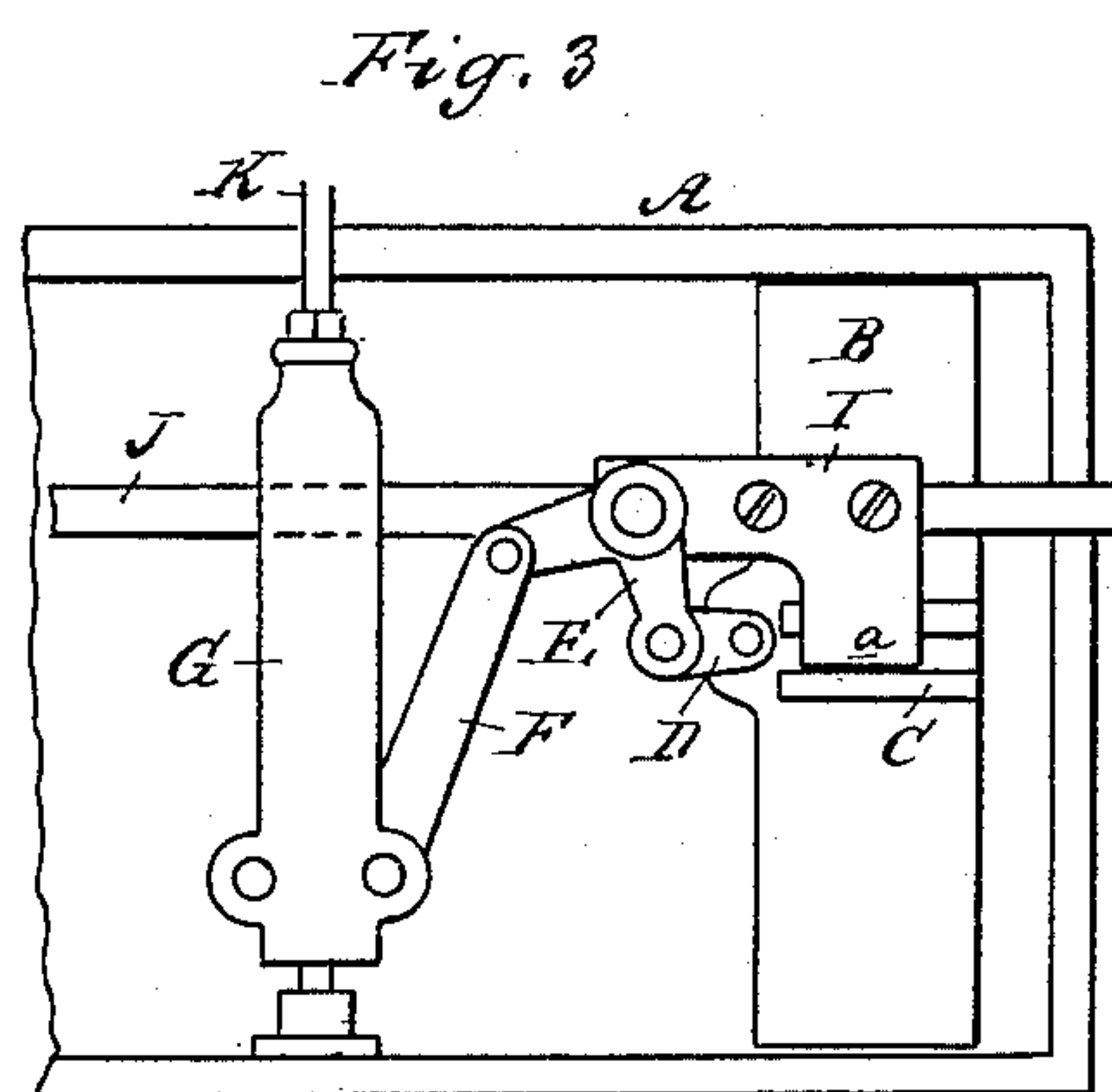
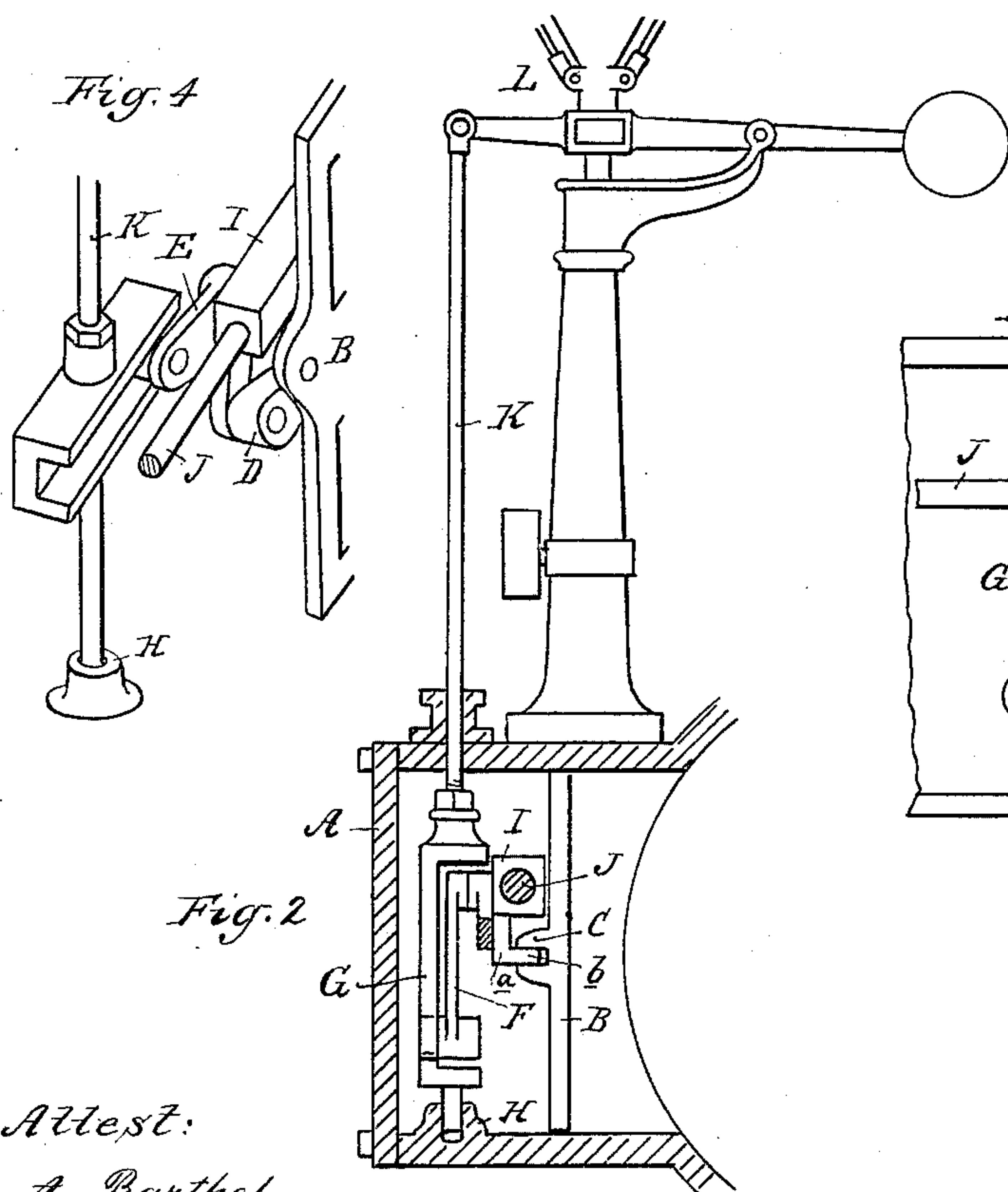
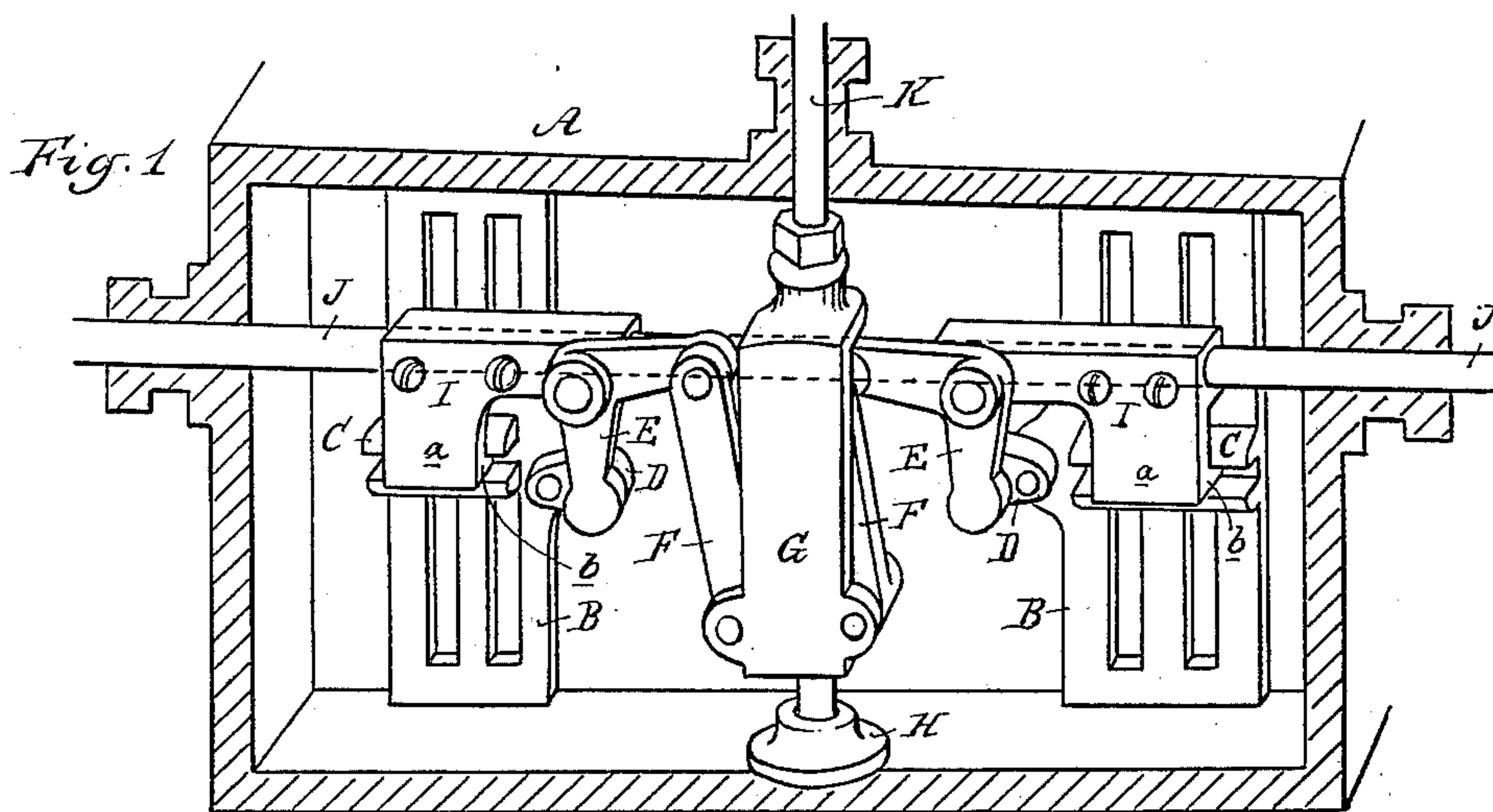


(No Model.)

H. BURTON.  
CUT-OFF VALVE.

No. 318,597.

Patented May 26, 1885.



Attest:

A. Barthel

N. Sprague

Inventor:

Henry Burton

by his Atty. Thos. J. Sprague



# UNITED STATES PATENT OFFICE.

HENRY BURTON, OF PORT HURON, MICHIGAN, ASSIGNOR TO WM. S. JENKS  
AND ORRIN L. JENKS, OF SAME PLACE.

## CUT-OFF VALVE.

SPECIFICATION forming part of Letters Patent No. 318,597, dated May 26, 1885.

Application filed January 2, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY BURTON, of Port Huron, in the county of St. Clair and State of Michigan, have invented new and useful Improvements in Cut-Off Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in the construction and operation of what are ordinarily termed "automatic cut-off valves for steam-engines," by means of which the steam can be automatically cut off at any desired point of the stroke.

The invention consists in so constructing and combining the valves with their operating devices that they are actuated by the eccentric in the usual manner and in opposite directions by the governor when cutting off steam; also, in the peculiar construction of the various parts and their combination, as more fully hereinafter described.

Figure 1 is a perspective view of my improved automatic cut-off valve with a section of the steam-chest. Fig. 2 is a vertical section showing the connection with the governor. Fig. 3 is an enlarged diagram of some of the operating parts. Fig. 4 is a modification showing the fixed pivotal points traveling in a cross-head instead of vibrating at the ends of links, as in Fig. 1.

In the accompanying drawings, which form a part of this specification, A represents the steam-chest, having the usual ports adapted to be closed or opened by the reciprocating motion of the valves B, the outer faces of which are provided with the guides C, rigidly secured thereto or cast integral therewith. The inner or adjacent edges of these valves are pivotally connected to the short links D, the opposite ends of which are in like manner connected with one of the arms of the bell-crank levers E, the other arms of which are pivotally connected with the upper end of the links F, the other ends of which are similarly connected with the foot of the standard G, which is stepped on the step H, which is rigidly secured to one side of the steam-chest wall, as shown. The bell-cranks

are pivotally connected with and secured to the cross-heads I, which are secured to the valve-stem J in such manner as to move with the reciprocation of said stem when the latter is suitably connected with an eccentric and the engine in motion. The cross-heads I have extensions a, which in turn have flanges b, adapted to move in the slides C. The standard G is connected by the rod K with the governor L.

In practice the link and bell-crank connections between the valves and the standard will so lock the valves together in whatever position they may be placed that no interference with or derangement of their reciprocating movement will occur, while the action of the governor will, through the intervening mechanism, cause the valves to cut off automatically at the desired point by compelling such valves to move toward each other or in contrary directions. Now, the same results will follow if the links F are omitted and the adjacent ends of the bell-crank levers are provided with wrists, as shown in Fig. 4, which slide in a cross-head secured to the standard, and I consider that this modification is within the spirit of my invention.

The operation of the links F, aside from their function of locking the bell-cranks E E, has a very beneficial action upon the valve motion, for it will be noticed that, owing to their radial movement, they will move the valves near the ends of the strokes faster than a direct connection with the valve-stem would do.

What I claim as my invention is—

1. In an automatic cut-off, the combination, with a single pair of independent valves, of a single valve-stem, by which they are moved simultaneously in the same direction, a steam-governor, and connections arranged within the steam-chest and operated by the governor, whereby said valves are moved in toward or from each other to control the amount of steam, as set forth.

2. In an automatic cut-off, the combination, with a single pair of valves, B B, serving to control the steam-ports of a steam-chest, of a valve-stem adjustably connected with said valves to move them simultaneously in either

direction, a steam-governor, and connections, as described, arranged within the steam-chest and between the valves B B, whereby the said governor will serve to operate the valves in  
5 opposite directions to control the steam-supply, as set forth.

3. The combination, with the two valves B B, having guides C, the cross-heads I, and

stem J, of the governor-standard G, bell-crank levers E E, and links F D, arranged to and operating as and for the purposes set forth.

HENRY BURTON.

Witnesses:

H. S. SPRAGUE,  
E. SCULLY.