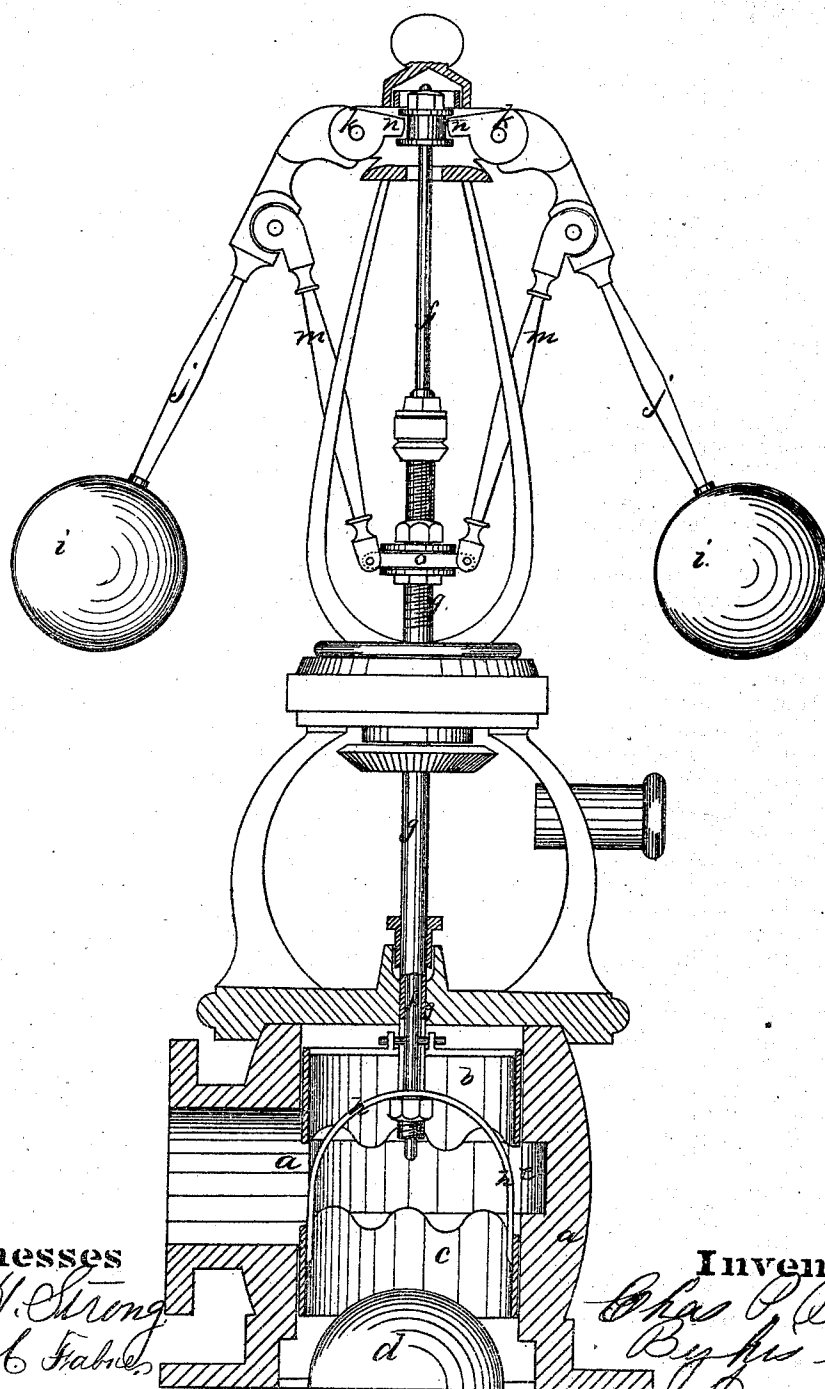


C P Bowen

Governor

No. 120,366.

Patented Oct. 31, 1871.



Witnesses

Geo H. Strong
Benj. C. Frabrie

Inventor

Chas P Bowen
By his Atty
Dewey & Co.

Received June 4th 1872.

120,366

UNITED STATES PATENT OFFICE.

CHARLES P. BOWEN, OF SILVER CITY, IDAHO TERRITORY.

IMPROVEMENT IN GOVERNORS FOR STEAM AND OTHER ENGINES.

Specification forming part of Letters Patent No. 120,366, dated October 31, 1871.

To all whom it may concern:

Be it known that I, CHARLES P. BOWEN, of Silver City, county of Owyhee, Idaho Territory, have invented an Improved Governor; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The object of my invention is to construct an improved governor for steam and other engines; and it consists of a hollow and a solid spindle, the two operating the halves of a peculiar hollow cylindrical valve. The meeting edges of these halves are so corrugated or otherwise shaped that any wide separation of the revolving balls will sufficiently close them to cut off the steam supply. The chamber below the lower half is formed with a semi-globular diaphragm, over which the valve would fall and slow down or nearly stop the engine, if desired, in case of the breaking of the governor-belt, and thus preclude the necessity of a dangerous increase of speed, or a total stoppage of the engine and subsequent starting under its load.

Referring to the accompanying drawing for a more complete explanation of my invention, *a* is the head or elbow of the pipe, through which the steam passes to the cylinder, and within which the regulating-valve is situated. This valve consists of two metallic cylinders, *b* and *c*, placed one above the other in the pipe *a*, so as to move up and down in the line of their axes. In the present case the upper and lower ends of the cylinders *b* and *c*, respectively, are made plain, as shown, but the edges which are toward each other are curved or corrugated. The pipe *a* is grooved around the inside at the point *e*, where the cylinders meet, (and which is also just opposite the entering steam-pipe,) so that the steam can pass around the cylinders and enter freely from all sides. Just below the cylinder *c* is a conical or semi-globular block, *d*, which is so secured in the steam-pipe that there will be a steam-passage around or nearly around it. This cone is so placed that when, by any means, the part

c of the valve is at its lowest point it will encircle the upper part of the cone closely enough to impede the passage of the steam as much as desired, either to nearly stop the engine or to allow it an ordinary rate of speed. This device renders the engine safe even if the governor-belt should break, and at the same time the engine will continue to run, so that it will never be necessary to start it with its load on, as would be the case if it were to be entirely stopped when the belt breaks. In order to regulate and govern the flow of steam to the cylinder while working, the two parts of the valve are connected with spindles *f* and *g*, which are operated by the movements of the arms and levers connected with the governor-weights. The inner spindle *f* is connected with the upper half of the valve by means of a pin, which passes through it and moves in a slot in the outer or hollow spindle *g*. The outer spindle *g* is connected with the lower half of the valve by a sort of bail or curved arm, *h*. The weights *i* are secured to the arms *j*, and these arms are pinned at the point *k* so as to move about that point. A short lug or arm, *n*, on each, extends inward from this point of support, and these arms press the spindle *f* downward whenever the weights separate, and elevate it when they fall. The arms *m m* are pinned to the arms *j*, and their lower ends are secured to a loosely-moving ring, *o*, on the spindle *g*. By means of this ring the arms can revolve without turning the spindle, and the spindle is elevated and depressed by the movements of the weights in an opposite direction to the motion of the spindle *f*. These two motions cause the valve to lengthen or shorten, and, by thus opening the space between the two, more steam will be admitted to the interior of the valve and from thence to the cylinder. The speed of the engine can be thus increased to a certain point, after which the operation of the cone *d* will prevent any further increase, as before described.

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

1. The adjustable valve, constructed of the two hollow cylinders *b* and *c*, when constructed to

move each to and from the other, and thus close or open the passage, substantially as herein described.

2. The adjustable valve, constructed in two parts, as shown, in combination with the solid and hollow operating-spindles *f* and *g*, one within the other, together with the arms *j* and *m* of the governor, when the whole is constructed substantially as herein described.

3. The semi-globe or cone *d*, in combination

with the vertically-moving double valve *b c*, when constructed to operate substantially as and for the purpose herein described.

In witness that the above-described invention is claimed by me I have hereunto set my hand and seal this 13th day of May, 1871.

CHARLES P. BOWEN. [L. s.]

Witnesses:

RUFUS KING,
DOW VINCENT.

(69)