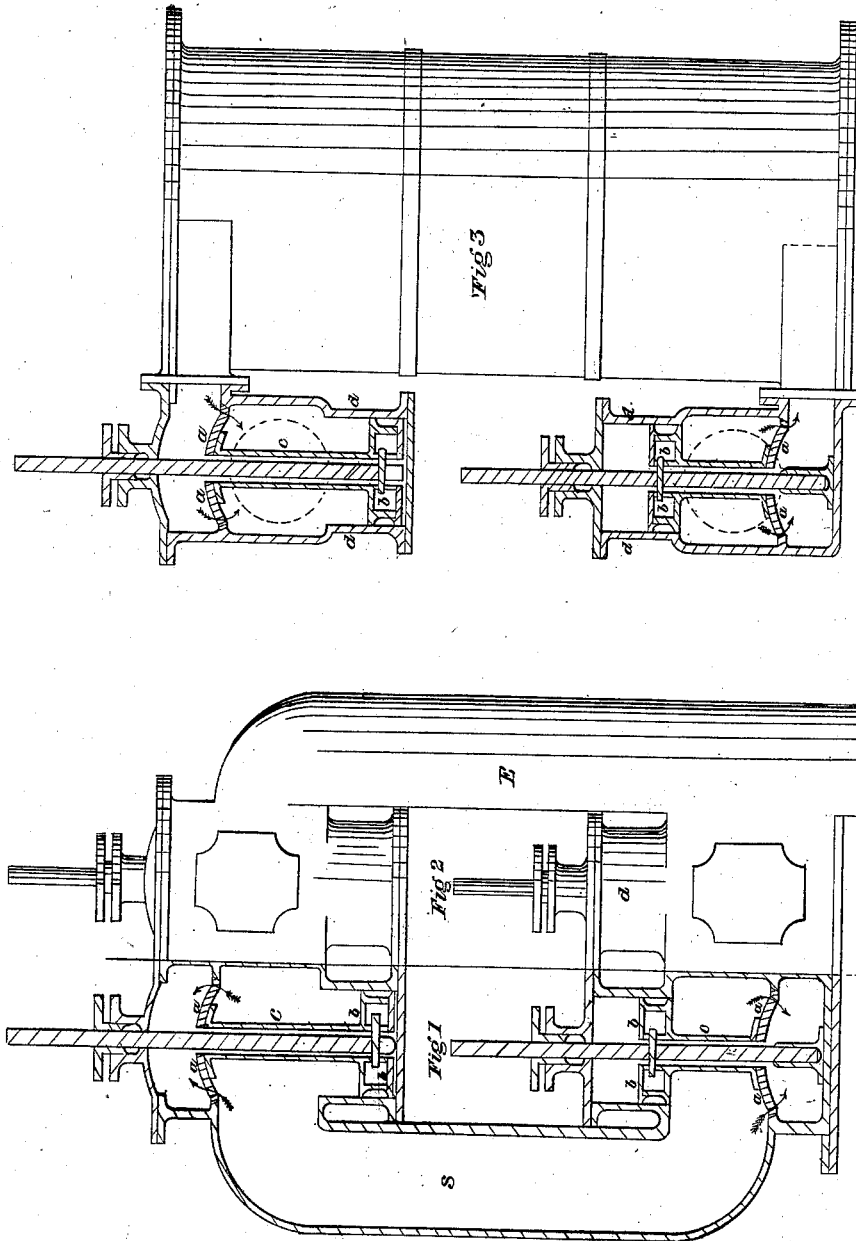


T. Mc Donough,
Steam Poppet Valve.

N^o 3,437.

Patented Feb. 12, 1844.



Witnesses:

Thomas Dickson
Wm M. Thompson

Inventor

Thomas Mc Donough

UNITED STATES PATENT OFFICE.

THOMAS McDONOUGH, OF MIDDLETOWN, CONNECTICUT.

CONICAL BALANCE-VALVE OF STEAM-ENGINES.

Specification of Letters Patent No. 3,437, dated February 12, 1844.

To all whom it may concern:

Be it known that I, THOMAS McDONOUGH, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new Valve to be Applied to Steam Engines, whereof the following is an exact description.

Description of single balance valve.—The nature of my invention consists in connecting the conical (*a*) valve with the well known balance piston (*b*) by means of a hollow stem (*c*) so that the steam can pass through the hollow stem to act below the balance piston, and thus have always an equal pressure on the upper side of the valve and lower side of the piston, and on the

lower side of the valve and upper side of the piston. The valve to be placed as usual in a chest and the piston in a cylinder (*d*) either above or below the conical valve. 20

What I claim as my invention and desire to secure by Letters Patent as an improvement on the well known conical balance valve, is—

Connecting the valve with the balance piston by means of a hollow stem as herein described. 25

THOMAS McDONOUGH.

Witnesses:

ROBT. A. BAKER,
H. H. PRENTISS.