

W. MOSLEY.
LOCOMOTIVE.

APPLICATION FILED JUNE 16, 1908.

950,005.

Patented Feb. 22, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

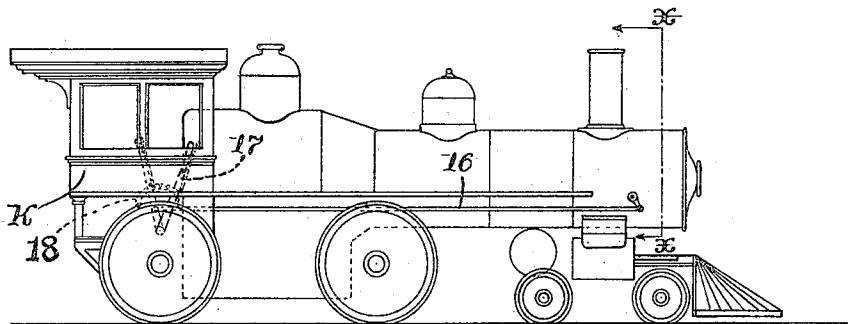
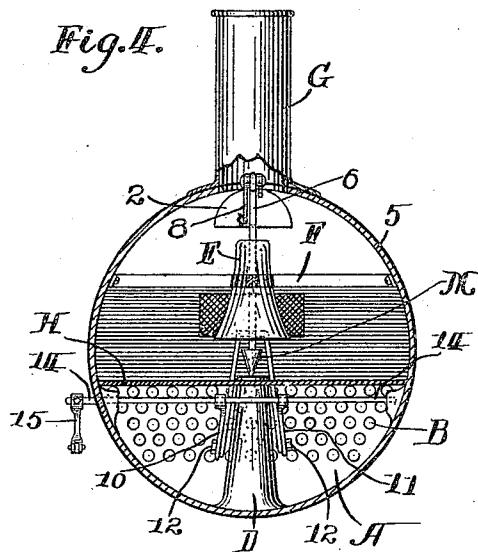


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 2.

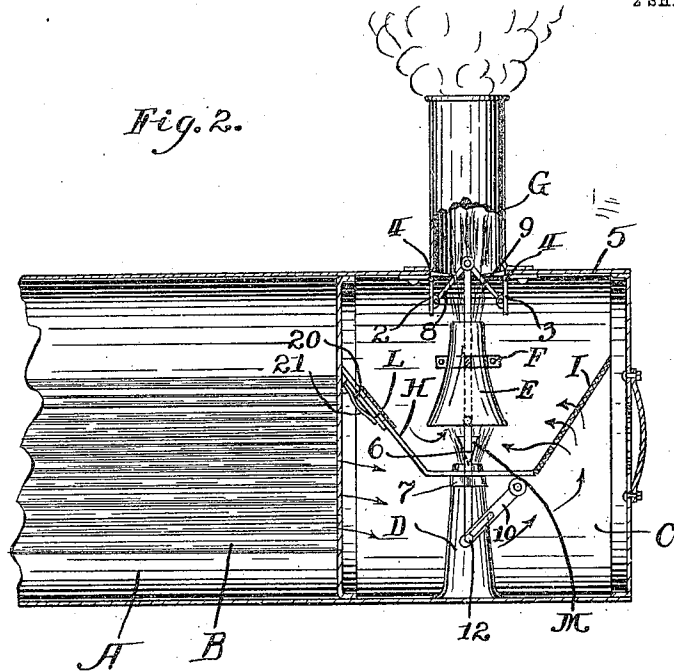
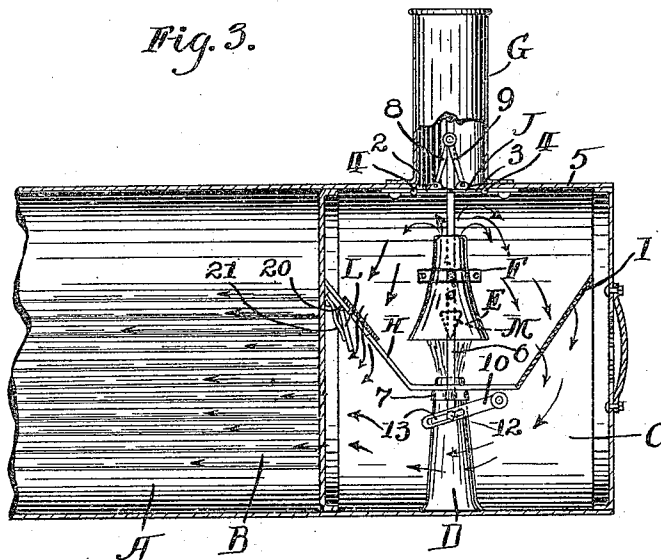


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM MOSLEY, OF ST. PAUL, MINNESOTA.

LOCOMOTIVE.

950,005.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed June 16, 1908. Serial No. 428,798.

To all whom it may concern:

Be it known that I, WILLIAM MOSLEY, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Locomotive, of which the following is a specification.

My invention relates to improvements in locomotives and more particularly the means for cleaning the flues of the boiler.

In a general way the mechanism employed when thrown into use directs the exhaust steam from the cylinders back through the flues thus removing all foreign material such as soot and melted substances which ordinarily collect on the inner surfaces of the tubes and render the boiler inefficient in operation.

The primary object of this invention is the saving of fuel and more efficient and effective operation of locomotives than heretofore. By its use the flues are easily and quickly cleaned either while the locomotive is in operation or at rest while with prior art devices the flues can only be cleaned while the locomotive is substantially cold.

In the accompanying drawings Figure 1 is a side elevation of a locomotive illustrating the mechanism by which my improvement can be operated from the cab; Fig. 2, is a detail longitudinal section showing a portion of the front end of a locomotive and my improvement when out of operation; Fig. 3, is a view similar to Fig. 2 showing my improvement in operative position for cleaning the flues; and Fig. 4, is a transverse sectional view taken on the line X—X of Fig. 2.

In the drawings A represents the boiler, B the flues of said boiler, C the smoke chamber, D the exhaust nozzle leading from the exhaust outlets of the cylinders, E the petticoat pipe above the exhaust nozzle, F the petticoat pipe support, G the smoke outlet or chimney above the petticoat pipe, H the diaphragm extending across the smoke chamber from above the flues and below the outlet leading from the exhaust nozzle into the smoke chamber, and I the cinder sieve adjacent to the diaphragm, all of said parts being of ordinary construction, operating in the ordinary manner and with which my improvements are adapted to cooperate in a locomotive.

The smoke outlet or chimney is pro-

vided at its lower end with a valve J in the form of a pair of shutters 2 and 3 which are hinged at 4 upon the shell 5 of the smoke chamber. These shutters close into the position shown in Fig. 3 and swing down into vertical position as shown in Fig. 2, when the passage in the chimney is opened. The operating mechanism for opening and closing this valve consists of a vertical rod 6 sliding through a lug 7 on the side of the nozzle and a pair of toggle levers 8 and 9 which are pivoted to the upper end of said rod and said shutters as shown. The lower end of said rod within the petticoat pipe and above the exhaust nozzle is bifurcated and the lower extremities of said bifurcations connected to crank levers 10 and 11 by means of bolts 12 passing through slots 13 in said levers. The power ends of said crank levers are mounted upon a transverse rocker shaft 14, which is journaled in the shell 5. The free end of the rocker arm is attached by a reach rod 16, with a hand lever 17, which is pivoted in the cab K and adapted to cooperate with a lock segment 18, to hold the parts in set position. When the operating lever 17 is in forward position the valve J is open and when thrown back said valve is closed. The vertical rod 6 passes through the petticoat pipe F but does not affect its operation.

The inner portion of the diaphragm has a flap valve L which is hinged at 20 to the lower side of the diaphragm, and has a spring bar 21 pressing up against the valve and closing it when the valve J is open. A screen over the opening through the valve L prevents any cinders from passing down through the diaphragm valve when the smoke outlet valve is closed.

Carried by the rod 6 is an inverted cone M which depends from said rod between the bifurcations on said rod. This cone reduces the outlet of the nozzle by being lowered into the opening therein and thus serves to reduce the draft caused by the exhaust steam issuing from the cylinders not shown. When the shutters are open the operating handle in the cab can be thrown farther back to lower the cone into the nozzle when desired.

Normally the exhaust steam and draft from the flues passes in the ordinary manner from the nozzle through the petticoat pipe and chimney, said draft passing

through the screen I. When it is desired to moderate the outlet through the chimney, or close it, and clean the flues in the boiler, the handle 17 is swung backward and the shutters closed or partly closed. The exhaust steam then reverses from the nozzle and the petticoat pipe back through the valve and screen I, which are associated with said diaphragm, and passes through the flues into the fire box of the locomotive. This steam passing back through the flues has sufficient force to thoroughly clean the flues and is always available when the locomotive is in operation which is an advantage over other methods of cleaning heretofore used.

The above device is adapted to reduce smoke issuing from the smoke stack owing to the boiler flues being kept clean. When the draft is directed back through the flues the shaker grate rods and pan can be thawed out in cold weather and when the chimney is closed or partly closed the fire can be reduced. The modifying device used in connection with the orifice of the nozzle in the smoke chamber will not gum and refuse to act and is self cleaning at all times.

In accordance with the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to be the best embodiment thereof, but I desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention what I

claim as new and desire to protect by Letters Patent is:—

1. In a locomotive, a boiler, a smoke chamber associated with said boiler having a smoke outlet, a valve in said outlet, an exhaust nozzle having its orifice in said chamber, a petticoat pipe above said nozzle, a reducer cooperating with the orifice of said nozzle, and means for simultaneously operating said valve and reducer; whereby after the valve is opened, the reducer can be moved to modify the exhaust issuing from said nozzle.

2. In a locomotive, a boiler, a smoke chamber associated with said boiler having an outlet, an exhaust nozzle having its orifice in said smoke chamber, a diaphragm extending across the smoke chamber from above the flues in the boiler to below the orifice of the exhaust nozzle, a flap valve normally closed in said diaphragm adjacent to said flues, a shutter in the outlet of said smoke chamber and means for closing said shutter; whereby the exhaust steam is caused to travel through the smoke flues in a rearward direction and into the fire box to squelch the fire therein, part of said steam forcing the valve in said diaphragm open to gain admission to said flues.

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

WILLIAM MOSLEY.

Witnesses:

H. L. FISCHER,
F. G. BRADBURY.