(No Model.)

E. WOHLERS.

Injectors.

No. 234,157. Patented Nov. 9, 1880.

Fig. 1.

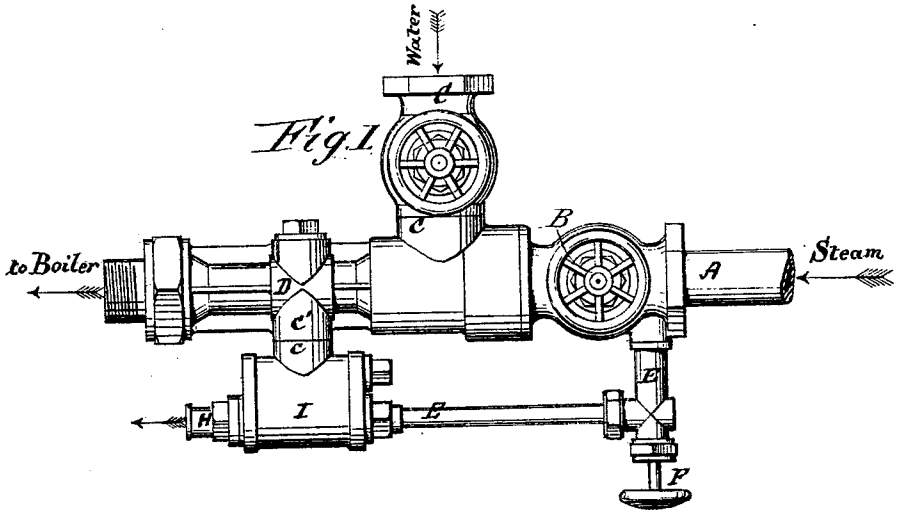


Fig. 2.

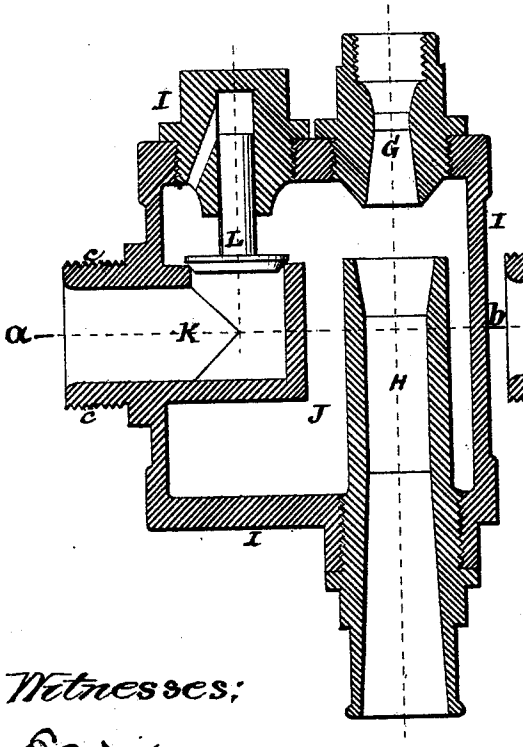
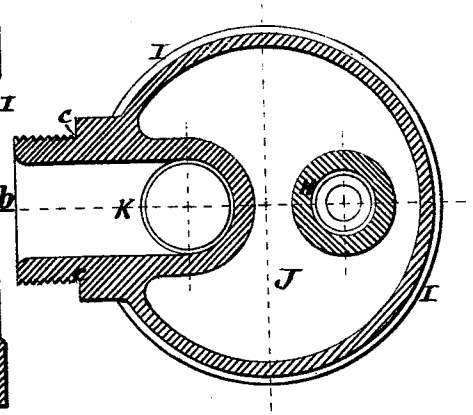


Fig. 3.

Section ab.



Witnesses:
E. A. Sick
J. G. Deaver

Inventor:
Emil Wohlers
by W. Bailey
his attorney

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EMIL WOHLERS, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO NATHAN & DREYFUS, OF SAME PLACE.

INJECTOR.

SPECIFICATION forming part of Letters Patent No. 234,157, dated November 9, 1880.

Application filed September 28, 1880. (No model.)

To all whom it may concern:

Be it known that I, EMIL WOHLERS, of the city, county, and State of New York, have invented certain new and useful Improvements in Injectors for Steam-Boilers, of which the following is a specification.

This invention has relation to the auxiliary lifting-jet or ejector used in connection with an injector for the purpose of starting the latter in its work. An auxiliary device possessing this function is described in Gresham's Patent No. 57,057, dated August 7, 1866, drawing its water-supply through the combining-tube and overflow-chamber of the injector with which it is connected.

The invention consists in the construction and arrangement hereinafter described of the body of an ejector of this kind, whereby the apparatus is simplified and its effectiveness is augmented.

In the drawings accompanying this specification, Figure 1 is a side elevation of an injector embodying the invention. Fig. 2 is a longitudinal central section of that part of the apparatus in which my improvement is more particularly comprised. Fig. 3 is a section on *a b*, Fig. 2.

A is the steam-supply pipe; B, the injector steam-valve; C, the water-supply conduit with its controlling valve or cock; D, the overflow-chamber.

It is not necessary to describe the internal structure of the injector, which is provided with the usual steam-nozzle, combining-tube, and discharge-tube.

The injector shown is the Friedmann injector, well known to those skilled in the art to which this improvement pertains. It will, however, be understood that the invention about to be described is applicable to injectors of other form.

The ejector or auxiliary jet obtains its supply of steam through the conduit E, leading from the steam-supply pipe A, and provided with the auxiliary valve F, by which the supply of steam to the ejector is controlled. The conduit E opens into the ejector steam-nozzle G, from which the steam passes into the draft or discharge tube H, which at its outer end opens into the air, and at its inner end communicates with the overflow-chamber D of the injector.

The operation of the ejector is too well known to require more than brief description.

Valve B being closed and valve F open, the steam discharged from nozzle G into draft-tube H produces a vacuum in the overflow-chamber which causes water to be drawn therein from the water-supply chamber through the combining-tube. After water appears at the draft-tube H the main valve B is opened and the injector begins its work. The valve F is then closed, and the ejector, having performed its duty, ceases to operate.

The body of the ejector is shown at I. It consists of a metallic shell or case, containing in its interior the vacuum-chamber J, and provided with nozzle G at one end, and the draft or discharge tube H at the other. It is also formed or provided on the side adjacent to the injector with a pipe or tube, K, which extends inside of the shell, and has its inner open end closed by the overflow-valve L, which is a puppet-valve having a seat formed for its reception in the inner end of the overflow-pipe K, and provided with a stem which fits in a guide-socket formed for it in the case or shell I. The outer end, *c*, of the overflow-pipe K is adapted to be fastened to the injector, so as to communicate with a corresponding passage opening into the overflow-chamber D. To this end it is externally screw-threaded, as shown, and at the proper point on the injector-shell is a corresponding tubular internally screw-threaded hub or boss, *c'*, opening into the overflow-chamber of the injector, and adapted to receive the end *c* of the overflow-pipe, as shown in Fig. 1. The ejector shell or case I thus has a large interior vacuum-chamber, and contains not only the ejector steam-nozzle and draft or discharge tube, but also the overflow-pipe, which opens communication between the vacuum-chamber and the overflow-chamber of the injector, and the overflow-valve which controls communication between the overflow-pipe and the vacuum-chamber.

The whole device is very effective in operation, contains within itself (when connected with a source of steam-supply) all the elements, including the overflow-valve, necessary to en-

able it to operate in connection with the injector, and can be readily applied to the injector.

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

1. In an auxiliary ejector to be used in connection with an injector, a hollow metallic case or shell whose interior constitutes a vacuum-chamber formed or provided with a steam-nozzle, a draft or discharge tube, an overflow-pipe entering the vacuum-chamber, and adapted to communicate with the overflow-chamber of the injector, and an overflow-valve adapted to control communication between said overflow-pipe and vacuum-chamber, said case or shell being adapted to connect with the injector and the auxiliary steam-supply conduit, substantially as hereinbefore shown and set forth.

2. The ejector shell or case containing within its vacuum-chamber the overflow-pipe which communicates with the overflow-chamber of the injector, and the overflow-valve which controls communication between said overflow-pipe and vacuum-chamber, substantially as hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 25th day of September, 1880.

E. WOHLERS.

Witnesses:

CORNELIUS D. GOULD,

W. H. KAY.