No. 684,299. Patented Oct. 8, 1901.

A. A. OLSEN.

STEAM EXHAUST HEAD.

(Application filed Jan. 26, 1901.)

(No Model.)

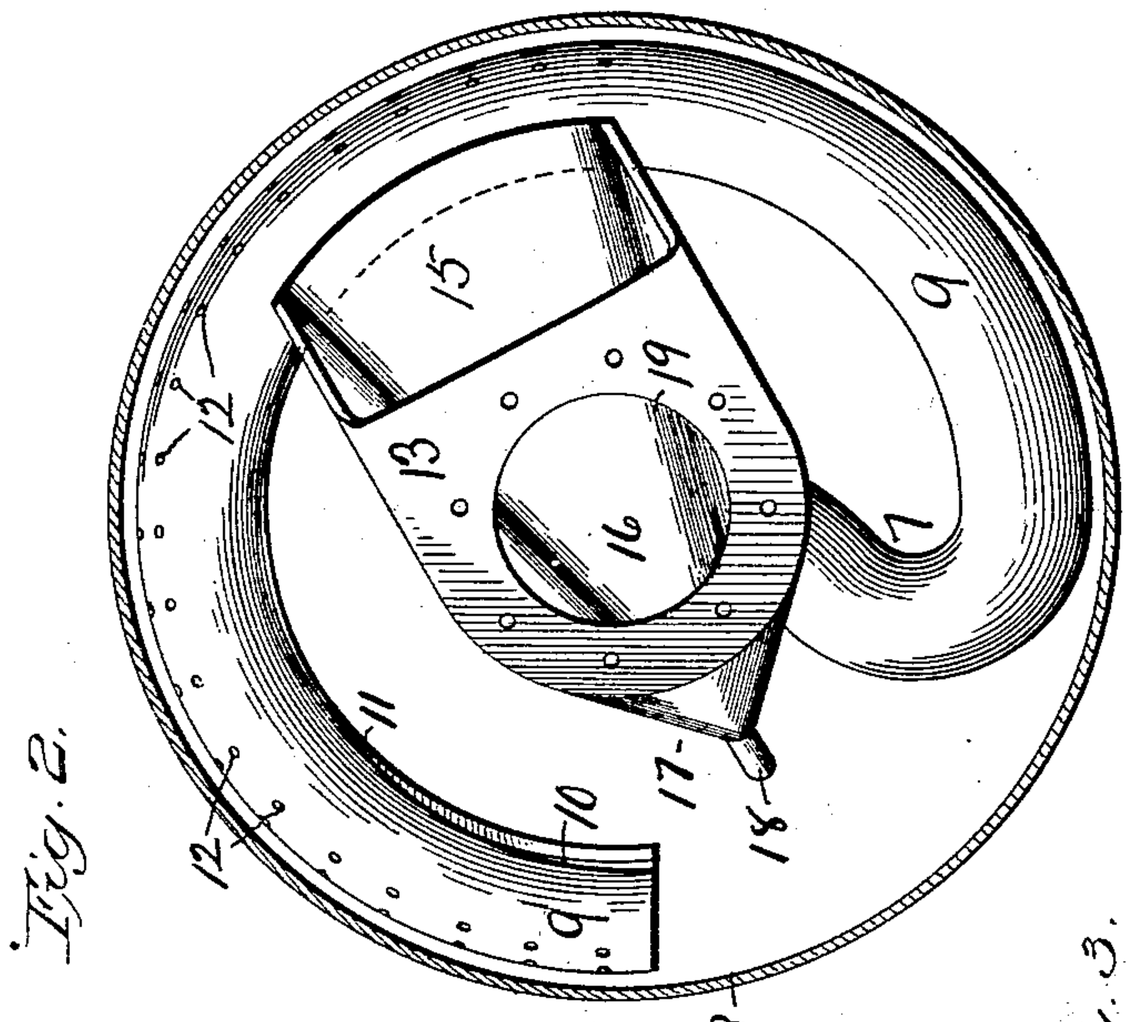

Fig. 2.

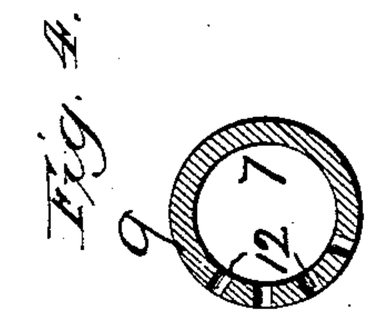

Fig. 4.

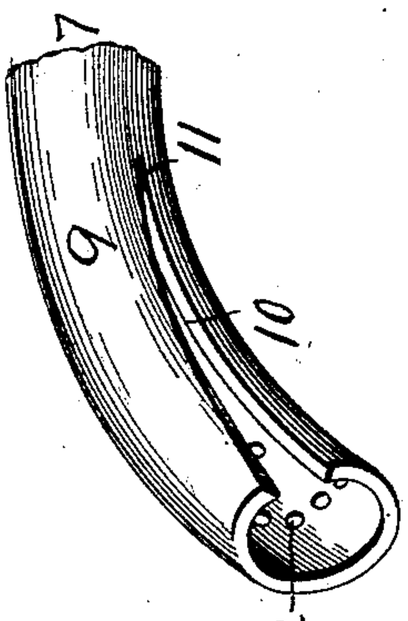

Fig. 3.

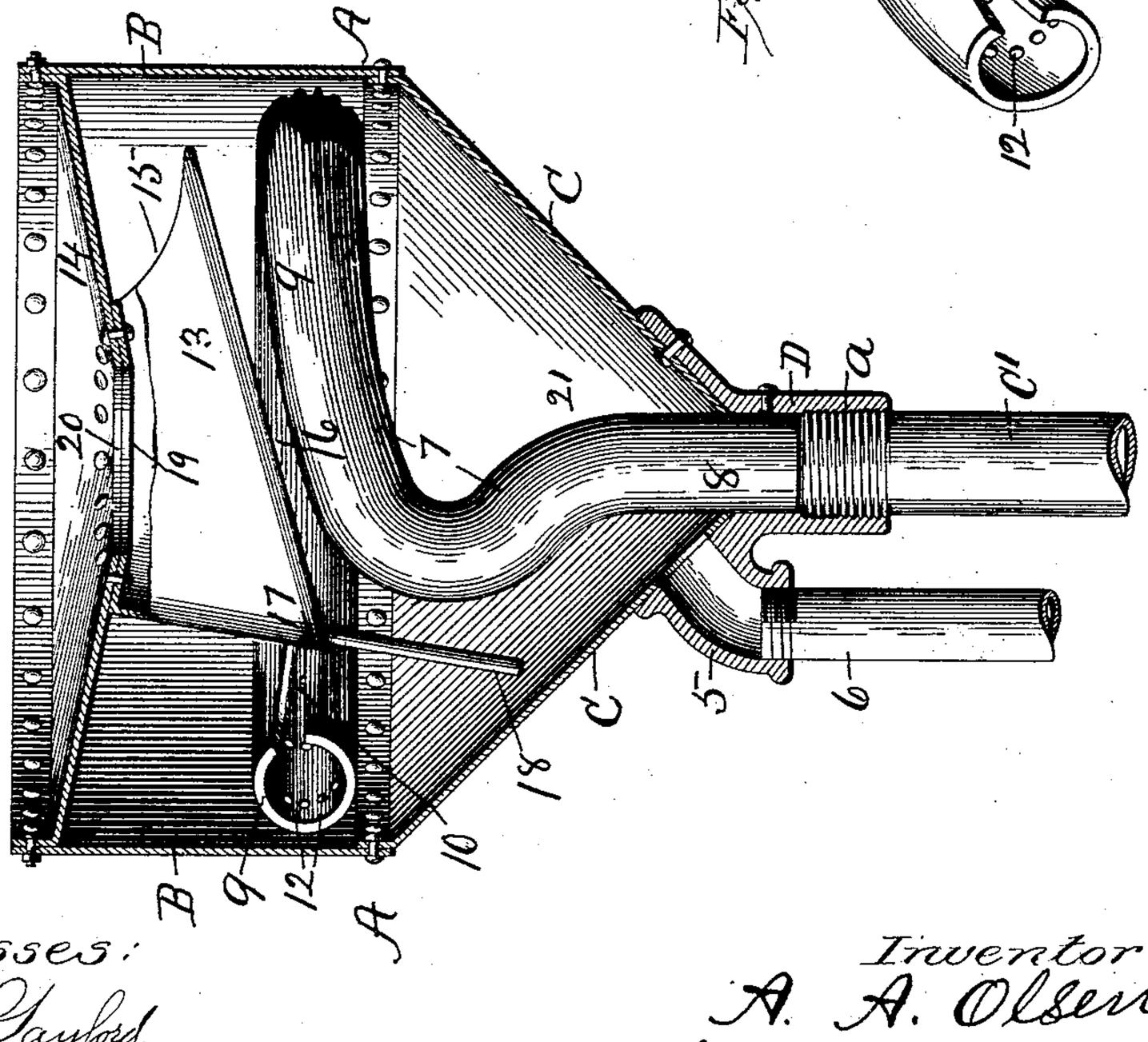

Fig. 1.

Witnesses:
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UNITED STATES PATENT OFFICE.

ALFRED A. OLSEN, OF CHICAGO, ILLINOIS.

STEAM-EXHAUST HEAD.

SPECIFICATION forming part of Letters Patent No. 684,299, dated October 8, 1901.

Application filed January 26, 1901. Serial No. 44,815. (No model.)

To all whom it may concern:

Be it known that I, ALFRED A. OLSEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Steam-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 appertains to make and use the same.

This invention relates to improvements in the class of noiseless exhaust-heads that are mounted on the discharge ends of exhaust-pipes of steam-engines, and has for its object to provide a device of this character that is simple in construction, very efficient in its working, and not liable to get out of repair. This device is not only adapted to muffle and deaden the disagreeable noise ordinarily emitted by the escaping exhaust, but also possesses the function of separating the products of condensation and permitting the escape of comparatively dry steam, thus lessening the damage to roofs and other surroundings from constant dripping.

In the drawings, Figure 1 is an elevation and part section of a device embodying the improved features. Fig. 2 is a plan section on a line just below the cover or top, which is removed. Fig. 3 is a broken-away end of the exhaust-pipe in the head, and Fig. 4 is a transverse section of the same.

A represents the inclosing casing of the exhaust-head, which will ordinarily be made of suitable sheet metal. The upper drum part B of this casing represents vertical walls and the lower part C that of an inverted cone and gradually contracts to the point where it connects with the exhaust-pipe C′. A connection or fitting D is secured to the lower conical contracted base end of the casing and is threaded, as at *a*, for the engagement of the upper end of the exhaust-pipe proper in securing the head thereto in its working position. The fitting or casting D is also provided with a nipple 5 for the attachment of the drip-pipe 6, through which the products of condensation are carried away.

The pipe 7 is inclosed in and forms a part of the exhaust-head and consists of the lower vertical part 8, which is fixed in the fitting D, and terminal horizontal coil 9. This pipe supported in the head is a continuation of the exhaust-pipe proper, the joining ends coming together as at *b*. The discharge end of the horizontal coil stops short of making a full circle of the casing, Fig. 2, and gradually checks the force of the exhaust. The end part of this pipe is provided on the inner side with a horizontal slot 10, starting in from the end and gradually narrowing to the vanishing-point 11, as shown in Fig. 3. This slot or slit enlarges the discharge area and being above the bottom provides for the escape of a portion of the driest exhaust-steam before the end of the pipe is reached, which lessens the liability of a free exhaust being affected from back pressure and at the same time fills the chamber on that side with steam and equalizes the pressure in the exhaust-head. This pipe is also provided in the outer side with a number of perforations 12, which provides for a gradual separation of the water from the steam, as the process of condensation will be greater along the surface of the pipe adjacent to the casing-wall than along the inner slotted side. The water escaping through these perforations will flow down the vertical wall of the casing into the lower conical part and finally escapes without being again taken up by the steam. A certain percentage of the steam will also be exhausted through these openings, and thus assist in relieving any undue back pressure and at the same time aid in rendering the exhaust noiseless.

A pocket or chamber 13 is removably secured to the under side of the cover 14 and is provided at one end with a receiving-opening 15, located approximately opposite the discharge end of the head exhaust-pipe 7. This pocket is provided with an inclined bottom 16, sloping from the open to the closed contracted end 17, in which a pipe 18 for freeing the pocket from condensation is inserted. The aperture 19 in the upper side of the pocket corresponds to an aperture 20 in the casing-cover 14 and provides for the escape of the steam into the atmosphere from the exhaust-head. This pocket feature will greatly assist in providing a comparatively noiseless exhaust, and in taking the steam in at one end also gives more time for the separation and escape of the products of condensation,

so that the steam finally exhausted is greatly reduced in volume, is very nearly dry, and much less liable to wet the roof and damage the surroundings.

The chamber 21 in the lower conical part of the casing provides a large area for expansion and condensation below the open end of the exhaust-pipe and is of material assistance in bringing about the desired result.

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

1. In an exhaust-head, the combination with a casing, of an exhaust-pipe supported therein and consisting of a vertical lower part and an upper horizontal coil, provided with a number of perforations in the outer side and a vanishing-slot, starting in from the discharge end, substantially as described.

2. In an exhaust-head, the combination with an inclosing casing, of an exhaust-pipe, supported therein and consisting of a vertical part and a horizontal coil part, a pocket, open at one end and positioned above said coil and apertured for the escape of the steam into the outer atmosphere, substantially as described.

3. In an exhaust-head, the combination with an inclosing casing, having an escape-aperture in the top, of an exhaust-pipe, terminating in a horizontal coil and forming a continuation of the exhaust-pipe proper, a pocket, secured to the casing above said coil and open at one end and closed at the other, and provided in the upper side with an exhaust-opening in line with the apertured top of the casing and means for conducting the products of condensation away from said pocket, substantially as described.

4. In an exhaust-head, the combination with the casing, of an exhaust-pipe, inclosed therein and terminating in a horizontal coil, the fitting connection, secured to the lower contracted end of the casing, an exhaust and condensing pocket, open at one end and closed at the other, and means for carrying away the drip from the casing and pocket, substantially as described.

5. In an exhaust-head, the combination with a casing, of an exhaust-pipe, supported therein and terminating in a horizontal coil, the pocket, secured to the top of the casing and opening into the outer atmosphere, and the expansion and condensing chamber, located below said horizontal coil, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED A. OLSEN.

Witnesses:
J. B. DONALSON,
L. B. COUPLAND.