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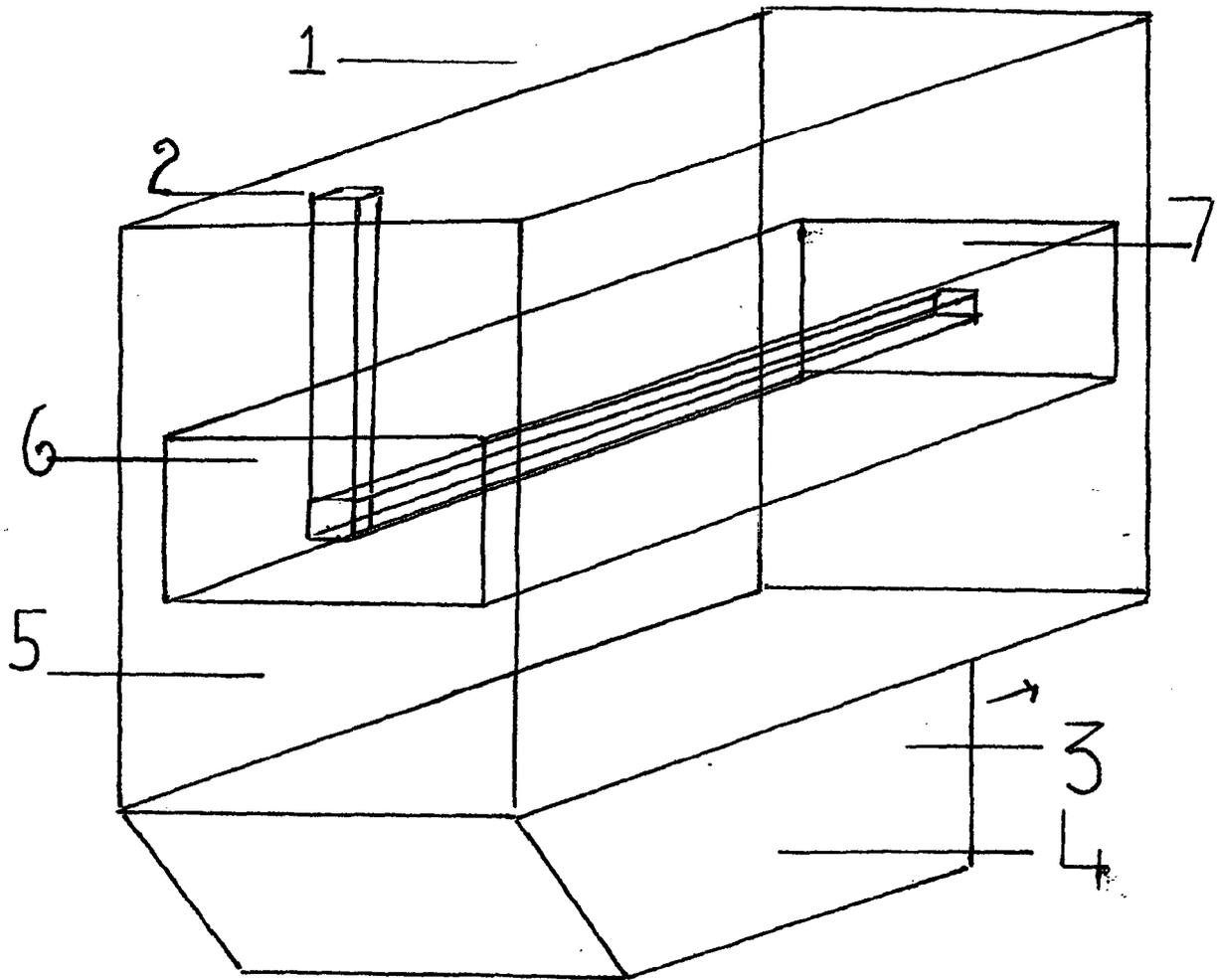
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Figure 1/A



Global Warming Control .

To avoid global warming , a means of lowering Earth temperature is to provide a way of reflecting solar heat from the Earth .

This can be done by forming sheets of ice on stretches of sea water , that will reflect a part of solar heat normally absorbed by the Earth .

This patent specification describes a sea-going vessel or barge that can transform lanes of sea water into lanes of ice , of suitable thickness and of suitable width , to reflect solar heat .

A suitable thickness of ice for one lane can be fifty centimeters to one meter , and a suitable width for one lane can be five to ten meters . A suitable length for one lane can be one hundred kilometers . Ten barges advancing in parallel at one kilometer an hour can form in twenty-four hours a lane of total width one hundred meters , and of length at least twenty-four kilometers . The dimensions of the barges will exceed ice lane dimensions by one or two meters .

This sea-going vessel or barge is a machine that consists of several operating parts , that are situated as a combination of parts in the enclosed drawing Figure 1/1 , to form a machine that constructs ice sheets . The indication 1 of figure 1 indicates the combination of parts combined to form the machine .

The top surface of the parallelepiped at indication 1 situates a navigation deck and liquid air pumping equipment for making liquid air and for its transport . The liquid air is stored in a hold for liquid air at indication 5 .

2.

The hold at indication 5 for storing liquid air is provided with a tunnel for the passage of sea water , and indication 6 indicates the sea water entrance to the tunnel .

Indication 7 shows an ice exit from the tunnel , as the barge , indication 1 , advances in response to the operation of the motor transport unit at indication 3 .

The roof of the tunnel at indication 6 is arranged to be about level with the sea water level , so that the tunnel at indications 6 and 7 is always full of water or ice .

Liquid air pumping equipment on the navigation deck at indication 1 connects to the vertical component of the vertical and horizontal heat transfer moulding tube positioned at indication 2 , into which liquid air is pumped .

The vertical part of the vertical and horizontal heat transfer moulding tube at indication 2 is strongly positioned on the front part of the barge , and it extends to a central position of the entrance to the tunnel at indication 6 .

The horizontal part of the heat transfer moulding tube has no fixation support , other than its connection to its vertical component . This moulding tube must therefore be strongly constructed , and strongly fixed to the front of the barge .

The purpose of the moulding tube is to leave at least one pipeline within and throughout the length of the ice lane for the pumping of liquid air , from the liquid air pumps at groups of liquid air pumps and fuel installations established at regular intervals on the ice , along the length of the ice lanes .

One heat transfer moulding tube will be required within the width of the freezing tunnel for every one metre interval of width of the produced ice lane .

3.

Operation .

The motor and transport unit at figure 1 , indication 3 , operates electricity generators that drive liquid air pumps at indication 2 , and the liquid air hold at indication 5 becomes filled .

As the motor and transport unit at indication 3 is operated , the barge will advance at a required speed . This required speed will depend on the temperature of the sea water and the time that the sea water takes to pass through the water freezing tunnel at indication 6 in order to become frozen . The metal walls of the water freezing tunnel at indication 6 are chilled to about minus two hundred degrees Celsius by the liquid air stored in the hold at indication 5 .

The barge speed will depend on the length of the water freezing tunnel , and the amount of time required for the sea water that is in the tunnel to become slush and then to freeze . It is expected that if the length of the tunnel is 25 metres , a quantity of water and ice will remain in the tunnel for ninety seconds , when the forward speed of the barge is one kilometer per hour . It is hoped that a forward speed of eight kilometers per hour will be attained by proper design .

A convenient liquid air pumping or compression system for rapid operation would seem to be the Hampson-Linde cycle of air compression , that pumps air to an external cooler , that then goes to a regenerative cooler , and then to an expansion valve , where the air expands to become a liquid at about -200° Celsius .

As the barge advances , the water and ice in the tunnel is pushed out at the tunnel exit at indication 7 by water that enters the tunnel at indication 6 .

A valve at the end of the moulding tube is opened inwards against spring pressure by a cable in the tube , when ice has been formed at indication 7 . As the barge advances away from the formed block of ice that is floating at indication 7 , a moulded impression of the tube will remain throughout the length of the ice block , that will thereby receive pumped liquid air from indication 2 , as well as from installations placed on the ice lanes , to maintain the ice lanes in a frozen state .

4.

As the barge continues to advance , the floating block of ice will become longer , to form an ice lane of width five to ten metres . An ice lane will have a length of about one hundred kilometers in twenty four hours , at a barge speed of four kilometers par hour . This speed represents twenty meters of freezing tunnel in eighteen seconds .

Liquid air distribution stations can be installed at suitable intervals on the ice lanes , together with fuel supplies , to maintain the temperature and quality of the ice lanes . Liquid air distribution can be obtained by drilling vertical holes in the ice to link up with the moulded pipelines and to provide air pressure vents .

It is expected that ten barges advancing in parallel will provide ice lanes of total width one hundred metres in one day , of length one hundred kilometers . The aim is to provide several areas of ice sheets measuring one hundred kilometres by one hundred , or areas of ten thousand square kilometers , in the North Pole and South Pole areas , and in various other areas . The effect on world climate will be rapid and beneficial , and this will give more time for corrective measures to be applied .

Claims

1. A combination of machine parts having the form of a sea-going barge , that functions as a machine , for the formation of ice sheets , in order to reflect solar heat from the Earth , so as to lower global warming temperature , including a hold for storing liquid air , extending from bows to stern of the barge , within which hold is provided a metal -lined tunnel cooled by liquid air , which lowers the temperature of sea water in the tunnel , thereby forming lanes of ice floating behind the barge as it advances , and including pumps for forming liquid air , and means for moulding the tubular impression of a pipe line in the ice sheets , for pumping maintenance liquid air to the ice sheets , which moulding means being provided with an open – closed valve selection means , and also including the navigation means that are attributed to sea-going vessels .

2. A combination of machine parts as in claim 1 , having the form of a sea going barge , whereby the sea water in the metal lined tunnel transfers heat to the liquid air in the liquid air hold and freezes , as it is pushed from the tunnel exit by incoming water at the tunnel entrance .

3. A combination of machine parts having the form of a sea going barge as in claims 1 and 2 , whereby the moulding means consists of a horizontal part and a vertical part of a tube , extending the length of the freezing tunnel , the vertical part receiving pumped liquid air from the liquid air hold , being situated on a navigation or working deck , and being firmly fixed to the bows of the barge so as to support the horizontal part , that is submerged in the tunnel , the vertical part of the tube carrying a valve selection means , that connects to the submerged end of the tube by a lever operated cable acting against a spring pressure , thereby preventing the entrance of water when the valve is in a suitable position , or permitting the exit of pumped liquid air when required for ice lane maintenance .

4. A combination of machine parts having the form of a sea going barge , as in claims 1, 2, and 3 , including a motor and transport unit , generators , and storage such as for fuel and liquid air .