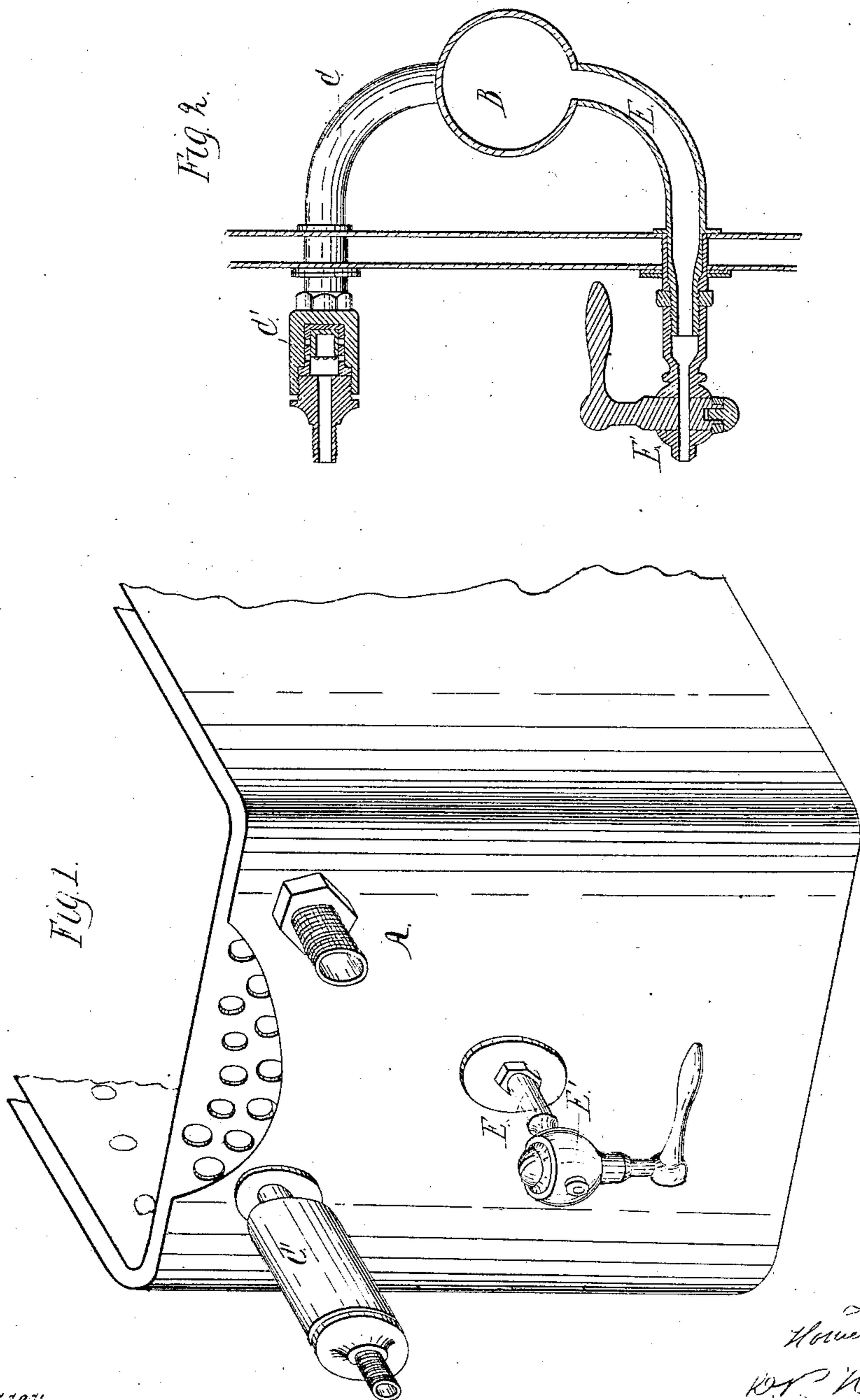


Fish & Hartman, Steam-Boiler Water-Heater.

N^o 61,181.

Patented Jan. 15, 1867.



Witnesses:
C. B. Smith
R. M. Smith

Inventor:
John R. Fish
Homer to Hartman
by
W. C. Woodrow & Son
Attorneys

United States Patent Office.

JOHN R. FISH AND HOMER C. HARTMAN, OF FORT WAYNE, INDIANA.

Letters Patent No. 61,181, dated January 15, 1867.

IMPROVEMENT IN STEAM GENERATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, JOHN R. FISH and HOMER C. HARTMAN, of Fort Wayne, in the county of Allen, and State of Indiana, have invented a new and useful Improvement in Heaters for Steam Boilers; and we do hereby declare that the following is a full, clear, and exact description of the construction of the same, reference being had to the annexed drawings making a part of this specification, in which—

Figure 1 is a perspective view.

Figure 2, a transverse section of the heater and a longitudinal section of the check-valve and pipe and the blow-off pipe.

The same letters are employed in referring to the same parts in the different figures.

A is part of the fire-box and part of the flue-sheet of a locomotive or other boiler. B is the heater and steam generator, which is a hollow vessel of any form most convenient, and placed in the fire-box or furnace in such manner as to be heated by the direct action of the fire before the heat passes through the flues of the boiler. The heater B is supplied by the pump forcing the water through the pipe C and check-valve C'. The water is at the same time forced from the opposite end of the heater into the boiler through the supply pipe D. E is a blow-off pipe attached to the heater and closed by a cock, E'; this is used for cleansing the heater.

What we claim as our invention, and seek to secure by Letters Patent, is not broadly for a heater placed in the fire and connected with the boiler, for we are aware that heaters have been applied to ordinary boilers, such heater being placed in the fire-chamber of the furnace; but such heaters are not, as constructed, applicable to tubular or fluid boilers having a fire-box; and therefore we claim herein—

1. The heater B when placed inside the fire-box of a tubular or flue boiler in such manner as to be exposed to the direct action of the fire, before the heat passes through the flues of the boiler, in combination with the pipe C and check-valve C' and pipe D, arranged substantially as set forth.

2. In combination with the heater B, we claim the blow-off pipe E, arranged substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN R. FISH,
HOMER C. HARTMAN.

Witnesses:

HENRY H. BOSSLER,
JAMES E. GRAHAM.