No. 664,456. Patented Dec. 25, 1900.

J. BARRY & M. L. SHAUGHNESSY.

BOILER FEEDER.

(No Model.) (Application filed May 8, 1900.)

FIG. 1.

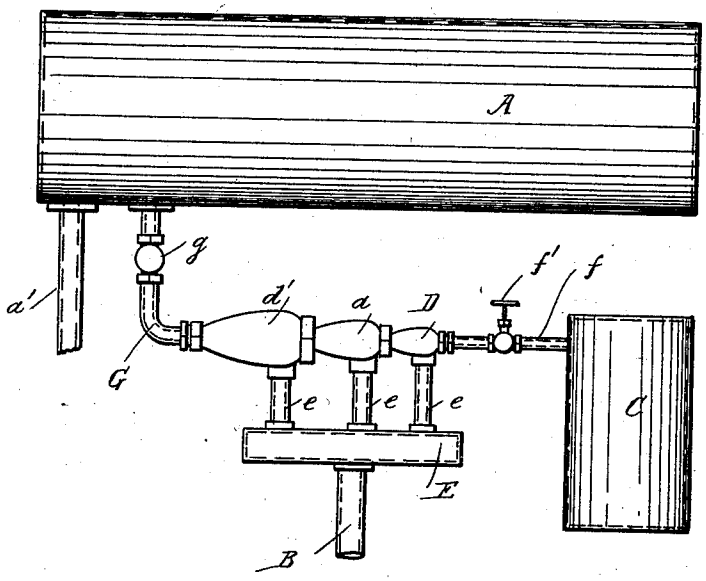
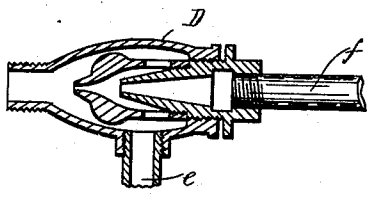


FIG. 2



Witnesses
Walter Allen
E. A. Bates

Inventors
John Barry, and
Micheal L. Shaughnessy
By Attorney Robert W. Jenner.

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

UNITED STATES PATENT OFFICE.

JOHN BARRY AND MICHEAL L. SHAUGHNESSY, OF WESTPHALIA, KANSAS.

BOILER-FEEDER.

SPECIFICATION forming part of Letters Patent No. 664,456, dated December 25, 1900.

Application filed May 8, 1900. Serial No. 15,871. (No model.)

To all whom it may concern:

Be it known that we, JOHN BARRY and MICHEAL L. SHAUGHNESSY, citizens of the United States, residing at Westphalia, in the county of Anderson and State of Kansas, have invented certain new and useful Improvements in Boiler-Feeders; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to boiler-feeders; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a plan view of the feeding devices. Fig. 2 is a longitudinal section through one of the feeding-jets.

A is a portion of a steam-boiler of any approved construction, and a' is a steam-pipe leading from it to an engine or to radiators or to any other devices in which the steam from a boiler is utilized.

B is the exhaust-pipe, which contains the low-pressure steam, water, and vapor of condensation. This pipe proceeds from the said engine or other devices in which the steam has been utilized.

C is a reservoir or receptacle containing a gaseous fluid of greater pressure than the steam in the boiler A. The reservoir C is of any approved construction, and it may contain steam or compressed air or other gaseous fluid. The reservoir C may be an auxiliary boiler in which steam is generated of a higher pressure than that in the boiler A by heat or by other means, or it may be filled with a gaseous fluid of high pressure by compression-pumps or other engines of approved construction.

D d d' are jets of the kind known as "injectors" and sometimes called "ejectors." These injector-jets are of similar construction and are arranged in a series, the first injector-jet D being the smallest and the jets d d' increasing in size step by step. Each injector-jet is provided with a feed-supply pipe e, and E is a manifold, to which all the pipes e are connected and to which the exhaust-pipe B also is connected.

The reservoir C is connected to the first injector-jet D by an inlet-pipe f.

G is a delivery-pipe which connects the largest injector-jet d' with the boiler, and g is a check-valve in the said delivery-pipe.

The delivery-passage of each injector-jet is connected to the inlet-passage of the injector-jet next following it in the series.

The various passages of the injector-jets are proportioned specially with reference to the work to be accomplished in them.

The inlet-pipe f is provided with a valve f' of approved construction for regulating the passage of gaseous fluid through it.

When the valve f' is opened, the high-pressure gaseous fluid or steam in the reservoir rushes through the series of jets D d d', ejects the water and exhaust-steam from the exhaust-pipe, and injects it into the boiler A.

The exhaust-steam is reheated in the boiler, and the heat necessary to convert it from boiling water into steam and which becomes latent is saved. In this manner a great economy of fuel is effected over the old plan of first condensing the exhaust-steam and then forcing it back into the boiler in the form of water.

What we claim is—

1. The combination, with a boiler, of a reservoir for gaseous fluid of greater pressure than the fluid in the said boiler, a series of injectors of increasing size the smallest having its inlet connected with the said reservoir and the largest having its outlet connected with the said boiler, and an exhaust-pipe for low-pressure and exhaust steam provided with branches which connect it with each of the said injectors, substantially as set forth.

2. The combination, with a boiler, of a reservoir for gaseous fluid of greater pressure than the fluid in the said boiler, a series of injectors of increasing size the smallest having its inlet connected with the said reservoir and the largest having its outlet connected with the said boiler, a manifold provided with branch pipes connected to all the said injectors, and an exhaust-pipe for low-pressure and condensed steam connected with the said manifold, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN BARRY.
MICHEAL L. SHAUGHNESSY.

Witnesses:
THOS. M. SHAUGHNESSY,
GEORGE F. SHAUGHNESSY.