

(No Model.)

J. F. DUFFY.
TROUGH FOR BEER COOLERS.

No. 541,660.

Patented June 25, 1895.

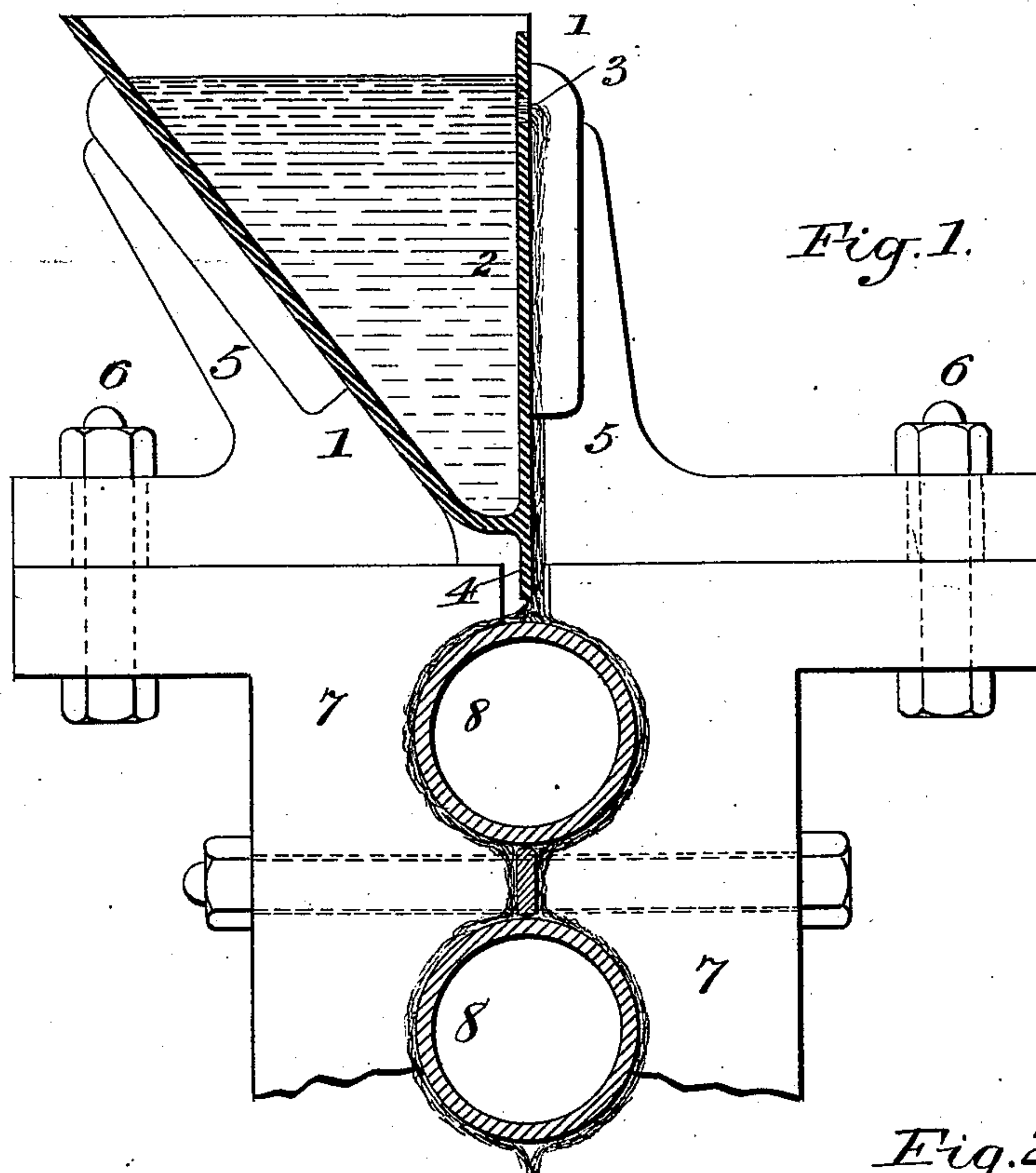


Fig. 1.

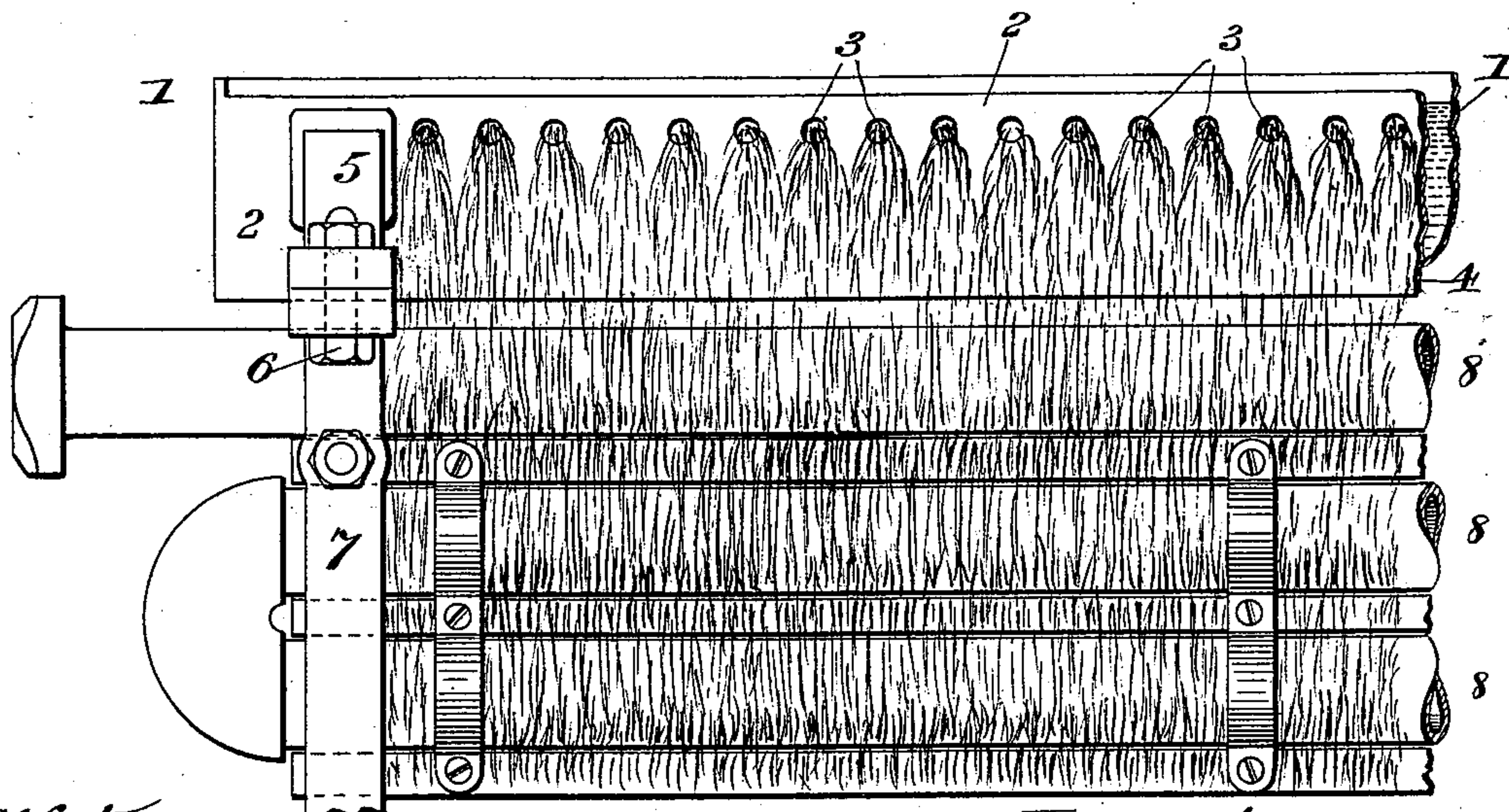


Fig. 2.

Witnesses:
Pierce L. Wells.
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UNITED STATES PATENT OFFICE.

JOHN F. DUFFY, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE NATIONAL
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TROUGH FOR BEER-COOLERS.

SPECIFICATION forming part of Letters Patent No. 541,660, dated June 25, 1895.

Application filed February 25, 1890. Renewed May 21, 1895. Serial No. 550,143. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. DUFFY, of Brooklyn, Kings county, New York, have invented a new and useful Improvement in Gutters, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

My invention relates to a class of gutters that have been used for the distribution of liquids over the exterior surfaces of pipe arranged in line vertically and used as condensers, or for beer or brine coolers, or for similar purposes.

The object of my improvement is to provide a gutter by which a reliable and constant distribution of water or other liquid can be obtained and to avoid the choking and irregularity of flow caused by the accumulation of scum or sediment which occurs in gutters having perforations in their bottoms; to simplify the form and construction of the gutters and to lessen the cost of the same.

Figure 1 shows an end view of the gutter in section with an illustration of its application. Fig. 2 shows a side view of the gutter in perspective and partly in section.

Similar numbers refer to similar parts in both views.

The number 1, represents the gutter which is provided with a straight vertical side 2, having numerous perforations or holes through it as at 3. 3. to prevent the overflow of liquid therefrom when the basin of the gutter is filled above the line formed by the bottom of the holes 3. 3. These perforations or holes may be of any shape. The straight side 2. is extended below the body or basin of the gutter forming a plate or fin 4. to convey the overflowing liquid away from the bottom of the basin and to the pipes over which it is to be distributed or to distribute it more evenly and uniformly in line where required.

5. 5. are brackets which are made to correspond with the outline of any form of gutter to hold the gutter in proper position. They can be secured by bolts 6. to the frame 7. of a condenser or cooler having pipes 8. 8. in line vertically over which the liquid is to be distributed.

The ends of the gutter are usually made of

cast brass and the remainder of wrought metal, but the entire gutter may be made of cast metal or of any other material.

Its operation is as follows: Water or other liquid is supplied to the basin of the gutter from any source. When it accumulates and flows through the apertures or perforations 3, in the straight side 2, in sufficient quantity and the supply cock is regulated to furnish the amount required or to make good the waste, the liquid rises above the line formed by the upper side of the perforations 3, especially if the holes are not too large, and a volume of the liquid is held in the liquid chamber above the perforations or holes. As it rises in the gutter a head is formed and the liquid under the increased pressure is made to escape with greater rapidity, so that with anything like careful regulation of the liquid supply, a line is reached, above which it will not rise without the supply is increased and yet the water line or liquid line will remain above the perforations. In consequence of this fact, liquid may be distributed over the entire surface of the condenser or cooler from these apertures and with sufficient uniformity and with economy even if they are not quite in line, and this cannot be accomplished in the absence of the perforations where the liquid is made to rise higher than the lowest part of the upper edge of a gutter, in which case the liquid will flow over only at the lowest point. By having a liquid chamber below the distributing perforations or outlets, sufficient space is provided to collect all sediment that may be introduced with the liquid. This settles to the bottom and the liquid flows unobstructed through the perforations. By having a liquid chamber above the perforations a greater supply of liquid can be introduced into the gutter and can be distributed over the pipes of a condenser or cooler as required without waste. The pressure obtained by the head of liquid regulating the rapidity of its discharge and vice versa the rapidity of its discharge regulates the height of the liquid in the gutter.

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

1. The combination with a condenser, of a gutter, above the condenser, having a straight vertical side 2, provided with overflow outlets intermediate of its top and bottom, substantially as specified.

2. The combination with a condenser, of a gutter, above the condenser, having a straight vertical side 2, provided with perforations near its top, and a fin extending below the gutter in line with said side, for distributing

liquid over the condenser, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN F. DUFFY.

Witnesses:

A. CAUTAAT,
ANTHONY GREF.