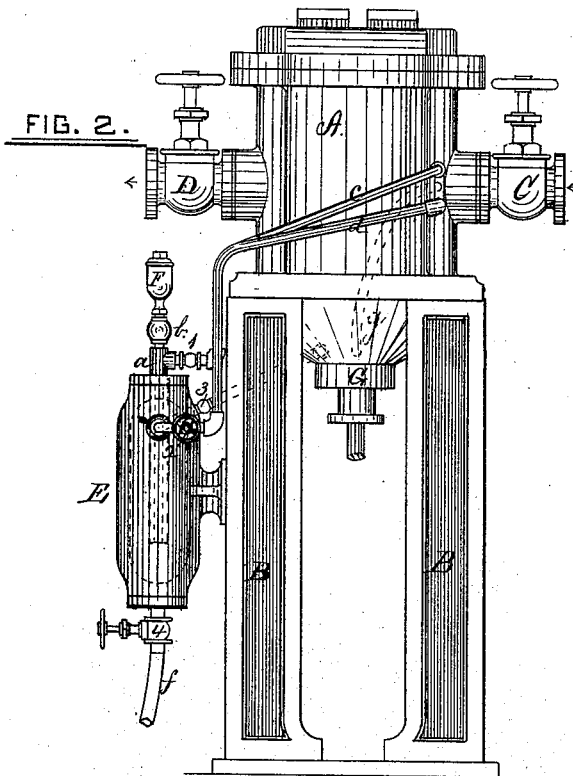
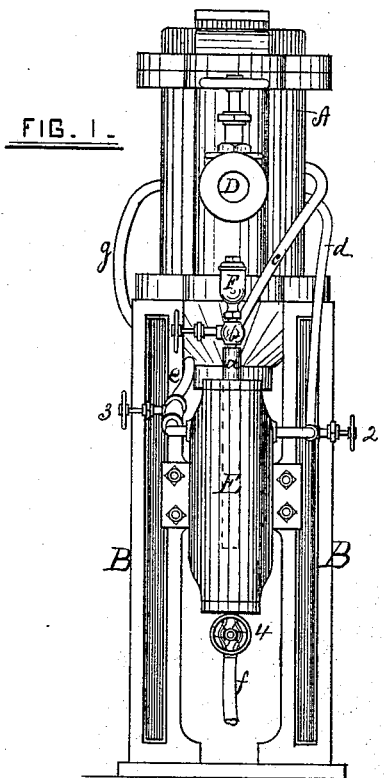


F. V. DeCOPPET.

LUBRICATION OF ICE-MACHINES.

No. 190,423.

Patented May 8, 1877.



WITNESSES.

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IMPROVEMENT IN THE LUBRICATION OF ICE-MACHINES.

Specification forming part of Letters Patent No. 190,423, dated May 8, 1877; application filed October 7, 1876.

To all whom it may concern:

Be it known that I, FRANCIS V. DE COPPET, a resident of the city of New Orleans, parish of Orleans, and State of Louisiana, have invented a certain new and useful Improvement in Ice-Machines; and I do hereby declare the following to be a full, clear, and correct description of the same, reference being had to the annexed drawing, making a part of this specification.

This invention relates to certain improvements in ice-machines for which Letters Patent No. 148,675, of the United States were granted to me on the 17th of March, 1874.

The object of my present improvements is to simplify the means by which the lubricant is fed to the compressing-pump, so that the feed may be automatic; and, also, to provide a means for charging the vessel with lubricant, or removing therefrom the same when deteriorated, without loss of gas.

In the accompanying drawing my improvements are shown in connection with an inverted pump; and consists in applying the charging-cup direct to the lubricant-vessel, and in providing a relief-pipe for connection between the pump and the aforesaid vessel; but my invention will be better understood by referring to the drawing, on which—

Figure 1 is a side, and Fig. 2 a front, elevation of a pump and stand with my improvements thereto attached.

A represents a pump, which is securely fastened on the top of a stand, B, so as to be operated from below. C is a valve, through which the ammoniacal vapors are fed to the pump from a refrigerator or congealer, which is not shown in the drawing, as it forms no part of my invention. From the pump the vapor passes out the discharge-valve D, from whence it is designed to be conveyed by suitable pipe to the condenser.

To the front part of the frame A is securely bolted, in a vertical position, a lubricant-vessel, E, in the upper head of which is screwed or otherwise secured a dip-pipe, *a*, the top of which is furnished with a charging-cup, F, and with a valve, *b*, from which a pipe-connection, *c*, is made with the receiving side of the pump. *d* is a pipe, which connects the said side of the pump with the interior of the

lubricant-vessel. The latter pipes are each provided with stop-cocks, as at 1 2.

The stuffing-box G at the bottom of the pump is connected with the receiving side of the same by a pipe, *g*, and with the lubricant-vessel by a pipe, *e*, which is furnished with a stop-cock, as shown at 3. At the bottom of the vessel E is fitted a stop-cock, 4, provided at its lower end with a rubber pipe, *f*, through which to discharge the impoverished liquid into a receiving-tank.

The operation of my invention is as follows: Before starting the pump the vessel E is partially filled with lubricant. All valves are then closed with the exception of the inlet-valve C and discharge-valve D. The pump is then started, after which the valve 3 of pipe *e* is opened to its full extent in order to establish a pressure from the discharge side of the pump in the vessel E. The valve 1 is then slightly opened, and, in consequence of the aforesaid pressure in the vessel E, the lubricant is forced up the dip-tube *a*, and through the pipe *c* into the receiving side of the pump, where it mixes with the gas as the latter enters through the inlet-valve C, and is distributed to all the working parts of the pump, and thereby insures complete lubrication of the same.

By gravity a portion of the lubricant reaches the stuffing-box, and around the piston-rod, from whence it returns, with any gas which might leak through the packing into the inlet of the pump, through the pipe *g*.

That portion of the lubricant which does not enter the stuffing-box returns through pipe *e* and cock 3 to the vessel E to perform again the same functions.

To withdraw the lubricant, which by long usage becomes deteriorated, the inlet C is momentarily closed. The valves 1 and 3 are next closed, thereby stopping all communication between the pump A and vessel E. The relief-valve 2 is now opened for an instant, which will form a vacuum or partial vacuum in vessel E. The moment the valve 2 is closed the valve 4 is opened, so that the lubricant may be discharged through the rubber tube attached to the same.

In order to charge the vessel E again, it being understood that the pump is continuous-

ly working, the valve 4 is first closed and a vacuum created in the said vessel by momentarily closing valve C and opening valve 2. The instant these valves are returned to their original position the desired vacuum is established. The valve *b* is then opened, and the lubricant contained in the cup F, or any other vessel with which it may be attached, is sucked or drawn into the aforesaid vessel E. The valves 1 and 3 are then opened, as before mentioned, so as to establish a circulation of the lubricant.

By this arrangement it will be perceived that I am enabled to charge or discharge the lubricant-vessel while the machine is in operation without loss of gas.

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

1. The arrangement of a relief-pipe, *d*, and stop-cock 2, in combination with the pump A and lubricant-vessel E, as described, and for the purpose set forth.

2. The lubricant-vessel E, provided with dip-tube *a*, charging-cup F, and discharge-valve 4, in combination with the pump A, relief-pipe *d*, and feed-pipe *c*, as described, and for the purpose specified.

3. The combination, with the stuffing-box G, of a pipe, *g*, connecting it with the receiving side of the pump A, and of a pipe, *e*, arranged in connection with the vessel E, as described, and for the purpose specified.

FCIS. VT. DE COPPET.

Witnesses:

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