecting said cut off valves and said crank disks, with an operating steam cylinder, jointed rods connecting
45 the long arm of said double armed slotted crank with the piston of said operating cylinder, a fulcrum lever suspended from the short arm of said double armed slotted crank and adjustable therein, jointed rods
50 connecting the valve of said operating cylinder with the short arm of said fulcrum lever, a weight suspended from and rigidly secured to a horizontal shaft resting in revolvable bearings, a lever arm rigidly secured
55 to said shaft at right angles thereto in a horizontal plane, and a rod connecting said lever arm to the long arm of said fulcrum lever; substantially as described and for
60 the purpose specified.

4. In a governor for a marine steam engine, the combination of a weight suspended from and rigidly secured to a horizontal shaft resting in revolvable bearings, a lever

arm rigidly secured to said shaft in a horizontal plane, a fulcrum lever, a journaled horizontal shaft having a rigidly connected double armed slotted crank, a rod suspending said fulcrum lever from the short arm of said double armed slotted crank, a rod
70 connecting the long arm of said fulcrum lever with the said rigidly secured horizontal lever arm, an operating steam cylinder, a jointed rod connecting the valve of said operating cylinder with the short arm of
75 said fulcrum lever and adapted to control the movements of the piston of said cylinder, with an adjusting screw in the short arm of said double armed slotted crank adapted to regulate the stroke and speed of
80 said piston by moving the upper connection of the suspension rod back and forth across the center of said journaled horizontal shaft; substantially as set forth.

5. In a marine engine governor, in combination, a plurality of cylinders, a pipe
85 having communication with said cylinders, a cut-off valve at the inlet end of said pipe, a cut-off valve at the outlet end of said pipe, a power cylinder, a valve casing having communication with the valve cylinder,
90 a slide valve in the valve casing, a piston operable in the power cylinder, a shaft, a double armed crank secured to said shaft, the piston of the power cylinder having connection with one arm of said crank, an arm
95 secured to said second shaft, a weight secured to the second shaft, a fulcrum lever, a connection between the second mentioned arm and the fulcrum lever, a connection between one arm of said double armed crank,
100 disks on the first mentioned shaft, and connections between said disks and the aforesaid cut-off valve.

6. In a marine engine governor, in combination, cylinders, a steam pipe having
105 communication with said cylinders, a cut-off at the inlet end of said pipe, a cut-off at the outlet end of said pipe, a power cylinder, a shaft, a second shaft, a weight secured to the second shaft, connections between the
110 shafts, connections between the second shaft and the power cylinder to operate the latter, and connections between the first mentioned shaft and both of said cut-offs to operate the
115 cut-offs, one slightly in advance of the other.

7. In a marine engine governor, in combination, a plurality of communicating cylinders, one cylinder having an inlet provided
120 with a cut-off, another cylinder having an outlet provided with a cut-off, a shaft, disks on the shaft, a second shaft, a weight secured to the second shaft, connections between the two shafts, means for operating the first mentioned shaft to rock it, and connections
125 between the first mentioned shaft and said cut-offs to operate one cut-off slightly in advance of the other.

8. In a marine engine governor, in combination, a plurality of cylinders, a steam pipe communicating with said cylinders, a cut-off valve in the exhaust vacuum end of said
5 pipe, a cut-off in the inlet end of said steam pipe, a shaft, means constructed and arranged to rotate said shaft, disks secured to

the shaft, connections between the disks and said cut-off valves, and a counter-balancing weight cooperating with said shaft.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
