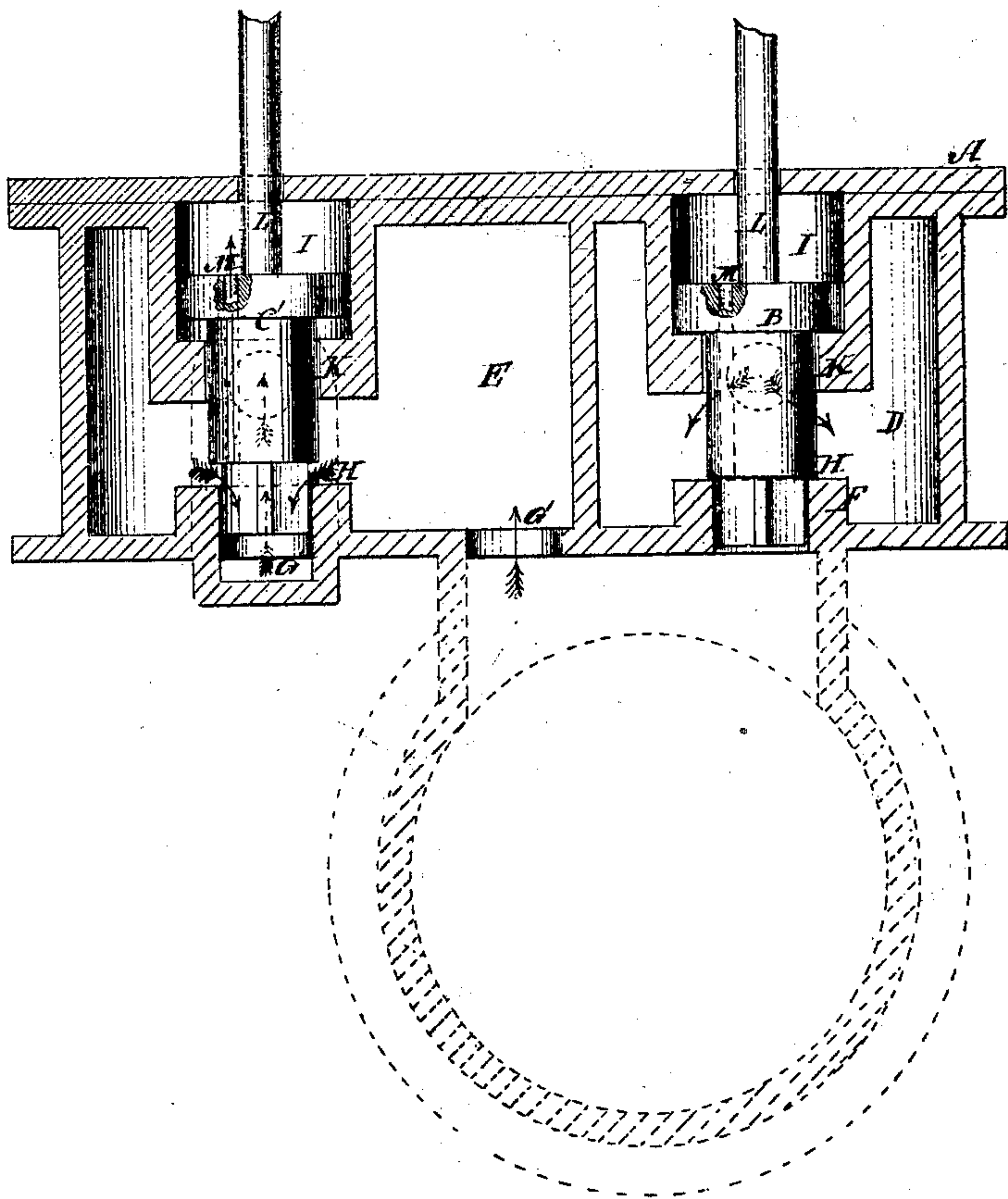


*J. Collins,*

*Balanced Valve.*

*No. 94,566.*

*Patented Sept. 7. 1869.*



**Witnesses:**

*Geo. W. Mabee*  
*John E. Brooks*

**Inventor:**

*David Collins*  
PER *M. W. M. Co.*  
**Attorneys.**

# United States Patent Office.

DANIEL COLLINS, OF GIRARD, ALABAMA.

Letters Patent No. 94,566, dated September 7, 1869.

## IMPROVEMENT IN BALANCED 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, DANIEL COLLINS, of Girard, in the county of Russell, and State of Alabama, have invented a new and improved Balance-Valve; 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.

The object of this invention is to provide an improved and simple arrangement of balance-valves for steam-engines.

The invention consists in an arrangement of lift-valves in steam-ways, surrounding and balancing the sides, and with the upper ends working into chambers above the steam-ways, to which chambers the steam is admitted through holes in the said valves as soon as they are lifted off their seats, and from which it exhausts with the regular exhaust of the engine, all as hereinafter more fully specified.

The drawing represents a steam-chest in sectional elevation with my improved steam and exhaust-valves, also a sectional view of the steam-cylinder.

A represents the steam-chest;

B, the steam-valve; and

C, the exhaust.

D is the live-steam way, and

E, the exhaust.

F, the live-steam port, and

G G', the exhaust-port.

H, the valve-seats.

I represents chambers, arranged above the valve-seats, into which the valves work, through the lower walls K thereof, snugly.

These chambers are larger than the valves below, and the valves are enlarged therein, to compensate for the area of the stems L, by which the valves are worked, and which rise up through the top of the steam-chest.

These valves have holes, M, leading from bottom to top, so that as soon as they are raised off their seats, and the steam is admitted under them, it passes through these holes into the chambers I, and presses equally upon both ends. When the cylinder exhausts, the exhaust for these chambers is direct with the same.

The said valves are balanced laterally in the steam-ways E D, by the steam being admitted on all sides.

These valves may be of any preferred shape.

Having thus described my invention,

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

The arrangement with the lift-valves B C, having longitudinal passages, M, of the steam-ways E D, admitting the steam to surround them, and the chambers I, all substantially as specified.

DANIEL COLLINS.

Witnesses:

F. C. STEWART,

J. M. DENSON.