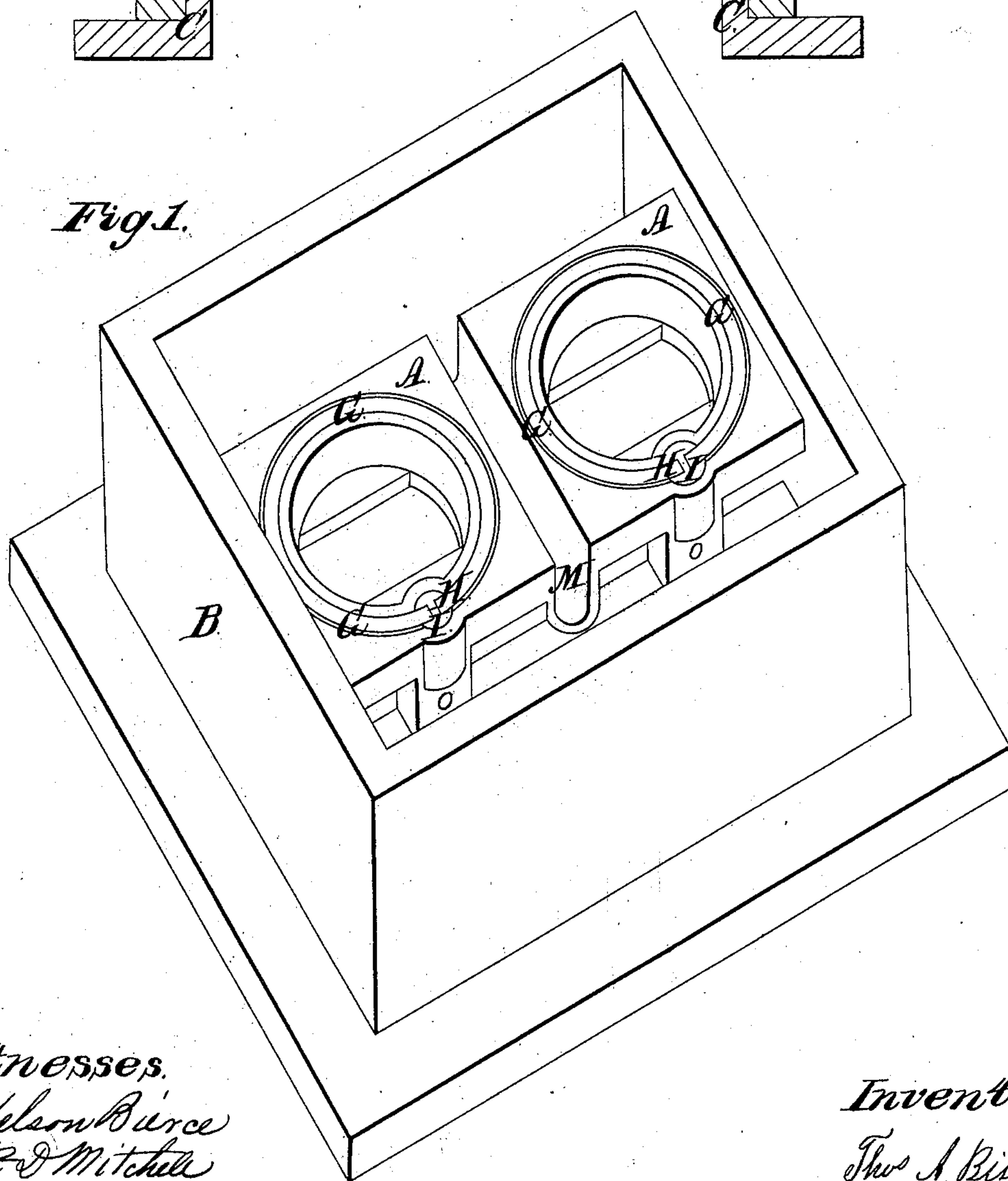
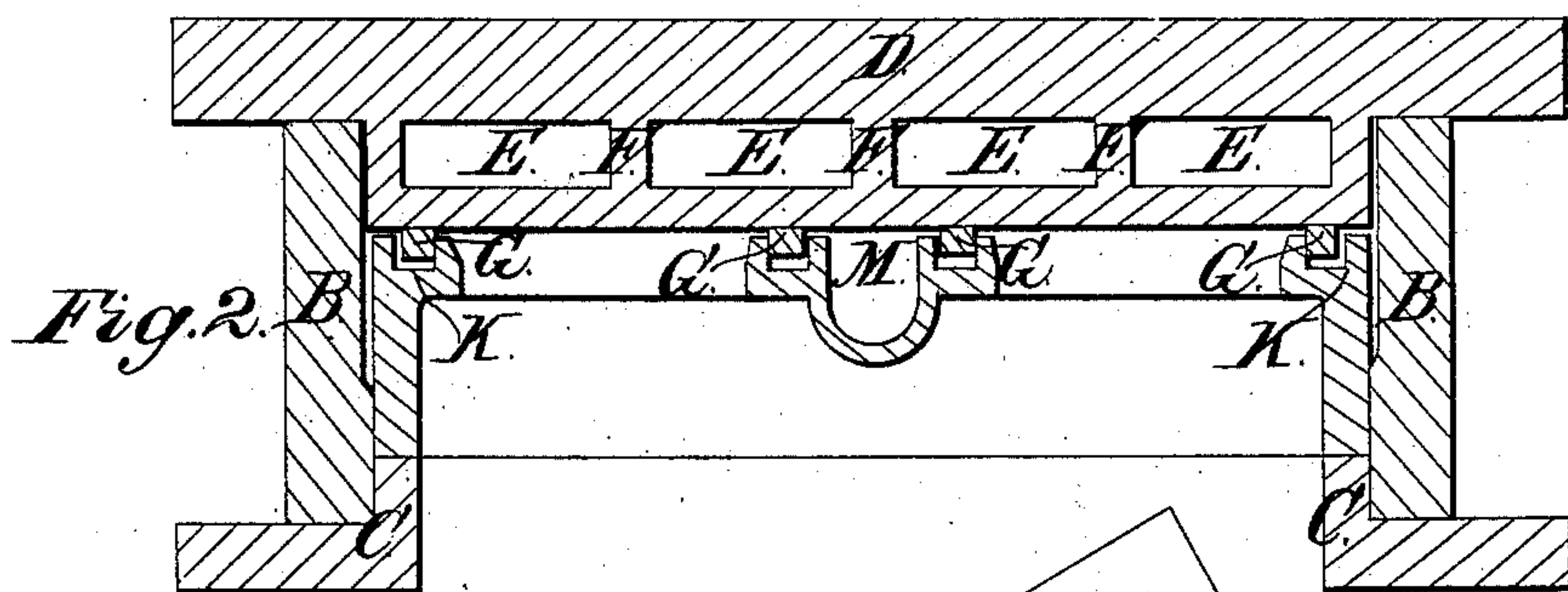


T. A. Bisbee,
Steam Balanced Valve.
N^o 76,294. Patented Apr. 7, 1868.



Witnesses.
Wheeler Burce
Thos. D. Mitchell

Inventor.
Thos. A. Bisbee

United States Patent Office.

THOMAS A. BISBEE, OF DAYTON, OHIO, ASSIGNOR TO HIMSELF AND EDWIN.
R. STILWELL, OF SAME PLACE.

Letters Patent No. 76,294, dated April 7, 1868.

IMPROVEMENT IN STEAM-ENGINE SLIDE-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS A. BISBEE, of Dayton, in the county of Montgomery, and State of Ohio, have invented certain new and useful Improvements in Anti-Friction Valves for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improvements, showing the valve in position.

Figure 2 is a vertical sectional view through the line *x x* of fig. 1.

Like letters represent like parts in all the figures.

The nature of my improvements consists in two or more packing-rings at opposite ends of the valve, so as to balance the valve and prevent it from tilting; also in a single packing-ring instead of double rings, one within another, such as have been heretofore used; also in a plug for breaking the joint of the ring; and also in an improved construction of the valve-box.

A represents the valve; B is the valve-box, and C the valve-seat; D is the top or cover of the valve-box, provided with openings E E E E, for the passage of the steam. These openings are separated by the ribs F F F, which serve to strengthen the cover, and permit a lighter cover to be used. G G G G are two packing-rings, one of which is placed at each end of the valve, between the latter and the under side of the valve-cover. These rings are divided at H H, and the joint is broken by the plugs I I. The rings are placed in the grooves or recesses K K, to which steam is admitted upon the outside of the rings above the valve. When the steam is shut off, the rings are kept up against the cover by half-elliptic springs, placed beneath them in the bottom of the grooves K K, while the plug is supported upon a spiral spring. But when the steam is introduced, it surrounds the rings, compressing them against the inner surface of the groove, and lifting them up against the under side of the cover. M is the hole for the valve-stem.

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

1. The arrangement of two balance-chambers with packing-rings, one being combined with each end of the valve, whereby to obviate the tendency to a rocking motion, caused by one large ring, or one series of rings.
2. The described arrangement of the joint-plug I, packing-ring G, and valve A, for the purposes described.
3. The combination, in a valve-box cover, of the steam-passages and strengthening-ribs, as described.
4. The combination of ring G, joint-plug I, valve-box cover D, and steam-passages E E E E, substantially as described.

THOS. A. BISBEE.

Witnesses:

G. NELSON BIERCE,
THOS. D. MITCHELL.