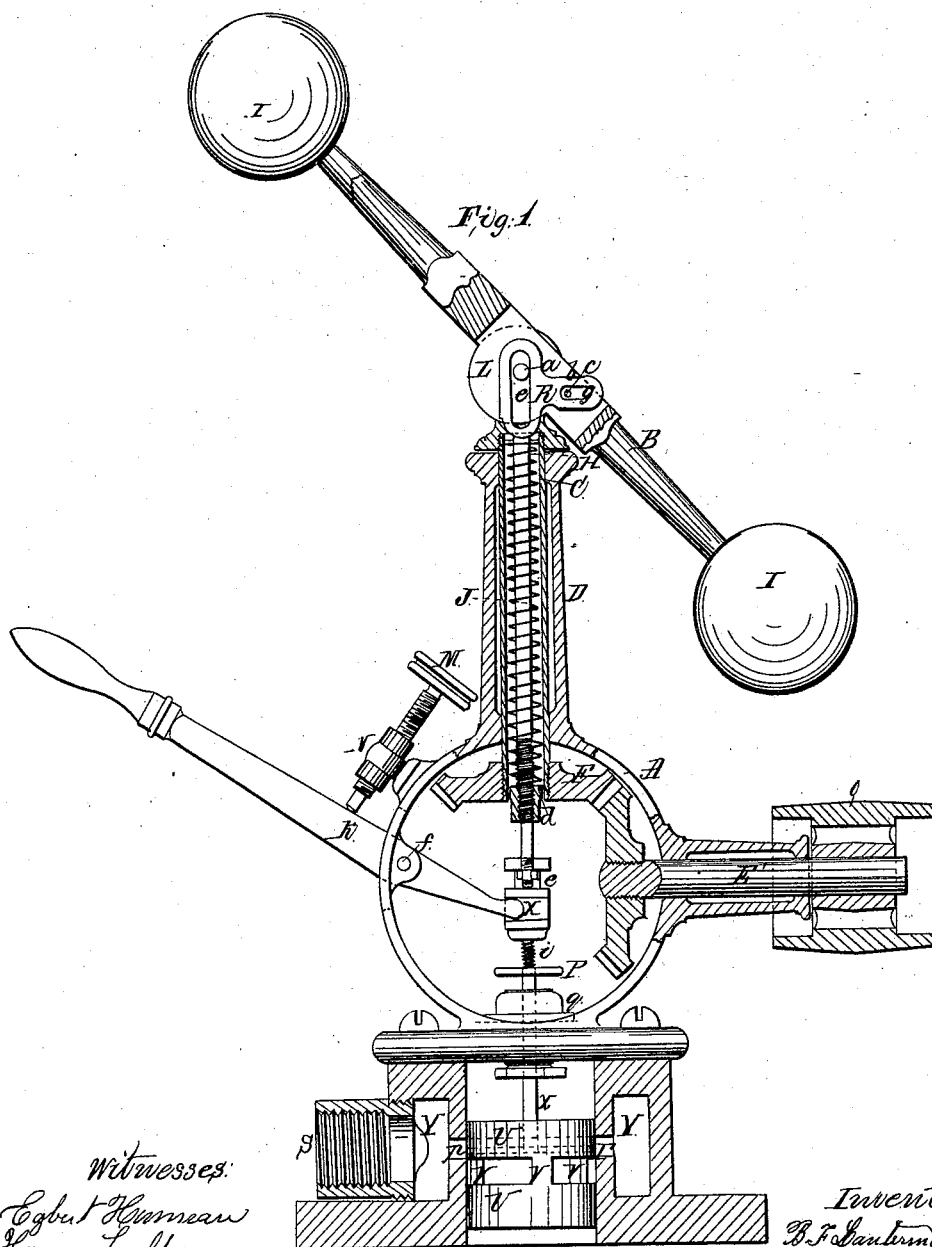


A. P. & B. F. LANTERMAN.  
GOVERNOR FOR STEAM ENGINES.

No. 52,298.

Patented Jan. 30, 1866.



*Witnesses:*  
*Egbert Hummel*  
*Amey Lafter*

*Inventors:*  
*B. F. Lanterman*  
*Alvan P. Lanterman*

# UNITED STATES PATENT OFFICE.

A. P. LANTERMAN AND B. F. LANTERMAN, OF PRAIRIE CITY, ILLINOIS.

## IMPROVEMENT IN GOVERNORS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. 52,298, dated January 30, 1866.

*To all whom it may concern:*

Be it known that we, ALVIN P. LANTERMAN and BENJAMIN F. LANTERMAN, of Prairie City, in the county of McDonough and State of Illinois, have invented certain new and useful Improvements in Governors for Steam-Engines; and we hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and to the letters of reference marked thereon.

The drawing represents a side elevation of our improved apparatus, a portion being shown in section for the purpose of showing its internal construction.

The nature of our invention consists in a novel construction and combination of devices for operating the valve connected with the governor, for the purpose of regulating the admission of steam to the cylinder and automatically shutting off the steam, either partially or wholly, in case of accident to the engine or gearing.

To enable others skilled in the art to construct and use our invention, we will proceed to describe it.

A represents the frame which supports the governor and the gearing by which motion is imparted to it. Upon this frame A is mounted a tubular post, D, upon the top of which rests a revolving collar, E, the upper portion of this collar being fitted to receive and form a bearing for the central circular hub, L, of the oscillating arm B, the latter having a weight or ball, I, attached at each end, as clearly shown in the drawing.

A tubular shaft, C, is located within the post D, and has its upper end screwed into the collar E, a bevel-gear wheel, F, being secured to its lower end within the frame A, where it gears into a similar wheel on the inner end of shaft E', the latter being driven by a belt working on pulley O secured to its opposite end, as shown.

Within the tubular shaft O is placed a stem, H, the upper end of which is enlarged, and has a vertical slot, *e*, formed therein, as shown. From one side of the enlarged portion of the stem H an arm, *b*, projects at a right angle, as shown, which is also slotted near its end. This enlarged portion of the stem H works

within a longitudinal slot in the oscillating arm B, a pin, *a*, passing through the center of the hub L and through the slot *e* of stem H, a pin, *g*, also passing through a hole in the arm B and the slot in arm *b*.

J represents a spiral spring coiled on the stem H, its lower end resting on the collar *d*, which is screwed onto the stem H, and is capable of being moved up or down, and thereby regulating the force exerted by the spring. It will thus be seen that the tendency of the spring J is to draw the stem H down, and that as the stem is thus drawn down the arm *b*, pressing on the pin *g*, tends to tip the arm B to a vertical position, this tendency being more or less counteracted by the centrifugal force of the balls I, according to the speed of their revolution.

A clutch, X, is secured to the lower end of stem H by means of a swivel, so that the clutch may remain stationary and yet permit the stem H to rotate. A rod, *i*, having a screw cut on its upper portion, screws into the lower portion of the clutch X, its lower end being connected to the valve U underneath. A hand-wheel or handle, P, is secured to the rod *i* for operating it, and thus regulating the valve by opening it more or less, as may be desired, while the engine is in motion, and independently of the movements of the governor.

It will be observed that the slot *e* in the stem H is at least three times as long as the port or opening *r* through which the steam enters the ports of the valve. By this means it will be seen that as the speed of the engine increases, and thereby causes the arm B to assume a horizontal position, the steam will be cut off by the lower portion of the valve U being drawn up opposite the port *r*, and at the same time the valve will have sufficient travel to permit its upper portion to drop down and close port *r* whenever, by the breaking of a belt or any similar cause, the arm B shall cease to revolve, the spring J at once throwing down the stem H, and, of course, carrying the valve U with it.

In order to have a means of preventing the valve from closing entirely in cases where a too sudden stoppage of the engine might prove injurious, we pivot a lever, K, at *f*, in such a manner that its inner forked end shall inclose the clutch X, as shown. To the frame A is

secured a stud, N, through which a screw, M, works in line with the lever K, by which means the vertical movement of said lever may be limited as desired, or so adjusted that the valve U will not entirely cut off the flow of steam to the engine. By means of this lever K the valve U may also be opened to admit steam to the cylinder for the purpose of starting the engine.

By this construction and combination of devices we are enabled to accomplish these three objects, namely: to regulate the supply of steam by the operation of the governor proper, and at the same time have it cut off the flow of steam in case of accident or stoppage; second, to increase or decrease the flow of steam without interfering with the movements of the governor; and, third, to adjust the valve so that in case of accident it shall cut off the

flow of steam wholly or partially, as may be desired.

Having thus described our invention, what we claim is—

1. The combination of the oscillating arm B, stem H, constructed as shown, and spring J, when arranged to operate as and for the purpose herein set forth.

2. The combination of the stem H, valve U, and the adjusting valve-stem i, arranged to operate as described.

3. The lever K connected to the valve-stem, substantially as shown, in combination with the adjusting-screw M, arranged and operating as and for the purposes set forth.

A. P. LANTERMAN.

Witnesses:

B. F. LANTERMAN.

W. C. DODGE,

P. TELL DODGE.