

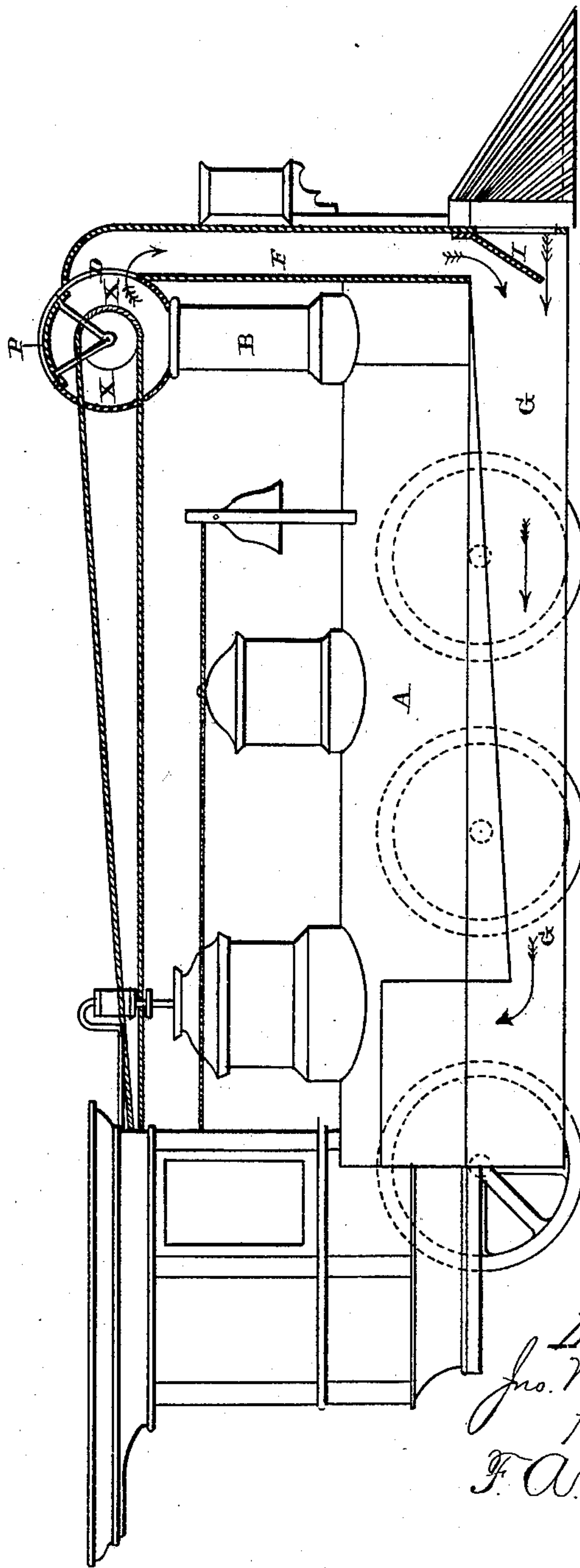
(No Model.)

J. McMURTRY.

SMOKE CONSUMER FOR LOCOMOTIVES.

No. 245,738.

Patented Aug. 16, 1881.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN McMURTRY, OF LEXINGTON, KENTUCKY.

SMOKE-CONSUMER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 245,738, dated August 16, 1881.

Application filed June 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN McMURTRY, of Lexington, in the county of Fayette and State of Kentucky, have invented certain new and useful Improvements in Smoke-Consumers for Locomotives and Fire and Portable Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawing, which forms part of this specification.

My invention relates to an improvement in smoke-consumers for locomotives and fire and portable steam-engines; and it consists in placing upon the top of the stack or chimney a valve which can be shifted so as to open or close the entrance to the pipe which connects with the ash-pit, whereby the products of combustion can be turned directly into the pipe and be conveyed back into the furnace, or can be turned into the open air.

It further consists in making an extended ash-pit in a locomotive, and providing this ash-pit with an adjustable valve, whereby as the products of combustion are being carried back to the furnace a suitable amount of atmospheric air can be mixed with the products of combustion so as to supply them with the necessary oxygen to keep up a perfect combustion, as will be more fully described hereinafter.

The object of my invention is to provide locomotives and steam-engines of all kinds with an attachment whereby all of the products of combustion may be carried back directly into the furnace, and thus not only greatly economize the consumption of fuel, but prevent the cinders, dust, and dirt from escaping from the top of the stack, to the great annoyance and inconvenience of passengers on the railroad, or those living in the immediate neighborhood.

The figure is a side elevation of a locomotive, partly in section.

A represents a locomotive of any suitable construction, and B the stack. Upon the top of this stack is placed a suitable cylinder or chamber, X, of any desired shape, size, or construction, and which has an opening, P, through its top, leading into the air, and a second opening, D, through one of its sides. Pivoted or otherwise arranged inside of this cylinder or

chamber is the valve E, either of a circular or other suitable shape, and which will sweep through an arc of a circle sufficiently great to allow it to cover either the opening into the air or the opening D. This valve is intended to be operated by the engineer, and may either have a crank upon one end and a rod extending back from the crank into the cab, or there may be a pulley placed upon one end of the shaft of the valve and a cord passed around a pulley and then back into the cab. Where the engine is standing still and there is no exhaust this valve will be turned so that all of the products of combustion will pass into the open air; but where the engine is in motion and the exhaust-steam is turned into the stack B the valve will be made to close the opening in the top of the cylinder or chamber, and the opening D will be left open, so that the products of combustion can pass directly through it. Connected with this opening D is the pipe or flue F, which passes down in front of the locomotive, as shown, and has its lower end connected with the extended ash-pit G, which is made under the boiler. For the purpose of enabling this flue to be passed down, as shown, the head-light will be moved forward upon the locomotive, and may be secured directly upon this flue, or in front of it, as may be preferred.

The extended ash-pit runs the whole length of the boiler, as shown, and is placed below the axles of the driving-wheels. Through the front end of this pit is made a suitable opening, which is controlled by an adjustable valve, I, so as to regulate the amount of air which shall be admitted while the engine is in motion for the purpose of forcing the products of combustion back along the ash-pit flue and supplying oxygen to the fire. This oxygen, entering the flue, which is filled with the products of combustion and the exhaust-steam, mingles with them and is swept back into the ash-pit by the blast of air consequent on the advancing train, and thence into the furnace, where they are consumed.

Should it be desired to increase the amount of combustible matter there may be introduced into either the extended ash-pit directly under or into the furnace, so as to mingle with the products of combustion, the vapors from hydrocarbon oils or any similar substance. This

vapor will be generated by passing either live or exhaust steam through a body of oil, gasoline, or other similar substance, which will be converted into vapor by the heat of the steam, 5 and this vapor may be mingled with the products of combustion, as described, or fed to the furnace in any other suitable manner. The exhaustion of the steam into the stack causes a draft which sweeps everything before it directly back into the furnace, so that no sooner is the engine started and the exhaust turned into the stack than the necessary draft is furnished at once. In thus consuming the products of combustion not only is there great economy in 5 the consumption of fuel, but the cinders and soot which escape from the stack, and which are so annoying and troublesome to passengers, are caught, and thus prevented from passing out into the air, as is generally the case. 5 In stationary engines, where the chimney is at the same end of the boiler as the furnace, it will be found that the usual exhaust in the base of the chimney will be sufficient to force the products of combustion down into the ash-pit 5 of the furnace, where it will not only be con-

sumed, but greatly aid toward securing perfect combustion of the fuel in the furnace, in the same manner and with the same economic results as described in the locomotive-engine. The vaporized fuel may be used in connection 30 with stationary as well as locomotive engines.

Having thus described my invention, I claim—

The combination of a stack or chimney having a chamber, X, secured to its top, that is 35 provided with the opening through its top and a second one, D, through its side, with the flue F, the extended ash-pit G, having the valve I at its front end, and a valve, P, whereby the forward motion of the engine causes a blast of 40 air to enter the ash-pit and sweep the products of combustion back into the furnace, substantially as shown.

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

JOHN McMURTRY.

Witnesses:

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