

(Model.)

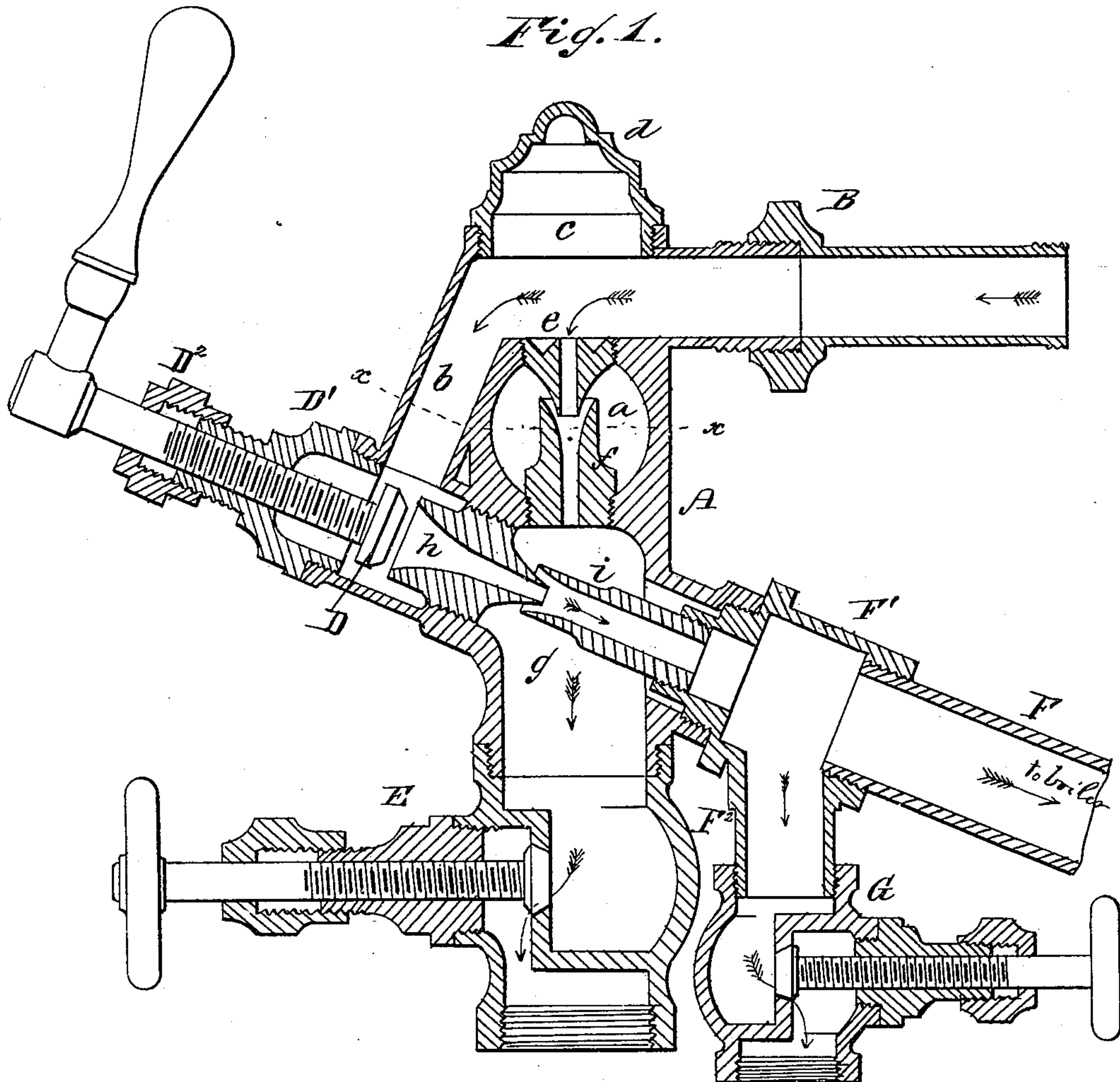
O. H. WHEELER.

INJECTOR.

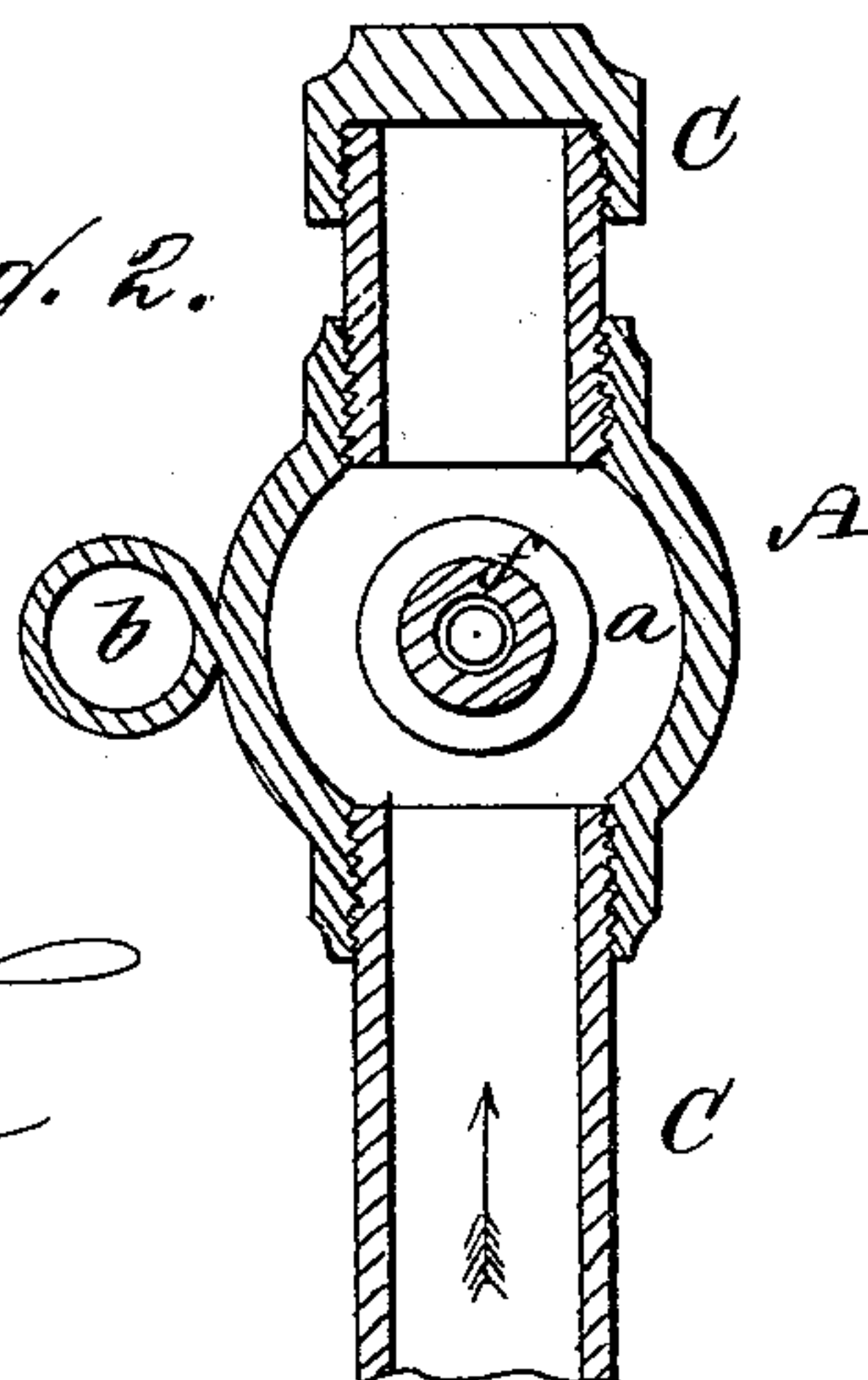
No. 273,652.

Patented Mar. 6, 1883.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

*Theo. G. Hoston*  
*C. Sedgwick*

INVENTOR:

*O. H. Wheeler*

BY

*Mum & Co*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ORSON H. WHEELER, OF CHARLESWORTH, MICHIGAN.

## INJECTOR.

SPECIFICATION forming part of Letters Patent No. 273,652, dated March 6, 1883.

Application filed November 21, 1882. (Model.)

*To all whom it may concern:*

Be it known that I, ORSON HARVEY WHEELER, of Charlesworth, in the county of Eaton and State of Michigan, have invented a new and Improved Injector, of which the following is a full, clear, and exact description.

My improvements relate to steam-injectors for lifting and forcing water; and the invention consists in certain features of construction and arrangement, having the object to force a solid stream of water under any pressure of steam, and also to prevent any accumulation of sediment in the injector, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional elevation of my improved boiler-feeder. Fig. 2 is a cross-section on line *x x*, Fig. 1.

A is the body of the injector, having the removable cap *d* at its upper end. B is the steam-supply pipe, and C C are water-supply pipes connected at each side of the body A, and communicating with a water-chamber, *a*. One water-pipe is to be closed by a cap, as shown in Fig. 2, when the other is in use.

D is a forcing-valve working in the nut D', screwed into the body A, and having a stuffing-box cap, D<sup>2</sup>, at its end. The chamber of the forcing-valve is connected by a tube, *b*, with the steam-chamber *c*, so as to form a forcing-chamber.

E is the waste-valve of the lifter; and F is the supply-pipe to the boiler, connected to the body A by the nut F', having a short pipe, F<sup>2</sup>, on its under side, to which the overflow-valve G is connected.

This construction and arrangement of the several parts give ready access to the interior of the injector. By removing the cap *d* at the end of the body A access is given to the lifting-tubes, and by unscrewing the nut D', carrying the valve D, access can be readily had to the forcing-tube; also, by unscrewing the nut F', to which the outlet-tube F and the valve G are connected, the water-chamber is made accessible. The overflow and waste valves are ordinary globe-valves attached to the body of the feeder.

The interior lifting and forcing tubes are as follows: *e* is the lifting-tube, between the steam-chamber *c* and water-chamber *a*, and entering the water-tube *f*, which connects the water-chamber *a* to the main chamber *g*. *h* is the forcing-steam tube, connecting the forcing-chamber *b* with the main chamber *g* and entering the tube *i*, that connects the chamber *g* with the outlet-pipe F.

The operation is as follows: Steam, being admitted by the pipe B, passes through the lifting-tubes *e f*, and at the same time steam passes through the chamber *b* to the forcing-tube *h*. The steam passing through the tube *e* carries the water from the chamber *a* to the chamber *g*, and the forcing-valve D being opened, the water is forced through the tube *i*, and thence to the boiler through the pipe F. In case the valve G is opened, hot water will be supplied to the boiler. When cold water is required overflow-valve E is to be opened and the valve G closed, and the cold water will be drawn without interfering with the feeding. No dirt, lime, or other sediment can collect and remain in the chambers.

The apparatus works equally well if it becomes heated as when cold.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In an injector, the combination, with the body A, provided with the lifting-tubes *e f*, the forcing-tubes *h i*, and the water-chamber *g*, of the removable cap *d* at the upper end of the body A, the nut D', carrying the forcing-valve D, and the nut F', to which the outlet-tube F and the overflow-valve G are attached, arranged at the side of the body opposite to the forcing-valve, substantially as herein shown and described, whereby provision is made for having access to the lifting-tubes, forcing-tubes, and water-chamber, as set forth.

2. In an injector, the combination, with the body A, provided with the chamber *g*, and the waste-valve E, of the lifting-tubes *e f* and the forcing-tubes *h i*, arranged as shown, the supply-pipe F, and the overflow-valve G, substantially as herein shown and described.

ORSON HARVEY WHEELER.

Witnesses:

A. C. DUTTON,  
FRANK H. CLAY.