

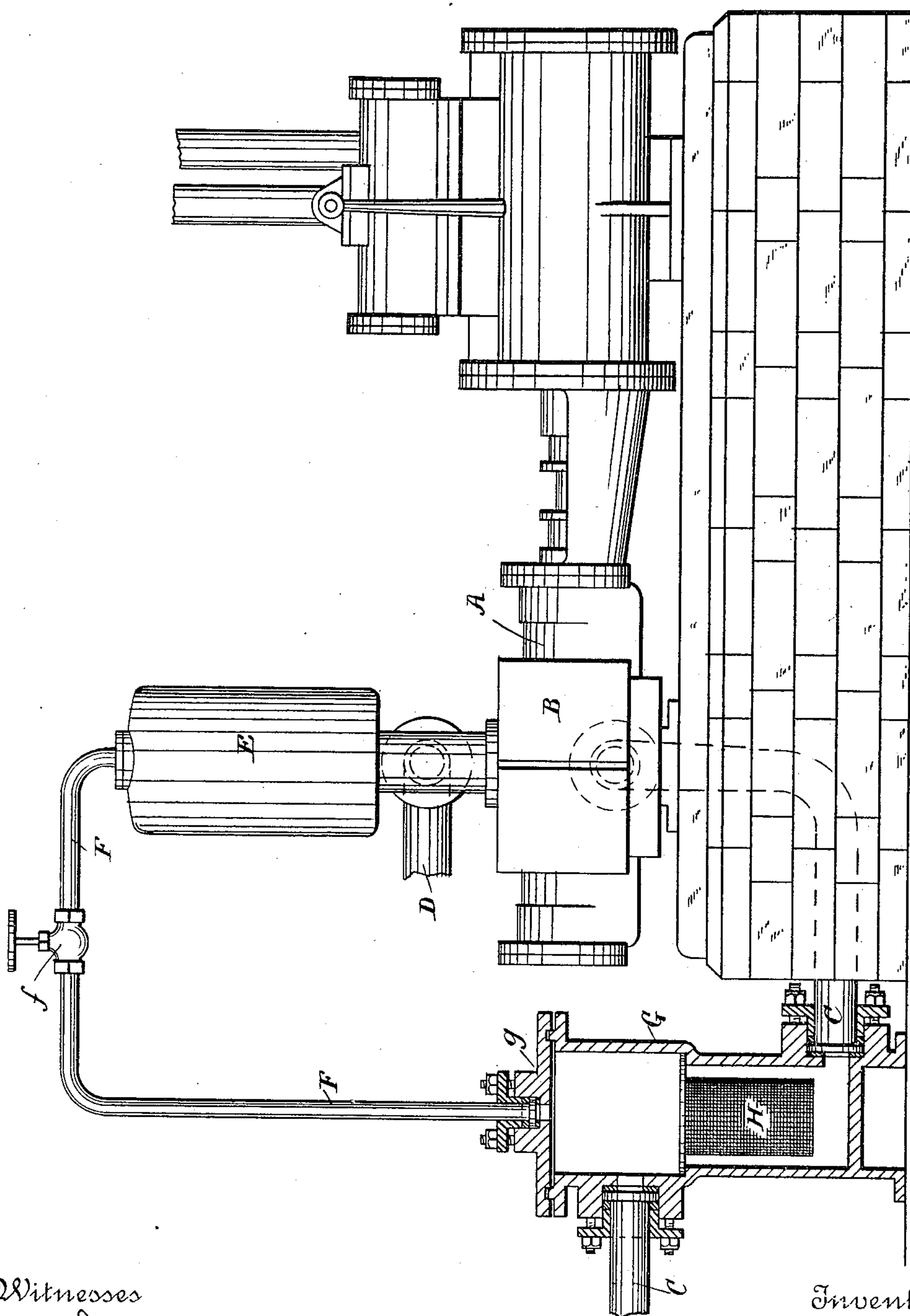
(No Model.)

T. H. BUTLER.

PUMP ATTACHMENT FOR GASEOUS LIQUIDS.

No. 371,488.

Patented Oct. 11, 1887.



Witnesses

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UNITED STATES PATENT OFFICE.

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PUMP ATTACHMENT FOR GASEOUS LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 371,488, dated October 11, 1887.

Application filed June 11, 1887. Serial No. 241,004. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. BUTLER, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Pump Attachments for Gaseous Liquids; 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 pumps for gaseous liquids, and more especially to those used for pumping aqua-ammonia into the retort or gas-generator of an ice-machine.

This invention consists in the novel combination of the parts, hereinafter fully described and claimed, whereby the gas chamber may be relieved from accumulated gas.

The figure in the drawing shows a side view of a pump provided with attachments according to this invention, the strainer-casing being shown partly in section.

A is the pump-barrel, and B is the suction and delivery valve chamber.

C is the suction-pipe, and D is the delivery-pipe.

E is the pump-chamber, frequently called an "air-vessel," but in pumping a gaseous liquid which is free from air this chamber will be filled with gas instead of air; but otherwise it will operate exactly the same as an ordinary air-vessel.

In pumping a gaseous liquid—such as aqua-ammonia—there is a tendency for the gas to separate from the liquid in passing through the pump, on account of a slight decrease in pressure and rise in the temperature of the liquid. When the pump-chamber E becomes full of gas, and will no longer relieve the pump-barrel of any more gas which forms in it, the pump will not work properly. To overcome this difficulty the pipe F is provided, connecting the top of the pump-chamber E with the suction-pipe C. A regulating-valve, *f*, is applied to the pipe F, so that the outflow of gas from the pump-chamber can be stopped altogether, or a greater or less volume allowed to pass through it.

G is an inclosing-casing provided with a perforated strainer, H, inside it. This casing is inserted between the sections of the suction-

pipe, so that the liquid passes through the strainer and the lower part of it, and the pipe F is fastened into its cover above the strainer. The strainer is placed within the casing, so as to be easily removable when the cover is taken off for the purpose of cleaning out any accumulations of dirt which may lodge there. The strainer also serves the purpose of bringing the gas into intimate contact with the cold liquid passing through the casing G, so that it may be absorbed by the cold liquid before it passes into the pump-barrel.

The operating parts of the pump do not differ from those commonly in use for water.

What I claim is—

1. In combination with a pump for gaseous liquids, provided with a pump-chamber, a pipe connecting the upper part of the said chamber with the suction-pipe, whereby a portion of the gas accumulating in the chamber may be absorbed by the liquid in the suction-pipe, and a mixer for bringing the gas passing through the pipe into intimate contact with the liquid in the suction-pipe.

2. The combination, with a pump for gaseous liquids, provided with a pump-chamber, of a pipe connecting the upper part of the said chamber with a suction-pipe, whereby a portion of the gas accumulating in the chamber may be absorbed by the liquid in the suction-pipe, a mixer for bringing the gas passing through the pipe into intimate contact with the liquid in the suction-pipe, and a regulating-valve for controlling the flow of gas through the said pipe.

3. The combination, with a pump for gaseous liquids, provided with a pump-chamber, of a pipe connecting the upper part of the said chamber with the suction-pipe, whereby a portion of the gas accumulating in the chamber may be absorbed by the liquid in the suction-pipe, and a perforated strainer provided with an inclosing-casing connecting the gas and suction pipes, so that impurities may be removed from the liquid and the gas be brought into intimate contact with the liquid.

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

THOMAS H. BUTLER.

Witnesses:

JAMES I. CHAMBERLIN,
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