

R. T. P. ALLEN.

Improvement in Steam-Valves and Cut-Offs.

No. 130,888.

Patented Aug. 27, 1872.

Fig. 1.

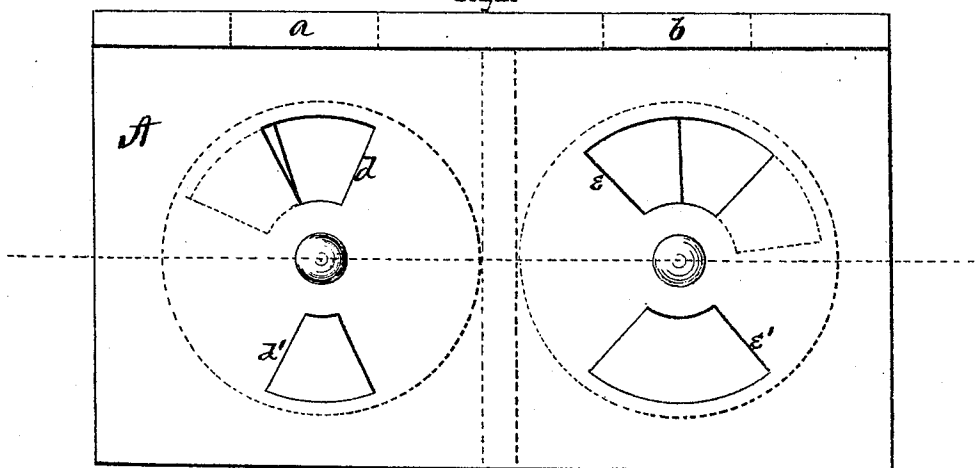


Fig. 2.

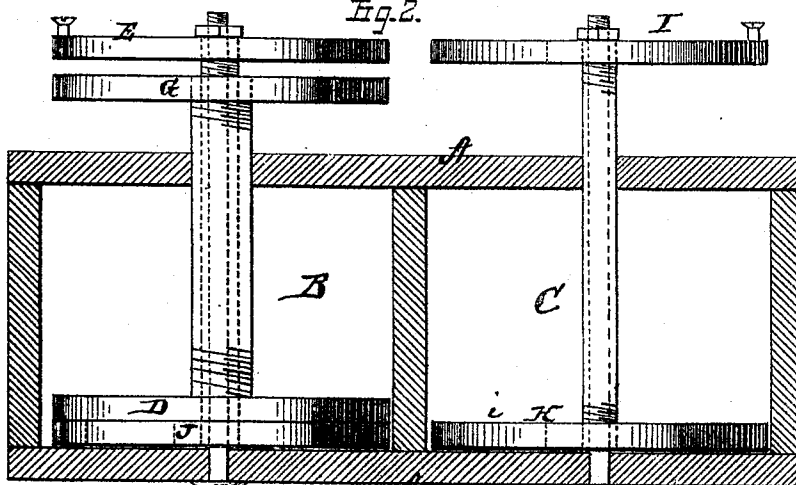
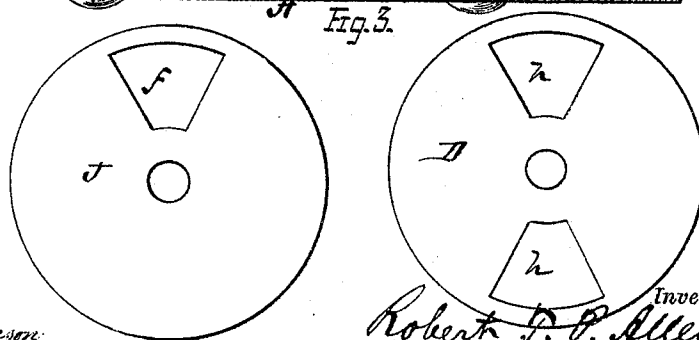


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

ROBERT T. P. ALLEN, OF KENTUCKY MILITARY INSTITUTE, KENTUCKY.

IMPROVEMENT IN STEAM-VALVES AND CUT-OFFS.

Specification forming part of Letters Patent No. 130,888, dated August 27, 1872.

To all whom it may concern:

Be it known that I, ROBERT T. P. ALLEN, of Kentucky Military Institute, in the county of Franklin and in the State of Kentucky, has invented certain new and useful Improvements in Steam-Valves and Variable Cut-Offs; and does hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of my invention consists in the construction and arrangement of a steam-valve with variable cut-off, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation, and Fig. 2 a horizontal section, of the steam-chest, with my valve and variable cut-off. Fig. 3 shows the valves.

A represents the steam-chest divided by a central partition into two compartments, one, B, being the steam-inlet chamber, with inlet-port *a* at the top, and the other, C, being the exhaust-chamber, with exhaust-port *b*. The back of the steam-chest is perforated or pierced at *d d'* into the chamber B, and at *e e'* into the chamber C. The opening *d* connects with the left of the cylinder and the opening *d'* with the right of the cylinder. Against the inner side of the chamber B is placed a circular disk, J, which is pierced at one-eighth of its circumference at *f* and forms the working valve. This disk or valve is placed on a hollow shaft passing through the steam-chest, and having a disk, E, on its outer end, which is revolved by a rod from the eccentric, thus actuating the working-valve C. Against the disk or valve J is placed another circular disk, D, which is pierced in opposite eighths at *h h*, and forms the variable cut-off. It is placed on a hollow shaft surrounding the shaft of the valve J, and is actuated by the governor through a crank or wrist on the disk G attached to the outer end of the shaft, thus giv-

ing to the disk or cut-off D a vibrating motion. The eccentric rotating the disk J admits and cuts off steam at every half-stroke, while the governor vibrating the disk or cut-off D regulates the amount of steam used. The governor, by this simple device, has perfect control over the amount of steam issuing from the steam-chest.

In the steam-chamber C is placed a disk, H, to regulate the escape, and rotated by the eccentric through the crank or wrist on the outer disk I. This disk has a port, *i i*, corresponding with the ports *e e'*, in the back of the steam-chest, the upper port *e* communicating with the left of the cylinder, and the lower *e'* with the right of the cylinder. At the moment the stroke is complete to the right the escape-port *e* begins to open through the rotation of the disk H, and is closed at the instant the stroke to the left is complete, when the port *e'* opens, &c.

These disks are all placed against the back of the steam-chest, but, if desired, they may be placed horizontally on the valve-bed, like the common sliding valve, and in some cases this may be preferable. In place of disks, cylinders may be used in precisely the same manner, the vibrating cylinder forming the cut-off surrounding the cylinder forming the valve, and this latter provided with a central diaphragm.

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

The combination of a rotating disk and a vibrating disk, both in the inlet-chamber of a steam-chest, and a rotating disk in the exhaust chamber, the rotating disks being actuated by the eccentric and the vibrating disk by the governor, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 25th day of June, 1872.

R. T. P. ALLEN.

Witnesses:

C. L. EVERT,
A. N. MARR.