

(No Model.)

C. WILLIAMS.

STEAM BOILER.

No. 313,566.

Patented Mar. 10, 1885.

Fig. 1.

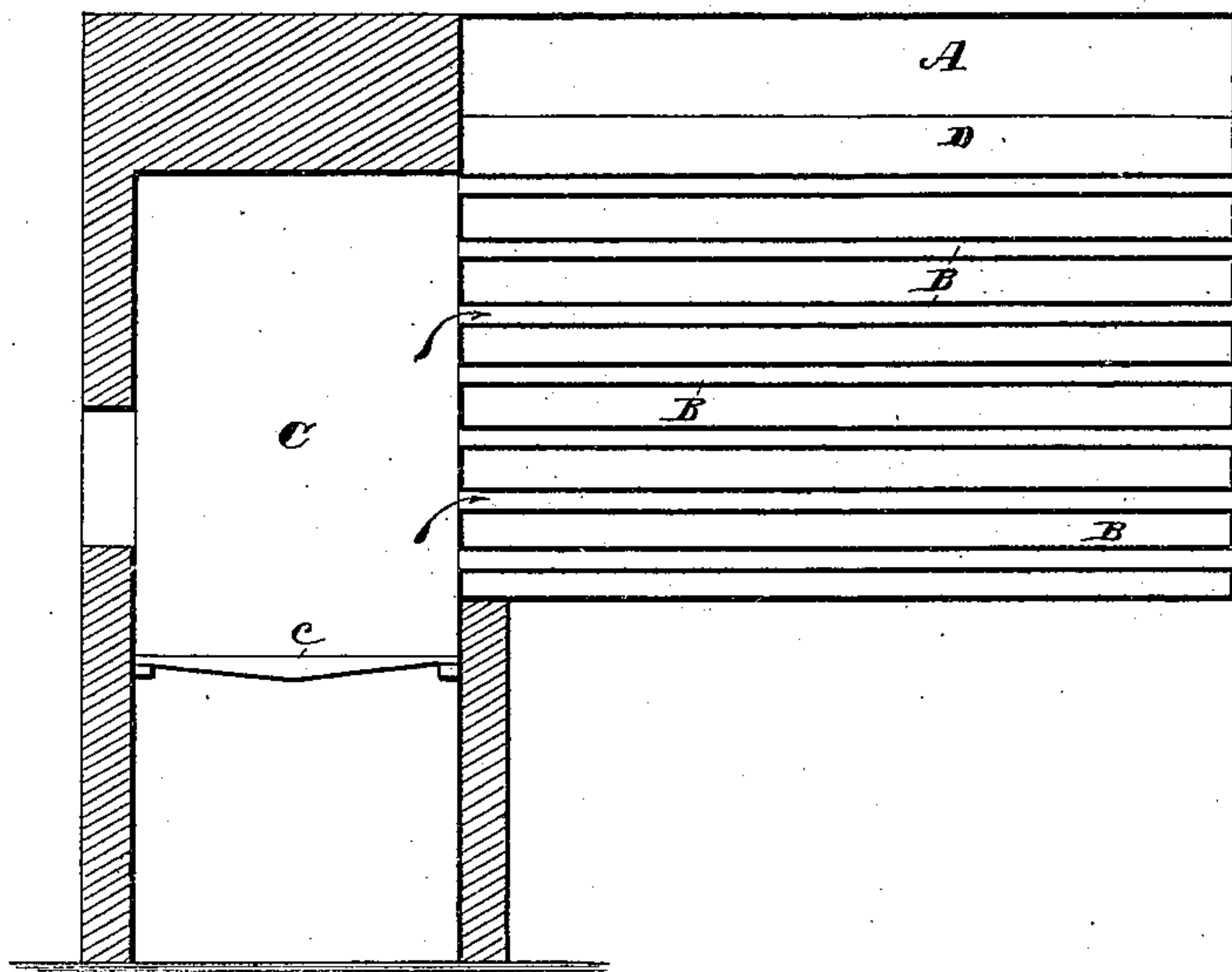
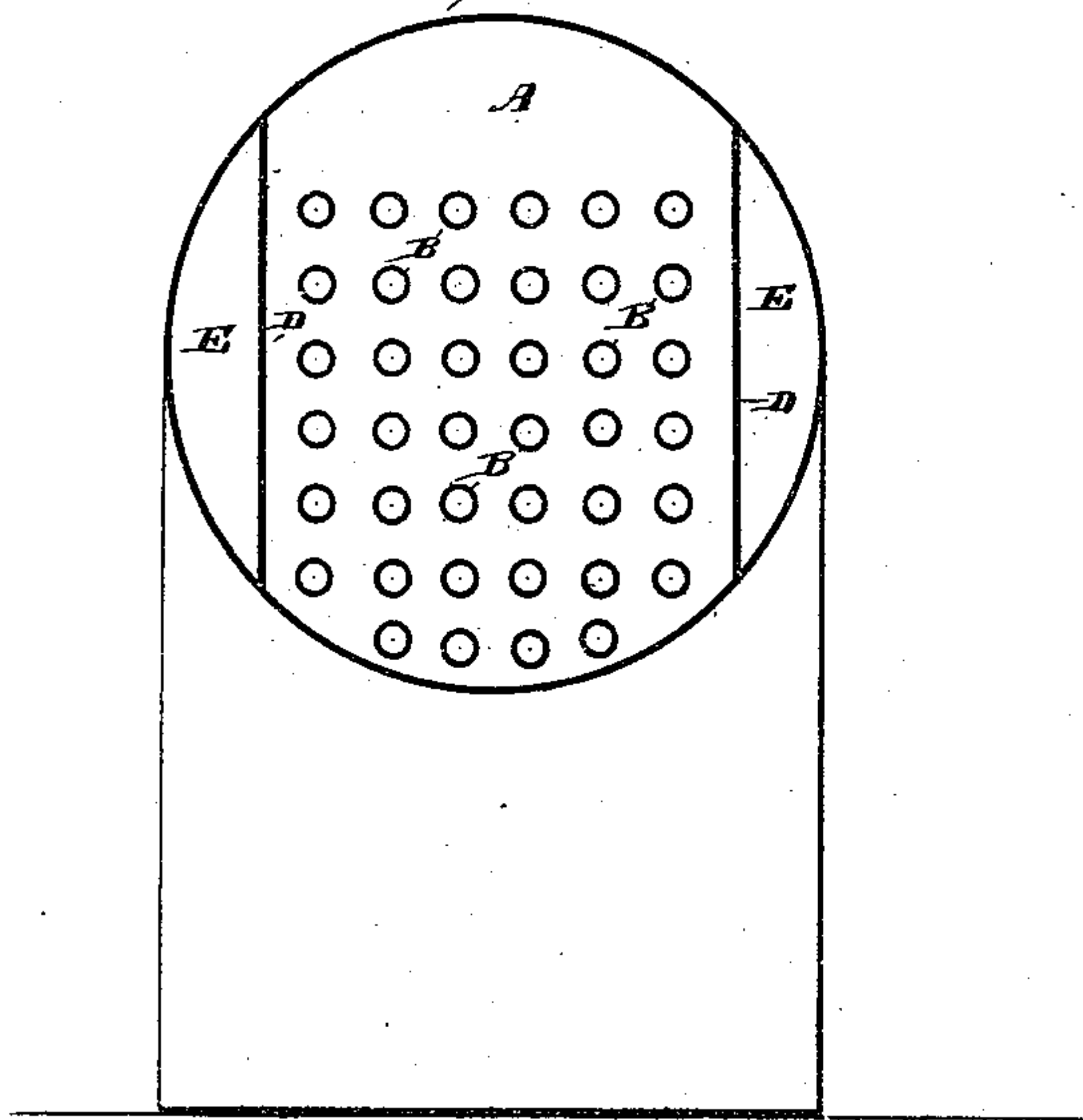


Fig. 2.



WITNESSES

Geo. F. Downing  
S. G. Nottingham

INVENTOR

C. Williams.  
B. H. Sumner.  
ATTORNEY

# UNITED STATES PATENT OFFICE.

CHRISTOPHER WILLIAMS, OF ADRIAN, MICHIGAN.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 313,566, dated March 10, 1885.

Application filed October 15, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, CHRISTOPHER WILLIAMS, of the city of Adrian, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Steam-Boilers; and I 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.

My invention relates to an improvement in steam-boilers, the object of the same being to provide a boiler of the locomotive or similar type in which steam may be generated more rapidly than in the forms heretofore in common use; and with this end in view my invention consists in a tubular or central-flue boiler provided with walls which shut off a portion of the water-space farthest from the fire-flues, thereby forcing the water into more immediate contact with the heat and at the same time forming air-chambers along the sides or sides and top of boiler which serve as non-conductors of heat.

My invention further consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section through the center of the boiler, and Fig. 2 is a transverse section of the same.

A represents a locomotive-boiler provided with fire-flues B, extending from the fire-box centrally through the boiler to the take-up. C is the fire-box provided with the grate c. The construction of the boiler-shell, flues, fire-box, and grate is the same as is found in ordinary use; but instead of the fire-flues B occupying the form of a cylindrical group conforming to the shape of the boiler-shell they may be arranged above and in front of the hottest portion of the fire in a group more

nearly rectangular in cross-section, as shown in Fig. 2, and the sides of the boiler or sides and top are provided with walls D, which extend along the length of the boiler from the fire-box to the take-up near the group of flues and cut-off portions of the boiler, forming air-chambers E between the shell of the boiler and the walls. The water is thus forced into more immediate contact with the hot-flues, and the steam is more rapidly generated thereby. At the same time the air-chambers serve as non-conductors of heat and prevent cooling from the outside temperature, thus forming a boiler adapted to economize fuel.

The walls D may be constructed of any suitable material, and may be solid or hollow, as found most convenient.

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

1. The combination, with a boiler-shell and a fire-flue located within the same, of a partition-wall located between the flue and shell and forming with the shell an air-chamber, substantially as set forth.

2. The combination, with a boiler-shell and a group of fire-flues located therein, of partition-walls located between the group of flues and the shell and forming with the shell air-chambers, substantially as set forth.

3. The combination, with a boiler-shell and a group of fire-flues located therein, of two partition-walls, one located on each side of the group of flues between the flues and shell, forming with the shell air-chambers, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHRISTOPHER WILLIAMS.

Witnesses:

ORSAMUS LAMB,  
ALONZO CLARK.