H. D. Snow,

Governor Valve.

No. 25,769. Patented Oct. 11, 1859.

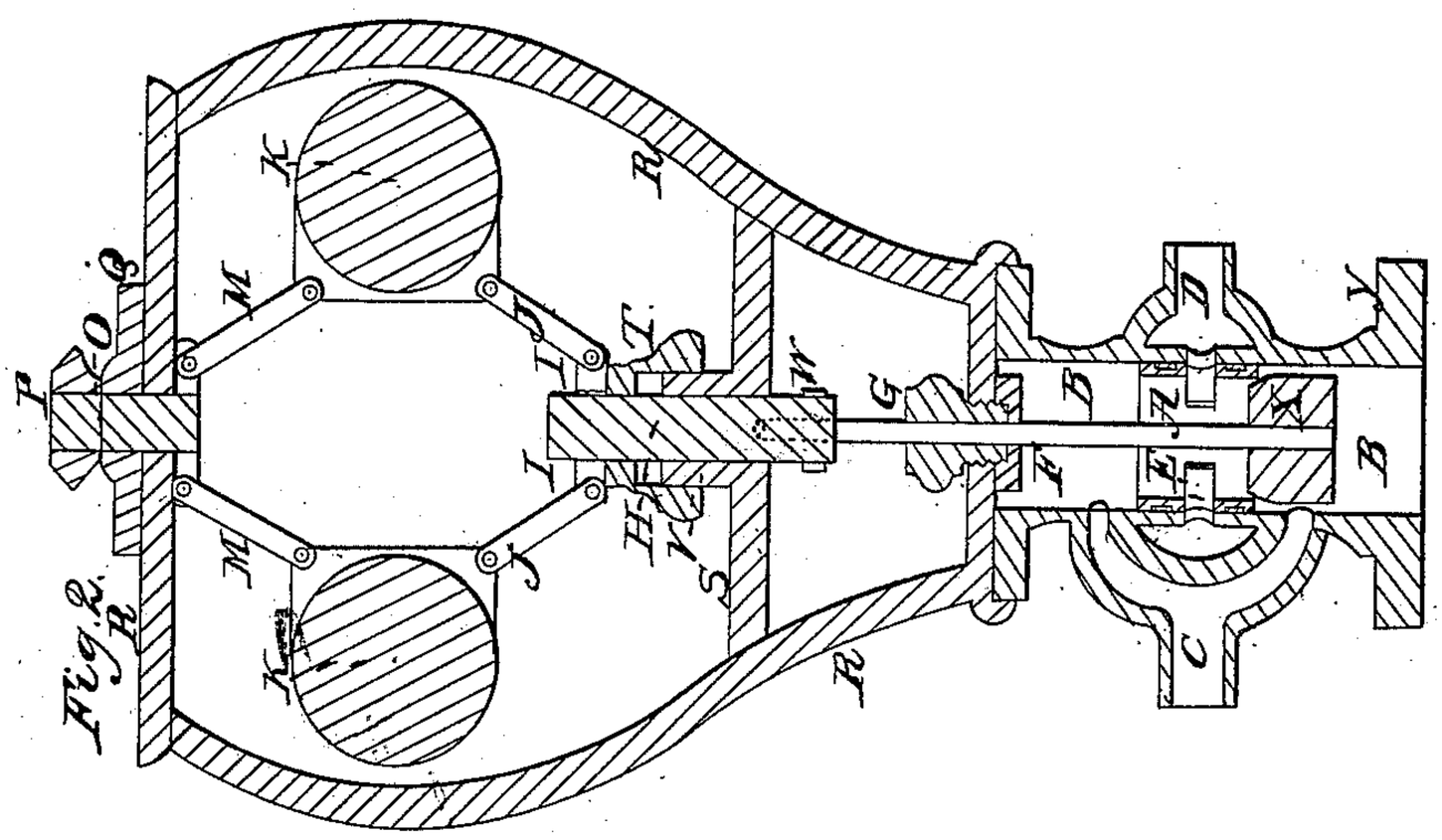

Fig. 2.

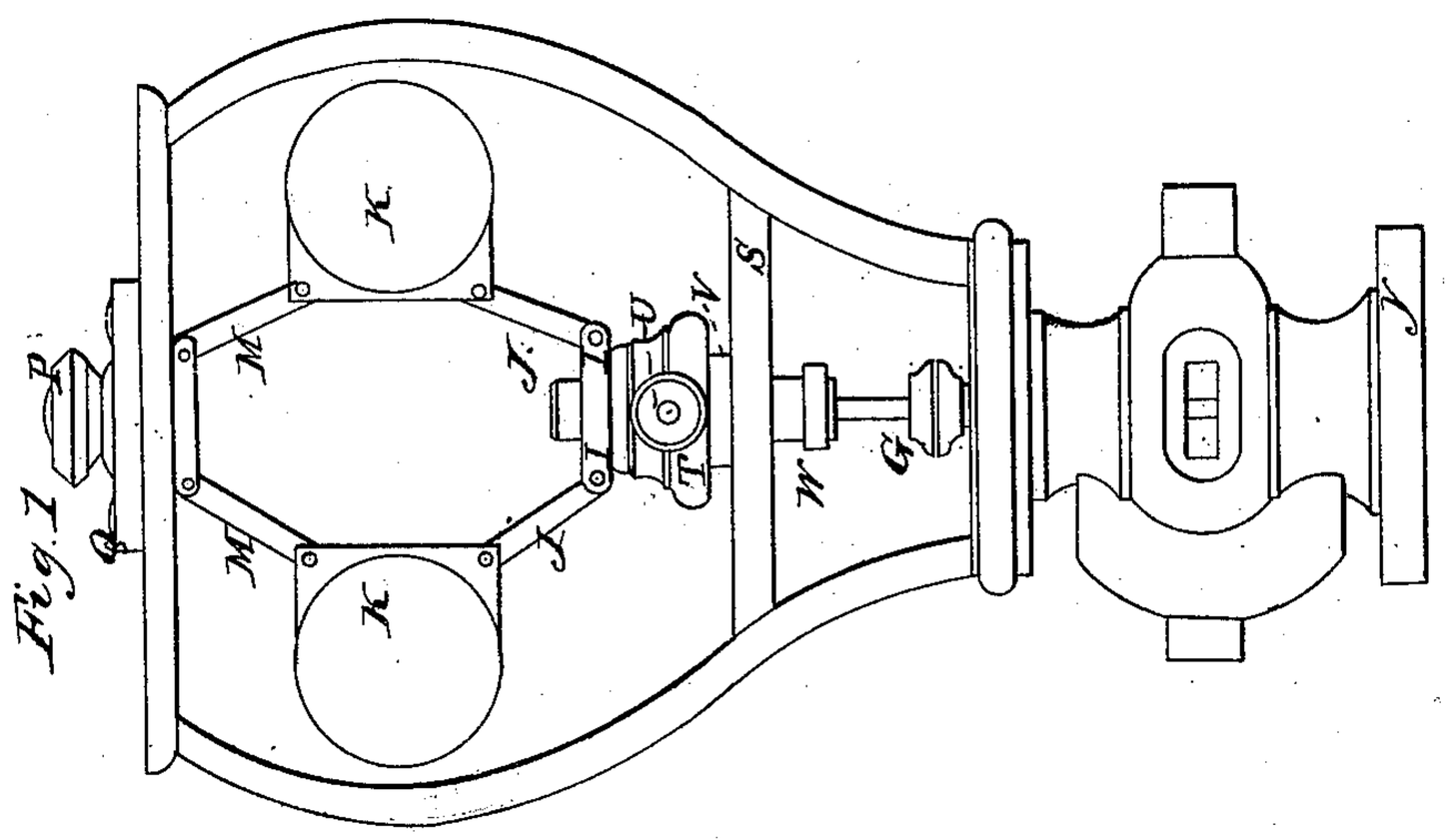

Fig. 1

Witnesses:

Charles J. Powers
H. F. Bush

Inventor:

H. D. Snow

UNITED STATES PATENT OFFICE.

H. D. SNOW, OF ROCHESTER, NEW YORK.

GOVERNOR FOR STEAM AND OTHER ENGINES.

Specification forming part of Letters Patent No. 25,769, dated October 11, 1859; Reissued May 13, 1862, No. 1,309.

To all whom it may concern:

Be it known that I, H. D. SNOW, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Governors for Steam-Engines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention relates first, to the construction and arrangement of an adjustable stop or collar T, with reference to stops upon the valve-stem or parts connected therewith in such manner that the valve may be closed automatically at either extreme of the movement of the governor balls. Second, to the use of a weight in connection with the valve or valve-stem so as to prevent lost-motion and to insure directness in the action of the governor balls upon the valve.

With reference to the accompanying drawings Figure 1, is a side elevation; Fig. 2, is a vertical sectional view, the cutting plane passing through the center of the valve, valve-stem, governor-balls, &c.

A, is the valve, around the surface of which are formed grooves into which are cast bands of tin which serve the purpose of packing rings.

B, is the valve-chamber into which the valve A, is fitted so as to slide freely.

C, is the steam passage on one side with branches which enter the valve-chamber B, one above and the other below the valve.

D, is the steam passage on the other side, and extends entirely around the valve chamber and communicates therewith by the openings E.

F, is the valve-stem and is connected to the valve by a pin passing through both. The valve stem passes out of the valve-chamber through a common stuffing-box at G, and is connected to the sliding shaft H. On the upper end of this shaft is arranged the stops I, to which are jointed the links J. The upper ends of J, are jointed one to each of the two governor balls K. Two similar links M, are jointed to the upper part of the balls K, and to the vertical shaft O, by means of ears upon its lower end. To this shaft O, is attached the gear P, to which the motion is communicated from the engine in the usual manner.

Q, is a bearing in which O, is made to revolve and R, is the frame which supports it. The cross-bar S, with the hub V, on its upper side forms the bearing for the shaft H. On this hub is fitted so as to slide up and down freely the adjustable collar T, which is provided with a set screw U, by which it may be set at any desirable point of adjustment upon the hub V, so as to hold open the valve during the starting of the engine. Upon the lower end of shaft H is arranged the stop W, in such position as shall insure the covering of the opening E, into the valve-chamber by the lower part of the valve when W, is elevated into contact with cross-bar S. The adjustable collar T is so arranged that when its set-screw U, is loosened and it drops down as far as it will the shaft H, can then move down so far that the upper part of the valve will be sure to cover the opening E, into the valve-chamber.

X, is a weight attached to the lower end of the valve stem, which always insures the falling or sliding down of the valve instantly when the position of the governor balls admit of it and also by the same action always prevents the loss of motion in the slightest degree between the governor balls and the valve, a loss which might occur by reason of looseness consequent upon wear in the joints or other cause should said valve in any case fail to move freely in its chamber. The steam pipes are connected with the passages C, and D, and if they do not support the whole sufficiently well the flange Y may be set upon a pedestal or any suitable support and secured thereto so as to close by a steam tight joint the lower end of the valve-chamber otherwise it should be closed by a plate or head.

Having thus set forth the construction I will proceed to describe the operation which is as follows. Stop or collar T, being set in the position represented in the drawing and the steam being let into passage C, from the boiler, passes through the interior of the valve and openings E, to passage D, thence into the engine. Motion being thereby communicated to the engine it is transmitted in

the ordinary manner to gear P, and through shaft O, and links M, to the governor balls, which by their centrifugal force as the motion increases beyond the proper speed fly from their axis and acting through the links cause the shaft H, to rise, thereby drawing upward the valve by its stem so as to close openings E, in the valve chamber by causing the lower part of the valve to cover them, so reducing the speed—by the cutting off of the steam—to the proper limit where the balls continue to revolve holding the valve at the proper height to admit the passage of a sufficient amount of steam to overcome the resistance and drive the engine at the required speed. After which the set-screw U, may be loosened when the collar T, will drop down to its proper position as before described when not in use to start the engine. Should anything occur to lessen the speed so that the governor will not operate to keep the valve open as described the weight X, immediately draws the valve down so that its upper part closes the openings E, when the stop I, rests on the collar T, thus the steam being cut off the engine stops.

I do not claim a weight or spring to hold the balls down as I am aware that such devices have been used for similar purposes but what I do claim as new and of my own invention is as follows:

I claim—

1. The use of collar T, first to control the passage of steam through the valve A on starting the engine, secondly to control the extreme downward movement of the valve A, by means of stops I, I, so connected with the valve openings E, E, as to close them at either extreme of the movement.

2. I also claim locating the weight X beneath and partially entering the tube of the valve A, as represented in Fig. 2.

In testimony of which invention I have hereunto set my hand and seal.

H. D. SNOW.

Witnesses:

CHARLES J. POWERS,

H. F. RUSH.