W. H. GUILD.

Injection-Condenser.

No. 198,883. Patented Jan. 1, 1878.

Fig. 1.

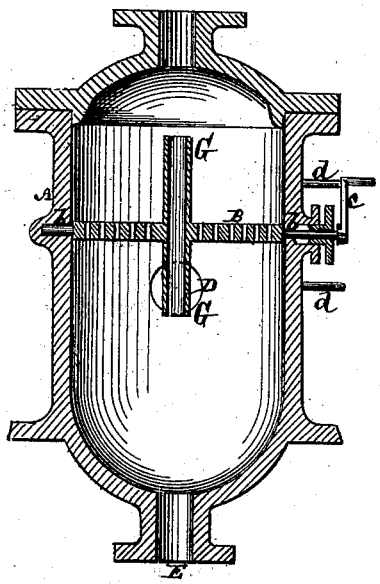
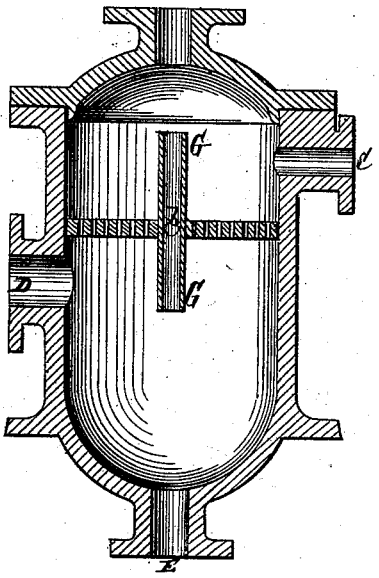


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM H. GUILD, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN INJECTION-CONDENSERS.

Specification forming part of Letters Patent No. **198,883**, dated January 1, 1878; application filed August 20, 1877.

To all whom it may concern:

Be it known that I, WILLIAM H. GUILD, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Injection-Condensers, of which the following is a description, reference being had to the accompanying drawing, forming part of this specification.

This invention is more particularly designed to be applied to condensers used in connection with vacuum-pans; and relates to that description of injection-condensers in which the condensing-chamber is divided by a perforated diaphragm or sprinkler, above which the water used to effect condensation is admitted, and beneath which the steam or vapor to be condensed is introduced.

The invention consists in a combination, with the condensing chamber or vessel, of a perforated diaphragm or dividing-sprinkler having one or more ducts through it, constructed to occupy a raised position on its upper surface, said ducts being of greater area than the sprinkling perforations in the diaphragm, singly considered, and serving to provide for the free passage of air or vapor through it when said condenser is connected with an air-pump above, also serving to form an overflow pipe or pipes for the water used to effect condensation, in case of the sprinkler becoming foul or choked, and so that, should the water bank up above the sprinkler, it will be run off by said pipe or duct into the portion of the condenser below the sprinkler.

The invention also consists in a combination, with the condensing chamber or vessel, of a reversible diaphragm or dividing-sprinkler, provided with one or more ducts or pipes, arranged to project from opposite sides or faces of it, and serving to provide for the free passage of air or vapor and overflow of water through it, without regard to the side of the sprinkler which is uppermost. This is not designed to cover a mere reversible sprinkler, which in itself is old.

Figures 1 and 2 represent vertical sections, in planes at right angles with each other, of an injection-condenser suitable for attachment to a vacuum-pan, and constructed in accordance with my invention.

A is the condensing-vessel, and B its perforated diaphragm or dividing-sprinkler. C is the inlet for the water used to effect condensation, and D the inlet for the steam or vapor to be condensed. E is the outlet for the products of condensation, and at the opposite or upper end of the vessel is an opening for connection with an air-pump.

The perforated diaphragm or sprinkler B is hung to rock or turn on or in side trunnions or bearings *b b*, and is fitted with an exterior handle, *c*, which may work between stops *d d*. Such construction readily admits of the sprinkler being reversed from time to time, so as to present opposite faces to the incoming water, whereby its perforations are kept clear or clean.

G is a pipe or duct through the perforated sprinkler B, of greater area than the perforations in the sprinkler, singly considered, and constructed to occupy a raised position on the upper surface of the latter. This duct, thus projecting above the upper surface of the sprinkler, serves to provide for the free passage of air or vapor through it from the lower to the upper portion of the vessel A, when the air-pump connected with the opening at the top of the vessel A is at work, which freedom of draft could not be effected by the mere sprinkling perforations in the diaphragm B, owing to their small dimensions, which causes them to have a capillary action, and to the film or layer of water on the upper surface of the sprinkler. Said duct G also serves to pass off any overflow of water from the upper to the lower chamber of the vessel A, in case of the sprinkler becoming foul or choked and the water banking up above the sprinkler. By extending this duct G so that it projects beyond both or opposite faces of the perforated diaphragm or sprinkler B, as shown in the drawing, it is immaterial which side of the sprinkler, when made reversible, is uppermost, so far as the function or use of the duct G is concerned.

I claim—

1. The combination, with the condensing chamber or vessel, of a perforated diaphragm or dividing-sprinkler, provided with one or more ducts or pipes, constructed to project above the upper surface of it, and serving to establish communication between the upper

and lower portions of the condensing-chamber on opposite sides of the sprinkler, substantially as and for the purpose or purposes herein set forth.

2. The combination, with the condensing chamber or vessel A, of a reversible sprinkler, B, provided with one or more ducts or pipes, G, arranged to project from opposite sides or faces of the sprinkler, essentially as described.

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