

(No Model.)

F. X. FISCHER.
BOILER.

No. 480,081.

Patented Aug. 2, 1892.

Fig. 1.

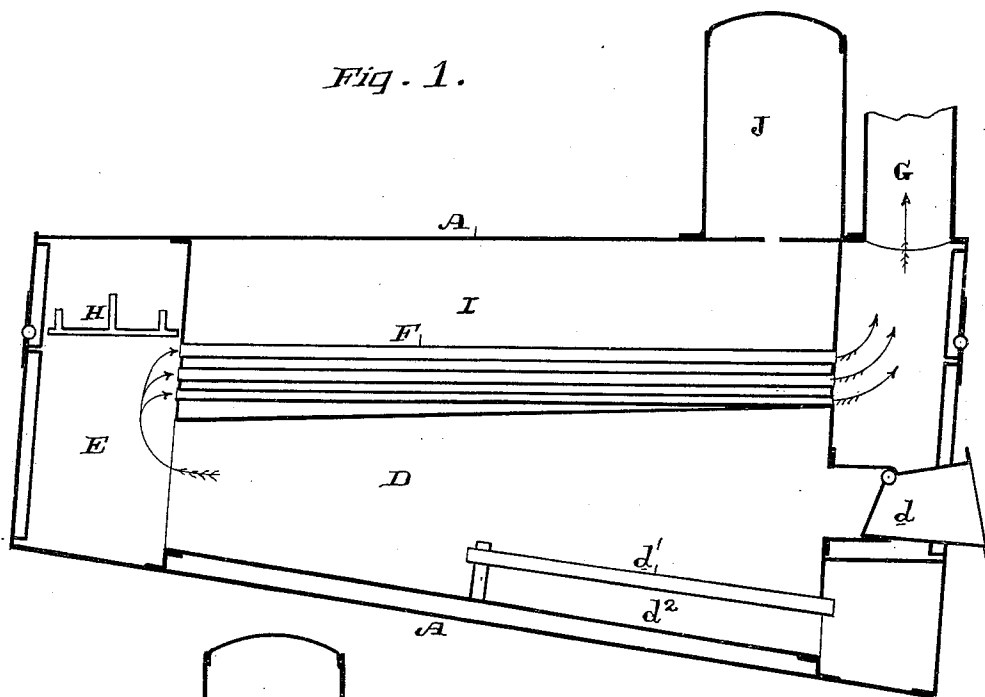


Fig. 2.

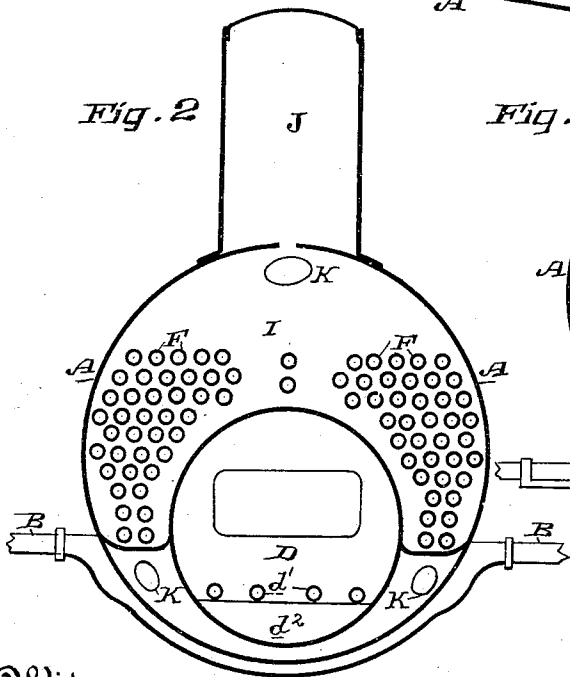
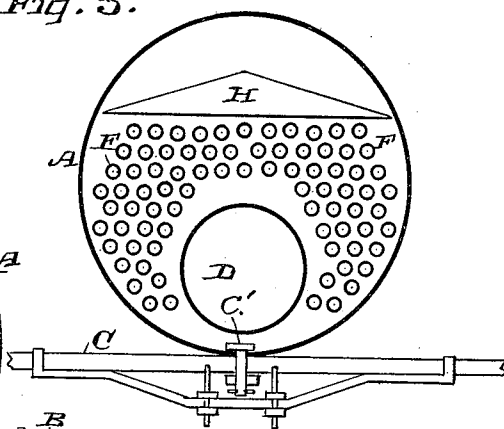


Fig. 3.



Witnesses,
Geo H. Strong
J. H. Morse

Inventor,
Frank X. Fischer
By Dewey & Co
attys

UNITED STATES PATENT OFFICE.

FRANK X. FISCHER, OF OAKLAND, CALIFORNIA.

BOILER.

SPECIFICATION forming part of Letters Patent No. 480,081, dated August 2, 1892.

Application filed March 6, 1889. Serial No. 302,152. (No model.)

To all whom it may concern:

Be it known that I, FRANK X. FISCHER, of Oakland, Alameda county, State of California, have invented an Improvement in Boilers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of boilers, and particularly to the class of portable boilers; and my invention consists in the construction and combination of devices which I shall hereinafter fully describe and specifically claim.

The object of my invention is to provide an economical and effective boiler, more particularly a portable boiler, of that type known as "return-flue" boilers, and which are specially adapted for burning straw, and are consequently most used in the harvest-field either for a traction or a thrashing engine, a harvester, or other movable implements.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a vertical longitudinal section of my boiler. Fig. 2 is a cross-section taken at its larger or front end and showing it mounted on a rear axle. Fig. 3 is a cross-section taken at its smaller or rear end and showing it mounted on a forward axle.

A is the shell of the boiler. This is made tapering, as shown in Fig. 1, from its front to its rear end. The larger or front end of the boiler is mounted upon an axle B, which is the rear axle of a wheeled frame, unnecessary herein to show, said rear axle having its middle portion curved to form a secure seat corresponding with the curvature of the shell. The smaller or rear end of the boiler is mounted upon an axle C, which is the forward axle of said wheeled frame and which is pivotally held to the shell by a headed bolt C', as shown. The first advantage of this construction and mounting of the shell of the boiler is that by having a small end supported on the forward axle this axle need not be made unduly long, but can be made short, so as to provide a suitably narrow gage of carrying-frame, and yet perform its functions of turning without being impeded, as would be the case if the boiler were as large at that end as at the other, and by having it tapering I preserve a

larger diameter at the fuel or furnace end of the boiler, which, being mounted on the rear axle of the carrying-frame, can be as large as is necessary for the effective feed and combustion of the fuel.

D is the main or direct flue of the boiler. With its forward end communicates the feed-passage *d*, and within its base at its forward end are the grate-bars *d'*, under which is the ash-pit *d''*. The rear end of the main flue communicates with the combustion-chamber E, with which also communicates the rear ends of the forwardly-extending return-tube flues F, the forward ends of which open into the stack G.

H is the bridge-plate in the combustion-chamber.

I is the water-space around the flues, and J is the steam-dome.

It will be seen by reference to Fig. 1 that the main flue D is made tapering from its front to its rear end. The advantages of this construction are improved draft, greater strength, preserving a required diameter for the fuel-feed at its forward end, and conforming better to the shape of the shell, the tapering form of which has, therefore, the second advantage of providing in the best manner for the tapering main flue D. The shape of this flue and its low position in the shell also have the advantage of not rendering it liable to be exposed above the water during the transportation of the boiler or when stationary or moving on uneven ground; and further I am enabled to insert a greater number of return-tube flues above the main or direct flue.

The base or foot of the water-space at the front end of the boiler is sufficiently large to permit the placing of hand-holes K, conveniently located at each side. The tapering shape of the shell, providing a downward incline to the front end, causes the mud to settle down to a larger space at the front, from which it can readily and conveniently be removed through the hand-holes.

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

The combination, with a boiler having one end smaller than the other, of a wheeled

frame having a rear axle provided with a
curved seat at its middle portion, adapted to
receive the larger end of the boiler, and a front
axle supporting the smaller front end of said
5 boiler and pivotally secured thereto, so that
it may turn about its pivot without imped-
iment, substantially as herein described.

In witness whereof I have hereunto set my
hand.

FRANK X. FISCHER.

Witnesses:

KIRK KIMMEY,
J. H. BLOOD.