

(No Model.)

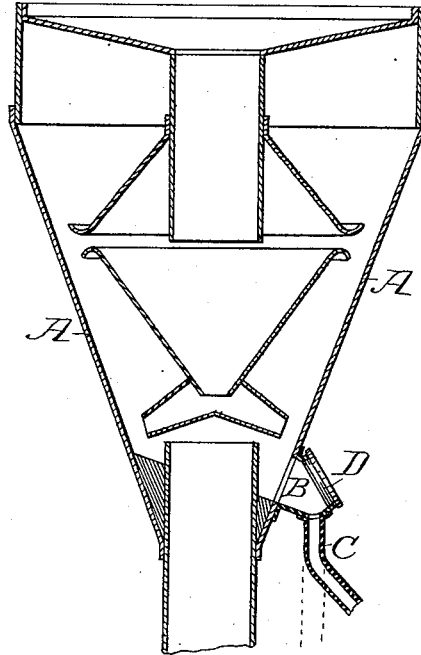
W. C. LYMAN.

DRAIN FOR STEAM CONDENSER HEADS.

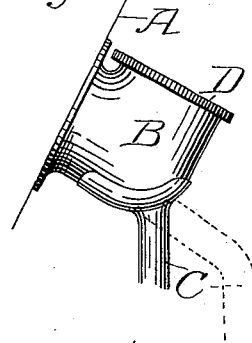
No. 303,441.

Patented Aug. 12, 1884.

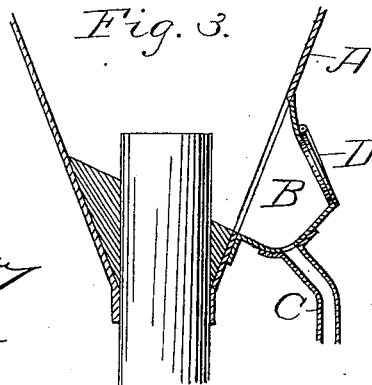
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:

*E. W. Schirachy*  
*B. F. Rae*

*Wilfred C. Lyman.*  
INVENTOR

BY *James H. Coyne*  
ATTORNEY

# UNITED STATES PATENT OFFICE

WILFRED C. LYMAN, OF CHICAGO, ILLINOIS.

## DRAIN FOR STEAM-CONDENSER HEADS.

SPECIFICATION forming part of Letters Patent No. 303,441, dated August 12, 1884.

Application filed May 2, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILFRED C. LYMAN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful  
5 Improvements in Drains for Steam-Condenser Heads; 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  
10 use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

One of the greatest difficulties that has to be  
15 overcome in the use of steam-condensing heads for the exhaust-pipes of non-condensing steam-engines is the accumulation therein of a glutinous greasy substance, made from grease  
20 and such foreign ingredients as are forced up by the exhaust-steam, and which failing to find a ready outlet accumulates on all parts of the interior of the head. While the head is in operation, and therefore hot, the said substance, which generally issues from the ex-  
25 haust-pipe in a liquid state, will not have much opportunity to cool and solidify, but will drain off through the drip-pipe. Nevertheless some of it will accumulate on the sur-  
30 faces of the head exposed to the action of the steam, and as the steam is shut off will cool and solidify. The successive layers of the said glutinous substance thus accumulated in the head will in course of time, if undisturbed,  
35 to a certain extent, frustrate the object for which the head was designed by not presenting a cooling surface to condense the steam.

The object of my invention is to provide means whereby this glutinous substance may  
40 be gotten at and removed; and it consists of a combined hand-hole and drip-pipe, one of the principal features of which is that the liquids of condensation cannot accumulate therein, and in cold weather, when not in use, freeze  
45 and burst the pipe, or stop up the mouth of the drip-pipe.

In the drawings, Figure 1 is a vertical transverse section of a condenser-head showing the application of my improved combined hand-  
50 hole and drip-pipe. Fig. 2 is a side elevation

of the same, and Fig. 3 shows a modification thereof in section.

Reference being had to the drawings, A represents a steam-condensing head for the ex-  
haust-pipe of non-condensing steam-engines, 55 similar in construction to the condensing head for which Letters Patent were granted to me July 4, 1876, and numbered 179,581, and to the head shown, but not claimed, in the Let-  
ters Patent granted to William T. and John 60 J. Maypole, September 12, 1882, No. 290,093, for improved drains. I do not, however, wish to be limited to the use of heads of the above description, as my invention is adapted for  
65 use in almost any steam-condensing heads. These heads are secured on the top of a steam-exhaust pipe, which latter enters said head a suitable distance, so that, if desired, an incline surface may be made around it in the lower  
70 part of the head, which dips and conveys the products of condensation deposited thereon to the drip-pipe, by which they are carried off.

In my invention, at that point where the drip-pipe would open into the head, were my invention not known, I place the hand-hole 75 B, the bottom of the shell composing which is sufficiently inclined in the same direction as the inclined surface in the lower part of the head hereinbefore mentioned, so that the liquids of condensation may gravitate into said  
80 hand-hole, and be conveyed to the drip-pipe C, which opens into and is connected to the hand-hole at the lowest point thereof, so that all the said liquids may easily flow into said drip-pipe. This hand-hole B is provided with  
85 a cap, D, which in every instance is placed and closes the opening of said hand-hole on a plane above the mouth of the drip-pipe, so that by no possibility can the liquids of condensa-  
90 tion flow out of it.

One of the great advantages to be gained by the contiguity of the hand-hole is that if by any accident the mouth of the drip-pipe should become choked up the cap D can be removed and the obstruction easily removed, and this 95 can be done without the necessity of disconnecting the drip-pipe. This cap may be made to screw into the open end of the hand-hole; or it may be hinged at one side, and when closed down fastened by a catch on the other; 100

or it may be fastened by a bridge and bolt similar to that used for holding the head-plates in man-holes of steam-boilers.

In Fig. 3 is shown a modified shape of the hand-hole, in which the upper portion of the shell composing the same is inclined upward at a steep dip from the hand-hole cap to the head A. This construction makes the opening from the head into the said hand-hole considerably larger than in the other forms shown, and greatly facilitates the cleansing of the head by permitting the insertion of the arm through the hand-hole, which, it may be mentioned, no other hand-hole and drain placed in the same position and heretofore in existence does, because of the fact that the space between the walls of the exhaust-pipe and the shell of the head on that horizontal plane is so small that a man's hand cannot enter there without some such conformation as I have invented and shown.

The shell of the hand-hole may be of any desired conformation or shape—that is, may be straight out from the head or aligned on the same plane as the inclined surface surrounding the exhaust-pipe or forming an L, the horizontal part connected to the condenser-head, and the cap closing the top end of the vertical arm. Moreover, the drip-pipe may be connected to the hand-hole at any point and lead therefrom at any angle, so long as it can drain off the waters of condensation and does not encroach on the area covered by or connected with the cap of the hand-hole.

I am aware of the aforesaid Letters Patent issued to Maypoles September 12, 1882, and numbered 294,093, for improved drains; but while that is practically a combined hand-hole and drip-pipe, yet its construction and operation are entirely different. In order to clean it, the drip-pipe must be disconnected and the refuse water, &c., flow out of it while being cleaned, much to the inconvenience of the operator. Moreover, by reason of the accumulation therein of water around the smaller pipe, it is in danger of freezing and bursting the pipe in cold weather; and, further, as the specific gravity of the oily, greasy substance

is less than water, it floats on top of the body of water surrounding the smaller pipe. It will as it flows over the narrow edges and into the mouth of the smaller pipe accumulate thereon and ultimately choke up the mouth of said pipe unless removed in time.

My invention is so constructed as to avoid all of these objections.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a condenser-head for steam-exhaust pipes, of a combined hand-hole and drip-pipe, the said drip-pipe being permanently connected to and leading from the lowest point in the shell of said hand-hole, as hereinbefore set forth.

2. In a condenser-head for steam-exhaust pipes, the combination, with a hand-hole the opening into which from the outside is covered by a suitable cap and is located above the plane of the mouth of the drip-pipe, of said drip-pipe, connected to and leading from the shell of hand-hole in such position that the products of condensation of said head may be thoroughly drained therefrom.

3. A hand-hole opening into and aligned with the inclined surface in the bottom of steam-condenser heads, and having the upper surface of the shell of the hand-hole inclined at a very steep dip from the condenser-head to the cap of said hand-hole, in combination with a drip-pipe connected to and leading from said hand-hole at the lowest point thereof.

4. A hand-hole opening into and aligned with the inclined surface in the bottom of steam-condenser heads, having the upper surface of the shell between the cap thereof and the condenser-head to which it is connected inclined at a very steep dip, substantially as set forth.

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

WILFRED C. LYMAN.

Witnesses:

FRANK D. THOMASON,  
E. W. SCHIRACH.