J. GRESHAM.

INJECTOR FOR BOILERS.

No. 74,346. Patented Feb. 11, 1868.

Fig. 1.

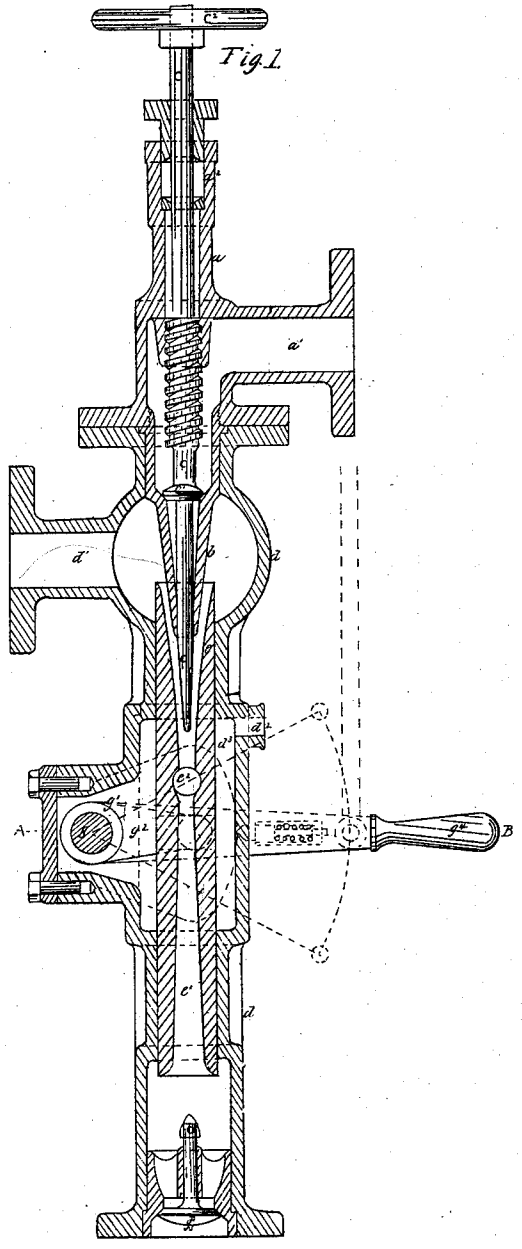
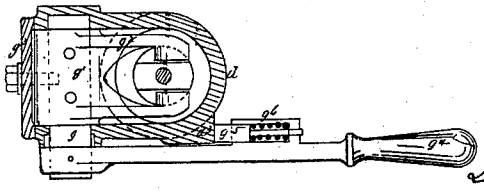


Fig. 2.



Witnesses:

Peter Schuyler

Wm. Gifford

Inventor

James Gresham

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

United States Patent Office.

JAMES GRESHAM, OF MANCHESTER, GREAT BRITAIN, ASSIGNOR TO IRA DIMOCK, OF FLORENCE, MASSACHUSETTS.

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IMPROVEMENT IN INJECTORS FOR BOILERS.

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, JAMES GRESHAM, of the city of Manchester, in the county of Lancaster, in the United Kingdom of Great Britain and Ireland, have invented new and useful Improvements in that Apparatus known as Giffard's Injector; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying sheet of drawings, which form a part of this specification, and to the letters of reference marked thereon.

My improvements consist in an improved arrangement and construction of the mechanism of an injector, which is illustrated by—

Figure 1, a longitudinal section, and

Figure 2, a cross-section upon the line A B, fig. 1.

The case of the injector is made in two parts; in the upper part, a, the steam-nozzle b is screwed, and a branch, a^1, is made in this part to form a junction with the steam-pipe. The central spindle, c, is also fitted to screw into the part a, passing through a packing-gland, a^2, arranged as shown. Upon the central spindle a valve, c^1, is formed, which has its seating or facing upon the interior of the steam-nozzle b, as shown, so that, by rotating the central spindle c by the handle c^2, the steam may be turned on or off, or regulated. The lower part of the case a is connected to the upper part of the case d by a flange-joint, as shown, the exterior of the steam-nozzle b fitting into the interior of the lower part of the case. The upper part of the case d has a branch, d^1, upon it, to form a junction with the water-pipe. The combining-cone e, and discharging-cone e^1 are formed in one piece, (they may be made in two pieces, screwed together,) of the same external diameter, or nearly so, especially at the ends, and the interior of the case d is bored out, so that the cone part e and e^1 may slide in it, being made as good a fit as practicable without packing, so that any fluid which may escape between the exterior of the discharging-cone and the interior of the casing, will enter the cavity formed round the orifice e^2 of the cones, from which cavity it will be drawn through the orifice e^2 by the passing jet, when the injector is properly adjusted. f is an ordinary stop-valve, to prevent the return of the fluid from the boiler. d^2 is an outlet in the cavity d^3, above the highest level of the orifice e^2, for the escape of fluid when starting the injector, but this outlet, d^2, will not be required when a self-acting stop-valve is used for opening and closing a valve through which fluid can escape when starting the injector. The cone part e and e^1 is adjusted by a short shaft, g, which has a boss, g^1, upon it, having two arms, g^2, that fit cross-grooves in the sides of the cone part e and e^1, clutch-fork fashion. The boss part g^1 is first placed into the case, then the shaft g is passed through the side of the case, through the boss g^1, which is then secured by pins, and then the lid g^3 is secured by screws, as shown. The outside end of the shaft g has a little packing placed round it, and then the handle g^4 is secured upon it. There is a point, g^5, fig. 2, arranged to slide in the handle, which point is acted upon by a spring, g^6, arranged as shown. This spring-point, g^5, will enter notches in a quadrant, d^3, formed upon the side of the case d, so as to hold the handle g^4 in any position in which it may be placed. In some situations the handle g^4 may not be convenient, and the a rod may be jointed to it, as shown in dotted line, fig. 1, and the end of this rod may be screwed so as to pass into a screw-handle, by turning which the rod will be actuated.

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

The arrangement of the rock-shaft g and forked lever g^2, with relation to the cone-piece e e^1 and case d, all constructed and operating essentially as shown and described, for the purpose set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES GRESHAM.

Witnesses:

PETER J. LIVSEY,

WM. GIFFARD.