

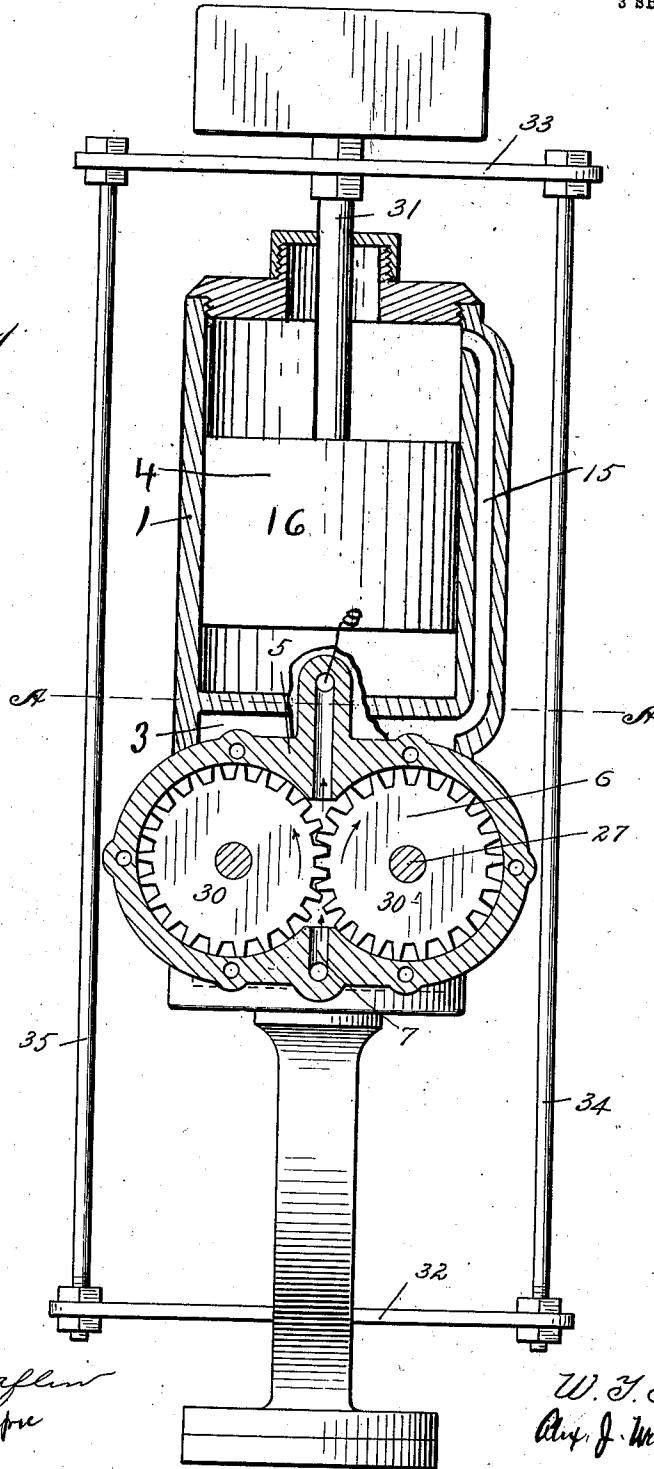
W. T. STRAIN.
GOVERNOR.
APPLICATION FILED NOV. 7, 1910.

1,027,221.

Patented May 21, 1912.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses

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L. M. Gillespie

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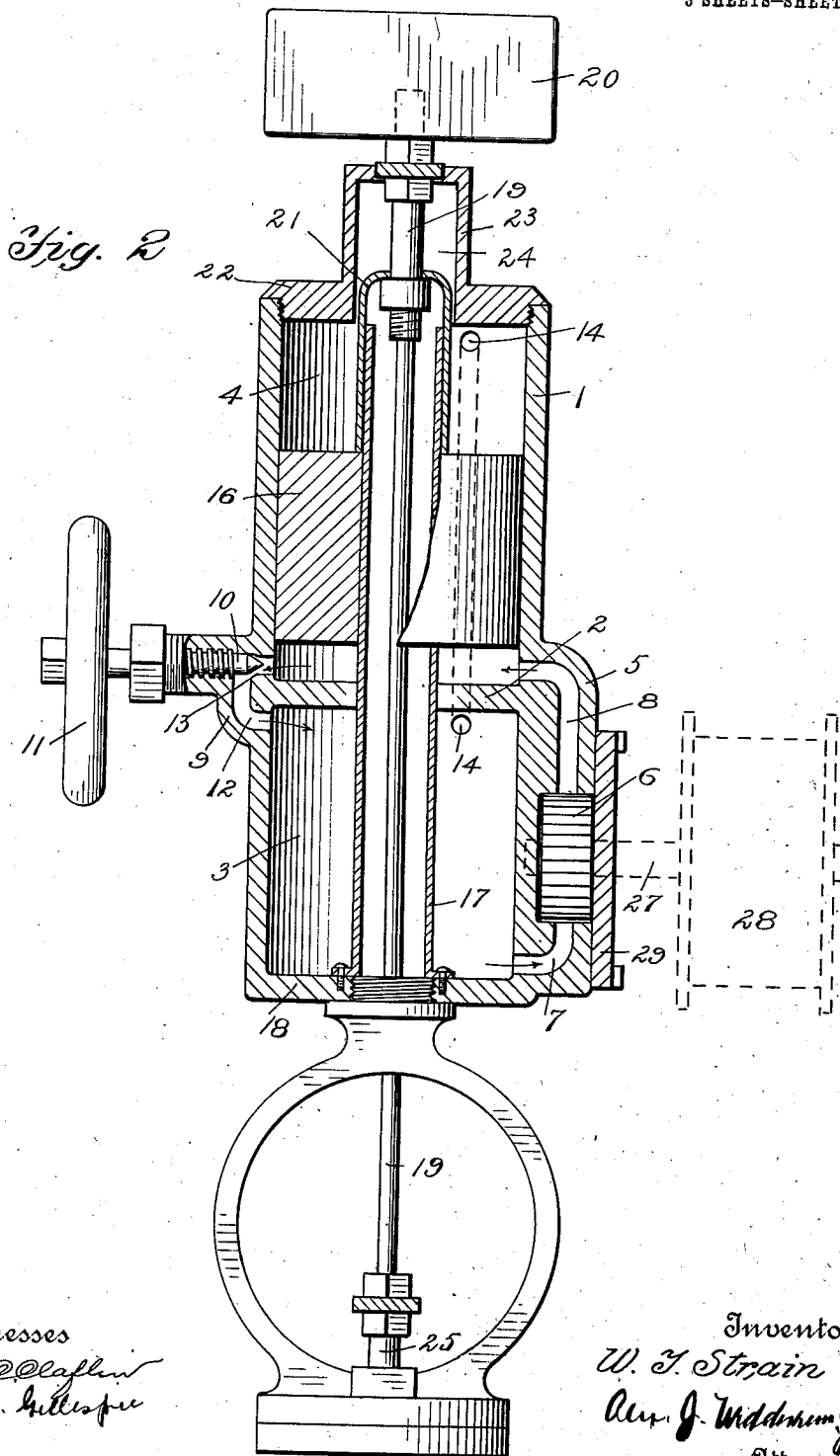
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3 SHEETS—SHEET 2.



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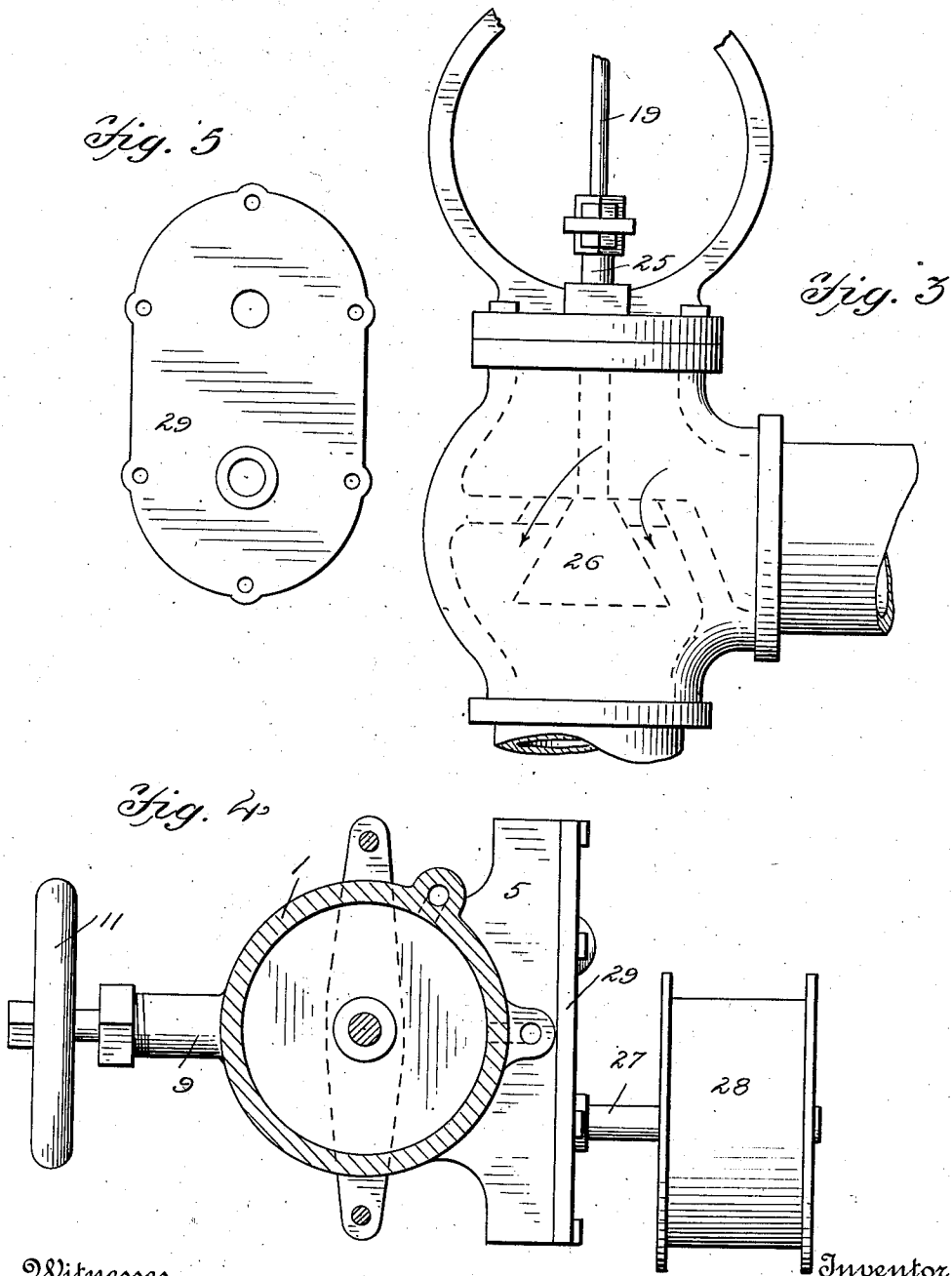
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

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GOVERNOR.

1,027,221.

Specification of Letters Patent.

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Application filed November 7, 1910. Serial No. 590,986.

To all whom it may concern:

Be it known that I, WILLIAM THOMAS STRAIN, citizen of the United States, residing at Hanlin Station, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Governors, of which the following is a specification.

This invention relates to improvements in governor valves for steam or other fluid engines and especially to a hydraulic governor and the main object of the invention is to provide a governor which will maintain in an engine an absolutely uniform speed regardless of the variation of the motive power or the resistance.

Another object is to provide a device of this kind extremely simple in construction, yet efficient, durable and quick acting.

With these and other objects in view, I have constructed the governor valve illustrated in the accompanying drawings, in which,

Figure 1. is a side elevation of my improved governor taken partly in section, Fig. 2 is a vertical sectional view of another form thereof, Fig. 3 is a valve chamber showing the valve and seat in dotted lines, Fig. 4 is a cross sectional view taken on the line A—A of Fig. 1, and Fig. 5 is a plan view of the pump cylinder head.

Referring to the accompanying drawings illustrating the device and particularly to Fig. 2 1 indicates the casing of a cylinder, said cylinder being centrally divided by a plate 2 into two chambers 3 and 4. On one side of the cylinder casing an extension 5 is formed in which a pump 6 is located, also the port 7 which leads from the chamber 3 to the pump and the port 8, which extends from the pump to the chamber 4. Another extension 9 is formed in the casing 1, which receives the screw threaded needle valve 10, which is operated by a wheel 11. In this extension is also located a port 12, which leads from the chamber 4 to the chamber 3. A valve seat 13 is located in the port 12, upon which the needle valve 10 is adapted to seat and close the port. A port 14 passes from the upper part of chamber 4 to the upper part of chamber 3 through an extension 15 in the casing 1. Within the chamber 4 is located a weighted piston 16 which snugly fits into said chamber 4. Through the center of this piston passes a tube 17 on which said piston is slidable. This tube 17

extends from the upper part of the chamber 4, slightly above the opening to the port 14 and down through the division plate 2 to the bottom wall 18 of the chamber 3 and is fixedly secured thereto. Through this tube a stem 19 passes, to the upper end of this stem is secured a weight 20. The piston 16 is secured to the stem 19 by means of a collar 21 which straddles the upper end of the tube 17. A head 22 covers the upper end of the chamber 4, this head is provided with an extension 23, which is provided with an internal recess 24 to receive the collar member 21 when the piston 16 occupies the upper part of this chamber. The lower part of the stem 19 is secured to the valve stem 25 which operates the valve 26. In the casing 5, which is integral with the casing 1, is a recess in which is located a pump 6 which is operated by means of the shaft 27. To the outer end of this shaft is secured a pulley wheel 28. A side plate 29 covers the pump casing 5. While I have shown a pump comprising a form of cog wheels 30 and 30', I wish it understood that any preferred form of pump may be used in lieu thereof.

In Fig. 1 I show a slightly different arrangement. The tube 17 is dispensed with and the stem 31 is secured directly to the top of the piston, while the stem 19 at this point of attachment with the valve stem 25 is secured to a link 32. The stem 31 also has a link 33 thereon. These links 30 are connected by stems 34 and 35. Other than the method of connecting the valve stem 25 with the stem on the piston, the two constructions are similar.

In operation the revolution of the pulley operates the pump which forces the liquid from the lower chamber through the port 8 into the upper chamber causing the piston to raise, should a greater amount of liquid be forced into the upper chamber than can return to the lower chamber through the port 12.

Having described my invention, I claim and desire to secure by Letters Patent:—

1. A governor comprising a casing divided into two vertically connected compartments, a fluid adapted to be circulated between said compartments, means for regulating the circulation of said fluid, a piston in one of said compartments, adapted to be floated by said fluid, a tube passing through said casing and valve, a valve stem

passing through said tube, a weight on the upper end thereof, and a valve on the lower end thereof.

2. A governor comprising a casing divided into two vertically connected compartments, a fluid adapted to be circulated between said compartments, means for regulating the circulation of said fluid, a piston in one of said compartments, adapted to be floated by said fluid, a tube passing through said casing and valve, a valve stem passing through said tube, a weight on the upper end thereof, a valve on the lower end thereof, said piston having an opening through the center thereof for the passage of said tube.

3. A governor comprising a casing divided into two vertically connected compartments, a fluid adapted to be circulated between said compartments, means for regulating the circulation of said fluid, a piston in one of said compartments, adapted to be floated by said fluid, a tube passing through said casing and valve, a valve stem passing through said tube, a weight on the upper end thereof, a valve on the lower end thereof, and means for fixedly securing said pis-

ton to said valve stem so that when said piston is floated said stem will be raised thereby and said valve operated.

4. A governor comprising a vertical tubular casing having two chambers therein, a piston in the upper one of said chambers, one freely opened conduit leading from above said piston and another conduit from beneath the same to points near the top of the lower chamber, a fluid adapted to be circulated between said chambers, means within said last named conduit for regulating the circulation of said fluid, a passage between the lower portions of said chambers, a pump adapted for operation by a prime mover positioned within said passage, a tube passing through said casing and valve, a valve stem passing through said tube, and a valve upon the lower end of said stem and adapted for operation upon a change in speed of the said prime mover.

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

WILLIAM THOMAS STRAIN.

Witnesses:

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