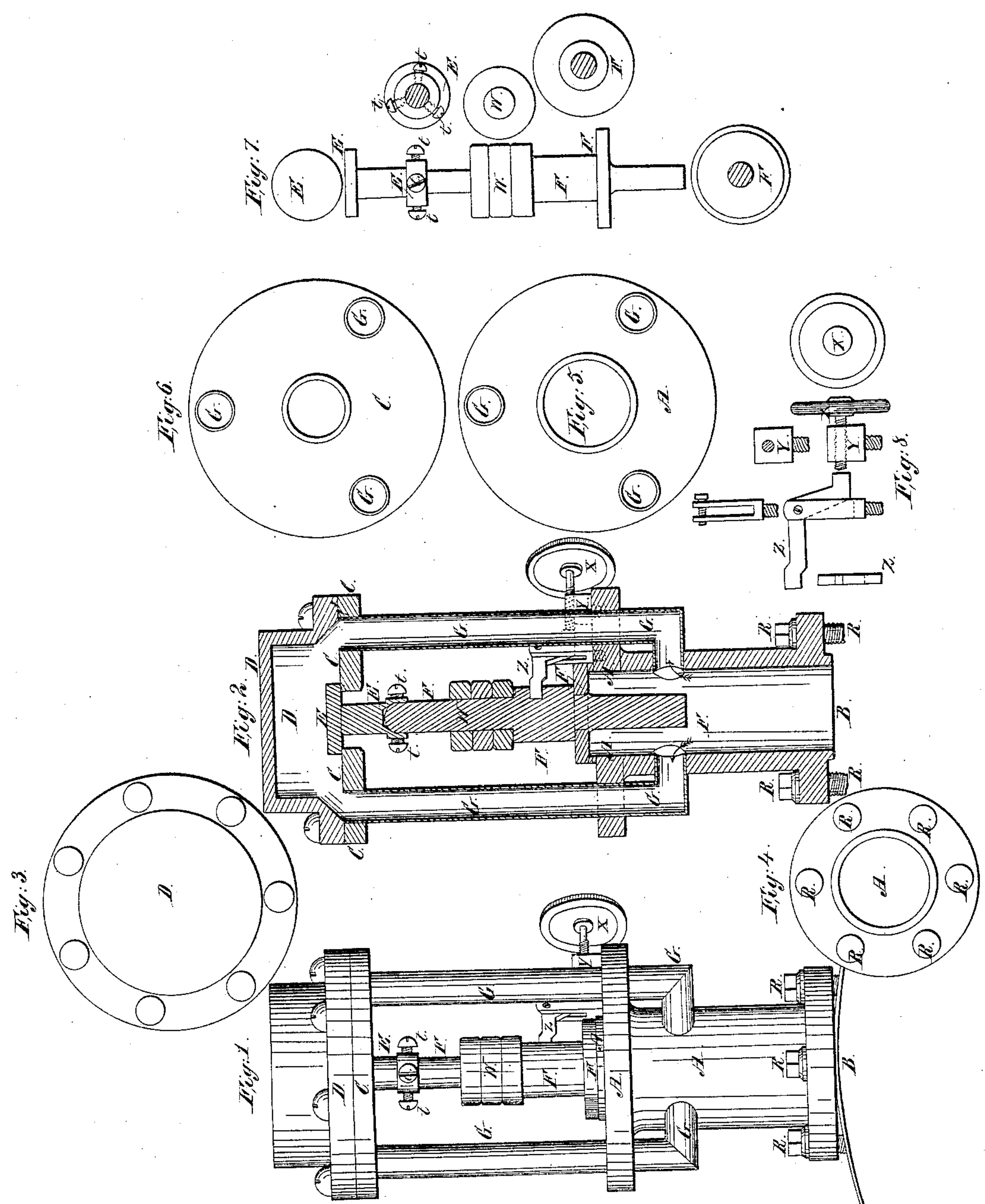


J. H. Fitzsimmons,

Steam Safety Valve.

Patented Jan. 22, 1867.

N^o 61,330.



Witnesses:
W. H. Langford,
Gaylord Curtis

Inventor:
John H. Fitzsimmons.

United States Patent Office.

JOHN H. FITZ SIMMONS, OF SUSQUEHANNA DEPOT, PENNSYLVANIA.

Letters Patent No. 61,330, dated January 22, 1867.

IMPROVEMENT IN SAFETY-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, JOHN H. FITZ SIMMONS, of Susquehanna Depot, in the county of Susquehanna, and State of Pennsylvania, have invented an Improved Machine for Preventing Dangerous or Unnecessary Excess of Steam Pressure upon Steam Boilers; 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 a part of this specification, in which—

Figure 1 is an elevation of the machine as applied to steam boilers.

Figure 2, a sectional view of the same.

Figures 3, 4, 5, 6, 7, 8, are details of its construction.

A is the lower valve-seat securely fastened to the boiler B by screws, R R R R R R. C is the upper valve-seat, connected to A by steam pipes G G leading from the boiler. D is a steam cap or cavity fitted tight to C by screws, and containing upper escape-valve E. F is the lower escape-valve coupled to valve E by socket in E and stem on F, and rigidly held in position by set-screws *t t t*. W is a weight of any required size proportionate to the amount of steam pressure to be restrained. As both upper and lower valves are rigidly connected together, it follows that the lower valve, F, cannot raise without lifting the upper valve, E. When steam is generated in the boiler it passes through the pipes G G into steam cavity D, where the pressure per square inch is the same as in the boiler. The lower valve F contains a greater area than the upper valve E in the ratio of about one and a quarter ($1\frac{1}{4}$) to one (1); therefore, if it be desirable that the steam pressure in the boiler should not exceed twenty pounds per square inch, when it has attained that point, there being one and a quarter square inches area in the lower valve F, the steam will press upward on valve F with a total of twenty-five pounds, while E, containing but one square inch area, it presses downward against F with a force of only twenty pounds; therefore F has an excess of five pounds against E and will raise both valves with that freedom. Now, if the weight W of five pounds be placed upon F it will exactly counterpoise the steam pressure at twenty pounds per square inch and will suffer the slightest increase of steam pressure above that point to pass away. The wheel and screw X working through the stationary nut Y against vibrating lever Z is to be used at the will of the attendant to relieve the boiler of all pressure, as occasion may require.

I claim the combined valves F and E, with valve-seats A and C, the steam pipes G G, together with releasing screw X, as herein described and for the purpose set forth.

JOHN H. FITZ SIMMONS.

Witnesses:

GAYLORD CURTIS,
CHARLES A. MILLER.