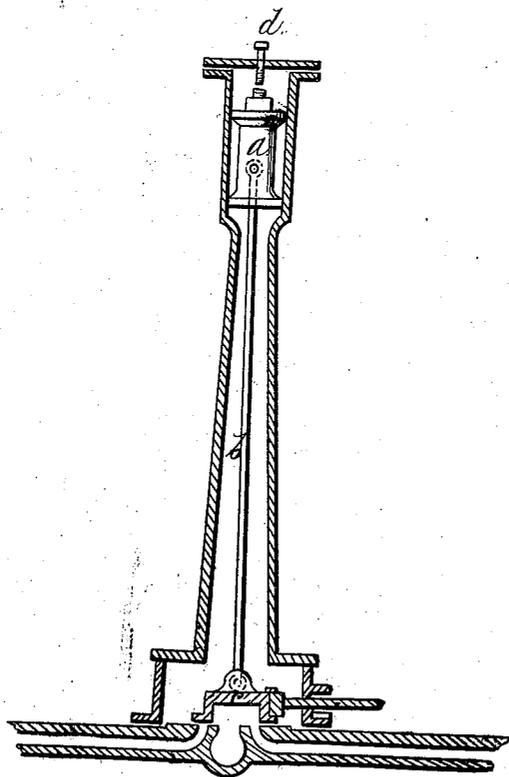


*J. Kirkpatrick,*  
*Steam Balanced Valve.*  
*N<sup>o</sup> 399. Patented Sep. 22, 1837.*



# UNITED STATES PATENT OFFICE.

JOHN KIRKPATRICK, OF BALTIMORE, MARYLAND.

## SLIDE-VALVE FOR STEAM-ENGINES.

Specification of Letters Patent No. 399, dated September 22, 1837.

*To all whom it may concern:*

Be it known that I, JOHN KIRKPATRICK, of the city of Baltimore and State of Maryland, have invented certain Improvements in the Mode of Applying and Using the Self-Balancing Slide-Valve, for which Letters Patent of the United States were granted unto me, dated July 10, 1834; and I do hereby declare that the following is a full and exact description of my said improvements.

These improvements consist in having adopted a different form, while the principle upon which the piston is applied, and the proportions of the valve and cam to each other, continue the same, a lever was used in the first application to press the valve (which was without a steam chest) downward, and in this, a rod having a joint at the piston, and another at the valve, connecting them together, causes them to react on each other, the piston being of proper size to take off sufficient pressure from the

valve to cause it to work light without a lever; the valve is inclosed in the usual way, and the piston placed in the top of a hollow column secured to the lid of the steam chest.

*a*, in the accompanying drawing represents a piston, *c*, the valve, and *b*, the rod by which they are connected.

*d*, represents a screw placed in the cap to prevent the piston from rising too far when from any cause the valve is raised from the face. The piston is drawn down when the valve moves back or forward, and rises when on the center of its passage.

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

The manner herein described, of applying the reacting principle heretofore patented by me, to slide valves inclosed in steam chests.

JOHN KIRKPATRICK.

Witnesses:

J. L. MORGAN,  
SAMUEL GLADDIN.