

J. FOURNIA.
 MEANS FOR CONTROLLING THE DRAFT OF LOCOMOTIVE FURNACES.
 APPLICATION FILED MAR. 28, 1908.

992,123.

Patented May 9, 1911.

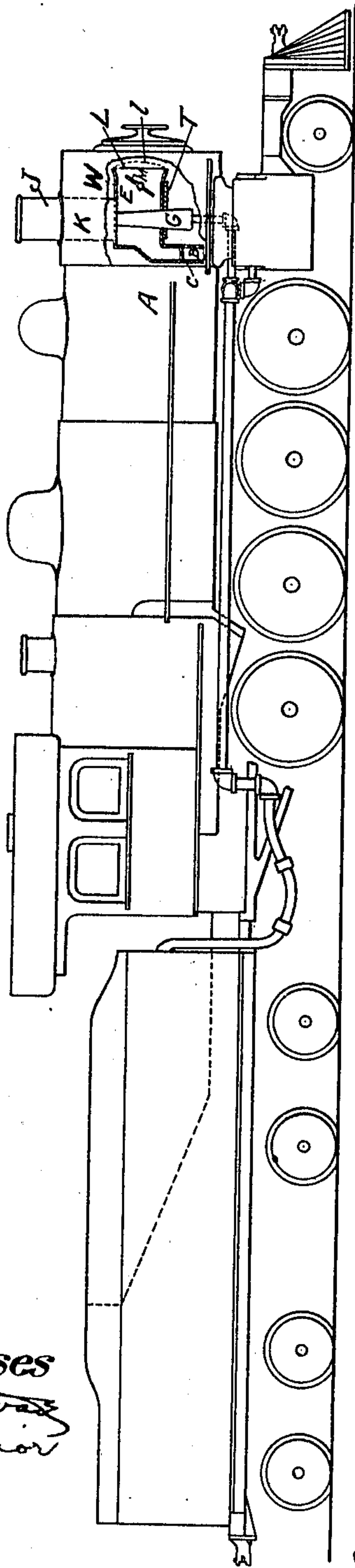


Fig. 1.

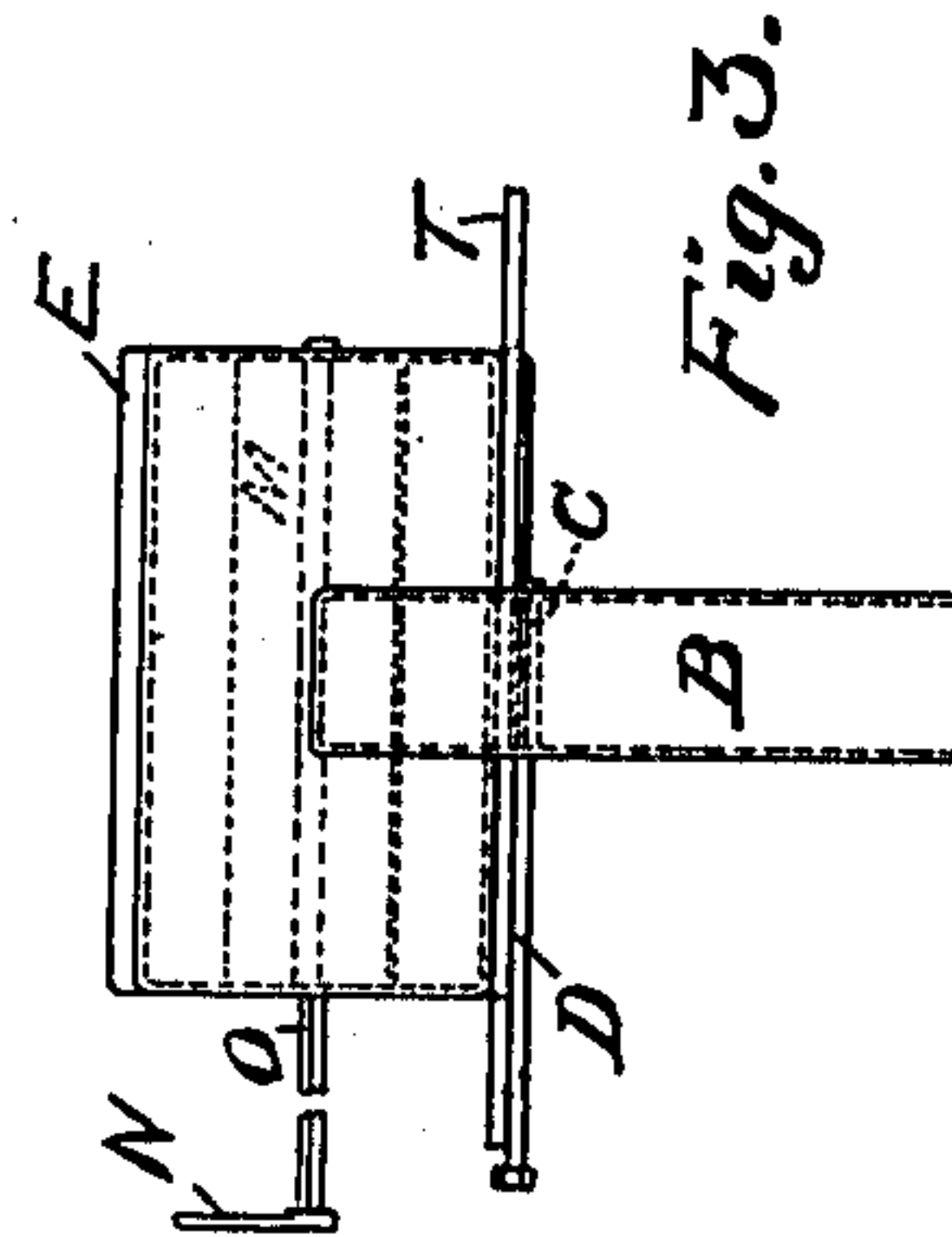


Fig. 3.

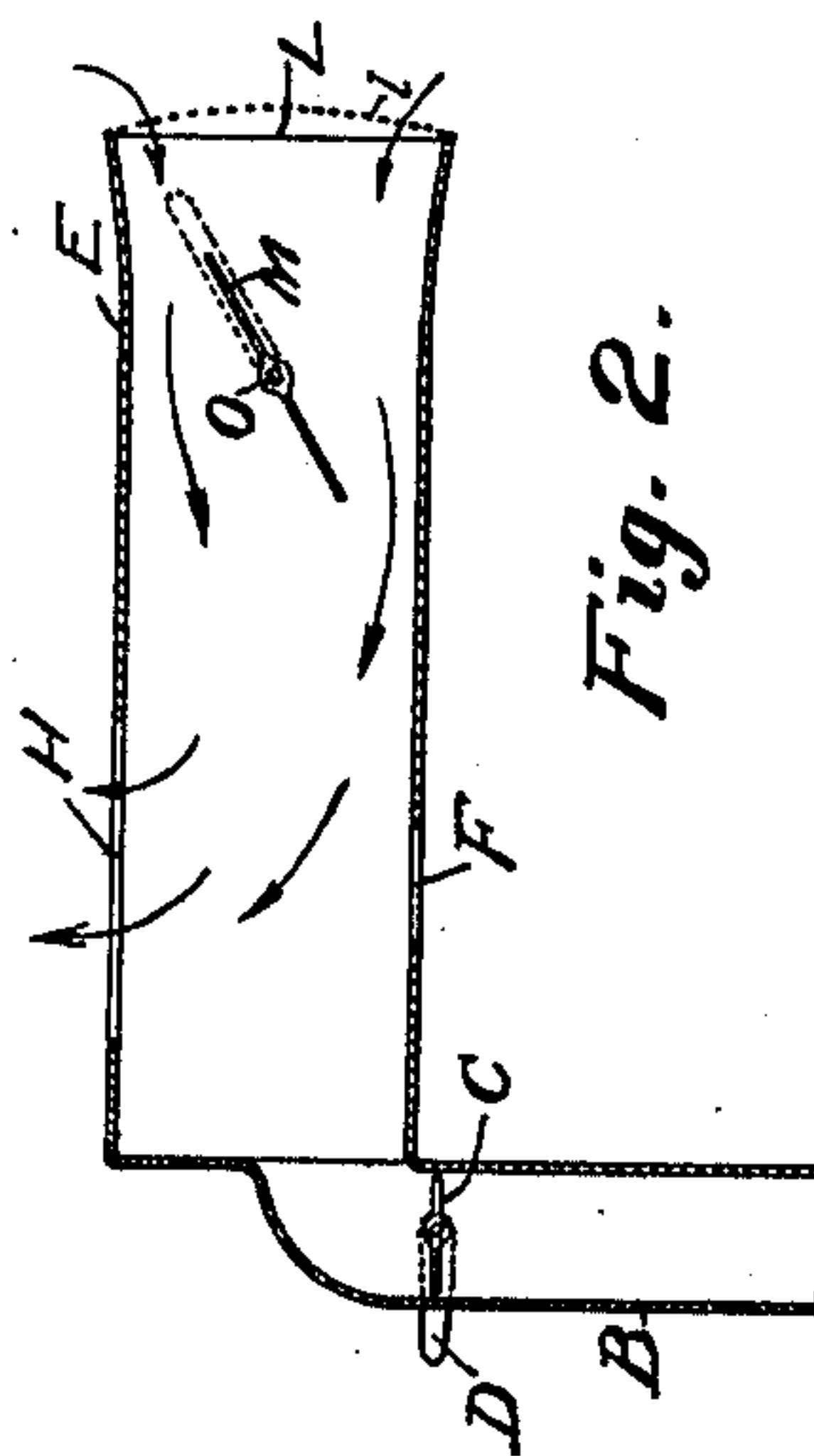


Fig. 2.

Witnesses
Disley & Co.
Lottie Prior

Inventor
John Fournia
 by
Frederick W. Cameron Atty

UNITED STATES PATENT OFFICE.

JOHN FOURNIA, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF TO FREDERICK R. GREENE, OF ALBANY, NEW YORK.

MEANS FOR CONTROLLING THE DRAFT OF LOCOMOTIVE-FURNACES.

992,123.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed March 28, 1908. Serial No. 423,802.

To all whom it may concern:

Be it known that I, JOHN FOURNIA, a
zen of the United States, residing at the city
of Albany, in the county of Albany and
5 State of New York, have invented certain
new and useful Improvements in Means for
Controlling the Draft of Locomotive-Fur-
naces, of which the following is a specifi-
cation.

10 My invention relates to locomotive fur-
naces, and the object of my invention is to
provide a means for equalizing and regulat-
ing the draft thereof. I accomplish these
objects by means of the mechanism illus-
15 trated in the accompanying drawings, in
which:

Figure 1 is a side elevation of a locomotive. Fig. 2 is a section of my invention. Fig. 3 is a rear elevation thereof.

20 Similar letters refer to similar parts
throughout the several views.

In the smoke box, W, forward of the boiler,
A, I place a box, E, supported by a plate, T,
which plate extends from one side of the
25 smoke box to the other, or may be supported
in any suitable manner. The box, E, has an
opening, L, at its end toward the front of
the engine, in which opening, L, I may place
a screen, Z, as shown in Figs. 1 and 2. The
30 opening, L, in the box, E, is so arranged that
it is centrally disposed in reference to the
openings of the flues in the end of the
boiler, A.

Into the box, E, the exhaust nozzle, G,
35 projects through the opening, F, and I ar-
range in the side of the box, immediately
above the opening, F, and nozzle, G, an en-
larged opening, H, above which I place a
pipe, K, which connects with the smoke stack
40 J. The mouth of the nozzle, G, is preferably
in the opening, H, on a line with the upper
surface of the box, E. As thus arranged the
exhaust will create a suction through the
box, E, on the contents of the smoke box, W,
45 which will operate equally upon all of the
flues of the boiler, and will not, as is the
case in locomotive boilers with which I am
familiar, act upon the lower flues with
greater force than upon the higher ones.

50 For the purpose of regulating the action
of the exhaust on the flues and fire, I place
a damper, M, in the box, E, between the ex-
haust nozzle, G, and the opening, L, which
damper may be operated by means of the

handle, N, on the rod, O, to which the dam- 55
per is secured, the handle, N, being outside
of the smoke box.

For the purpose of cleaning the smoke
box of cinders which have a tendency to col-
lect on the bottom or floor thereof I prefer- 60
ably place a spark flue, B, communicating
with the box, E, and which has one end a
short distance above the bottom or floor of
the smoke box. The exhaust would create
a suction on the cinders and draw them 65
through the box E and discharge them
through the smoke stack, J, and if desired
I may place in the spark flue, B, a damper,
C, having a handle, D, operated outside of
the smoke box, whereby the discharge of 70
cinders and sparks may be controlled or pre-
vented. I have shown the damper C oper-
ated by the handle D and damper M oper-
ated by the handle N, both at the side of the
locomotive. I may, however, by suitable rod, 75
or other mechanism extending from the han-
dles, to the cab, operate these dampers from
within the cab of the locomotive.

My invention enables me to obtain an
equal draft through all of the flues of the 80
boiler and prevent the exhaust from forc-
ing the draft through the lower flues while
the water in the upper portion of the boiler
is unaffected by the heat, as is the case in
other engines with which I am familiar. 85
And I am also able to control the effect of
the exhaust upon the fire through the flues,
and to prevent the escape of cinders and
sparks, at places where their emission would
do great damage, and cause their discharge 90
where they would do no harm.

I do not wish to limit myself to the form
or construction or manner of mounting the
box into which the exhaust nozzle projects.
The main feature of the invention is the ar- 95
rangement of the exhaust within a suitable
receptacle placed in the smoke box, which
receptacle has an opening toward the front
of the engine, substantially equi-distant
from corresponding flues in the end of the 100
boiler.

What I claim as my invention and desire
to secure by Letters Patent is:

1. The combination in a locomotive hav-
ing a steam boiler and a smoke box; a box 105
placed forward of the boiler in the smoke
box thereof provided with an opening at its
end toward the front of the engine, forward

of the exhaust; a screen placed in said opening; an exhaust nozzle projecting into said box having its mouth substantially on a line with the upper surface of the box; a smoke
5 stack; a pipe connecting the smoke stack with said box above said exhaust nozzle; a means in said box for regulating the force of the exhaust upon the contents of the smoke box.

10 2. A locomotive provided with a steam boiler; a smoke box; a smoke stack connected with said smoke box; an exhaust nozzle in said smoke box; a box placed in said smoke box having an opening toward the
15 front of the locomotive centrally disposed with reference to the end of the boiler, said exhaust nozzle projecting into said box; a means for conducting the exhaust from said nozzle and the contents of said smoke box
20 to said smoke stack; a spark flue connected with said box and having an opening a short distance above the floor of the smoke box, substantially as described.

25 3. The combination in a locomotive having a steam boiler and a smoke box; a box placed forward of the boiler in the smoke box thereof and communicating directly therewith only forward of the exhaust nozzle, which communication is centrally disposed
30 with reference to the end of the boiler; an exhaust nozzle projecting into said box; a spark flue communicating with the box, which has one end thereof a short distance above the box, which has one end thereof a
35 short distance above the bottom or floor of the smoke box; a damper in said spark flue; a means for conducting the exhaust from said nozzle and the contents of said smoke box to said smoke stack, substantially as
40 described.

4. In a means for controlling the draft of locomotive furnaces a boiler, a smoke

box; a box having an opening in one end; a support for said box in the smoke box of the locomotive, so arranged that the open- 45 ing therein is formed of the exhaust nozzle; an exhaust nozzle projecting into said box; a spark flue connected with said box and extending from the bottom of the box to near the bottom of the smoke box, forward 50 of the boiler; a pipe connecting said box immediately above the exhaust nozzle with the smoke stack, substantially as described.

5. The combination in a locomotive having a steam boiler a smoke box; a box placed 55 in the smoke box and communicating directly therewith only forward of the exhaust nozzle; a spark flue connected with the said box in the smoke box extending to nearly the bottom of the smoke box; an ex- 60 haust nozzle passing into said box; a smoke stack; a smoke pipe connecting said box with the said smoke stack.

6. The combination in a locomotive having a steam boiler and a smoke box of an 65 exhaust nozzle; a spark flue placed forward of the boiler and adapted to receive the sparks and cinders from the locomotive; a box with which said spark flue communicates and into which said nozzle projects, 70 having its one direct opening into the smoke box forward of the exhaust nozzle; a support for said box; a screen on the end of said box; a means for connecting said box with the smoke stack of the locomotive; 75 with a means for controlling the discharge of the smoke, gases and cinders.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN FOURNIA.

Witnesses:

LOTTIE PRIOR,
FREDERICK W. CAMERON.