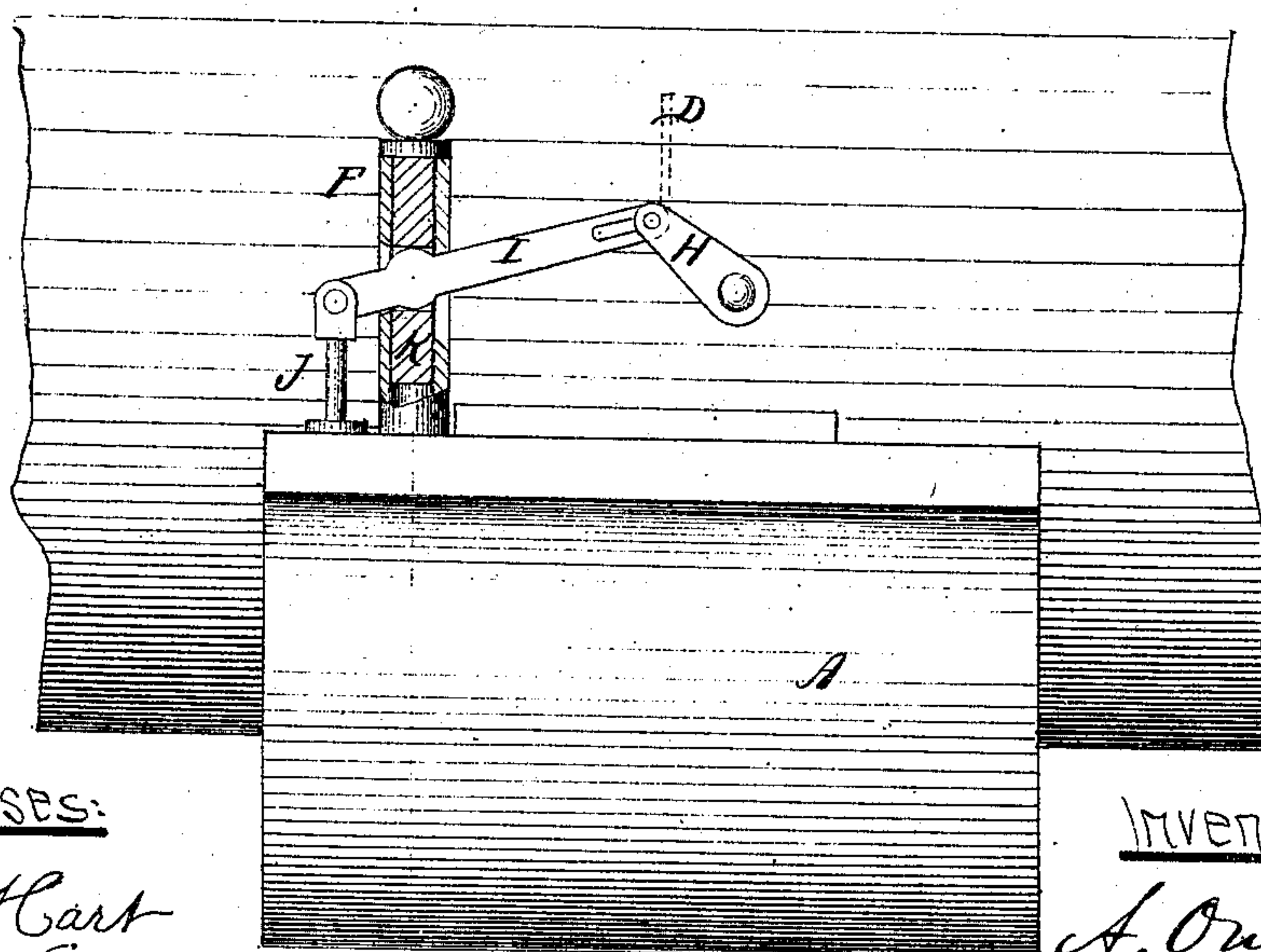
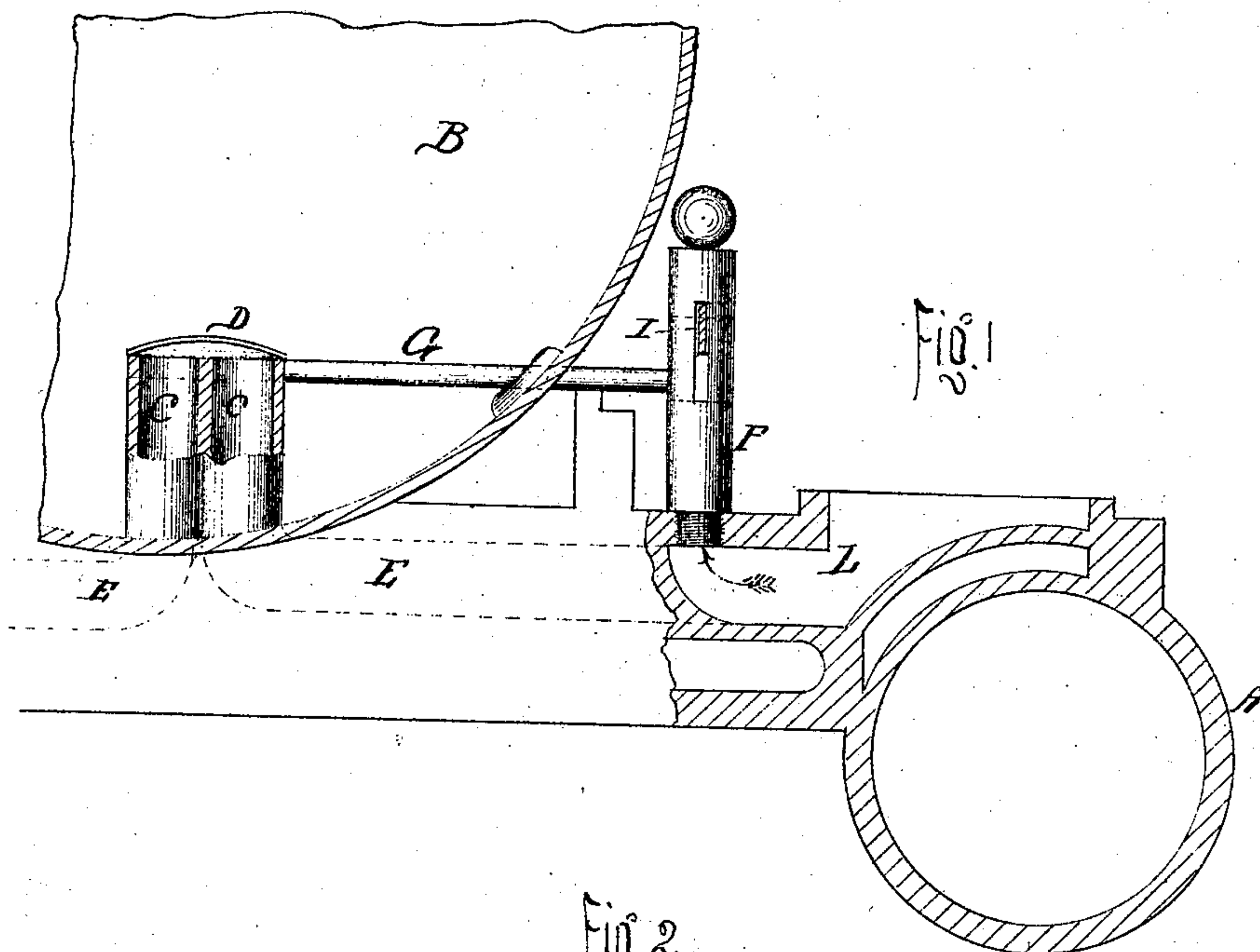


A. Onslow; Exhaust Valve.

No. 93,470.

Patented Aug 10. 1869.



Witnesses:

A. W. Hart
S. C. Remond

Inventor:

A. Onslow
by *Heunt & Co.*
attys

United States Patent Office.

A. ONSLOW, OF JERSEY CITY, NEW JERSEY.

Letters Patent No. 93,470, dated August 10, 1869.

IMPROVEMENT IN EXHAUST-NOZZLE-VALVE DEVICE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, A. ONSLOW, of Jersey City, in the county of Hudson, and State of New Jersey, have invented a new and useful Improvement in Operating Nozzle-Exhaust Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

This invention relates to new and useful improvements in operating a valve on the exhaust-nozzle in the smoke-stack of a steam-generator, and consists in the combination of a steam-cylinder and piston for that purpose, as will be hereinafter more fully described.

In the accompanying drawing—

Figure 1 is a vertical section through the line $x x$ of fig. 2, showing the engine, cylinder, steam-port, and exhaust-passage, shown in dotted lines, with the auxiliary cylinder for operating the valve on the exhaust; showing also the valve on the exhaust, and the rod, arm, and lever, by means of which it is opened and closed.

Figure 2 is a side view of the same, showing the auxiliary cylinder in section.

Similar letters of reference indicate corresponding parts.

A is the engine-cylinder.

B represents the smoke-chamber, into which the steam is exhausted.

C represents the exhaust-nozzle.

D is the valve by which the exhaust is closed.

E is the exhaust-port.

F is the auxiliary cylinder, which is located between the throttle-valve and the induction-ports of the engine.

G is the rod of the valve D, which passes through the chamber, with an arm, H, on its outer end, as seen in fig. 2.

I is the lever, which is connected with the arm H and with the piston of the cylinder F, having its fulcrum on the stud J.

K is the piston.

When the steam is exhausting, the valve D is held open, as indicated in dotted lines in fig. 2, by means of the pressure of the steam on the bottom end of the piston acting on the lever I.

The lower end of the auxiliary cylinder is in communication with the steam-chest by means of the passage L, and when the steam is shut off by the throttle-valve, the piston and lever I will drop by their own gravity, (aided by the momentary vacuum which occurs,) and close the valve, thus effectually excluding cinders, ashes, and other injurious substances.

The closing of exhaust-nozzles of locomotive-engines, especially those using coal as fuel, is very desirable, as with an open nozzle the fine particles of coal and cinders will enter the exhaust, and find their way under the valve-faces and into the cylinders.

This object becomes of much more importance, when, in case of emergencies which frequently occur, the motion of the valve is reversed, with the engine still running; in which case the engine pumps air, and draws not only cinders and ashes, but the hot air and gases from the flues of the boiler into the steam-chest and cylinder.

Other injurious consequences not unfrequently occur, occasioned by the sudden accumulation of compressed air in the steam-chest and cylinder.

The closing of the exhaust prevents all this entirely, and allows the engineer to reverse his valve-gear with perfect safety.

There may be a small cock in the bottom of the auxiliary cylinder, which the engineer can close at pleasure, thus keeping the nozzle-valve closed, and checking his speed by admitting steam to the engine on the reverse motion.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. In combination with a valve for closing the exhaust-nozzle of a steam engine, the auxiliary cylinder F, with its piston K, and with the mechanism connected therewith for operating the valve, substantially as shown and described.

2. The cylinder F and piston K, in combination with the passage L, whereby to open and close automatically the exhaust-nozzle of a steam-engine, substantially as herein described.

A. ONSLOW.

Witnesses:

FRANK BLOCKLEY,

O. L. TOPLIFF.