W. C. LYMAN.

TRAP FOR EXHAUST STEAM PIPES.

No. 179,581. Patented July 4, 1876.

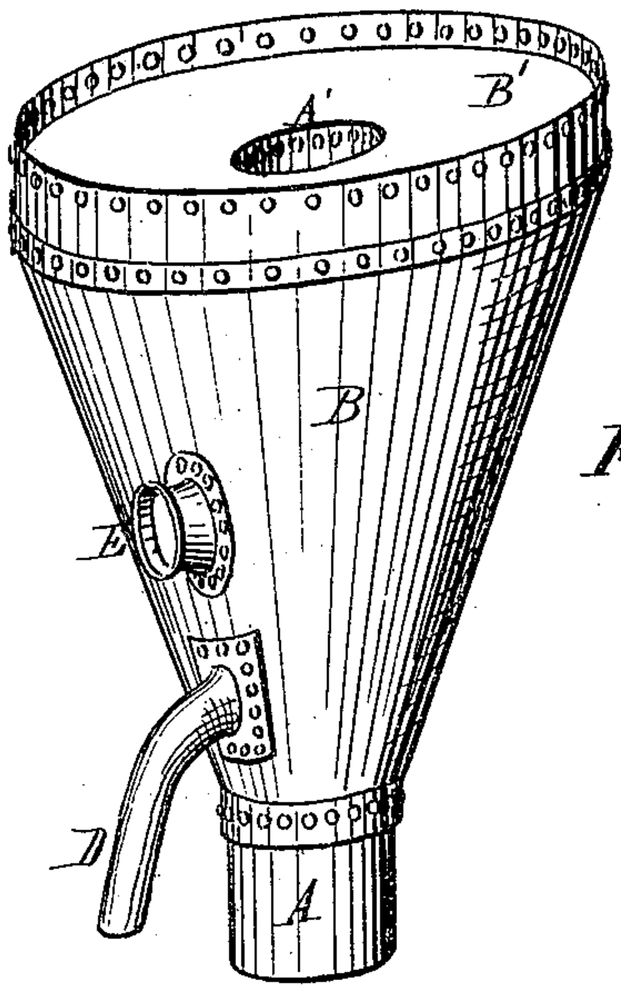

Fig: 1.

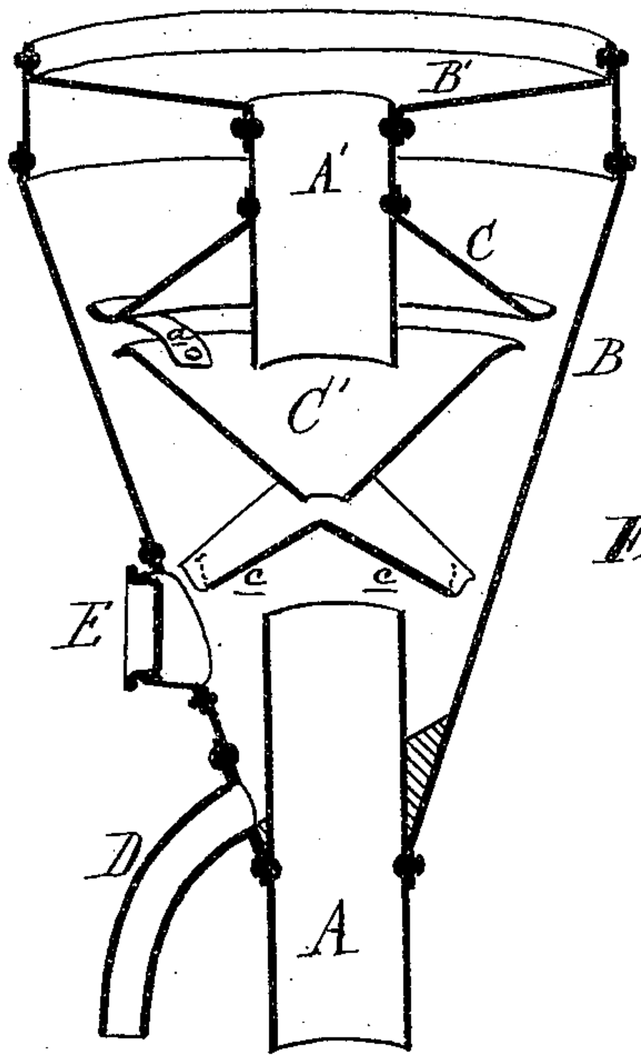

Fig: 2.

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WILFRED C. LYMAN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN TRAPS FOR EXHAUST-STEAM PIPES.

Specification forming part of Letters Patent No. **179,581,** dated July 4, 1876; application filed June 1, 1876.

To all whom it may concern:

Be it known that I, WILFRED C. LYMAN, of Chicago, in the county of Cook and State of Illinois, have invented an Improved Exhaust-Pipe Head, of which the following is a specification:

The object I have in view is to provide the top of the exhaust-pipe of a non-condensing steam-engine with a head which will not only trap off the water of condensation carried up the pipe with the exhaust steam, but also the grease used for lubricating the cylinder, and carried up by the exhaust steam.

The invention consists in the peculiar construction of the cap, and the combination therewith of the deflectors and conduits and a hand-hole in one side of the cap, through which access is had to the interior for removing grease and solid matter settling therein.

Figure 1 is a perspective view. Fig. 2 is a vertical section.

In the drawing, A represents the upper end of an exhaust-pipe, and B an inverted conical cap, in the lower part of which the exhaust-pipe connects. The cap is closed at the top by a head, B′, with an opening in the center, from which a short section of pipe, A′, is suspended, and through which the exhaust steam escapes.

C is a conical deflector, surrounding the suspended pipe A′, its skirt extending nearly to the wall of the cap, where it is curved upward, so as to hold a body of water, which will assist the condensation of the steam. C′ is an inverted conical deflector, suspended by channel-shaped straps *a* from the sides of the conical cap B. Said deflector C′ has a downwardly-curved skirt, which is smaller in diameter than the one of deflector C. In the bottom of deflector C′ there is a hole, *b*, for the outflow of the water of condensation and other fluids or semi-fluids collecting therein, which are conveyed by conduits *c*, shaped like inclined troughs or channels, with downwardly-curved edges, open at the top, and suspended from said deflector toward the sides of the cap, and on line with or below the top of the pipe A, falling into the inclined bottom of said cap, whence they are carried away by a pipe, D, tapped into the base of the cap.

The exhaust steam, as it issues from the pipe A, is deflected by the cone C′ toward the sides of the cap and downward, and rising again therein until arrested by the head B′. Much of it is condensed to water, and flows down the sides to find an outlet through the pipe D, while the remainder passes between the bases of the cones into the deflector C′, from which it escapes through the pipe A′.

Any water of condensation, as well as the grease and other impurities that are carried by the steam into the space between the cones, will continue the direction given them on entering this space, and pass out through the hole *b*, to be conducted by the inclined conduits *c* into the lower part of the cap, whence they escape into the pipe D.

As will be seen, the skirts of the cones C and C′, as well as the edges of the braces *a* and of the troughs *c*, are shaped so as to assist in deflecting the condensed water, and only permit dry steam to find the outlet through the head of the cap.

As the grease, when separated from steam at an elevated temperature, will naturally solidify, it is liable to harden where it settles in the lower part of the cap, and thus clog it, as well as the inclined conduits. A hand-hole provided with a removable cap, E, is made in one side of the cap, through which access may be had to its interior to remove such deposits from time to time.

The exhaust steam issuing from the cap will be comparatively dry, and of such temperature that it will not be immediately condensed and deposited as water upon the roof of the building or surrounding objects, but will rise some distance, and be absorbed by the atmosphere or passing air-currents, and thereby avoid great damage to roofs and surrounding objects by being deposited as boiling water charged with grease upon them.

I do not wish to be confined to the exact conformation and proportions shown, as it is evident they can be changed without departing from the spirit of my invention.

What I claim as new is—

1. The combination of the cap B B′, escape-pipe A′, deflectors C C′, and conduits *c* D, said deflectors and conduits provided with curved outer rims or edges, with the exhaust-pipe of a non-condensing engine, substantially as and for the purpose set forth.

2. The combination of the cap B B′, escape-pipe A′, deflectors C C′, conduits *c* D, and hand-hole E, with the exhaust-pipe A of a non-condensing steam-engine, substantially as and for the purpose set forth.

WILFRED C. LYMAN.

Witnesses:
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