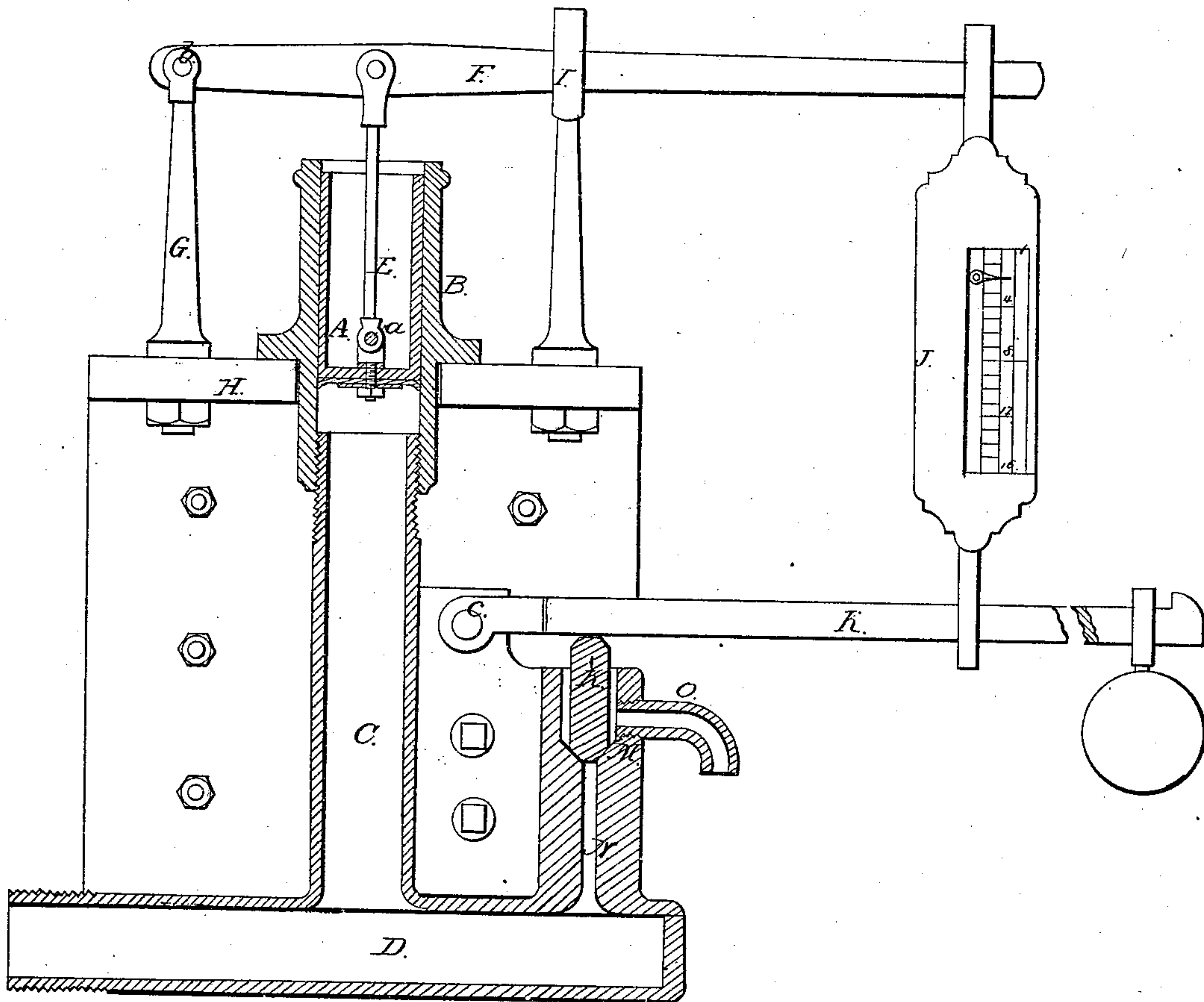


T. ROWE.
SAFETY VALVE.

No. 90,874.

Patented June 1, 1869.



Witnesses:
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United States Patent Office.

THOMAS ROWE, OF NEW YORK, N. Y.

Letters Patent No. 90,874, dated June 1, 1869.

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, THOMAS ROWE, of the city, county, and State of New York, have invented a new and improved Combination Pressure-Gauge and Safety-Valve; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, which drawing represents a longitudinal section of this invention.

This invention relates to a pressure-gauge safety-valve, which is intended for steam and other enginery.

The letter A designates a piston, which is fitted into a cylinder, B, so that it moves freely therein, without, however, allowing any water or steam to escape.

The cylinder B communicates, by pipes C D, with the water-chamber, or steam-generator, the pressure of which is to be gauged, and the piston A connects by a rod, E, with a lever, F.

To insure freedom of motion, said piston is made in the form of a trunk, and the rod E is connected to it by hinged joint *a*, as shown in the drawing.

The lever F has its fulcrum on a pivot, *b*, secured in a standard, G, that rises from a bracket, H, attached to the wall, and serving to support the entire mechanism of my combined gauge and safety-valve.

From its fulcrum the lever F extends through a guiding-loop, I, and its loose end connects, by means of a spring-balance, J, with the safety-valve lever K.

This lever has its fulcrum on a pivot, *c*, and it bears down upon the safety-valve K', which is fitted in its seat, M, that communicates, by a passage, N, with the pipe D, leading to the water-chamber or steam-generator.

The safety-valve is made in the ordinary manner, with a conical face fitting into a corresponding seat, and, if said safety-valve is raised by the pressure of steam or water, the surplus steam or water escapes through the blow-off or discharge-pipe O.

The lever K is loaded with a weight, which is movable on the same, so that the pressure exerted on the safety-valve can be regulated to suit circumstances.

The spring-balance J is so adjusted that the register is connected to the lever F, and the index to the lever K, so that, when the lever F is raised by the action of the steam on the piston A, the register slides up under the index, and the amount of pressure acting on the piston is indicated.

The safety-valves generally used in hydraulic presses are cylindrical plugs, with a conical face fitting into a corresponding conical seat, and the passage leading from this seat to the water-chamber is quite narrow, so that the area of the safety-valve exposed to the pressure of the water is quite small.

If, therefore, the safety-valve binds or sticks only very little in its seat, the pressure of the water is unable to lift the valve, and the water-chamber bursts.

By my improvement the safety-valve can be loaded down to the desired amount, and if the pressure has reached the desired limit, the safety valve is entirely relieved of all weight, and it is free to blow off.

This object is effected by the action of the piston A and spring-balance J.

The piston offers a comparatively large area to the pressure of steam, and it is not liable to stick.

As soon as it begins to rise, the spring-balance exerts a strain on the lever K, and if this strain has reached the desired degree, as indicated on the dial of the balance, the safety-valve opens and blows off.

Having thus described my invention,

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

The combination of the piston A, lever F, spring-balance J, lever K, and safety-valve K', all constructed substantially as shown and described.

THOMAS ROWE.

Witnesses:

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