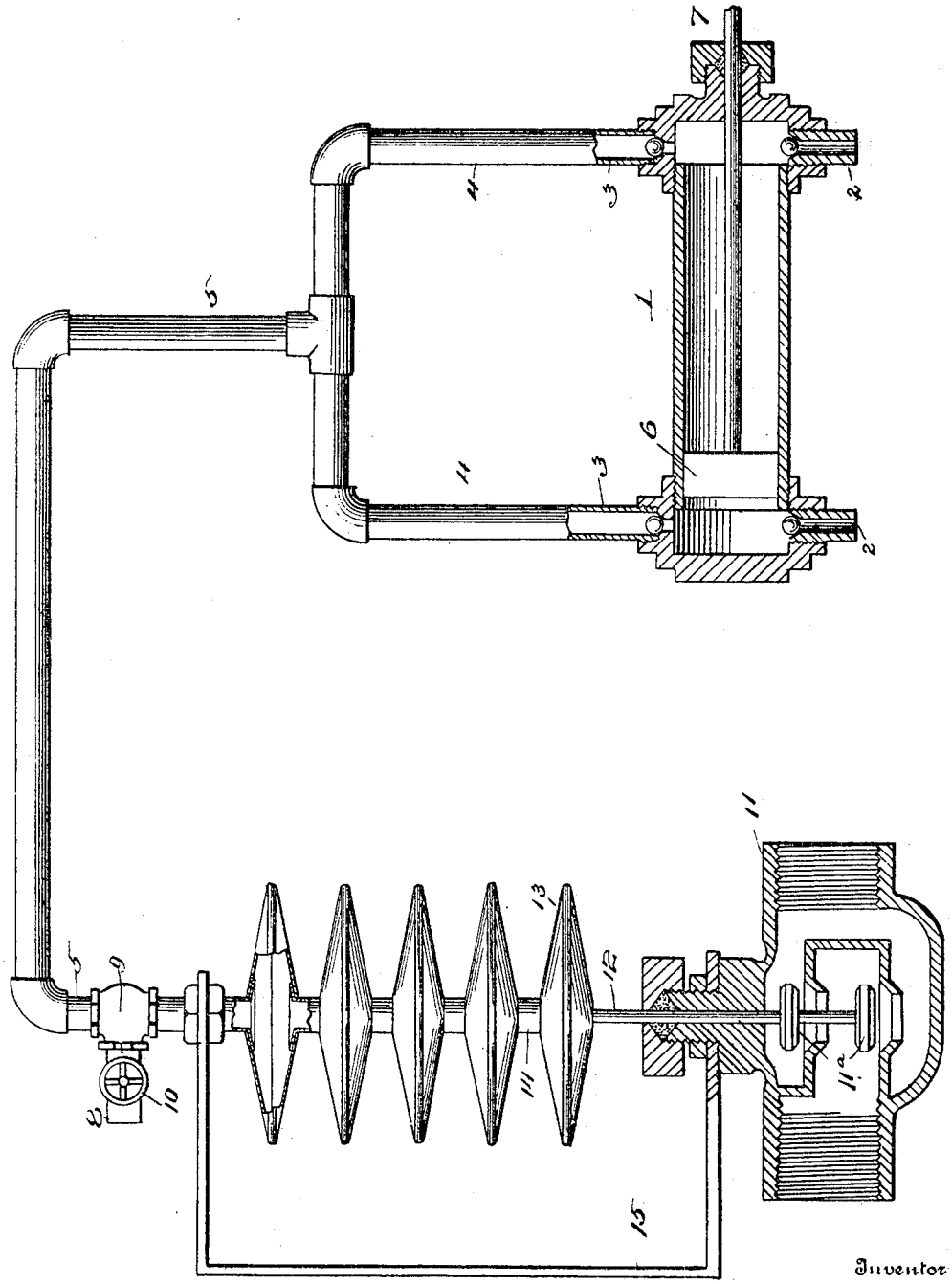
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T. M. WILKINS.

STEAM SUPPLY GOVERNOR.

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Witnesses

J. M. Fowler Jr.

Herbert D. Lawson.

Inventor

Thomas M. Wilkins.

By Mason, Fenwick & Lawrence

his Attorneys.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS M. WILKINS, OF SEATTLE, WASHINGTON.

STEAM-SUPPLY GOVERNOR.

No. 798,988. Specification of Letters Patent. Patented Sept. 5, 1905.

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To all whom it may concern:

Be it known that I, THOMAS M. WILKINS, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Steam-Supply Governors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to governors for steam-engines and other motors of a like nature; and its object is to provide a pneumatic regulator adapted to automatically maintain the operation of the motor at a uniform speed.

A further object is to provide a valve for controlling the speed of the motor to which the governor is connected.

With the above and other objects in view the invention consists of an air-pump adapted to be operated by the motor, the speed of the motor and the pump corresponding at all times. A series of expansible compartments are connected to the pump and are adapted to receive air compressed thereby, and this series of expansible compartments is secured to the stem of a valve arranged within the pipe employed for conducting motive fluid to the motor. A valve is disposed between the expansible compartments and the pump, and by manipulating it a desired quantity of the air compressed by the pump may be permitted to escape without entering the compartment.

The invention also consists in further constructions, combinations, and arrangements of parts, as will be hereinafter fully described and pointed out in the claims.

The preferred form of my invention is shown in the accompanying drawing, which shows a section through the pump-cylinder and the valve-casing, the two being connected by my improved governor, which is shown in elevation, one of the expansible compartments being shown partly in section.

Referring to the drawing by numerals of reference, 1 is a pump-cylinder having valved inlets 2 adjacent opposite ends and valved outlets 3, which are connected by pipes 4 to an outlet-pipe 5. A piston 6 is adapted to reciprocate within the cylinder 1 and may be connected, by means of its rod 7, with any portion of the motor to which the governor is applied, whereby the operation of the piston and motor will correspond at all times. The outlet-pipe 5 is provided with an outlet 8, which extends from a valve-casing 9, having a valve therein (not shown) which may be manipulated by means of a hand-wheel 10 or in any other suitable manner.

A valve-casing 11 is adapted to be arranged within the pipe provided for conducting motive fluid to the motor, and the valve 11^a within this casing is connected, by means of a stem 12, with the lower one of a series of expansible receptacles 13. Each of these receptacles is preferably formed of two similar oppositely-arranged concavo-convex sheets of flexible metal, which are secured at their edges in such a manner as to prevent the escape of air. The several receptacles of the series are connected by tubes 14, whereby a passage is formed from the valve 9 of the outlet-pipe to the lower receptacle 13. An angular bracket 15 is secured upon valve-casing 11 and to the outlet-pipe 5 at a point adjacent to valve 9 and serves to hold the expansible receptacles 13 in proper position above the valve-casing 11 and in alinement with the stem 12.

As hereinbefore stated, the speed of the pump 6 is regulated by the speed of the motor to which it is connected. In other words, when the motor runs at a high speed the piston 6 is reciprocated faster than when the motor is going at a lower speed. When said motor is operated at a predetermined speed, the air compressed by the piston 6 will be forced through the pipes 4 and 5 in such quantities as to readily pass through the outlet 8 without exerting any pressure within the receptacles 13. Should the speed of the motor increase beyond that desired, however, more air will be pumped into the pipes 4 and 5 than can escape from outlet 8, and therefore the supply of air within the pipes will be directed into the compartments 13 and will expand them, so as to slide the rod 12 longitudinally and cause the valves 11^a to move toward their seats and close or partly close the passage through the valve-casing 11. The amount of motive fluid supplied to the motor through the casing 11 will therefore be cut off or reduced, and the speed of the motor will be correspondingly reduced. When the speed of the motor diminishes, the quantity of air pumped into the pipes 4 and 5 and the receptacles 13 will also diminish, and the air will escape through the outlet 8 and remove

the expansive pressure exerted upon the receptacles 13. The valve 11ª will therefore return to its proper position. It will thus be seen by providing a motor with the governor herein described the same can be caused to operate at uniform speed. By partly closing the valve in the outlet 8 the motor may be maintained at a low speed and by opening the valve within said outlet the motor may be maintained at a high speed.

The device described by me is designed, primarily, to be used in lieu of the ordinary steam-governor; but it will be readily seen that it can be used in places where such a governor is not practicable, as in ocean-steamers and at other places where the machinery is submitted to intermittent resistance, as when water recedes from the propellers or side wheels of ships.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of the invention.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a governor, the combination with a compressing device, a valve, and an expansible device connected to the valve; of means for conducting gas from the compressing device to the expansible device, said means having a valved outlet.

2. In a governor, the combination with a compressing device, and a valve; of an expansible receptacle connected to and adapted to operate the valve, and means for conducting gas from the compressing device to the receptacle, said means having a valved outlet.

3. In a governor, the combination with a compressing device having a valved outlet; of an expansible receptacle, means for conducting gas from the compressing device to the receptacle and a valve connected to and movable with the receptacle.

4. In a governor, the combination with an expansible receptacle; of means for directing an agent into the receptacle for expanding the same, said means having a valved outlet, and a valve connected to and movable with the receptacle.

5. In a device of the character described, the combination with an expansible receptacle and a pump; of means for directing an agent from the pump to the receptacle for expanding said receptacle, a valved outlet in said means, and a valve connected to and movable with the receptacle.

6. In a device of the character described, the combination with an expansible receptacle; of means for forcing an agent into the receptacle to expand the same, said means having a valved outlet, and a valve connected to the receptacle and operated by the expansion and contraction thereof.

7. In a device of the character described, the combination with a series of connected and communicating expansible receptacles; of means for forcing an agent into the receptacles for expanding the same, said means having a valved outlet, and a valve connected to the series of receptacles, said valves being operated by the expansion and contraction of the receptacles.

8. In a device of the character described, the combination with a series of connecting and communicating expansible receptacles; of a pump, means for directing an agent from the pump to the receptacles, said means having a valved outlet and a valve connected to the receptacles and adapted to operate by the expansion and contraction of the same.

9. In a device of the character described, the combination with an expansible receptacle, of a pump having valved inlets and outlets, means connecting said outlets and the receptacle for directing an agent into the receptacle to expand the same, said means having a valved outlet, a valve connected to the receptacle, said valve being operated by the expansion and contraction of the receptacle.

10. In a device of the character described, the combination with a series of connected and communicating expansible receptacles, of a pump having valved inlets and outlets, means for conducting an agent from the outlets to the receptacle for expanding said receptacle, said means having a valved outlet and a valve connected to the receptacle, said valve being operated by the expansion and contraction of the receptacles.

11. The combination with a valve-casing having valves therein and a stem projecting from the valve, of an expansible receptacle secured to the stem, a pump having valved inlets and outlets, means for conducting an agent from said outlets to the receptacle, said means having a valved outlet intermediate its ends and a supporting-bracket secured to the valve-casing and engaging said means.

12. The combination with an expansible receptacle and a pump, of valved connecting means for said receptacle and pump providing communication therebetween, and a valve connected to, and operable by said expansible receptacle.

13. A device of the character described, comprising an expansible receptacle and a pump, valved means connected to said receptacle and pump and providing direct communication therebetween, said expansible receptacle comprising connected, expansible members, and a movable valve secured to said expansible receptacle.

14. In a device of the character described, the combination with a pump provided with outlets and inlets formed near each end there-

of, an expansible receptacle comprising a series of expansible members assembled with said pump, valved connecting means for said receptacle and pump, said connecting means communicating with the interior of said receptacle and each end of said pump, and a valve secured to said expansible receptacle.

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

THOMAS M. WILKINS.

Witnesses:
G. WARD KEMP,
L. C. MASSIE.