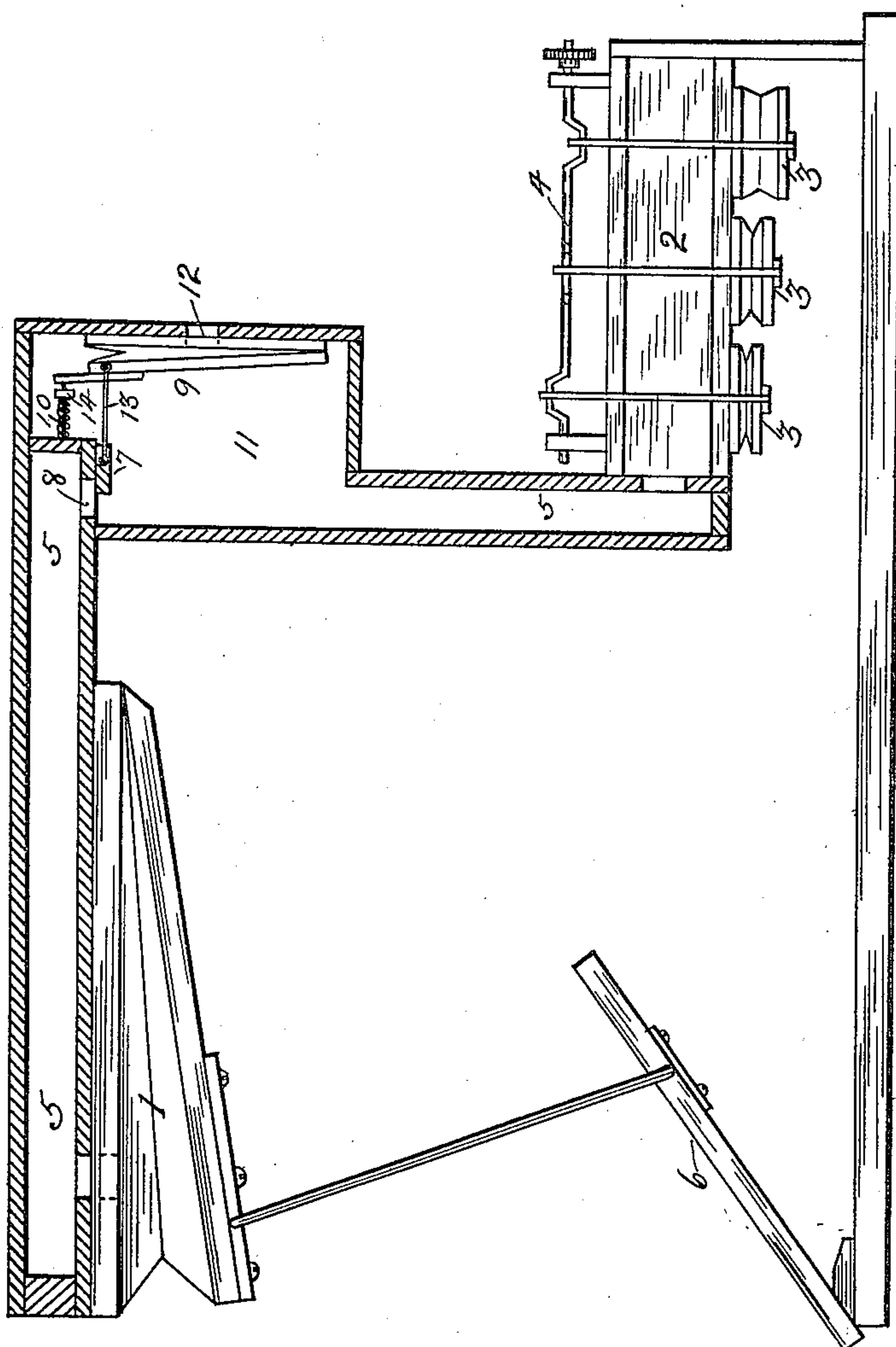


No. 816,169.

PATENTED MAR. 27, 1906.

J. W. MACY.
PNEUMATIC MOTOR GOVERNOR.
APPLICATION FILED JULY 17, 1905.



WITNESSES:

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PNEUMATIC-MOTOR GOVERNOR.

No. 816,169.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed July 17, 1905. Serial No. 269,947.

To all whom it may concern:

Be it known that I, JOHN W. MACY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Pneumatic-Motor Governors, of which the following is a specification.

The object of my invention is to provide a pneumatic-motor governor such as is employed in pneumatic musical instruments for operating the devices which propel the music-sheet which will insure an even action of the motor under the varying conditions of bellows-pressure and preserve uniformity in time of the music independent of the variation in vacuum-pressure of the operating pneumatic system. This object I attain as illustrated and described in the specification and definitely specified in the claims.

The drawing illustrates the practical application of my pneumatic-motor governor with an exhaust-bellows, a pneumatic-motor, and an airway leading from the motor to the bellows, through which the air passes from the former to the latter and in which a partial vacuum is maintained of greater or lesser exhaust-pressure, upon which the action of the motor depends.

Referring to the drawing and the numerals of reference, 1 denotes an exhaust-bellows of any suitable form as applied to instruments of this class. 2 is a motor of any approved form, operated by suction or exhaust-pressure, having pneumatics 3, which operate a revolving crank-shaft 4. Connected with the motor is an airway 5, leading to the exhaust-bellows, which conducts the air from the motor to the bellows when the same is in action.

The bellows 1 may be operated by the pedals 6 or by any other suitable means. At a convenient point in the airway 5 from the motor to the exhaust-bellows I place a regulating cut-off valve 7 of any approved type, the action of which regulates the amount of air passing through the valve-passage 8.

In order to operate the regulating-valve automatically, I employ a governor 9, consisting of a pneumatic or bellows maintained in a collapsed condition by a spring 10 or other suitable means. The governor 9 is inclosed in the airway 5, which is enlarged at this point to form a pneumatic-chamber 11.

It communicates with the outer air by means of the passage 12, leading through the wall of said chamber. The movable member of said governor is connected with the cut-off valve 7 by the link 13.

It is customary in this class of governors for all the air entering the motor and utilized for its operation to pass through the governor-pneumatic on its way to the exhaust-bellows. I avoid this in my improved construction and instead employ a pneumatic-chamber in which the governor-pneumatic is placed and maintained in a collapsed condition. The pneumatic-chamber becomes a reservoir for the air on its way from the motor and is rendered flexible and elastic by the action of the governor-pneumatic, which has free communication with the outer air. The chamber thus becomes extremely sensitive to the action of the cut-off valve as controlled by the governor, and a uniform vacuum-pressure is maintained therein. In this instance the air from the motor passes through the airway 5, including the pneumatic-chamber 11 and cut-off valve 7, on its way to the exhaust-bellows. The governor 9 in the chamber 11 of the airway 5 responds to the variations in vacuum-pressure, with the result that if the force of the exhaust-bellows varies the action of the governor-pneumatic correspondingly varies, and by the motion of its movable member and connections with the regulating-valve there is a corresponding opening and closing of the same, which regulates the degree of suction or vacuum-pressure, and the motor operates with a steady and uniform motion. The spring 10 maintains the governor-pneumatic in a collapsed condition and is provided with a nut 14 or other means by which the degree of resistance in the pneumatic is adjusted.

I do not confine myself to any particular style of motor or to any individual combination in a pneumatic-musical-instrument player, as it is apparent that my governor can be employed in the manner described in any instrument of this class.

Having described my invention, what I desire to secure by Letters Patent is—

1. In a pneumatic-musical-instrument player the combination with a motor and exhaust-bellows, of a cut-off valve and a collapsible and inflatable pneumatic disposed in

the airway between said motor and said exhaust-bellows; said pneumatic communicating with the outer air and having its movable member connected with said cut-off valve for regulating the air-passage, substantially as described.

2. In a pneumatic-musical-instrument player the combination with a motor and exhaust-bellows of an airway connecting said motor with said exhaust-bellows; a cut-off valve disposed in said airway and a governor-pneumatic disposed in a pneumatic-chamber formed in said airway; said pneumatic communicating with the outer air and having its movable member connected with said cut-off valve for regulating the air-passage, substantially as described.

3. In a pneumatic-musical-instrument player the combination with a motor and an exhaust-bellows, connected with said motor by an airway of a cut-off valve and governor-pneumatic controlling said valve disposed between said motor and said bellows, and means for maintaining said pneumatic in a collapsed condition in opposition to the vacuum-pressure in said airway, substantially as described.

4. In a pneumatic-musical-instrument player the combination of a motor and an exhaust-bellows connected therewith for actuating said motor of a cut-off valve and governor-pneumatic controlling the airway between said motor and said exhaust-bellows; said pneumatic being externally under the influence of the vacuum-pressure of the air in said airway between said cut-off valve and

said motor, and internally communicating with the outer air, substantially as described.

5. In a pneumatic-musical-instrument player the combination of a motor and an exhaust-bellows connected therewith for actuating said motor of a cut-off valve and governor-pneumatic controlling the airway between said motor and said exhaust-bellows; said pneumatic being externally under the influence of the vacuum-pressure of the air in said airway between said cut-off valve and said motor and internally communicating with the outer air; said pneumatic being provided with means for maintaining the same in a collapsed condition, substantially as described.

6. In a pneumatic-musical-instrument player the combination of a motor and an exhaust-bellows connected therewith for actuating said motor of a cut-off valve and governor-pneumatic controlling the airway between said motor and said exhaust-bellows; said pneumatic communicating with the outer air and having its movable member connected with said cut-off valve for regulating the air-passage; said pneumatic being provided with means for maintaining the same in a collapsed condition and for regulating the degree of resistance in opposition to the vacuum-pressure in said airway, substantially as described.

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