No. 677,358. Patented July 2, 1901.

A. S. HYDE.

EXHAUST HEAD.

(Application filed Apr. 17, 1901.)

(No Model.)

Fig. 1

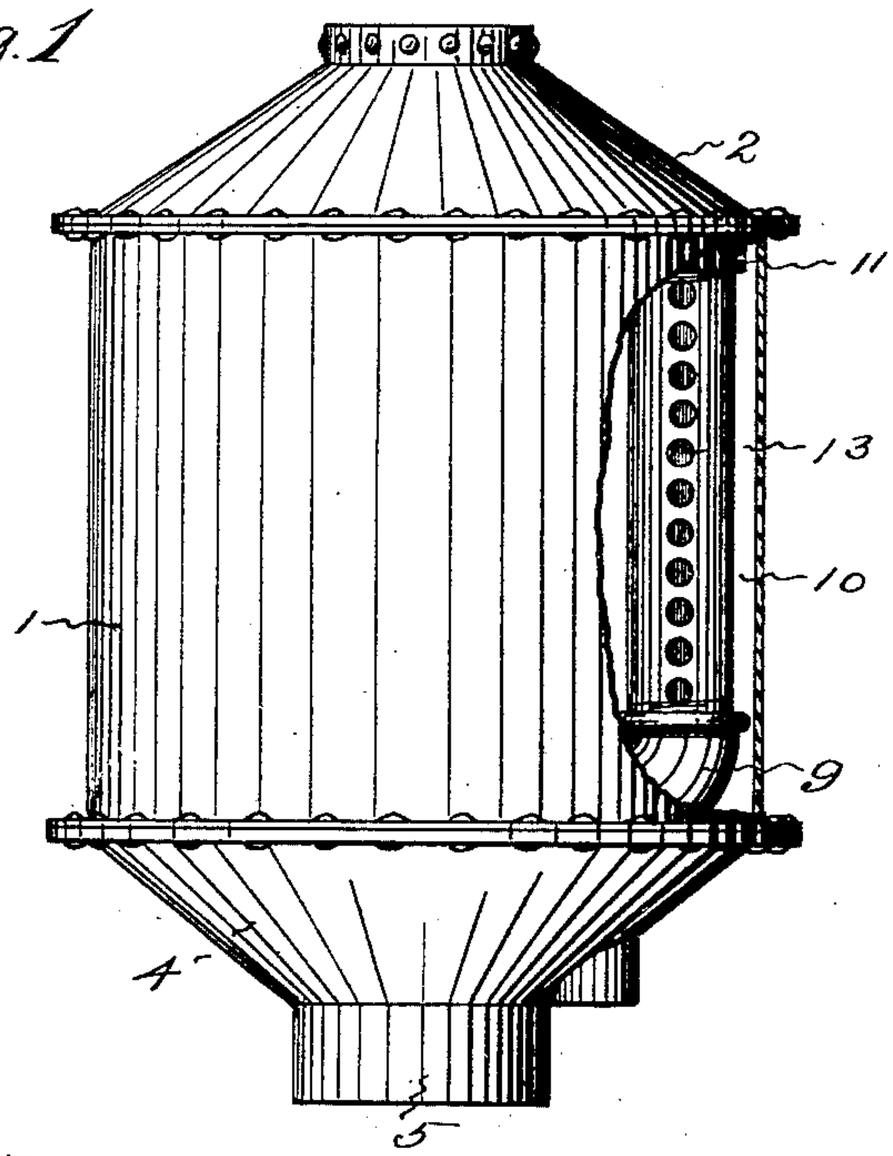


Fig. 2

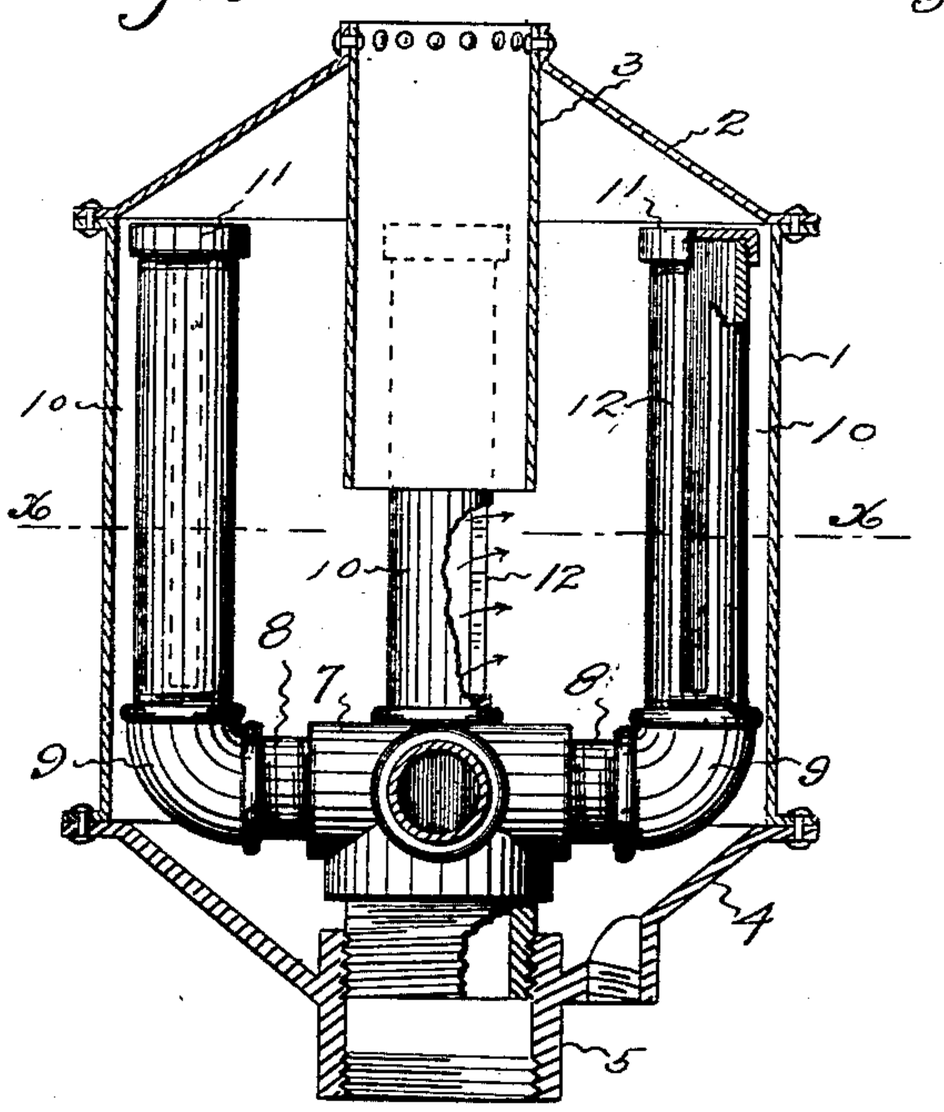
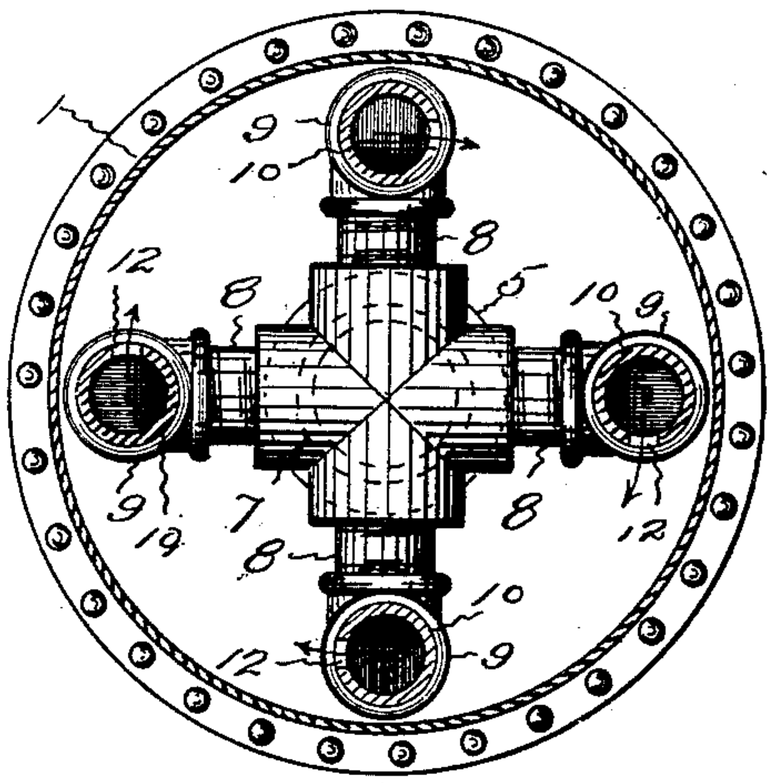


Fig. 3



Witnesses
C. F. Kilgore
V. R. Holcomb.

Inventor
Arthur S. Hyde
By his Attorney
Harry P. Williams

UNITED STATES PATENT OFFICE.

ARTHUR S. HYDE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE WHITLOCK COIL PIPE COMPANY, OF ELMWOOD, CONNECTICUT.

EXHAUST-HEAD.

SPECIFICATION forming part of Letters Patent No. 677,358, dated July 2, 1901.

Application filed April 17, 1901. Serial No. 56,293. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR S. HYDE, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Exhaust-Heads, of which the following is a specification.

This invention relates to those heads which are attached to the ends of exhaust-steam pipes for condensing as much as possible of the exhaust-steam and collecting and returning to the system the water of entrainment and the oil which passes out with the exhaust.

The object of this invention is to provide an exhaust-head that is very simple to construct, that is durable in service, and that will completely muffle the exhaust and condense a large amount of steam without causing any back pressure.

The head that is illustrated in the drawings as embodying the invention has a cylindrical shell with a conical cap fastened to each end, the upper cap supporting a vapor-outlet pipe and the lower cap supporting an exhaust-inlet pipe which has four horizontal branches, each of which supports an upright pipe that through one side has a slot or a row of perforations, so that the exhaust-steam which enters the exhaust-inlet pipe will escape through the upright pipes near the periphery of the shell in the same circular direction.

Figure 1 of the accompanying drawings shows a side view of an exhaust-head that embodies this invention. Fig. 2 shows a central vertical section of this head, and Fig. 3 shows a transverse section of the head.

The cylindrical shell 1 of the head that is shown may be formed any size, of galvanized iron or other sheet metal, painted or treated with a compound that will prevent corrosion. The cap 2 at the top is preferably formed of sheet metal and is attached by riveting its flange to the flange at the upper end of the shell. This upper cap supports a pipe 3, through which vapor can escape from the head. The cap 4 at the bottom of the shell is shown as formed of cast-iron. It may, of course, if desired, be formed of sheet metal. This cap is fastened to the cylindrical shell by riveting its flange to the flange at the lower end of the shell. At the center of the lower cap is a threaded hub 5 for attaching the head to the end of an exhaust-pipe, and at one side of the center through the lower cap is a threaded opening 6 for the attachment of a drip-pipe.

A cross-T 7 is connected with the inlet-hub inside of the shell, and attached to the outwardly-extending branches of the cross are nipples 8, provided with L's 9, screwed into which are upwardly-extending pipes 10, that have their upper ends closed by caps 11. Through one side of each of these upright pipes is a slot 12 or a row of perforations 13. These upright pipes are so turned that the openings face in the same circular direction—that is, the opening in each pipe is toward the back of the pipe next in advance.

When this head is attached to the end of an exhaust-pipe, steam flows through the cross-T and branches into the upright pipes and escapes from the upright pipes through the slots or perforations. As the openings through the upright pipes all face in the same circular direction the steam is so projected from the pipes through these openings that it whirls around the head and is caused to impinge against the shell. The combined cross-sectional area of the upright pipes is much larger than the area of the exhaust-pipe, so that there is no back pressure upon the system, and the steam as it escapes is relieved of pressure and by contact with the walls of the shell becomes to a large extent condensed, so that the water of entrainment and contained oil and grease are precipitated to the bottom of the head, from which they flow out through the drip-pipe.

The shell and caps of this head are simple to make and fasten together. The parts in the interior of the head are formed of simple pipe-fittings, that can be readily procured and easily put together. There is a large open space in the center of this head for the circulation of the steam, and the steam is carried to the outside of the shell and there circulated in a rotary direction, although it is not projected into the head tangentially, as with the ordinary centrifugal exhaust-head. The pipe-fittings of this head are durable and easily renewed if they become damaged by accident or worn by use.

I claim as my invention—

1. An exhaust-head having a shell with a vapor-outlet through the upper end, an exhaust-inlet through the lower end, radially-extending pipes connected with the exhaust-inlet, upwardly-extending pipes with openings through one side connected with the radial pipes, and a drip-outlet through the lower end of the shell, substantially as specified.

2. An exhaust-head having a cylindrical shell with tapering caps at the ends, a vapor-outlet through the upper cap, an exhaust-inlet through the lower cap, a cross-T connected with the inlet, pipes extending outwardly from the cross-T, pipes with openings through one side extending upwardly from the outwardly-extending pipes, and a drip-opening through the lower cap, substantially as specified.

3. An exhaust-head having a cylindrical shell with tapering caps at the ends, a vapor-outlet through the upper cap, an exhaust-inlet through the lower cap, a cross-T connected with the inlet, nipples extending outwardly from the branches of the cross, L's connected with the nipples, upwardly-extending pipes with openings through one side, connected with the L's, and a drip-outlet through the lower cap, substantially as specified.

ARTHUR S. HYDE.

Witnesses:
H. R. WILLIAMS,
V. R. HOLCOMB.