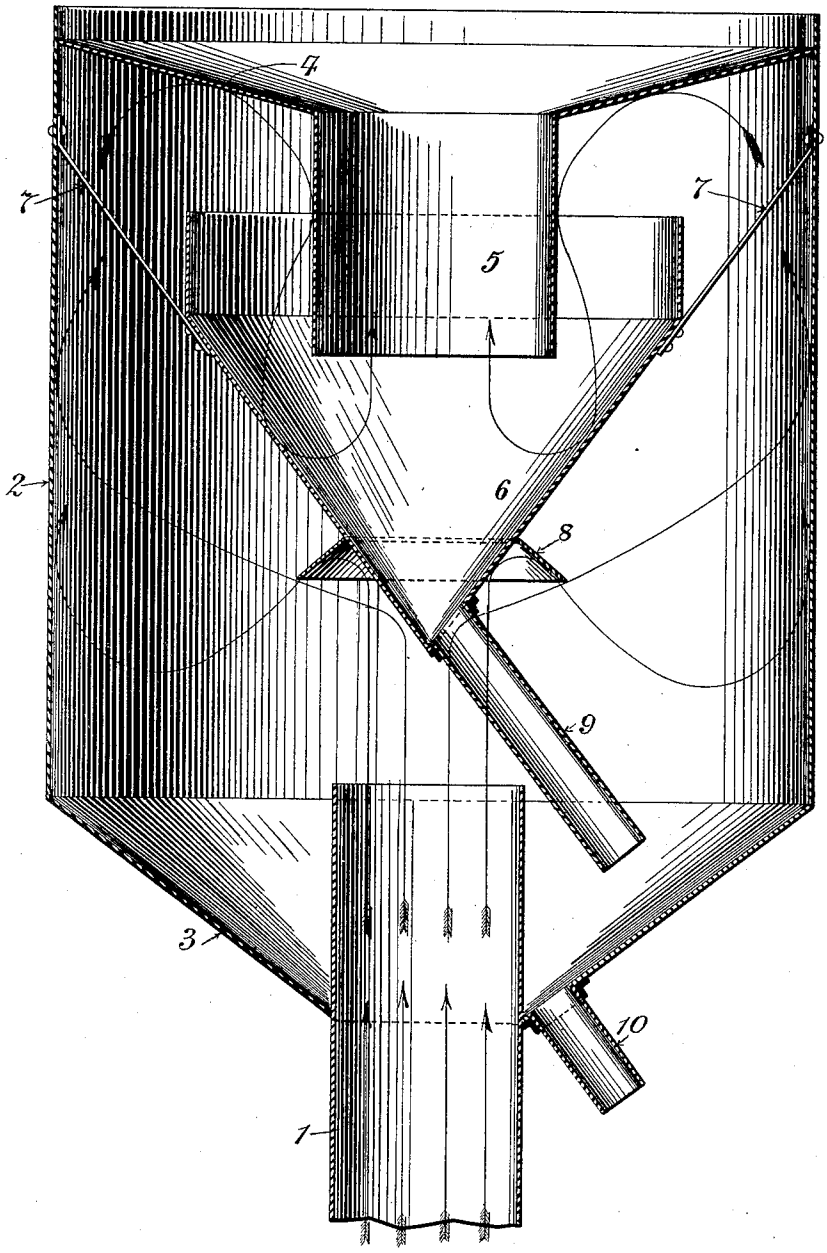
No. 657,748. Patented Sept. 11, 1900.

S. M. SCOTT.

EXHAUST HEAD.

(Application filed June 15, 1900.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

SEATON M. SCOTT, OF NEW YORK, N. Y., ASSIGNOR TO THE ABENDROTH & ROOT MANUFACTURING COMPANY, OF SAME PLACE.

EXHAUST-HEAD.

SPECIFICATION forming part of Letters Patent No. 657,748, dated September 11, 1900.

Application filed June 15, 1900. Serial No. 20,408. (No model.)

To all whom it may concern:

Be it known that I, SEATON M. SCOTT, a citizen of the United States, residing at New York, borough of Brooklyn, county of Kings, and State of New York, have made a new and useful Invention in Exhaust-Heads, of which the following is a specification.

My invention is directed to an improvement in exhaust-heads for use in connection with exhaust-steam pipes and of escape-pipes and the like where it is desired to prevent exhaust-steam from escaping, the object of the invention being to condense the steam as it passes out through the exhaust-head and prevent the return of any water into the exhaust-pipe.

The invention will be fully understood by referring to the accompanying drawing, which is a sectional view of an exhaust-head embodying my improvement.

1 is the exhaust-steam pipe, to which the improved exhaust-head is applied, the same consisting of a cylindrical-shaped metal shell 2 of very much larger diameter than the diameter of the exhaust-pipe, said shell being secured to the upper end of the exhaust-pipe by a conical-shaped bottom 3. The upper end of said shell is provided with a cone-shaped top, to the central portion of which is secured a downwardly-extending tube 5, the axis of which is in substantial alinement with the axis of the exhaust-pipe 1. The lower end of this tube 5 extends downward into a combined cylindrical and cone-shaped deflector 6, the cylindrical part of the deflector being concentric with the surrounding metal shell 2. This combined cylindrical and cone-shaped deflector is secured directly to the inner surface of the shell 2 by three or more metallic arms 7 7. To the lower end of the deflector 6 is secured a reverse cone-shaped deflector 8, the outer edge of which extends laterally slightly beyond the outer edge of the top of the exhaust-pipe 1, its functions being to cause the ejected steam, which is deflected from the lower end of the cylindrical cone-shaped deflector 6, to be deflected outward and downward against the inner surface of the cylindrical shell 2 and also to convey such moisture as may be condensed upon the outer surface of the deflector 6 downward without reëntering the exhaust-pipe 1. With such an arrangement I am enabled to offer to the outflowing steam a very small double cone-shaped deflecting-surface, which has little condensing effect at the outlet of the exhaust-pipe and which necessarily expels all of the condensed moisture which is blown out with the steam and at the same time returns all of the condensed moisture from the outer surface of the deflector 6 and also accomplishes the desired effect of causing the steam to be forced into contact with the entire inner surface of the shell 2 and its cone-shaped bottom 3 and top 4.

9 and 10 are drain-pipes for conveying the condensed moisture from the interior of the exhaust-head to any desired point, the pipe 9 being secured at its upper end to the extreme lower end of the conical deflector 6, and in such manner as to convey all of the condensed moisture from both the interior and exterior surfaces thereof to the bottom 3.

The operation of this exhaust-head is as follows: The exhaust-steam passes upward through the exhaust-pipe 1 in the direction of the four arrows and a portion of it strikes the lower cone-shaped end of the combined cylindrical and cone-shaped deflector and is deflected directly outward against the interior surface of the shell at points approximating the upper ends thereof. Still further portions of the steam pass up and strike the reverse cone-shaped deflector 8, and are therefore deflected in the direction of the lower set of arrows downward and against the inner surface of the metal shell at points approximating the base thereof, the arrangement being such that by reason of the compound deflection of the double cone-shaped deflector 6 8 the same is caused to be thrown or deflected against all parts of the inner surface of the metal shell, and therefore subjected to a large condensing area. As the uncondensed steam passes upward it is in like manner deflected from the cone-shaped

top 4 downward against the outer surface of the tube 5 and against the inner surface of the cone-shaped deflector 6 in such manner as to obtain the best condensing effects therefrom, after which the small amount of uncondensed steam passes out, as shown.

I am aware that an exhaust-head has heretofore been devised composed of a cylindrical metal shell provided with a cone-shaped bottom and top in combination with a downwardly-extending tube secured in the top in substantial alinement with the exhaust-pipe, its lower end extending downwardly into a cylindrical-shaped bucket having a cone-shaped bottom extending upward into the bucket, so that the escaping steam from the exhaust-pipe is caused to be thrown violently against the under cone-shaped surface of the bottom of the bucket, and I make no claim hereinafter broad enough to include such a structure, my invention being directed specifically to an improvement thereon, in that I provide a double series of cone-shaped deflectors 6 and 8 and so arrange the deflectors, as hereinbefore described, that they cause the escaping steam to be deflected in all directions against the entire inner surface of the outer shell and to thereby obtain the best condensing effect therefrom in addition to such condensing effect as may be obtained from the inner surface of the cone-shaped deflector and outer surface of the downwardly-extending tube 5. By arranging the reverse cone-shaped deflector 8 and the drain-pipe 9, as shown, all of the condensed moisture which descends both from the interior and exterior surfaces of the cone-shaped deflector is caused to pass down and ultimately pass away by the drain-pipe 10, and also any drops of moisture which are ejected by the steam will be forced outward at once and pass away by said drain-pipe, a feature of utility which is not possible with the exhaust-head hereinbefore disclaimed.

I am aware also of United States patents granted to W. T. and J. J. Maypole, No. 264,093, September 12, 1882, and J. L. Robertson, No. 481,373, August 23, 1892, and I make no claim hereinafter broad enough to include any of the features disclosed in either of the above-mentioned patents, the essential feature of novelty in my invention lying in the construction of a cylindrical exhaust-head with cone-shaped bottom and top and a combined cylindrical and cone-shaped deflector supported within said cylinder and having near its lower end a reverse cone-shaped deflector of approximately the same diameter as is the diameter of the exhaust-pipe, whereby all of the condensed moisture which is ejected from the exhaust-pipe and all of the moisture which condenses upon the surface of the combined cylindrical and cone-shaped deflector is conveyed to the inner surface of the exhaust-head and not therefore permitted to return to the exhaust-pipe, and my claims are distinctly limited to this especial point of utility.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. An exhaust-head consisting of a metal shell 2 provided with a cone-shaped bottom 3, downwardly-extending cone-shaped top 4 and a downwardly-extending tube 5 secured to the top, the lower end of said tube extending into a combined cylindrical and cone-shaped deflector 6; in combination with a reverse cone-shaped deflector 8 of slightly-greater diameter than the exhaust-pipe 1, the arrangement being such that the exhaust-steam is caused to be deflected against all parts of the inner surface of the outer shell and the combined cylindrical and cone-shaped deflector, substantially as described.

2. An exhaust-head consisting of a metal shell 2 provided with a cone-shaped bottom 3 and top 4 and a downwardly-extending tube 5 secured to the top, the lower end of said tube extending into a combined cylindrical and cone-shaped deflector 6; in combination with a reverse cone-shaped deflector 8 of slightly-greater diameter than the exhaust-pipe 1, together with drain-pipes 9 and 10, the arrangement being such that the exhaust-steam is caused to be deflected against all parts of the inner surface of the outer shell and the combined cylindrical and cone-shaped deflector, substantially as described.

3. An exhaust-head consisting of a metal shell 2 provided with a cone-shaped bottom 3 and top 4 and a downwardly-extending tube 5 secured to the top, the lower end of said tube extending into a combined cylindrical and cone-shaped deflector 6 secured to the inner surface of the shell 2 by arms 7, 7; in combination with a reverse cone-shaped deflector 8 of slightly-greater diameter than the exhaust-pipe 1 and drain-pipes 9, 10, the arrangement being such that the exhaust-steam is caused to be deflected against all parts of the inner surface of the outer shell and the combined cylindrical and cone-shaped deflector, substantially as described.

4. An exhaust-head consisting of a cylindrical metal shell 2 provided with a cone-shaped bottom 3 and a downwardly-extending cone-shaped top 4; together with a downwardly-extending tube 5 secured to the top, the lower end of said tube extending into a combined cylindrical and cone-shaped deflector 6 secured to the inner surface of the shell 2 by arms 7, 7; in combination with a reverse cone-shaped deflector 8 of slightly-greater diameter than the exhaust-pipe 1 and secured directly to the lower end of the combined cylindrical and cone-shaped deflector 6 in such manner that the exhaust-steam is caused to be thrown against the entire inner surface of the cylindrical metal shell 2 and

its bottom and top 3, 4, and afterward deflected against the inner surface of the combined cylindrical and cone-shaped deflector 6, ultimately passing out through the tube 5, drain-pipes 9 and 10 being provided, the former for conveying all of the moisture from the inner surface of the deflector 6 and the exterior surface of said deflector below the reverse deflector 8 upon its outer surface, and the latter for conveying all of the condensed moisture from the entire exhaust-head, substantially as described.

In testimony whereof I have hereunto subscribed my name this 14th day of June, 1900.

SEATON M. SCOTT.

Witnesses:
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