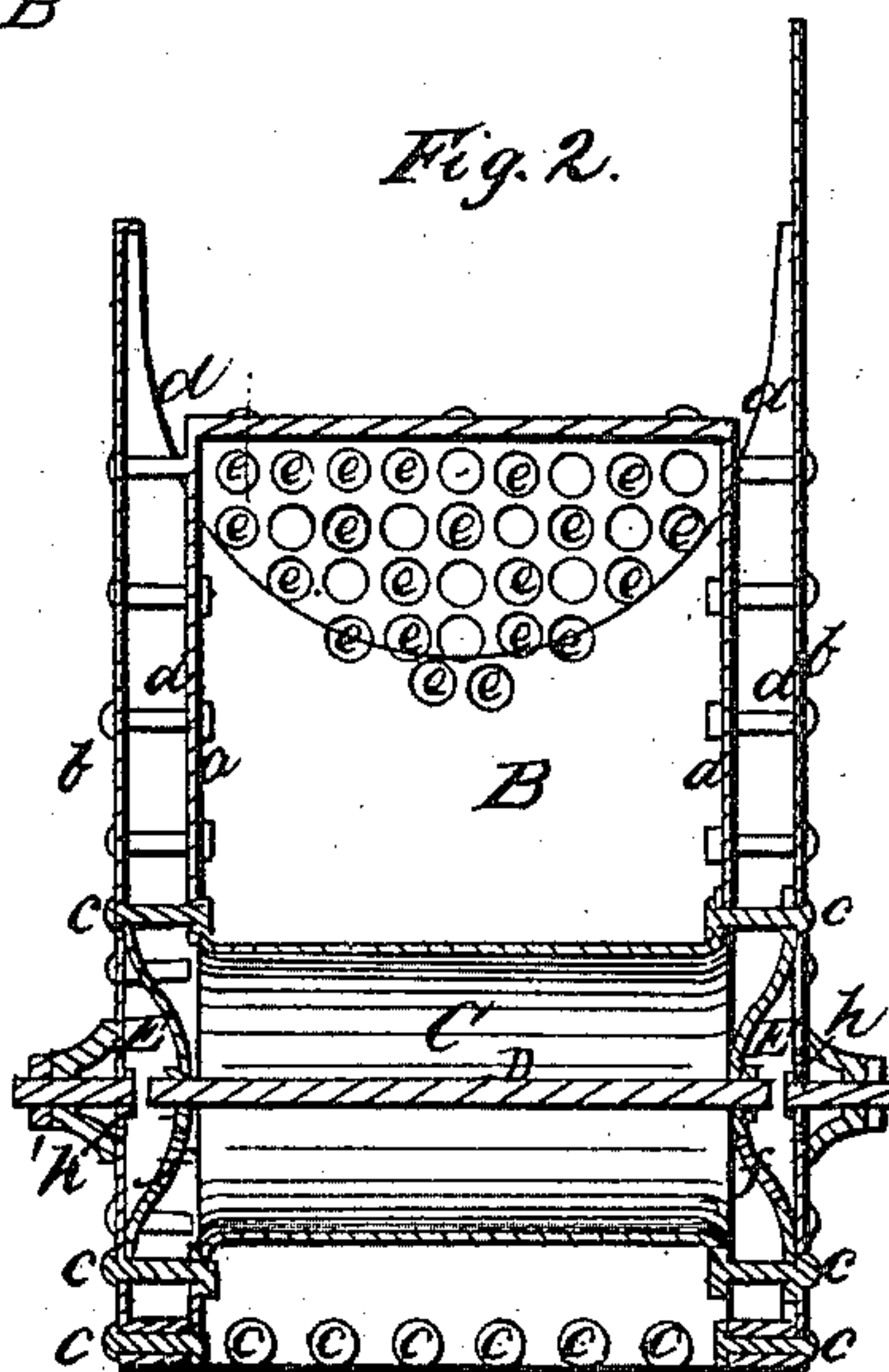
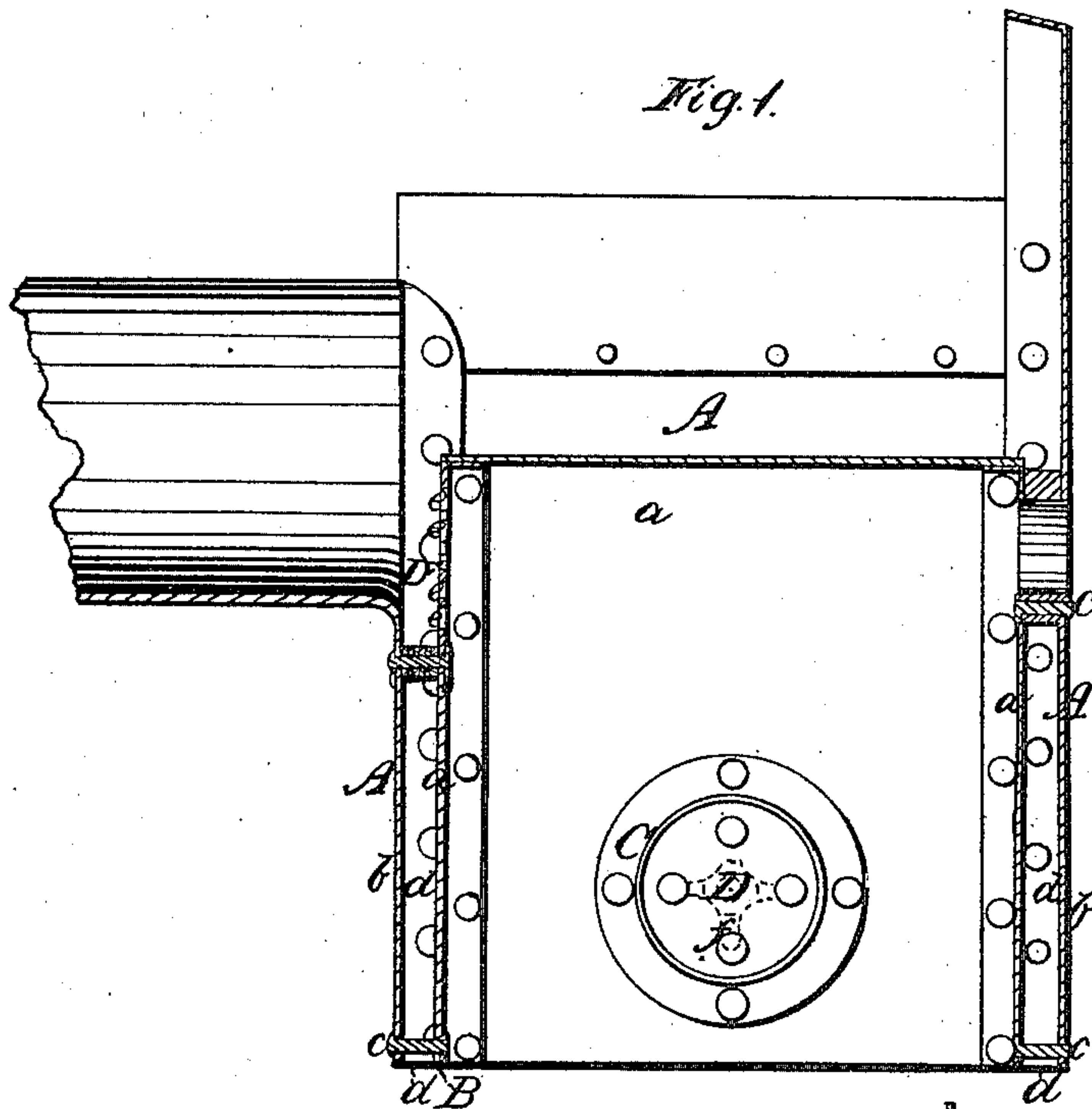


R. GAY.

Fire Box.

No. 97,387.

Patented Nov. 30, 1869.



Witnesses.

John A. Ellis  
James V. White

Inventor.  
Redman Gay  
Per  
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Atty

# United States Patent Office.

REDMAN GAY, OF RICHMOND, VIRGINIA.

Letters Patent No. 97,387, dated November 30, 1869.

## IMPROVEMENT IN FIRE-BOXES.

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

To all whom it may concern:

Be it known that I, REDMAN GAY, of Richmond, in the county of Henrico, and State of Virginia, have invented certain new and useful Improvements in Fire-Boxes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and addition of a pipe within and across the fire-box, for a locomotive-boiler, thereby diminishing the wood-space, and adding to the quantity of water exposed to the fire.

It has been found that the common fire-box of a locomotive has too large a wood-space for the usual quantity of water exposed to the fire. This cross-section, which I have added to the fire-box, increases the volume of water in the same proportion as it diminishes the wood-space, thus enabling the engineer to generate or produce more steam with less fuel than has hitherto been practicable.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a longitudinal vertical section, and

Figure 2, a transverse vertical section of a fire-box, with my improvement added to the same.

A represents the usual fire-box, having an inside sheet, *a*, and outside sheet, *b*, connected by stay-bolts *c c*, and having the water-space *d* between them.

B is the usual flue-sheet, having tubes *e e*.

Across the fire-box A is placed a pipe, C, the ends of which are flanged and secured to the inside sheet *a*, which is cut out so as to connect the water-space *d* with the pipe C, and allow the water to enter the same.

Through the centre of the pipe C is passed a stay-rod, D, secured at each end to a conical plate, E, which is riveted and bolted on the inside of the outside sheet *b* of the fire-box, and has a slot, *f*, to allow of the pipe C being cleaned out.

Opposite the slots *f f*, in the conical plates E E, are holes or openings in the outside sheet *b*, which are closed by hand-hole plates *h h*, fastened in any suitable manner, so as to be readily removed to clean the pipe.

It will readily be seen that by this means a larger heating-surface is obtained without increasing the size of the fire-box. On the contrary, the wood-space is lessened, and consequently it will take less fuel to produce more steam than heretofore.

This improvement will be particularly useful to railroad companies, and, in fact, to all who use locomotive-boilers.

It is simple, and does not impair the strength of the fire-box, nor the draught of the fire, as most of similar improvements do.

It can be easily cleaned, and is as durable as any other part of the furnace.

Having thus fully described my invention,

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

In combination with the flanged pipe C, secured, as described, to the inner sheet of the fire-box A, the stay-rod D, conical plates E E, provided with slots *f*, and the hand-hole plates *h h*, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own, I hereby affix my signature, in presence of two witnesses.

REDMAN GAY.

Witnesses:

C. ALEXANDER,  
J. V. WHITE.