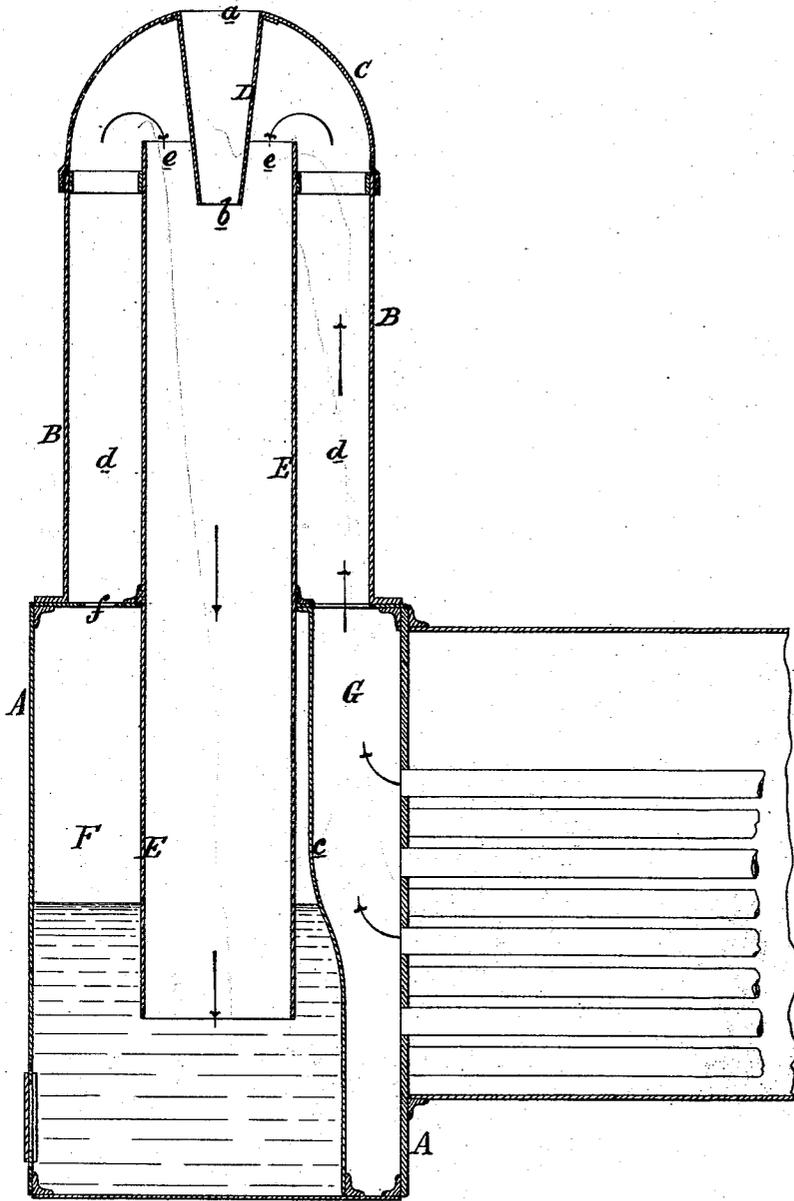


M. E. WALTON.  
Locomotive and Other Chimneys.

No. 221,880.

Patented Nov. 18, 1879.



Witnesses

Henry Howson Jr.  
Harry Smith

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# UNITED STATES PATENT OFFICE.

MARY E. WALTON, OF NEW YORK, N. Y.

## IMPROVEMENT IN LOCOMOTIVE AND OTHER CHIMNEYS.

Specification forming part of Letters Patent No. **221,880**, dated November 18, 1879; application filed October 6, 1879.

*To all whom it may concern:*

Be it known that I, MARY ELIZABETH WALTON, of No. 63 West Twelfth street, New York, in the United States of America, have invented Improvements in or applicable to the Chimneys of Locomotive-Engines and other Chimneys, for the purpose of arresting or preventing the escape therefrom of sparks and foul gases or vapors, of which the following is a specification.

This invention has for its object arresting or preventing the escape of sparks, ashes, and impure or foul gases or vapors from the chimneys of locomotive-engines and from other chimneys into the atmosphere; and it consists in applying apparatus to or constructing chimneys substantially in the manner hereinafter described with reference to the accompanying drawing, so as to cause the sparks, ashes, and impure gases or vapors which enter the chimney to be conducted into a tank containing water, or into the sewer, or to be otherwise disposed of, according to the description of furnace or the position of the chimney to which the invention is applied.

The accompanying drawing represents the invention as applied (for example) to a locomotive-engine.

A is the smoke-box end of a locomotive-engine provided with an ordinary chimney, B, which is fitted at the top with a metal or other cap or cover, C, of a dome or hemispherical form. In the center of this cap is a hole, *a*, into which is secured the upper large end of an inverted conical or tapered tube, D, the lower and small end, *b*, of which depends some distance into the interior of the chimney B, and enters the upper end of a tube, E, arranged concentrically in the said chimney.

The tube E extends downward below the base of the chimney, and opens into a tank, F, below the surface of the water contained therein.

The tank F is situated in the smoke-box A, which is divided by a partition, *c*, into two compartments—viz., the tank F and a passage,

G, by which the products of combustion are conducted from the furnace into an annular space, *d*, left between the interior of the chimney and the inner concentric tube, E.

The products of combustion rising in the chimney B impinge against the inside of the cap C and the exterior of the conical tube D, whereby they are deflected and caused to enter the tube E through the annular space *e* left between the top of the latter and the conical tube D.

The products of combustion, as they enter the tube E, join or unite with a current of cold air passing through the conical tube D, which air not only cools the said products, but at the same time, by its greater specific weight, forces them through the tube E into the water contained in the tank F. Any sparks, ashes, foul gases or vapors, or other unconsumed products of combustion which enter the chimney are thus conducted into and collected in the tank F, wherein the foul gases or vapors and steam become partially or entirely condensed or absorbed and retained by the water contained therein, in lieu of being permitted to escape into and impregnate the surrounding atmosphere, and the gases or vapors that may not have been condensed, absorbed, or retained by entering the water in the tank are permitted to escape through an opening, *f*, in the top of the tank and re-enter the annular space *d*, to be again conducted through the tube E into the tank, the operation being repeated until the whole of the gases or vapors are condensed, absorbed, or retained.

When the invention is applied to the chimneys of dwelling-houses and of stationary furnaces, or to other chimneys through which foul gases or vapors pass unaccompanied by steam, the tank E may be dispensed with, and the impurities may be conducted by the tube E into the sewer, or into other suitable channels for conducting them to a distant or any desired locality.

I claim—

1. The chimney B, provided with the dome-shaped cap or cover C, in combination with

the inverted conical-shaped or tapering tube D, tube E, and tank F, all constructed and arranged substantially as and for the purpose described.

2. The chimney B, provided with the dome-shaped cap or cover C, tapering tube D, and tube E, in combination with the smoke-box A, provided with the partition *c*, and tank F, all constructed and arranged substantially as and for the purpose set forth.

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

MARY E. WALTON.

Witnesses:

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