(No Model.)

J. M. HIGBE.

CUT-OFF VALVE GEAR.

No. 275,337. Patented Apr. 3, 1883.

Fig. 1.

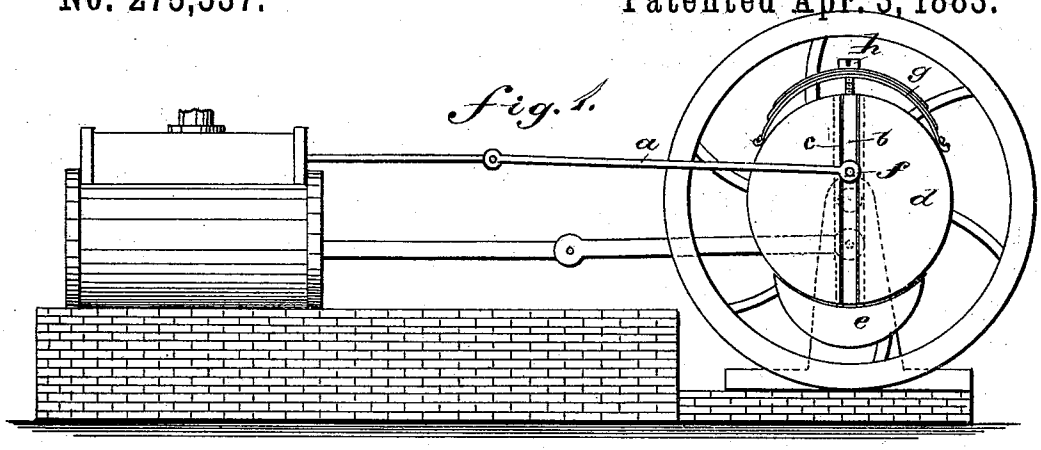


Fig. 2.

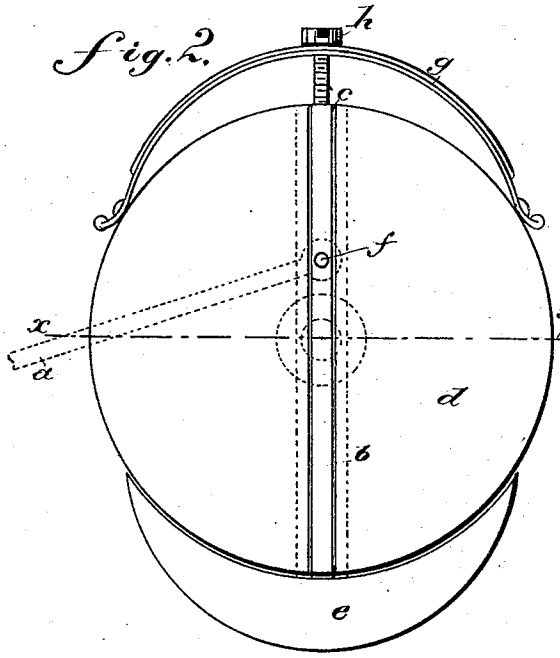
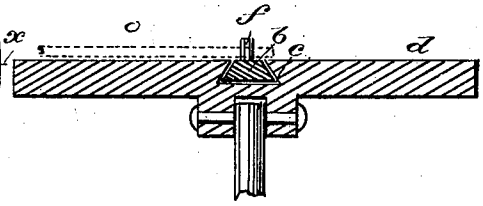


Fig. 3



WITNESSES:

Otto Beyer

C. Sedgwick

INVENTOR:

J. M. Higbe

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES M. HIGBE, OF MANSON, IOWA.

CUT-OFF-VALVE GEAR.

SPECIFICATION forming part of Letters Patent No. 275,337, dated April 3, 1883.

Application filed August 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. HIGBE, of Manson, in the county of Calhoun and State of Iowa, have invented a new and Improved Automatic Variable Cut-Off-Valve Gear, of which the following is a full, clear, and exact description.

This invention consists of the valve-rod connected to the crank-shaft, or any other shaft suitably geared therewith, so as to shift toward and from the center to lengthen and shorten the travel of the valve, and thereby vary the cut-off, the connection being such that the centrifugal force of a weight will draw the rod toward the center as the speed of the engine increases, and thus shorten the cut-off and diminish the supply and increase the expansion of the steam, and a spring will pull the pin outward again and increase the travel of the valve and admit more steam as the speed diminishes and the centrifugal force of the weight lessens, all as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a steam-engine with an automatically-variable cut-off device of my invention. Fig. 2 is a detail of the same in side elevation and on an enlarged scale, and Fig. 3 is a section of Fig. 2 on the line *x x*.

The valve-rod *a* is connected to a bar, *b*, arranged in a dovetail groove, *c*, crossing the center of a disk, *d*, attached to the crank-shaft, and a weight, *e*, is attached to the bar opposite to where the valve-rod is connected, so that the centrifugal force of the weight will tend to draw the valve-rod pin *f* toward the center, around which it revolves, and thus shorten the throw of the eccentric, and consequently the travel of the valve, whereby it will cut off shorter in proportion to the greater speed of the engine, thus controlling the motion of the engine and economizing the steam. A spring, *g*, attached to the bar, so as to resist the action of the weight, and being adjustable as to its tension by a stop-bolt, *h*, may be set by said spring to graduate the action of the weight, as desired, and to pull the eccentric pin back to the starting-point when the engine is at rest. When it is not convenient to locate the attachment so as to work on a disk attached to the end of the crank-shaft, the disk may be arranged on a counter-shaft geared with the main shaft in any way.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

In an automatic cut-off, the combination, with the valve-rod *a*, of the bar *b*, carrying weight *e* at one end, connected by a screw, *h*, with a spring, *g*, at the other, and arranged diametrically in the groove of a disk attached to the crank-shaft, as and for the purpose specified.

JAMES M. HIGBE.

Witnesses:
E. L. EBERSOLE,
WM. SWANSON.