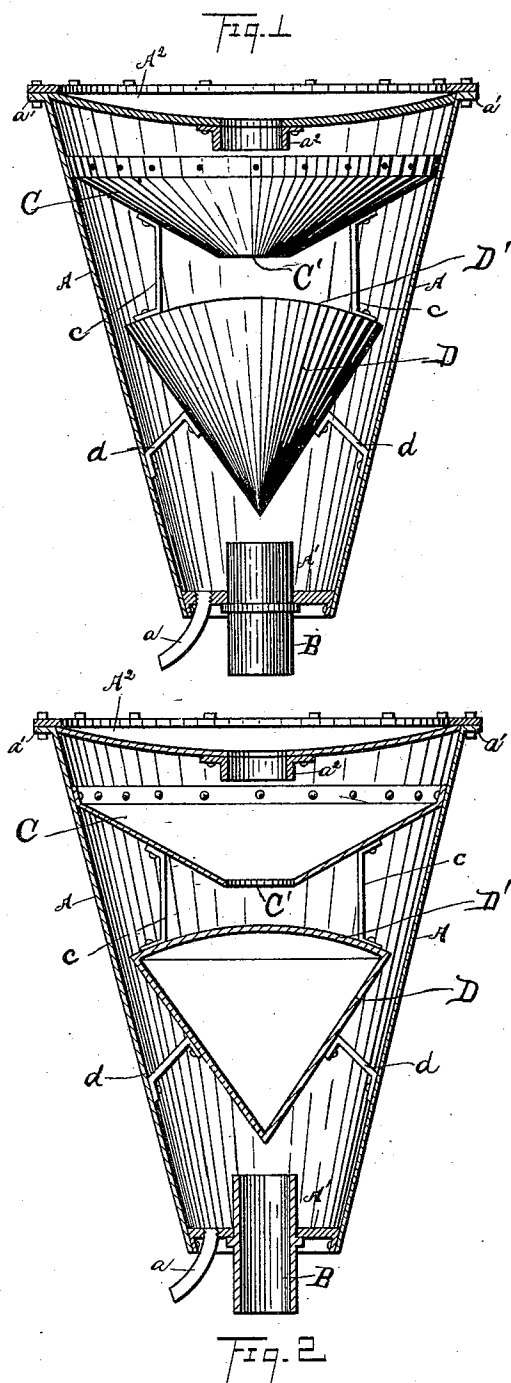


(No Model.)

P. R. CRAWFORD.
EXHAUST HEAD.

No. 434,042.

Patented Aug. 12, 1890.



Witnesses.

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PETER R. CRAWFORD, OF CLEVELAND, OHIO.

EXHAUST-HEAD.

SPECIFICATION forming part of Letters Patent No. 434,042, dated August 12, 1890.

Application filed December 2, 1889. Serial No. 332,313. (No model.)

To all whom it may concern:

Be it known that I, PETER R. CRAWFORD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Exhaust-Heads; 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 the same.

My invention relates to improvements in exhaust-heads; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation, partly in section. Fig. 2 is a side elevation, wholly in section, through the center of the device.

A represents the outer wall or casing, the same being preferably of sheet metal, and of the inverted-truncated-cone shape shown. Casing A is usually riveted to the lower cast-iron head A', although this head could be made of wrought metal, if desired. The lower head has a central opening for receiving the exhaust-pipe B. Head A' has also attached a drip-pipe *a*. The upper head A² is usually of plate metal, concaved, as shown, and bolted to the outwardly-flanged upper end section of casing A, as shown at *a'*. Head A² has a central opening provided with a short depending pipe *a*². Inside the casing and located next below pipe *a*² is a dish-shaped sheet-metal diaphragm C, the periphery whereof is secured to casing A, usually by rivets, this diaphragm having a central opening C'. The diaphragm has attached a series of depending stays *c* for supporting deflector D. The latter is usually of sheet metal, and of the inverted-cone shape shown, and having attached a crowning head or cover D'. The deflector is provided with a series of struts or braces *d*, that in turn are secured to wall A, preferably by riveting. The deflector at its largest diameter is something less than the internal diameter of the opposing section of the casing, so that there is ample space between the deflector and casing for the upward passage of the steam.

The object of the exhaust-head is twofold—first, to prevent the exhaust-steam from condensing and falling upon buildings and other

property, whereby would accrue great damage, especially in cities and large towns; and, second, to save the condensed water, so that it can be used—for instance, in the steam-generator, or for other purposes where condensed water is desirable. To prevent as far as possible the escape of exhaust-steam, the exhaust-head is made large and of thin sheet metal in the main, that, being exposed to the air, condenses the most of the steam in passing through the exhaust-head.

The steam on entering pipe B first strikes the deflector, by means of which the steam is distributed over the internal surface of casing A, nearly to the top of the casing, where it is arrested and returned to the center, and passing through opening C' can again expand and fill the casing underneath the upper head, and of course above the diaphragm. This upper head being exposed to the air is very effective in condensing the steam. The upper head is concaved, as shown, for the purpose of returning any condensed water that may lodge thereon back into the exhaust-head. The dish-shaped diaphragm C performs the same office in discharging the water downward onto head D' of the deflector, and this being crowning the water drips off and falls onto the inner surface of wall A, from whence it gravitates to the bottom and is discharged through pipe *a*. To the latter may be attached a pipe leading to wherever the condensed water is wanted.

What I claim is—

An exhaust-head comprising inverted conical casing having concaved upper head, dish-shaped diaphragm joined to the walls of the casing below the conical head, inverted conical deflector having a crowning upper end, said deflector being supported below the diaphragm, drip-pipe connected with the casing, and central opening through diaphragm and upper head, the parts being arranged substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 14th day of November, 1889.

PETER R. CRAWFORD.

Witnesses:

C. H. DORER,
ALBERT E. LYNCH.