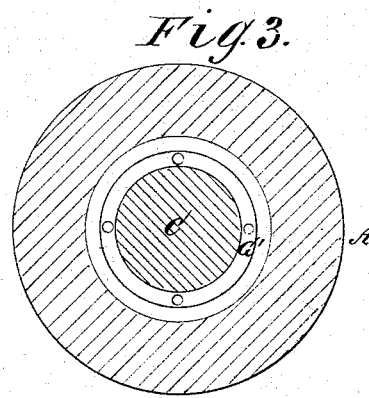
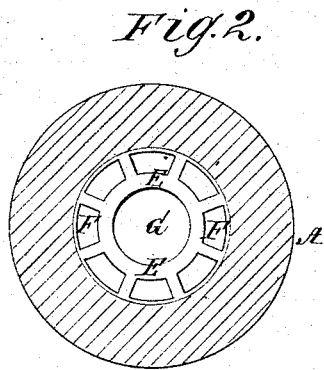
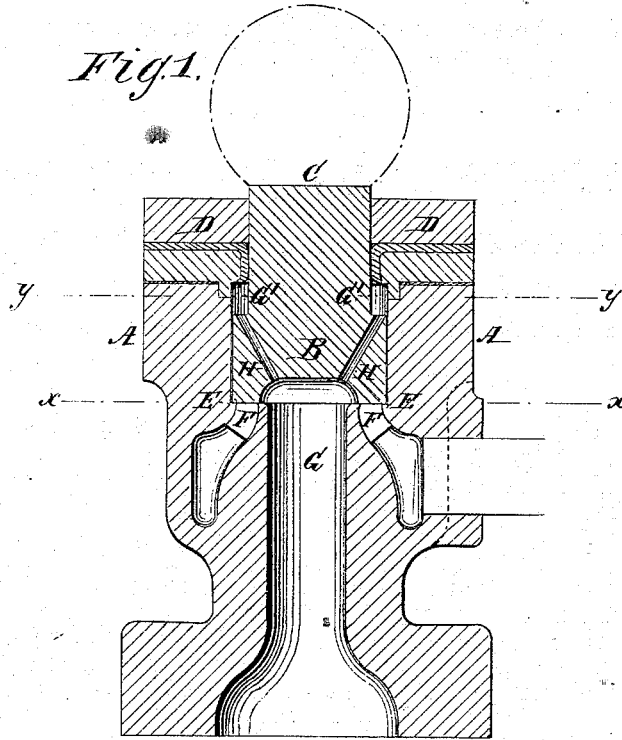


J. F. TAYLOR.
Hydraulic Safety-Valves.

No. 158,333.

Patented Dec. 29, 1874.



WITNESSES:
G. Matthews
John Kemmon

INVENTOR:
Jno. F. Taylor
BY *[Signature]*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN F. TAYLOR, OF CHARLESTON, SOUTH CAROLINA.

IMPROVEMENT IN HYDRAULIC SAFETY-VALVES.

Specification forming part of Letters Patent No. **158,333**, dated December 29, 1874; application filed November 16, 1874.

To all whom it may concern:

Be it known that I, JOHN F. TAYLOR, of the city and county of Charleston, and State of South Carolina, have invented a new and Improved Hydraulic Safety-Valve; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a vertical section. Fig. 2 is a transverse section through line *x x*. Fig. 3 is a transverse section through line *y y*.

This invention relates to certain improvements in safety-valves, mainly intended for hydraulic presses, but applicable also to steam and air engines. The invention consists in novel means whereby the valve may be weighted with great convenience and facility by the aid of the fluid employed, as hereinafter fully described, and pointed out in the claims.

In the drawing, A represents the valve-chamber, in which I locate my valve B, provided with a stem, C, that passes through the cap D, and is tightly packed within the same. Valve B rests upon its seat E above the water-chamber G, and closes the annular outlets F. H are equalizing-passages through the valve, which connect the water-chamber G with another chamber, G', above the valve, so that the difference of area upon the upper and lower side of the valve is the unit of pressure. For instance, if it is desired to admit a pressure of two thousand six hundred pounds to the square inch before allowing the valve to act and the fluid to escape through the outlet, we will suppose the lower area of the piston is twelve inches and the upper area is eleven inches, and the valve weighted to two thousand six hundred pounds; then the unit of pressure will be all the weight em-

ployed by me—*i. e.*, two thousand six hundred pounds to the square inch—whereas, with the pressure upon one side of the piston alone, the valve would have to be weighted to thirty-one thousand two hundred pounds, or twelve times two thousand six hundred, to give the same unit of pressure, the area being the same; or, instead of this, I should be compelled to use an inch pipe with the two thousand six hundred pound weight, which pipe would not relieve the pressure fast enough.

The above-described arrangement I prefer to all others, as I can make my valve of any reasonable size, and make the weight anything I choose, the valve being so constructed as to relieve a large body of water instantly and with a comparatively small weight.

Having thus described my invention, what I claim as new is—

1. A valve-chamber provided with openings in its seat connecting with the escape-pipe, in combination with a valve having different areas of pressure upon its opposite sides, substantially as and for the purpose described.

2. A valve having holes through the same for the purpose of admitting pressure to the upper side of the valve and letting the pressure off when the valve rises, substantially as and for the purpose described.

3. The combination, with a water-chamber having an annular outlet, of a weighted valve having, on opposite sides, different areas of pressure, and equalizing-passages H through the same, substantially as and for the purpose described.

JOHN F. TAYLOR.

Witnesses:

JOHN D. KELLY,
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