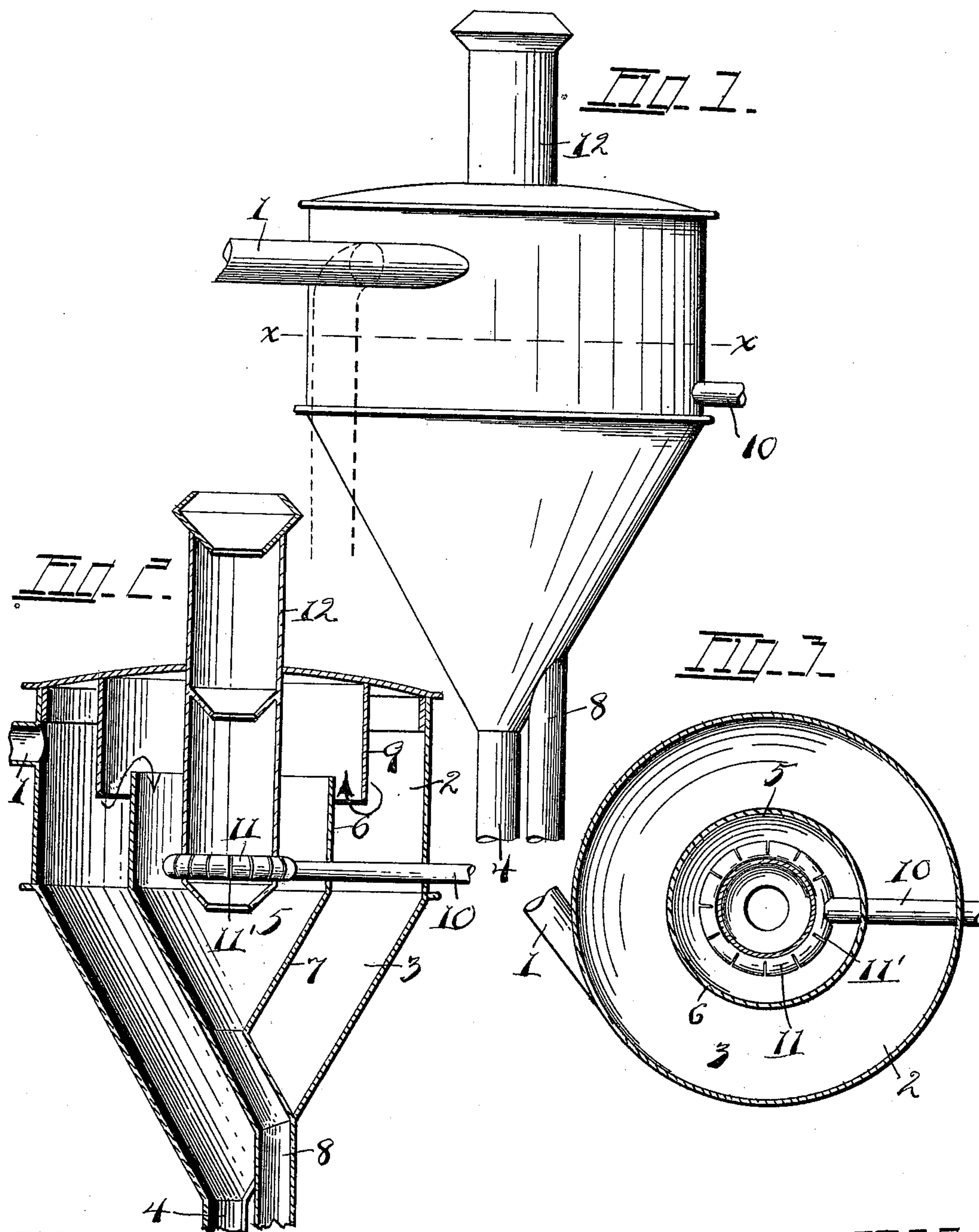


(No Model)

J. A. DILLON.
CONDENSER AND SEPARATOR FOR STEAM EXHAUSTS.
No. 582,813. Patented May 18, 1897.



WITNESSES
Carl H. Keller.
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UNITED STATES PATENT OFFICE.

JAMES A. DILLON, OF TOLEDO, OHIO, ASSIGNOR OF ONE-HALF TO FRED H. BROER, OF SAME PLACE.

CONDENSER AND SEPARATOR FOR STEAM-EXHAUSTS.

SPECIFICATION forming part of Letters Patent No. 582,813, dated May 18, 1897.

Application filed September 8, 1896. Serial No. 605,127. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. DILLON, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Condensers and Separators for Steam-Exhausts; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to a condenser and separator for steam-exhausts, and has for its objects, first, to provide for a separation of the oleaginous matter incorporated with the steam-exhaust from the lighter portion of the exhaust, whereby the condensed water may be saved and utilized.

A further object is to provide for a more thorough and efficient condensation of the steam.

With these objects in view the invention consists, broadly, in the inner chamber with means for lowering the temperature therein and a concentric chamber separated by walls of different diameters, whereby the initial effect of the reception of the exhaust is to separate the oleaginous and heavier particles from the steam and dispose of the same independently of the pure water of condensation.

In the drawings, Figure 1 is an elevation of an apparatus constructed in accordance with my invention, showing in dotted lines a different location of the ingress-port for the exhaust as allowable within the scope of my invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a sectional view on lines *x x*, Fig. 1.

1 designates the ingress-port for the exhaust, and 2 a concentric chamber into which the exhaust is initially received, with a concentric conical extension 3, having an independent discharge-nozzle 4.

5 designates a central chamber of like contour, having a vertical wall 6, a conical wall 7, and a discharge-nozzle 8. Chambers 2 and 5 are separated by an annular depending wall 9, extending below the upper end of the wall 6,

whereby the initial reception of the exhaust tends to lead the steam concentrically in impingement of the wall 9 and the outer wall 2, with the effect of gravitation of the oil and baser particles contained in the exhaust, which are precipitated and led off through nozzle 4. The lighter part of the exhaust, following the direction of arrows, enters the inner chamber 5 and is subjected to a lowering of temperature, whereby rapid condensation takes place, and the condensation is led through the conduit 8, from which it may be utilized for steam, laundry, or other purposes in its softened and purified condition.

The lowering of the temperature in chamber 5 is accomplished by means of a supply of water through pipe 10, having a jet-ring 11, provided with vertical slits 11', arranged within the chamber 5 and adapted to spray thin sheets of water into the volume of steam at a very much lower temperature than the steam. The uncondensed steam finds escape through stack 12.

In operation, as the exhaust-steam enters the outer chamber it is forced against the inside of the outer wall 2, and travels around the chamber, impinging against the wall. The heavier particles will when striking against the inside of the wall separate from the steam and flow down the conical chamber 3 through the discharge-nozzle 4. The uncondensed steam, due to the vacuum in the chamber 5, will ascend between the walls 6 and 9, and pass into the chamber 5 downwardly past the spray-ring, which forces sheets of cold water through the same, thereby lowering the temperature of the steam, condensing the same. The uncondensed steam will ascend the stack 12 and pass out into the air. The water due to the condensation will gravitate downwardly through the pipe 8, and can be used for any purpose, inasmuch as all of the greasy and foreign matter is eliminated therefrom.

What I claim is—

1. A condenser and separator for steam-exhaust comprising two casings forming an outer and an inner chamber, a steam-pipe leading into the outer chamber, a cooling-ring having a series of slits therein located within and discharging into the inner cham-

ber, and independent pipes leading from the outer and inner chambers respectively.

2. A condenser and separator for steam-exhaust comprising an outer casing having a
5 conical lower end and an outlet-pipe leading therefrom, an inner chamber of like contour having an outlet-pipe leading therefrom, a top, an annular depending wall extending downwardly in the outer chamber to a point
10 below the upper end of the inner chamber, a stack communicating with the inner chamber, and the outer atmosphere having an annular ring surrounding the same having a series of slits therein, and a pipe connecting the annu-
15 lar pipe and a water-supply.

3. A condenser and separator for exhaust-steam, comprising an outer casing, forming a chamber having a conical lower end and an outlet leading therefrom, an inner casing of

like contour forming a chamber, having an 20 outlet leading therefrom, said inner casing being open at the top and extending upwardly to a point slightly below the top of the outer casing, an annular depending wall de-
25 pending downwardly in the outer chamber to a point below the upper edge of the inner casing, a steam-pipe leading into the outer chamber in horizontal alinement with the depending wall, and a stack leading from the inner chamber above the top of the outer 30 casing.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

JAMES A. DILLON.

Witnesses:

WILLIAM WEBSTER,
MAUD SCHUMACHER.