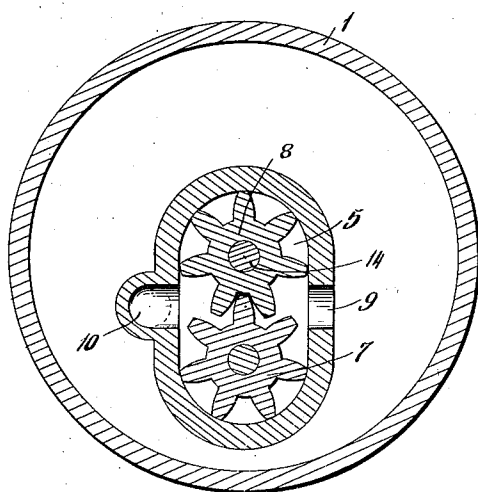
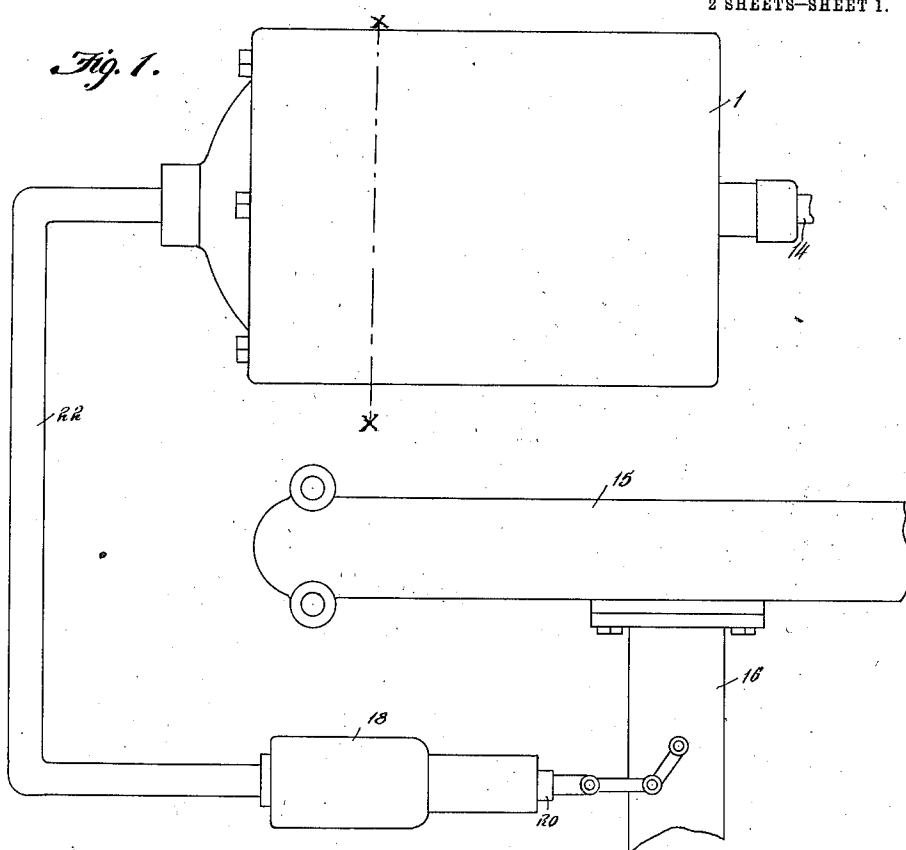


1,047,096.

J. M. MACDONALD.
AUTOMOBILE GOVERNOR.
APPLICATION FILED SEPT. 13, 1910.

Patented Dec. 10, 1912

2 SHEETS—SHEET 1.



Witnesses
Wm. F. Garner
D. W. Gould.

Inventor
James M. Macdonald

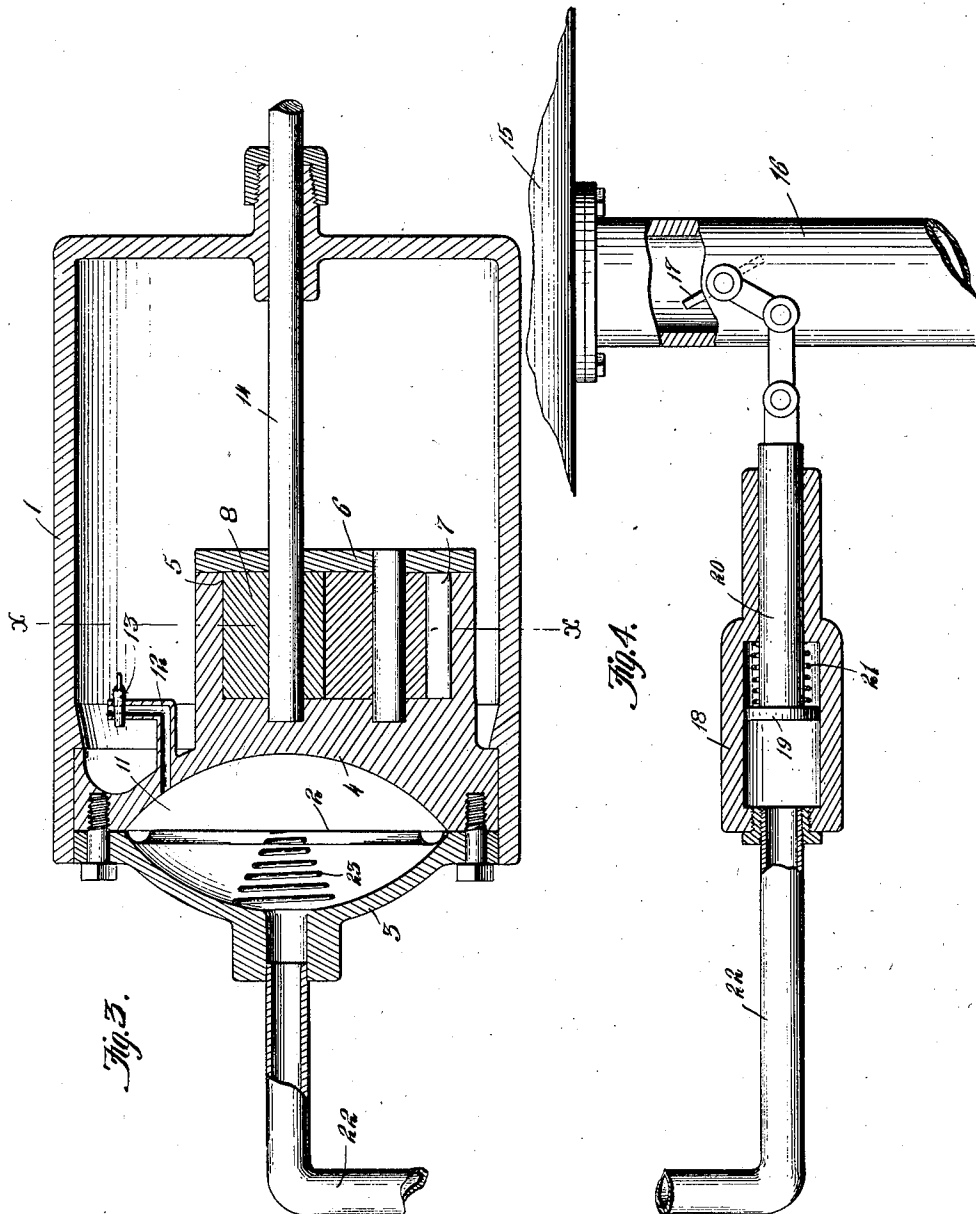
By *Victor J. Evans*
Attorney

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 Alan F. Garner
 D. W. Gould.

Inventor
 James M. Macdonald

By Victor J. Evans
 Attorney

UNITED STATES PATENT OFFICE.

JAMES M. MACDONALD, OF WETHERSFIELD, CONNECTICUT.

AUTOMOBILE-GOVERNOR.

1,047,096.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed September 13, 1910. Serial No. 581,742.

To all whom it may concern:

Be it known that I, JAMES M. MACDONALD, a citizen of the United States, residing at Wethersfield, in the county of Hartford and State of Connecticut, have invented new and useful Improvements in Automobile-Governors, of which the following is a specification.

In the operation of mechanically propelled vehicles high speed is frequently attained, the same exceeding that prescribed by municipal regulations and this speeding of the machine besides being dangerous shortens the life or period of usefulness of the machines, particularly when operated on rough roads.

The purpose of the present invention is the provision of an automatic governor of simple construction, effective in operation and reliable in service, said governor being regulable and adapted to be set to any approximate speed and serving to prevent the speeding of the machine beyond the point for which the governor is set.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claim.

Referring to the drawings, forming a part of the application, Figure 1 is a diagrammatic view of a governor constructed in accordance with this invention. Fig. 2 is a detail section on the line *x-x* of Figs. 1 and 2. Fig. 3 is a sectional view of the casing containing the pump and diaphragm. Fig. 4 is a longitudinal section of the cylinder and plunger connected with the valve for controlling the supply to the engine.

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.

The governor mechanism comprises a casing 1, which is closed or provided at one end with a chamber containing a diaphragm 2. The chamber is formed between two members 3 and 4, which are secured together at their outer edges and fitted to an end portion of the casing 1. The diaphragm 2 is confined between the outer portions of the members 3 and 4. The member 4 has its inner portion recessed, as indicated at 5, the recessed portion being closed at its open end by means of a cap plate 6. Rotary pump

members 7 and 8 are arranged to operate in the recess 5 and are adapted to draw a liquid from the casing 1 and force the same into the diaphragm chamber formed between the parts 3 and 4. The recessed portion of the member 4 and the elements 7 and 8 form a rotary pump. An inlet 9 establishes communication between the casing 1 and the interior of the pump. A passage 10 forms an outlet between the pump and the diaphragm chamber. When the pump is in operation liquid is drawn into the pump through the opening 9 and is discharged through the passage 10. The chamber 11 formed between the members 3 and 4 has an outlet 12, which is of smaller cross sectional area than the passage 10, so that it is possible to supply liquid to the chamber 11 faster than it can escape from said chamber through the outlet 12. The diaphragm 2 divides the chamber 11 into two spaces and any excessive pressure in the space to the right of the diaphragm 2 causes a deflection of said diaphragm to the left, the degree of deflection being proportionate to the excessive pressure in the space upon the right hand side of the diaphragm. A valve 13 is fitted to the pipe forming the outlet 12, thereby admitting of reducing the effective size of the outlet 12 so that a greater or less pressure may be created in the diaphragm chamber upon the right hand side of the diaphragm. The pump is adapted to be operated from a rotating part of the machine a shaft 14 connecting one of the pump elements with the rotating part.

The intake manifold of the engine is indicated at 15 and 16 designates a pipe connected with the manifold for supplying gaseous mixture thereto. A valve 17 located in the pipe 16 controls the amount of gaseous mixture passing therethrough in a given time. A cylinder 18 has a piston 19 arranged to operate therein, and a stem 20 of the piston 19 is connected with the valve 17 to effect movement thereof. A spring 21 normally exerts an endwise pressure upon the piston 19 to move the same toward the outer or left hand end of the cylinder 18, so as to open the valve 17 to its fullest extent. A pipe 22 connects one end of the cylinder 18 with the diaphragm chamber. Liquid is supplied to the pipe 22, the outer end of the cylinder 18 and the outer or left hand space of the diaphragm chamber 11. When the diaphragm 2 is deflected outwardly pressure is trans-

mitted to the piston 19 by means of the intermediate fluid medium, thereby moving the piston 19 to the right and closing the valve 17 to a greater or less extent depending upon the degree of deflection of the diaphragm 2. A spring 23 arranged in the outer or left hand space of the chamber 11 serves to press the diaphragm 2 toward the right and to return the same to normal position when relieved from any excessive pressure upon the right hand side of the chamber 11.

The parts of the governor mechanism may be conveniently located and housed and made secure to prevent any one tampering therewith so that after the mechanism has been set for a predetermined speed the latter may not be exceeded. The opening 9 corresponds in size to the passage 10, hence when the pump is in operation the liquid drawn in at the opening 9 may pass out through the passage 10. The passage 12 being smaller than the passage 10 it will be understood that in the event of the pump operating so as to supply liquid to the chamber 11 faster than it may pass from said chamber through the outlet 12 there will be an accumulation in the right hand space of the chamber 11 which will result in deflecting the diaphragm 2 and compressing the liquid in the left hand space of the chamber 11, thereby causing a movement of the piston 19 in the cylinder 18, with the result that the valve 17 is moved to partly close the opening through the pipe 16 and thereby cut off a portion of the supply of gaseous mixture to the engine. The speed of the engine is thus reduced. Under normal conditions the diaphragm 2 occupies a given position and the valve 17 is held at a given point and the position of these parts is maintained so long as the vehicle does not exceed a given speed, but should the pump operate to supply liquid to the

chamber 11 faster than the liquid may escape from said chamber through the outlet 12 the governor mechanism will come into play to throttle the engine and compensate for the tendency to exceed the predetermined speed, which latter is maintained so long as the liquid is supplied to the chamber 11 faster than it can escape therefrom through the outlet 12.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claim appended hereto.

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

A governor mechanism comprising a cylinder, a piston arranged to operate within the cylinder and adapted to be connected with the part to be operated, a chamber connected with said cylinder and having a valve controlled outlet, a diaphragm extended across said chamber, a pump for supplying liquid to the chamber upon that side of the diaphragm having the before mentioned valve controlled outlet, and means for operating the pump.

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

JAMES M. MACDONALD.

Witnesses:

ALLEN R. PYE,
SADIE F. DEVINE.