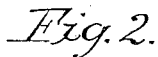


J. T. McLELLAN.  
LOCOMOTIVE BOILER.

Patented Mar. 7, 1893.



J. J. Jenson.  
C. J. Hawley.

John T. Mc. Lellan.

By Paul O. Merwin atty. in ch.

# UNITED STATES PATENT OFFICE.

JOHN T. McLELLAN, OF TRURO, CANADA, ASSIGNOR OF ONE-HALF TO  
HORACE W. CHALFANT, OF MINNEAPOLIS, MINNESOTA.

## LOCOMOTIVE-BOILER.

SPECIFICATION forming part of Letters Patent No. 493,232, dated March 7, 1893.

Application filed February 15, 1892. Serial No. 421,571. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN T. McLELLAN, of Truro, in the county of Colchester, Province of Nova Scotia, Canada, have invented certain  
5 Improvements in Locomotive-Boilers, of which the following is a specification.

My invention relates to means for obtaining from a given quantity of fuel a greater amount of energy than can be developed in  
10 the ordinary boiler and its object is to materially increase the heating surface of the boiler.

To this end my invention consists in the combination with the boiler shell, of the crown  
15 plate, the flues, the fire-box, the grate, and an intermediate water leg or partition depending from the top of the fire box and having openings in its top, front and rear walls for the inlet and egress of water and steam; and  
20 in various constructions and combinations hereinafter described and particularly pointed out in the claim.

My invention will be more readily understood by reference to the accompanying drawings, in which:—

Figure 1 is a side elevation of a boiler embodying my invention, the fire-box of the same being shown in vertical section, the section being taken through my auxiliary or middle water leg. Fig. 2 is a front elevation partly in section on the line  $y-y$  of Fig. 1. Fig. 3 is a transverse section on the line  $x-x$  of Fig. 1.

As shown in the drawings, 2 represents the boiler-shell, 3 the flue sheet and 4 the flues extending forward into the shell. 8 represents the crown sheet, and 8' the sides of the fire-box.

6 represents the rear plate or wall of the  
40 fire-box. The grate 5 is of any ordinary construction. The usual water legs are formed between the fire-box walls and the boiler shell. The two doors 17, 17 are hung upon a single pin or hinge 19 and have the usual fastening  
45 latches. The door casings 18 extend through both the end of the shell and the plate 6 into the fire-box. Midway between the sides of the fire-box and extending longitudinally be-

tween the plates 3 and 6 I arrange the hollow partition made up by the doubled plate 11  
50 having its upper edges secured to the under side of the crown plate. The flared edges 16 of this plate 11 are secured upon the plate 6. The forward portion of the hollow partition is riveted to the lower part only of the plate  
55 3, the edges 16 thereof being firmly riveted upon said plate. The upper part of this portion of the plate 11 is cut back in front of the flues, the chamber 12 between the plates being closed at this point by the transverse  
60 plate 13. Thus a clear space 15 is left in front of the flues for the free use of the tube expander from the two sides of the fire-box. A continuous space is left, between the grate  
65 and the lower edge of the doubled plate 11 to allow the removal or rocking of the grate. The water enters the chamber or leg 12 through a large number of openings 14 arranged in the plates 3, 8 and 6 respectively and communicating with the chamber 12. For clearing  
70 out this intermediate or auxiliary leg I provide the opening 20 leading from the lower corner of the leg 12 and extending through the rear of the boiler shell, the opening being closed by the removable plug 21. It will be  
75 seen that by removing the plug the water may be drawn off from the leg to flush and clean out all of the sediment which may have accumulated therein. By this means I subject a considerable body of water to the most direct  
80 and the greatest heat obtainable from the fuel in the fire box, while at the same time adding but little to the cost of the construction of the boiler. In addition to this advantage  
85 is that of dividing the cold drafts of air entering through the doors, so that only one half of the boiler is cooled when the door is opened, the other half retaining its full heat. As a result I save the pressure of steam in the boiler and keep the same practically constant.  
90 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with the crown-plate, of the sides thereof, the boiler-shell surrounding  
95 the same, the grate, water legs being formed

at the sides of the crown plate and the shell  
and extending down to the grate, the flue-  
sheet and the flues, the intermediate water  
leg terminating above the grate and formed  
5 of a separate plate, the transverse part 13  
thereof, an opening 15 being formed between  
said plate and the flue-sheet, and perforations  
14 in the crown-plate and in the end wall or

flue-sheet of the fire-box, substantially as de-  
scribed.

In testimony whereof I have hereunto set  
my hand this 10th day of February, 1892.

JOHN T. MCLELLAN.

In presence of—

F. S. LYON,

C. G. HAWLEY.