

A. H. ZIENTARSKI.
GOVERNOR FOR MARINE ENGINES.
APPLICATION FILED APR. 2, 1908.

904,667.

Patented Nov. 24, 1908.

3 SHEETS—SHEET 1.

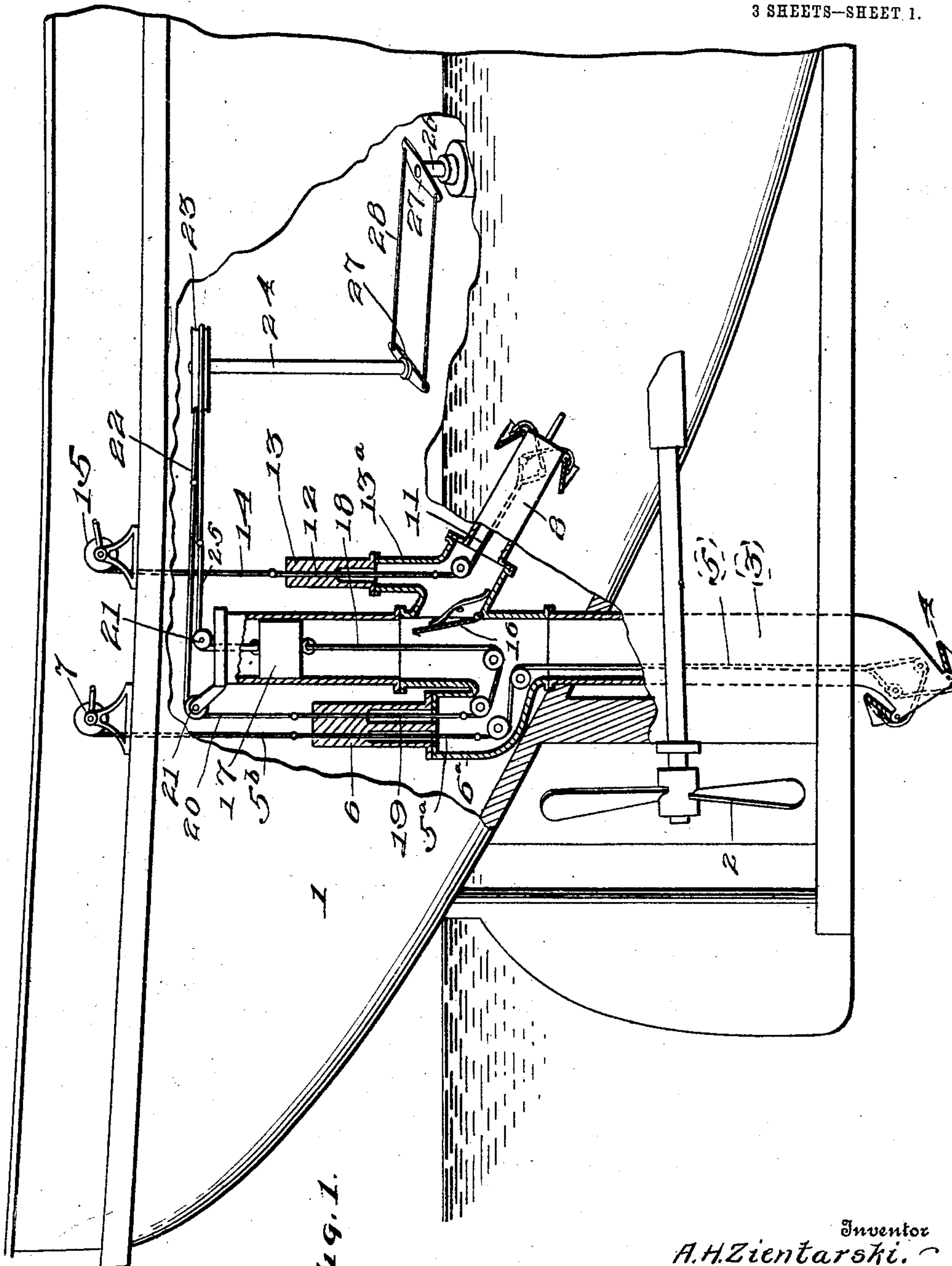


Fig. 1.

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Witnesses

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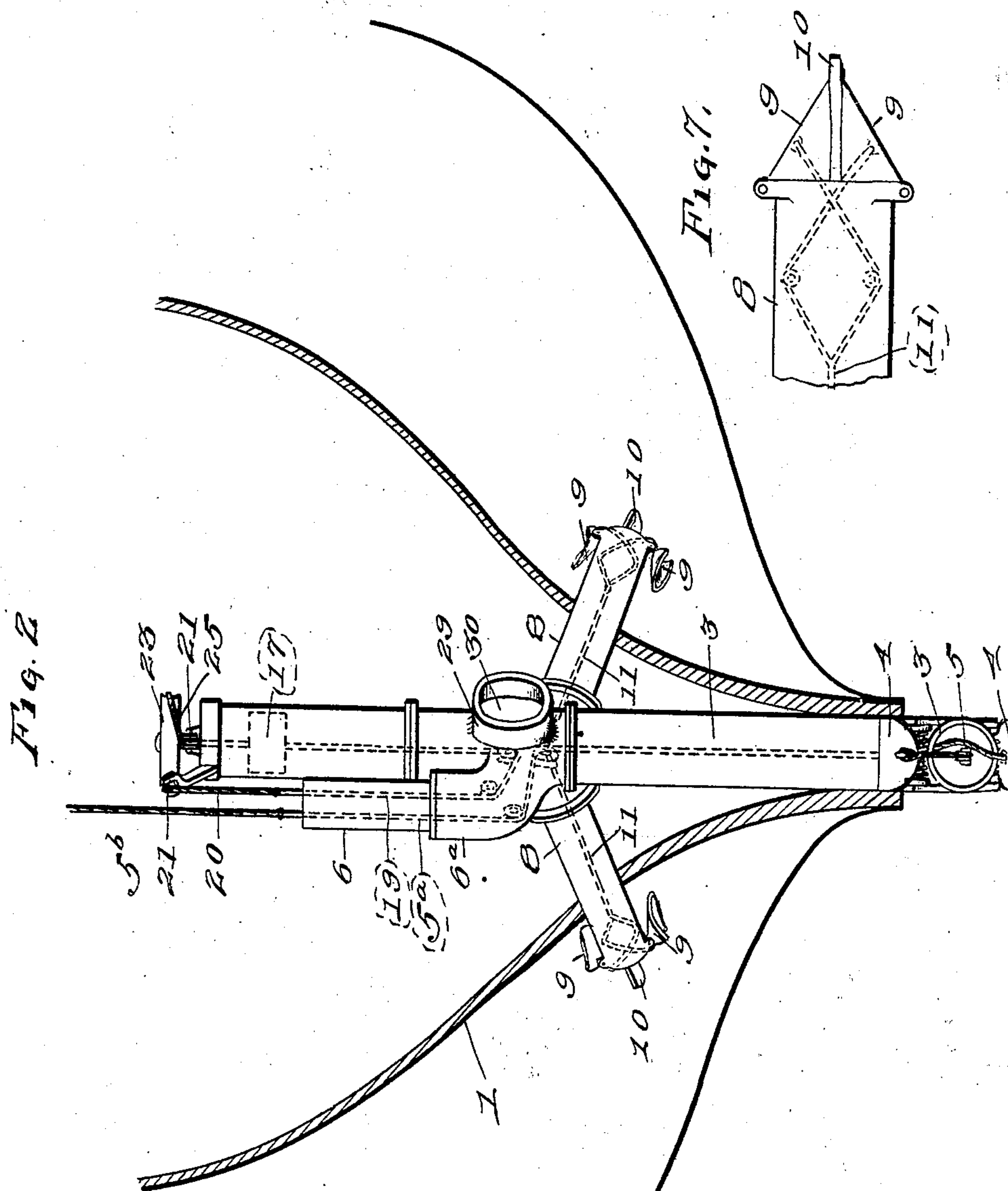
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Witnesses

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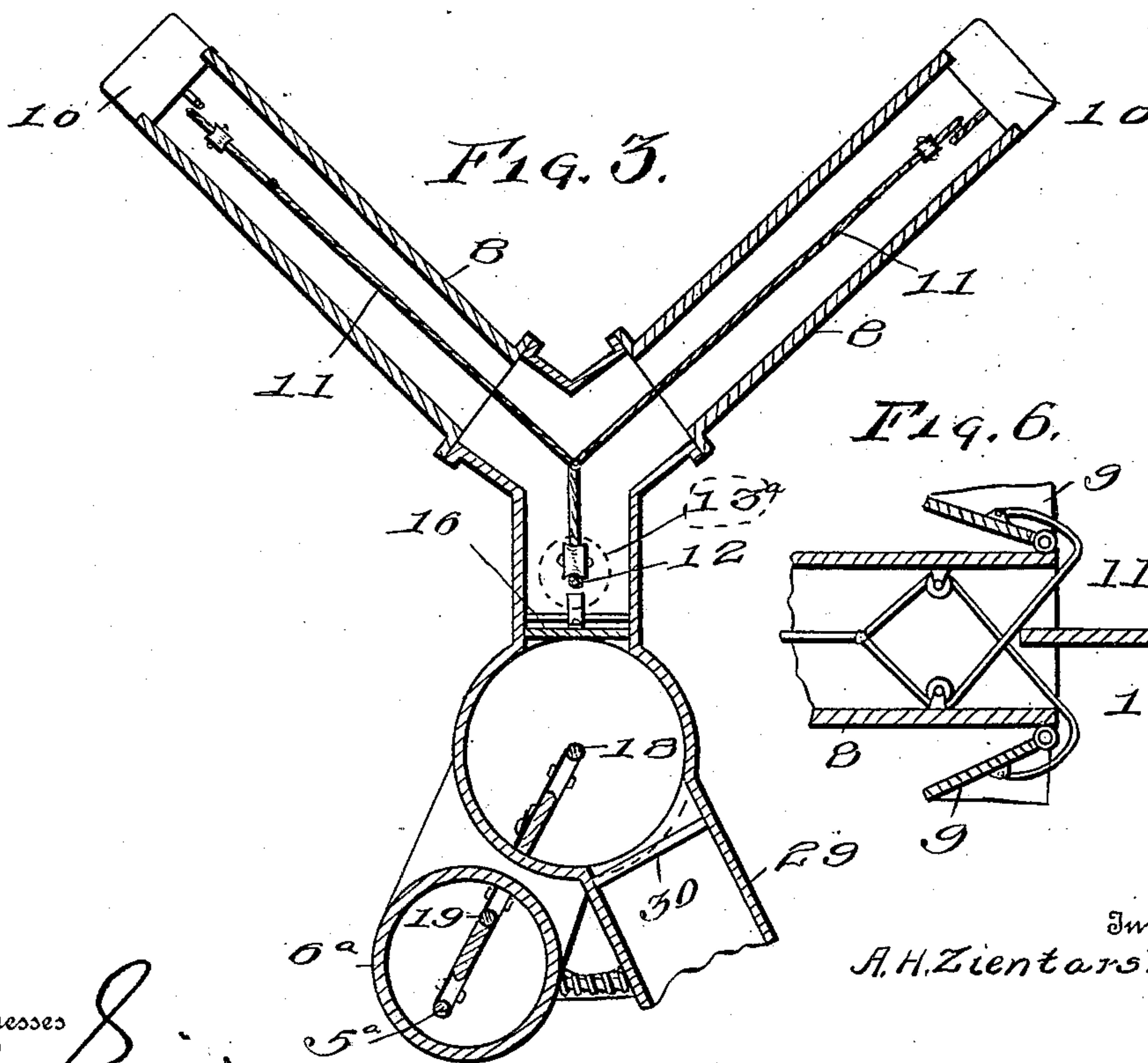
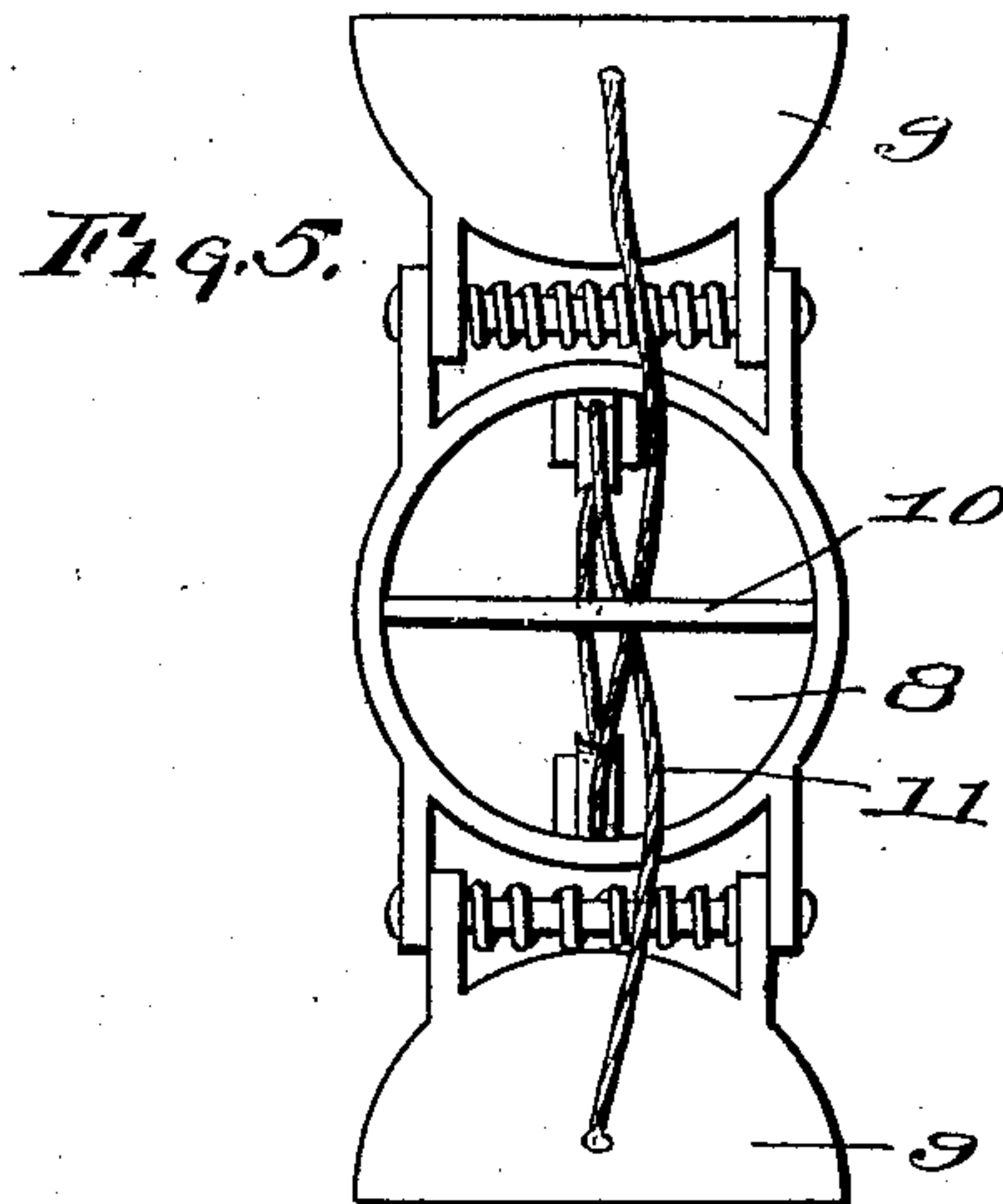
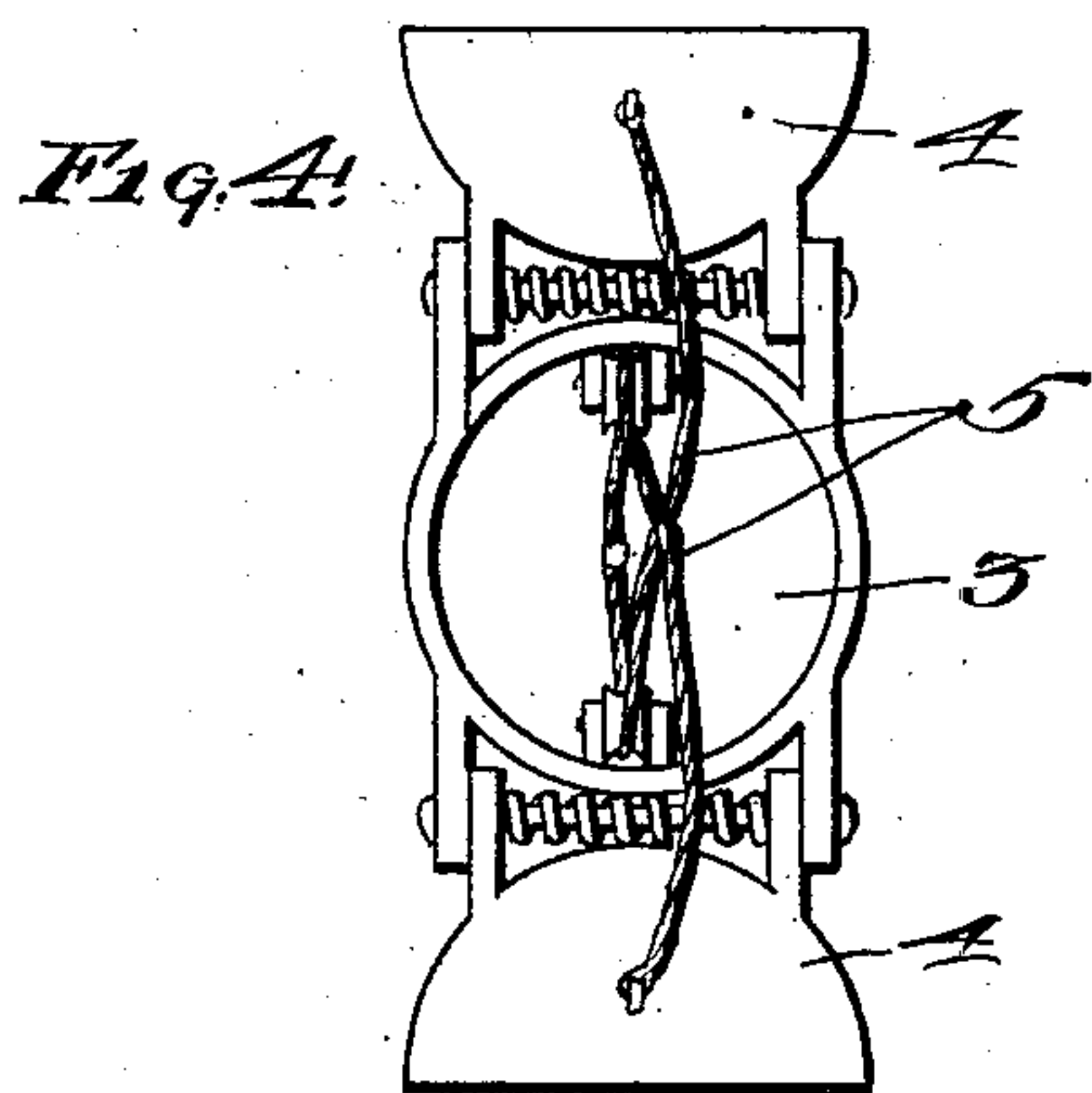
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ANTHONY H. ZIENTARSKI, OF MILWAUKEE, WISCONSIN.

GOVERNOR FOR MARINE ENGINES.

No. 904,667.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed April 2, 1908. Serial No. 424,799.

To all whom it may concern:

Be it known that I, ANTHONY H. ZIENTARSKI, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Governors for Marine Engines, of which the following is a specification.

This invention comprehends certain new and useful improvements in governors for marine engines designed to prevent the racing of the screw-propellers when they are elevated out of the water owing to the rolling and pitching of the vessel, and the invention has for its object a simple, durable and efficient construction of mechanism of this character.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:

Figure 1 is a side elevation, with parts in section, of the stern of a vessel in which my invention is embodied; Fig. 2 is a rear elevation thereof, with parts in section; Fig. 3 is a horizontal sectional view through the tubes, Figs. 4 and 5 are detail views of the lower or mouth ends of the tubes, their doors being shown partially open; Fig. 6 is a longitudinal sectional view of the lower end of one tube with the doors partially open; and, Fig. 7 is a top plan view of the lower end of one tube with the doors closed.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates the hull of a marine vessel, and 2 the propeller thereof.

3 designates a suction tube which is secured at the stern of the vessel, either on the outside or on the inside thereof, and which extends down to a point several feet below the plane of the screw propeller. In the present instance, I have shown the suction tube as being located within the hull. The lower end of the suction tube 3 curves rearwardly, as best illustrated in Fig. 1, and is provided with outwardly spring-pressed doors 4. Cables 5 are connected to the respective doors, and extend upwardly through the tube 3 to a predetermined point in the length thereof, and are connected to the lower end of a rod 5^a. The upper end of the

rod 5^a is connected to another cable 5^b which is mounted to wind upon a windlass 7 mounted upon the deck or any other suitable portion of the vessel, so that the doors may be held closed when the apparatus is not desired for use. Upon permitting the cable 5^b to slacken, the springs of the doors 4 will automatically swing them open so that they will turn upwardly and downwardly respectively and lie against the outer sides of the tube.

Downwardly and forwardly extending tubes 8 are connected at their rear upper ends to the suction tube 3, and extend upon the opposite sides of the hull, as shown. These pressure tubes 8 are provided with outwardly opening spring-pressed doors 9 at their lower ends and plates 10, the latter tending to prevent the clogging of the tubes by the entrance of solid matter therein. When closed, as illustrated in Fig. 7, the doors 9 lie against opposite sides of the respective plates 10, and are angularly disposed with respect to each other, so as to provide a minimum resistance to the water as the ship moves forward.

Cables 11 are connected to the doors 9, and extend upwardly through the pressure tubes 8. The upper ends of the cables 11 are connected to rods 12 that are mounted for vertical sliding movement in the bores of the casing 13 secured to upwardly projecting branch pipes 13^a of the tubes 8. The upper end of each rod 12 is connected to a cable 14, and the two cables 14 are mounted to wind upon a windlass 15 corresponding to the windlass 7. Suitable pulleys are provided for the cables 11, as well as the cables 5 above mentioned.

The communication between the pressure tubes 8 and the suction tube 3 is controlled by the spring-pressed doors 16, as clearly illustrated in Figs. 1 and 3. A drum 17 which is preferably cylindrical is mounted to reciprocate vertically in the upper end of the suction tube 3. A cable 18 is secured at one end to the bottom of the drum 17, and extends downwardly therefrom and thence upwardly around pulleys, and is secured to a sliding rod 19 mounted in another bore of the casing 6. The upper end of the rod 19 is connected to a cable 20, which passes over pulleys 21, and is connected to one end of a drive chain 22. This chain passes around a sprocket wheel 23 on the upper end of a shaft

24, and has its other end connected to a cable 25 attached to the top of the drum 17. The shaft 24 is connected in an operative way to the throttle shaft 26, as by the cross arms and links 27 and 28, so as to actuate the throttle in one direction to shut off the steam and cause the engine to slow down or stop when the shaft 24 is turned in one direction and to start the engine when the shaft is turned in the other direction.

In the practical operation of my improved governor for marine engines, the cables of the doors are slackened to permit the doors to open. It is to be understood that the pressure of the water within the pressure tubes 8 is greater than the suction in the tube 3. The pressure within the tubes 8 will hold the doors 16 open, and the drum 17 will thus be held in its uppermost position so as to hold the shaft 24 in a position to effect the running of the engine. Should, however, the vessel pitch to such an extent that its stern will be raised high enough to expose the lower ends of the pressure tubes 8 to the atmosphere, it is apparent that the water pressure within these tubes will be instantly relieved, and consequently the doors 16 will be closed by their springs, and then the suction in the tube 3 will act so as to draw the drum 17 downwardly and effect the rotation of the shafting 24 in a direction to bring the engine to a standstill or to slow the engine down. Manifestly the same result will be obtained when the vessel rolls to such an extent as to expose the lower end of either of the pressure tubes 8 to the atmosphere. When the vessel assumes a normal keel, it is clear that the lower ends of the pressure tubes 8 will be submerged, and the pressure within said tubes will more than counteract the suction within the tube 3 so as to again raise the drum 17 and cause the engine to start.

29 designates an auxiliary exhaust tube which is connected to the main tube, connection therebetween being controlled by a door 30 like the doors 16. This additional or auxiliary suction tube may be employed or not, as desired, it being understood that it is constructed, like the tube 3, and similarly arranged with doors.

It is to be understood that the tubes are disposed with relation to the hull of the vessel as to in no wise interfere with the screw propellers. The tube in which the drum operates is not entirely open at the top, hence when the tank goes down it draws the air in and when it raises it compresses the air which escapes slowly so as not to allow the starting of the engine too suddenly, or the too sudden stopping thereof.

Having thus described the invention, what is claimed as new is:

1. An apparatus of the character described, comprising a suction tube arranged

to be connected to a vessel with its lower end submerged, a pressure tube connected to the suction tube with its lower end arranged to terminate above the level of the propeller, and a drum mounted in said suction tube and arranged for operative connection with the throttle valve of the engine of the vessel to reduce the speed of the engine when lowered within the tube.

2. An apparatus of the character described, comprising a suction tube arranged to be connected to a marine vessel with the lower end of the tube extending below the level of the propeller of the vessel, a pressure tube connected to said suction tube with its lower end arranged to terminate above the level of the propeller and having communication with the suction tube, and a drum within the suction tube above the pressure tube arranged for operative connection with the throttle valve of the vessel's engine.

3. An apparatus of the character described, comprising a suction tube arranged to be connected to a marine vessel with the lower end of the tube extending below the level of the propeller of the vessel and also extending rearwardly, pressure tubes connected to the said suction tube, their lower ends being arranged to terminate on opposite sides of the hull of the vessel above the level of the propeller and the said pressure tubes having communication with the suction tube, and a drum inside the suction tube arranged for operative connection with the throttle valve of the vessel's engine.

4. An apparatus of the character described, comprising a suction tube arranged to be connected to a marine vessel, the lower end of the tube extending below the level of the propeller of the vessel, a pressure tube arranged to have its lower end terminate above the level of the propeller, and connected to said suction tube, the pressure tube having communication with the interior of the suction tube, doors secured to the lower ends of said tubes, means for closing said doors, and a drum in said suction tube arranged for operative connection with the throttle valve of the vessel's engine.

5. An apparatus of the character described, comprising a suction tube arranged to be connected to a marine vessel with its lower end extending below the level of the propeller of the vessel, a pressure tube connected to said suction tube and arranged to have its lower end terminate above the level of the propeller, doors adapted to open and close the lower ends of said tubes, means for opening and closing said doors, and a drum located inside the suction tube and arranged for operative connection with the throttle valve of the vessel's engine.

6. An apparatus of the character described, comprising a suction tube arranged to be connected to a marine vessel, the lower

end of the tube extending below the level of the vessel's propeller, a pressure tube connected to said suction tube and arranged to have its lower end terminate above the level
5 of the propeller, the pressure tube communicating with the suction tube, a spring closed door controlling said communication, and a drum located inside the suction tube above the pressure tube and arranged for operative

connection with the throttle valve of the vessel's engine. 10

In testimony whereof I affix my signature in presence of two witnesses.

ANTHONY H. ZIENTARSKI. [L. s.]

Witnesses:

WOJERICK KUJAWA,
LEO D. BOTTRELL.