(No Model.)

O. KROMER.

CUT-OFF VALVE FOR ENGINES.

No. 395,657. Patented Jan. 1, 1889.

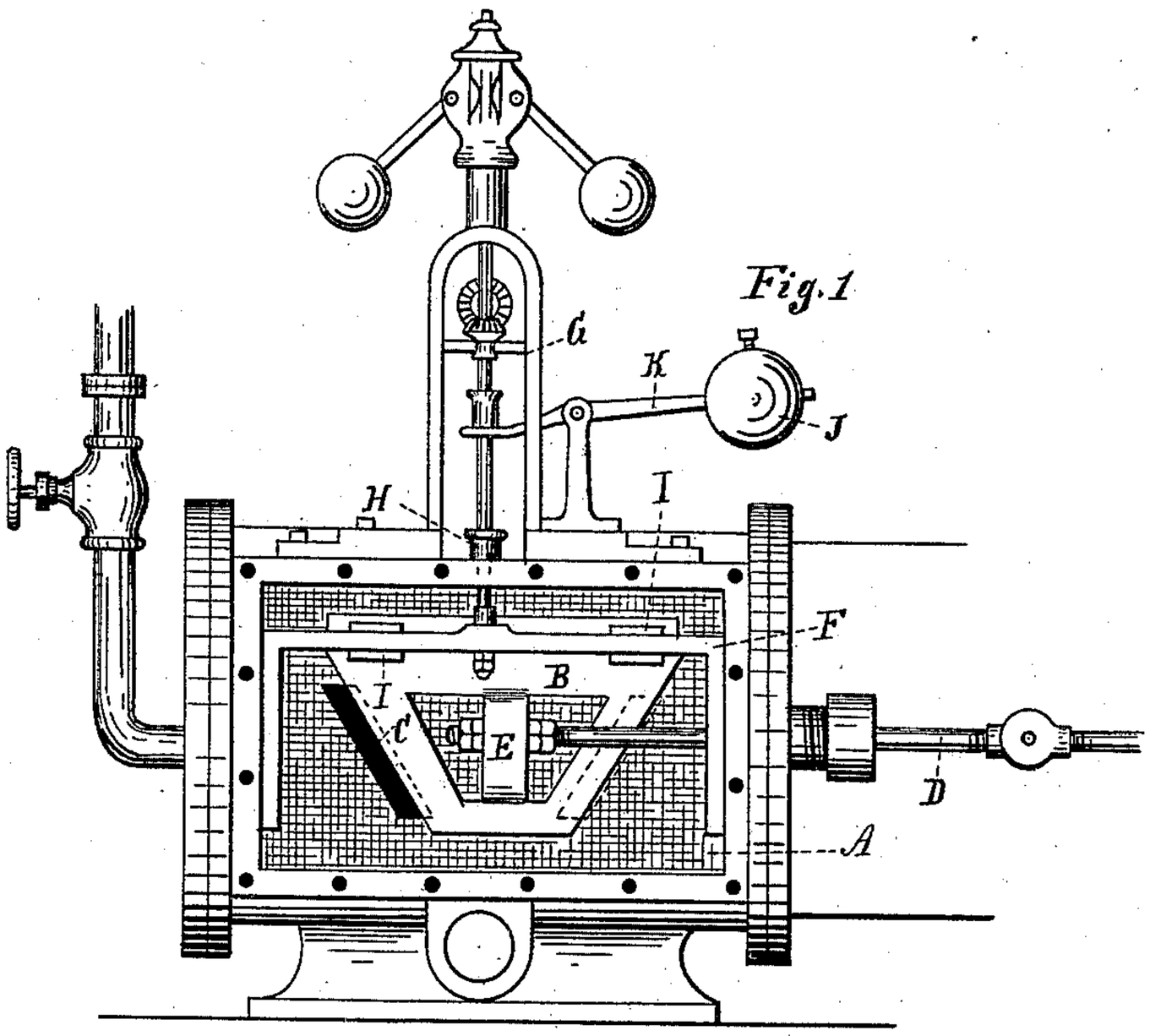

Fig. 1

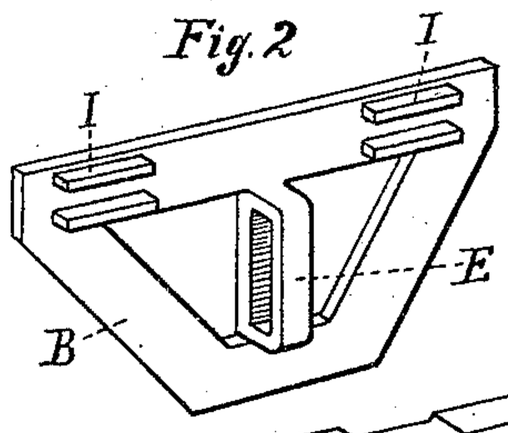

Fig. 2

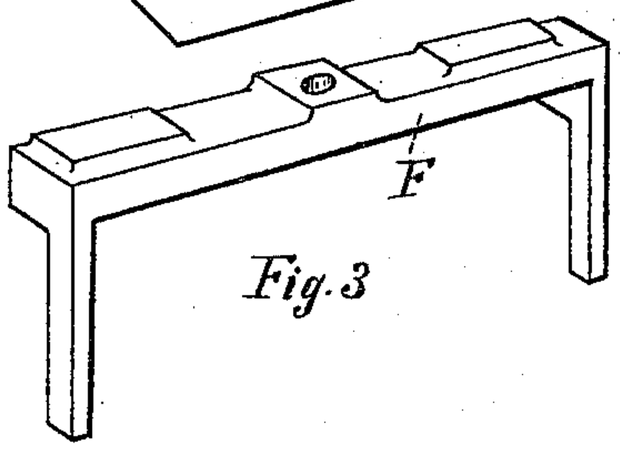

Fig. 3

Attest:

John Schuman.
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Atty

UNITED STATES PATENT OFFICE.

OTTO KROMER, OF SANDUSKY, OHIO, ASSIGNOR OF ONE-HALF TO FRANK RINKLEFF, OF SAME PLACE.

CUT-OFF VALVE FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 395,657, dated January 1, 1889.

Application filed May 28, 1888. Serial No. 275,338. (No model.)

To all whom it may concern:

Be it known that I, OTTO KROMER, a citizen of the United States, residing at Sandusky, in the county of Erie and State of Ohio, have invented certain new and useful Improvements in Automatic Cut-Off Valves for Steam-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in automatic cut-offs for steam-engines; and the invention is intended to form an improvement in that class of automatic cut-offs wherein the reciprocating main or cut-off valve is provided with oblique sides in connection with corresponding oblique induction-ports, and wherein the variation of the cut-off is obtained by automatically shifting the valve at right angles to its line of motion; and the invention consists in the peculiar construction and arrangement and combination of parts hereinafter more particularly described, and then definitely pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a steam-engine cylinder to which my improvement is applied, the cover of the valve-chest being taken off to show the construction of the parts of the cut-off. Fig. 2 is a detached perspective of the valve, and Fig. 3 is a detached perspective of the sliding frame which carries the valve.

A is the steam-chest.

B is the main or cut-off valve, provided with oblique sides.

C are corresponding oblique induction-ports in the valve-seat.

D is the valve-stem, which reciprocatingly actuates the valve, and E is a slotted wrist, by means of which the valve is vertically slidingly secured to the valve-stem, the parts being of known construction and operation.

F is a sliding frame adapted to have a free sliding movement within the valve-chest at right angles to the movement of the valve, and this sliding movement is automatically controlled by means of a suitable governor, G, which is preferably secured upon the center of the valve-chest, and the stem of which enters through a stuffing-box, H, into the valve-chest, and is secured to the sliding frame, all so arranged that the variations of the governor are transmitted to the sliding frame.

The valve B is carried by said sliding frame by means of a suitable engagement therewith, which leaves the valve free to reciprocate, preferably as shown in the drawings, wherein I are laterally-projecting parallel guides upon the outer face of the valve, which embrace the top bar of this sliding frame in such manner as to freely suspend the valve from the sliding frame and permit its free reciprocating movement, while at the same time the valve is controlled by the sliding movement of the frame, which in turn is controlled by the movement of the governor.

The sliding frame F is preferably constructed to be guided by the walls of the valve-chest, as shown, and its weight, together with that of the valve suspended therefrom, is preferably counterbalanced by means of a suitable weight, J, acting on the valve-stem through the lever K.

In practice, the parts being constructed as shown and described, and suitably adjusted, it is evident that by this construction an automatic cut-off is obtained, as the oblique sides of the valve, together with the oblique induction-ports, cause a variation in the cutting off of the steam by the variable movement of the valve at right angles to its line of reciprocation.

What I claim as my invention is—

1. In an automatic cut-off, the combination, with the governor, of the frame F, connected to the governor and having its ends fitted to the inner ends of the valve-chest, with a valve, B, having projecting guides I, fitting the frame F, and a slotted wrist, E, and a valve-rod loosely connected to the slotted wrist, substantially as described.

2. In an automatic cut-off, the combination, with the governor, of the frame F, connected to the governor and counterbalanced by a weight, J, and having its end fitted to the inner ends of the valve-chest, with a valve, B, having projecting guides I, fitting the frame F, and a slotted wrist, E, and a valve-rod loosely connected to the slotted wrist, all substantially as described and shown.

In testimony whereof I affix my signature in presence of two witnesses, this 10th day of May, 1888.

OTTO KROMER.

Witnesses:
CH. ROEDER,
JAS. H. EMRICH.