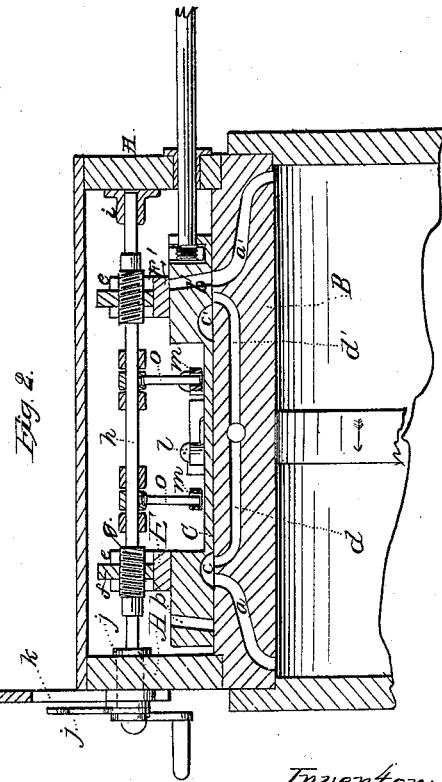
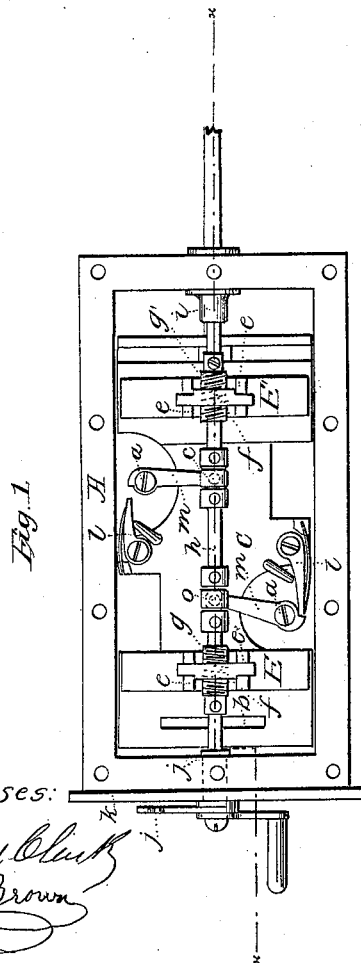
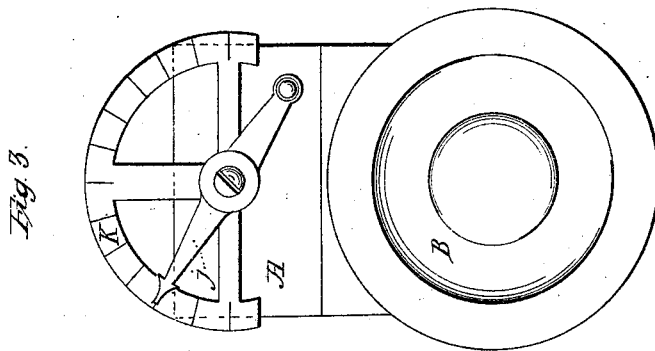


*A. Stuckenrath,*  
*Steam-Engine Valve-Gear.*  
*No 54,439.* *Patented May 1, 1866.*



*Witnesses:*  
*Amos Clark*  
*Edw. F. Brown*

*Inventor:*  
*Albert Stuckenrath*

# UNITED STATES PATENT OFFICE.

ALBERT STUCKENRATH, OF NEW YORK, N. Y., ASSIGNOR TO WM. C. BARNEY,  
OF SAME PLACE.

## IMPROVED ADJUSTABLE CUT-OFF AND HORSE-POWER INDICATOR.

Specification forming part of Letters Patent No. 54,439, dated May 1, 1866.

*To all whom it may concern:*

Be it known that I, ALBERT STUCKENRATH, of the city, county, and State of New York, have invented a new and Improved Adjustable Cut-Off and Horse-Power Indicator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a plan or top view of this invention. Fig. 2 is a longitudinal vertical section of the same, the line *xx*, Fig. 1, indicating the plane of section. Fig. 3 is an end view of the same.

Similar letters of reference indicate like parts.

This invention consists in the arrangement of a right-and-left-handed screw-thread on the rod which carries the cut-off valves the right-handed thread to screw in one and the left-handed thread in the other cut-off valve, in such a manner that by turning the rod in one direction the cut-off valves are moved apart, and by turning the rod in the opposite direction said cut-off valves are closed up, and the point of cut-off can be readily adjusted from the outside, and without removing the bonnet of the valve-chest. The motion of the cut-off valves is produced by spring pawls or dogs, which are attached to the main valve, and which act on levers connected with suitable arms extending from the cut-off valve-rod in such a manner that whenever one of the dogs strikes the end of one of the levers the cut-off valves are moved in a direction opposite to that in which the main valve moves, and the steam is cut off rapidly and with a comparatively small expenditure of power. A suitable index, which connects with the cut-off valve-rod, and which traverses over a dial secured to the end of the valve-chest, indicates the position of the cut-off valves and the number of horse-powers which the engine will produce at a certain given pressure of steam.

A represents the steam-chest of an ordinary steam-engine, and this steam-chest communicates with the cylinder B through ports *a a'* in the usual manner.

The bottom of the steam-chest forms the

seat for the main valve C, which receives its motion from a rock-shaft in the usual manner. This valve is made in the form of a double D-valve, and it is provided with steam-ports *b b'* and with cavities *c c'*, which serve to connect the steam-ports *a a'*, in the bottom of the valve-chest, with the exhaust-passages *d d'* at the proper intervals.

The upper surfaces of the main valves C are planed off flat, and they form the seats for the cut-off valves E E', as shown particularly in Fig. 2 of the drawings. From the backs of these cut-off valves rise four studs, *e*, which embrace nuts *f*, and these nuts are tapped to fit, one to the left-handed thread *g*, and the other to the right-handed thread *g'*. These threads are cut on portions of the rod *h*, one end of which is round and fitted into a socket, *i*, which is secured to the inner surface of the valve-chest, whereas its other end is square or polygonal and fitted in a thimble, *j*, which extends through the end of the valve-chest, and to the outer end of which is secured an index, *j*, which traverses over a dial, *k*. By turning the index in one direction the cut-off valves are made to close up, and by turning the index in the opposite direction said cut-off valves are made to move apart, and the point at which the steam is cut off can be changed at pleasure, and without taking off the bonnet of the valve-chest or stopping the engine.

The rod *h* slides back and forth in the socket *i* and thimble *j*, and the desired reciprocating motion is imparted to it by means of dogs *l*, which are secured to the back of the main valve, and which act on levers *m*. These levers have their fulcrum on pivots *n*, secured in the bottom of the valve-chest, and their long arms are provided with loops which catch over the ends of arms *o*, secured to the cut-off valve-rod *h*.

By the action of the dogs on the short arms of the lever *m* a rapid motion is imparted to the cut-off valves in a direction opposite to that in which the main valve moves, and the steam is cut off almost instantaneously at the desired point.

The dial *k* is marked with a scale which indicates the point at which the steam is cut off, and also the number of horse-powers produced by the engine at a given pressure.

If desired, a lever extending from the thimble *j* may be connected to the governor, so that the cut-off is rendered self-regulating.

What I claim as new, and desire to secure by Letters Patent, is—

1. The right-and-left-handed screws *g g'*, rod *h*, index *j*, and dial *k*, in combination with the cut-off valves *E E'* and main valve *C*, constructed and operating substantially as and for the purpose described.

2. The dogs *l*, levers *m*, and arms *o*, in combination with the cut-off valves *E E'* and main valve *C*, constructed and operating substantially as and for the purpose set forth.

The above specification of my invention signed by me this 12th day of April, 1866.

ALBERT STUCKENRATH.

Witnesses:

WM. HATFIELD CLARK,

EDM. F. BROWN.