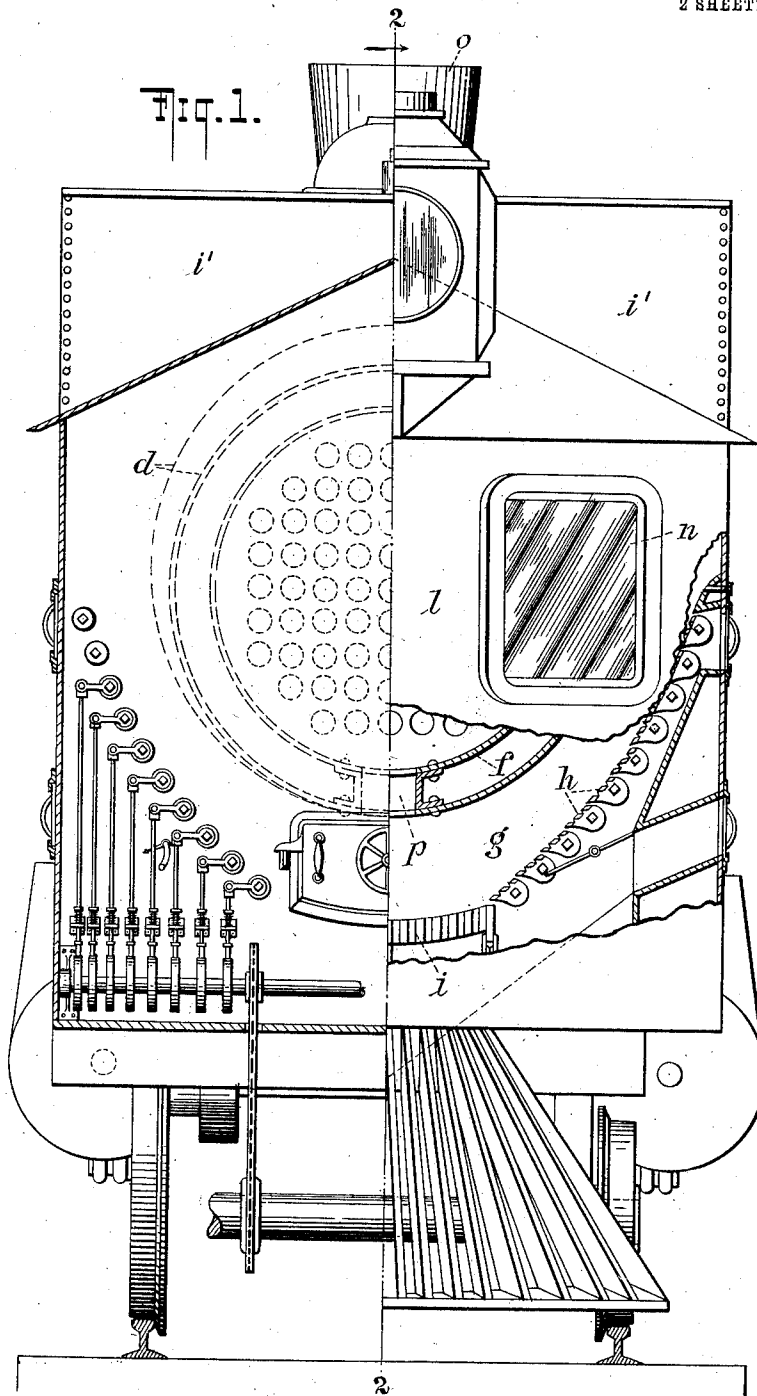


1,044,199.

T. F. F. LEE.
LOCOMOTIVE.
APPLICATION FILED APR. 2, 1909.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.



Witnesses:
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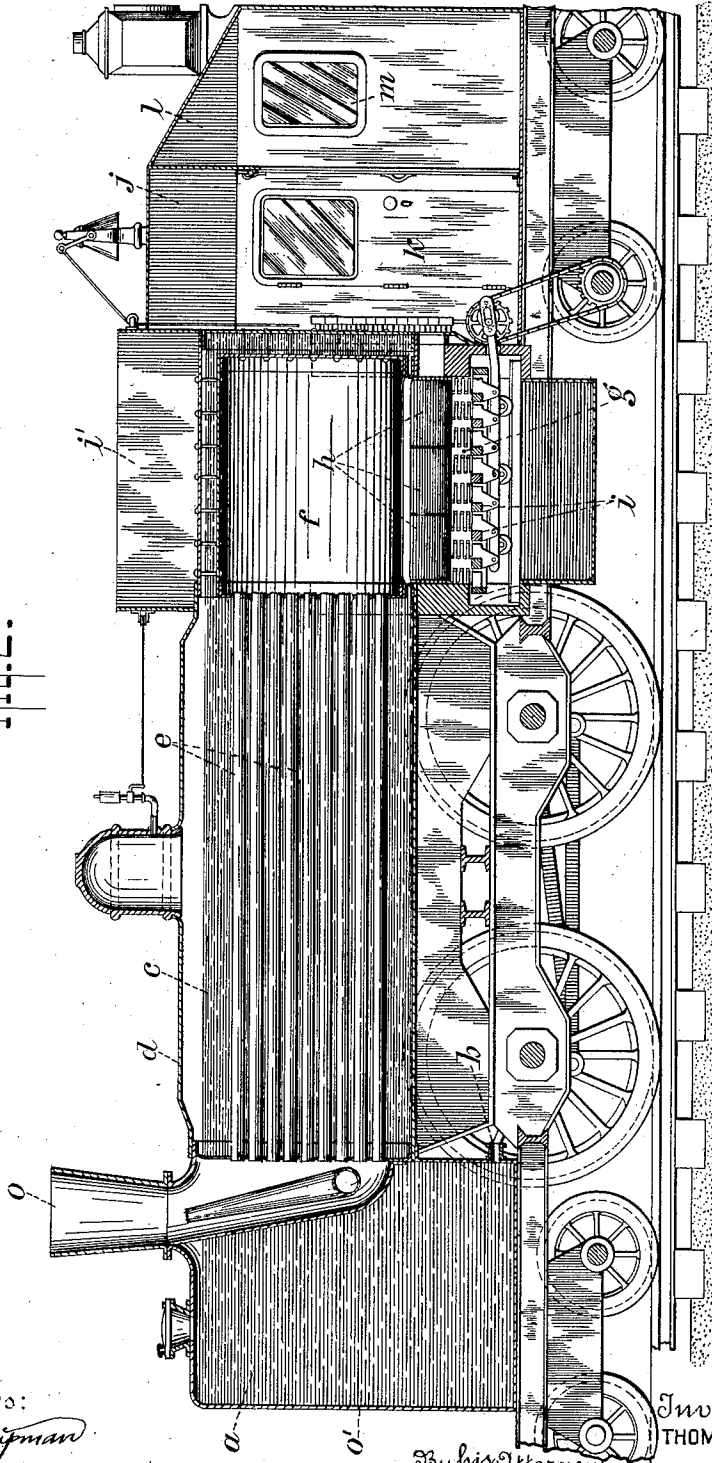
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2 SHEETS—SHEET 2.

FIG. 2.



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LOCOMOTIVE.

1,044,199.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed April 2, 1909. Serial No. 487,516.

To all whom it may concern:

Be it known that I, THOMAS F. F. LEE, a citizen of the United States, and residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Locomotives, of which the following is a specification.

This invention relates to the construction of steam locomotives and has for its object to combine with the locomotive structure proper the water tender and coal receptacle therefor and to provide for the disposition of the engineer's and fireman's cabs in proximity to one another at the extreme front of the locomotive so that there shall be no obstruction of the view because of any intervening portion of the locomotive structure.

A further important object of my invention is to locate the fire-box and fuel receptacle toward the front of the structure so that the fireman may attend thereto without leaving the forward end of the locomotive.

In the accompanying drawings Figure 1 is a front elevation of my improvement partly in section and Fig. 2 is a sectional view of Fig. 1 taken on line 2—2 thereof.

In practising my invention I provide a water tank *a* which forms a part of the locomotive structure at the rear of the locomotive boiler. This water tank by means of a pipe *b* has communication with the boiler *c* formed of the usual boiler shell *d* containing flues *e* which are surrounded by water, suitable pumping mechanism being provided for pumping water into the boiler such mechanism having been omitted for the sake of clearness. This boiler shell is forward of the water tank *a*. To the front of the flues *e* I provide a heat chamber *f* which communicates with said flues *e* and which is formed within the boiler shell and has communication at its lowermost periphery with the combustion chamber *g* by means of an opening in the wall of said heat chamber *f*, the combustion chamber comprising rocking side and bottom grates *h* and *i* respectively. The arrangement of these grates is fully described in my pending application Serial No. 485,223, filed March 23d, 1909. This heat chamber *f* is surrounded by inclined coal pockets rising upwardly from the bottom grate and obtaining their supply of fuel from a coal bin *i'* leading thereto.

This construction likewise is explained and set forth in my pending application Serial No. 440,727, filed June 27, 1908.

Adjacent to the forward end of the boiler is located the fireman's cab *j* through which access may be had by suitable doors *k* at either side of the locomotive. Forward of the fireman's cab and communicating therewith by sliding doors, the engineer's cab *l* is located which preferably forms the foremost portion of the locomotive and which may have side and front windows *m* and *n* respectively. The flues *e* as indicated in the drawings lead from the heat chamber *f* rearwardly to an outlet stack *o* which outlet stack is in part surrounded by water contained in the water tank *a*.

The operation of my device as shown in the drawings is as follows: The coal receptacle *i* will feed the fuel down upon the side grates *h* and bottom grates *i*. When this fuel has been properly ignited, the products of combustion generated therefrom will pass upwardly into the inner heat chamber *f* through the opening *p* and thence through the flues *e* to the outlet stack *o*. These heated gases in passing to the outlet stack communicate much of the escaping heat to shell *o'* of the outlet stack which is surrounded by the water in the tank *a* whereby the water in this tank will be subjected to a preliminary heating before being passed into the boiler shell containing the flues.

By my improved construction the water tank, the coal receptacle, the fireman's and the engineer's cabs are combined in one structure with the great desideratum that both the engineer's and the fireman's cabs shall be at the forwardmost portion of the locomotive and adjacent to one another, and whereby the fire-box and fuel receptacle shall be located immediately to the rear of the fireman's cab. By this means it is not necessary that the fireman shall absent himself from the forward cab in order to attend to his stoker duties.

I claim as my invention.

1. In a locomotive the combination of a cab located at the forward end of the locomotive, a combustion chamber and fuel receptacle located to the rear of said cabs, a boiler adjacent to the combustion chamber, walls forming an inner chamber within the boiler shell, said walls having an opening leading

from the combustion chamber to said inner chamber, an outlet stack, flues disposed within the boiler shell communicating with said outlet stack and a water tank adjacent to said outlet stack.

2. In a locomotive the combination of a cab located at the forward end of the locomotive, a combustion chamber and fuel receptacle located to the rear of said cab, a boiler adjacent to the combustion chamber, an outlet stack, flues disposed within the boiler shell communicating with said outlet stack and a water tank adjacent to said outlet stack.

3. A locomotive having a cab at the front end thereof, a water tank at the opposite end thereof, a boiler and a fuel receptacle both located intermediate of the cab and the tank.

4. In a locomotive the combination of a cab located at the forward end of the locomotive; a combustion chamber and fuel receptacle located at the rear of said cab, a boiler adjacent to the combustion chamber, flues disposed within the boiler shell, a water tank rearwardly of the boiler, and an outlet flue having communication with said boiler flues and extending through said water tank.

5. In a locomotive the combination of a combustion chamber, a flue boiler, a cab and a water tank located respectively at opposite ends of said boiler and combustion chamber, and an outlet flue disposed within the water tank and having communication with the flues within the boiler whereby the gases re-

ceived through the boiler flues will be conducted to heat the contents of said tank.

6. In a locomotive, the combination of a flue boiler, a combustion chamber and fuel receptacle circumferentially surrounding said boiler for a portion of its length, a cab located forward of said boiler and combustion chamber, a water tank rearwardly of said boiler and combustion chamber, and an outlet flue communicating with the boiler flues and extending adjacent said tank for a portion of its length.

7. In a locomotive the combination of a flue boiler, a combustion chamber and fuel receptacle circumferentially embracing said boiler for a portion of its length, a water tank rearwardly of said boiler and combustion chamber and an outlet flue communicating with the boiler flues and extending through a portion of said tank.

8. In a locomotive, the combination of a flue boiler, a combustion chamber at one end of said boiler, a fuel receptacle above and connected with said combustion chamber, a water tank at the other end of said boiler, and an outlet flue within said tank and communicating with said combustion chamber through said boiler flues.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

THOMAS F. F. LEE. [L. s.]

Witnesses:

EUGENE EBLE,

EDWARD HARTUNG.