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293,865

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COMPLETE SPECIFICATION.

Improvements in Refrigerating Processes and Apparatus.

I, LEO SZILARD, formerly of Faradayweg 16, Berlin-Dahlem, but now of Prinz Regentenstrasse, 95, Berlin-Wilmersdorf, Germany, of Hungarian nationality, on my own behalf and as Assignee of ALBERT EINSTEIN, of 5, Haberlandstrasse, Berlin, Germany, of German nationality, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates to an absorption refrigerating process and apparatus in which in known manner water soluble alcohol, in particular methyl alcohol is vapourised and the water supply used as the energy source. Whereas, however, the alcohol vapour has hitherto been drawn direct out of the evaporator into a water jet pump, according to the present invention, the vapours are dissolved in a suitable vessel (absorber) and the solution removed from the absorber and the whole apparatus against atmospheric pressure by a water jet pump. The water from the water supply is first led through this absorber and so distributed that it forms a large surface and can absorb the greater part of the vapours drawn off from the evaporator. There reaches the water jet pump therefore, not pure water and vapour as hitherto, but water in which alcohol vapour is dissolved. The air reaching the absorber from the evaporator can be drawn off by another water jet pump.

The refrigerant is advantageously fed into the evaporator from a container through a pipe by the air of the outer air pressure.

The accompanying drawing shows diagrammatically an example of apparatus embodying the invention. 1 is the absorber, 2 the evaporator of the refrigerator. The refrigerant is stored in a reservoir 3 from which the refrigerant rises through a pipe 4 into the evaporator 2 under the action of atmospheric pressure. From thence the vapours of the refrigerant are sucked into the absorber 1 through a pipe 5, and the aqueous solution flows out of the absorber through a

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pipe 6 to a water jet pump 7 located below. A second water jet pump 8, which in some circumstances may be omitted, continuously sucks a mixture of vapour and air out of the absorber. The amount of vapour sucked out in this way is clearly very small in comparison with the quantity of vapour dissolved in the water. In operation the water enters the absorber through a pipe 9 under the action of atmospheric pressure. An intermediate container 10 may be provided, which is connected to the water jet pump 8 through a pipe 11, and in which the water is relieved of air before entry to the absorber. The container 12 is continuously supplied with water from the mains. For preparing iced foods and the like the vaporiser is surrounded by a container 13 and to stir the cooled materials, a water turbine 14 is set in action. 15 is a cooling jacket which surrounds the absorber and which in most cases can be dispensed with.

Finally it may be mentioned that an absorbing chamber has already been used in refrigerating apparatus in which water vapour is absorbed by sulphuric acid, but in such cases the acid is circulated within the apparatus and not completely removed as is here the case.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A refrigerating process wherein alcohol, in particular methyl alcohol, is vaporised, characterised by the vapours being dissolved in water in a suitable vessel (absorber) and the solution removed from the absorber and the whole refrigerating apparatus against atmospheric pressure by a water jet pump supplied from the mains.

2. An absorption refrigerating apparatus for carrying out the process of claim 1, in which a large vessel (the absorber) is provided between the evaporator and the water jet pump, through which absorber the water flows and is distributed over as large a surface as possible.

3. An absorption refrigerating appara-

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tus according to claim 2, in which air and vapour are drawn out of the absorber and if necessary out of an intermediate container for the fresh water supply to the absorber by a second water jet pump.

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4. An absorption refrigerating apparatus according to claim 2 or 3, in which the refrigerant is held in a container from which it is forced into the evaporator at the commencement or during operation under the action of external air pressure.

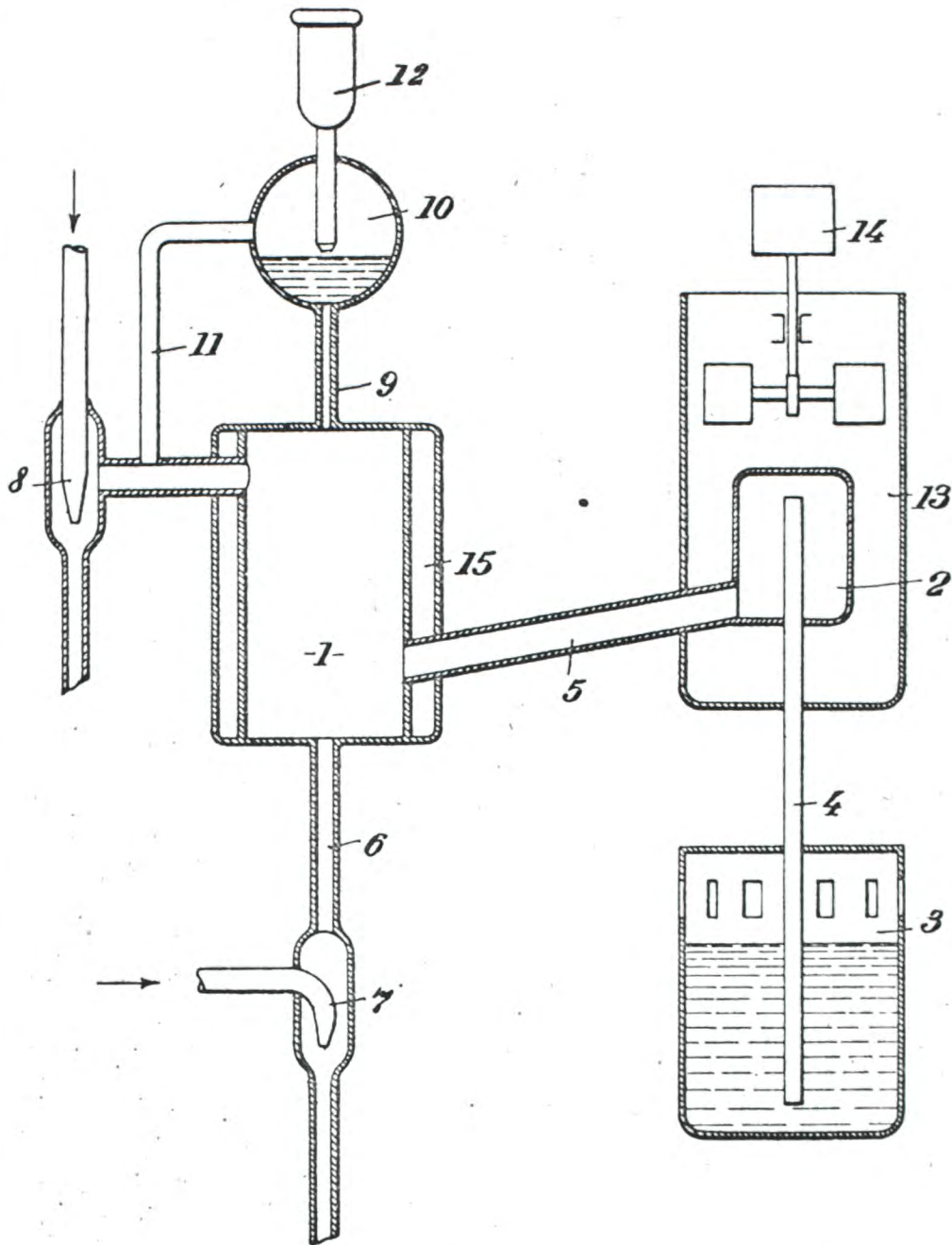
5. The absorption refrigerating apparatus substantially as described with reference to the accompanying drawing.

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Dated this 10th day of July, 1928.

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STEPHENS,
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285, High Holborn, London, W.C. 1,
Agents for the Applicant.

[This Drawing is a reproduction of the Original on a reduced scale.]



870 wds
1 p. drawings