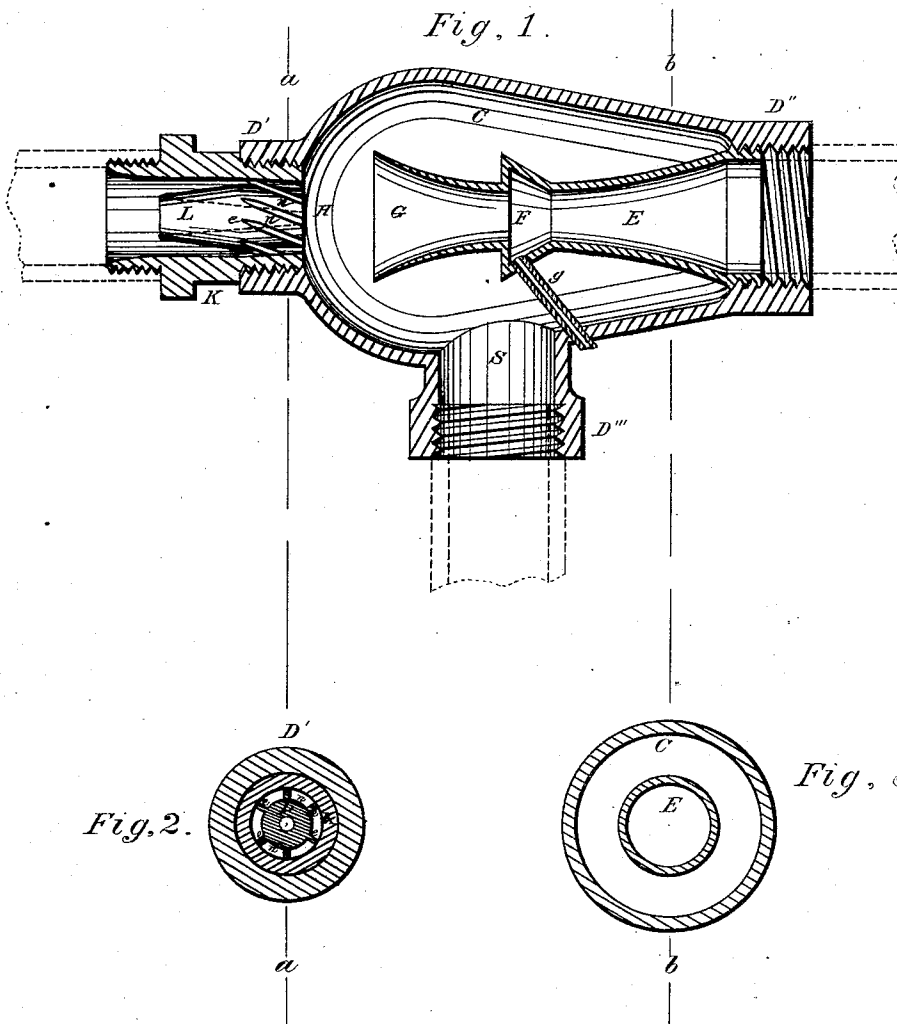


L. B. FULTON & J. PROEGER.

Ejectors.

No. 159,256.

Patented Feb. 2, 1875.



Witnesses.

Jonathan Ord,
Alma Price

Inventors.

Louis B. Fulton
Julius Proeger
per Josiah W. Ellis
Attorney

UNITED STATES PATENT OFFICE.

LOUIS B. FULTON AND JULIUS PROEGER, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN EJECTORS.

Specification forming part of Letters Patent No. **159,256**, dated February 2, 1875; application filed August 11, 1874.

To all whom it may concern:

Be it known that we, LOUIS B. FULTON and JULIUS PROEGER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in that class of mechanical contrivances used for the purpose of lifting and forcing liquids by the direct application and action of steam under pressure.

Our invention will be readily understood from the following description, taken in connection with the accompanying drawing, wherein—

Figure 1 represents a longitudinal and vertical section of our apparatus; Fig. 2, a transverse section of the same taken on the line *a a*; Fig. 3, a similar section taken on the line *b b*.

We construct our apparatus by making an oviform shell, C, of cast-iron, with an opening at opposite ends, and one at the side. These are severally provided with a short projecting socket, *D' D'' D'''*, into each of which a pipe may be screwed or otherwise affixed. In the interior of this shell is permanently fitted a brass bell-mouthed open-ended tube, E, arranged on the same axial line. This tube is increased in size at or near its middle by a sudden enlargement of its diameter, and which enlargement, F, is made to communicate with the outside atmospheric air by means of a small pipe, *g*, that protrudes through the shell. The bell-mouth G of the tube E is carried forward toward the opening H in the large end of the shell, in which opening is screwed a thimble, K, containing a hollow plug or nozzle, L, provided, in addition to its central longitudinal aperture, with a series of radial ribs, *e e*, arranged spirally around its periphery, so as to form between them an equal number of spiral grooves or channels, *n n*, all leading into the shell opposite the bell-shaped mouth of the central inclosed tube.

The operation is as follows: The several

parts of our apparatus having been constructed as shown and described, and the thimble K, containing the nozzle L, connected with a steam-generator by means of a suitable pipe, furnished with a valve for admitting, regulating, or shutting off the flow of steam, and the side opening S made to communicate with a body of water or other fluid, on allowing the steam, under pressure, to flow from the generator toward the apparatus, when reaching the nozzle L part of such steam will pass in a straight line through its central aperture, while the other portion will travel through the spiral grooves or channels, and so enter the shell in numerous small streams, each having a gyratory or whirling motion imparted to it as they severally enter the shell. As the steam presses onward, the atmospheric air will be soon driven out, when the water will ascend through the side opening S, and, in turn, be forced into the bell-mouth and through the tube E in a continuous solid column, with a velocity corresponding to that of the in-going steam. After the water enters and passes the bell-mouth of the inside tube, it travels for a short distance through a circle of air held in the enlargement F of the tube at or near its middle.

This enables the water to pass that point with less resistance, preventing any break in the column, and consequent spray upon its exit from the apparatus.

We claim—

The stationary spirally-fluted hollow plug or nozzle L and thimble K, arranged wholly outside of the water-space, and combined with the oviform shell C, in the manner shown, for the purposes set forth.

LOUIS B. FULTON.
JULIUS PROEGER.

Witnesses:

JOSIAH W. ELLS,
JONATHAN ORD.