March 28, 1939. J. D. BATES 2,152,019

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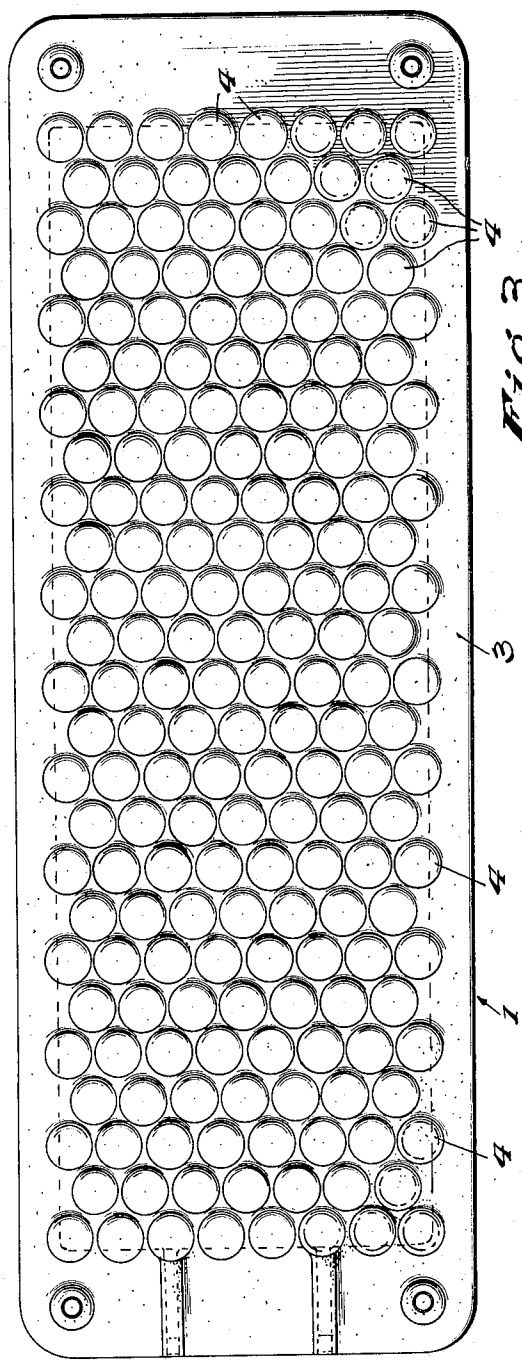


Fig. 1.

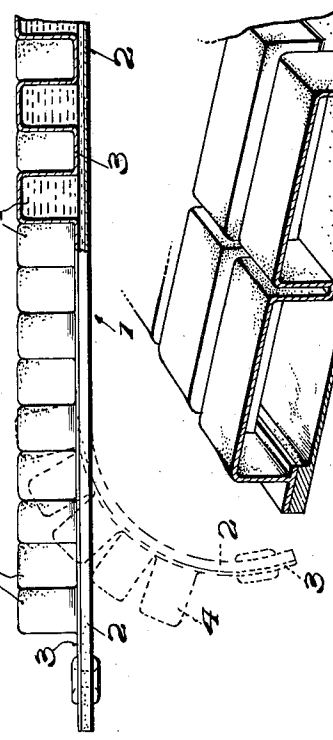


Fig. 3.



Fig. 4.

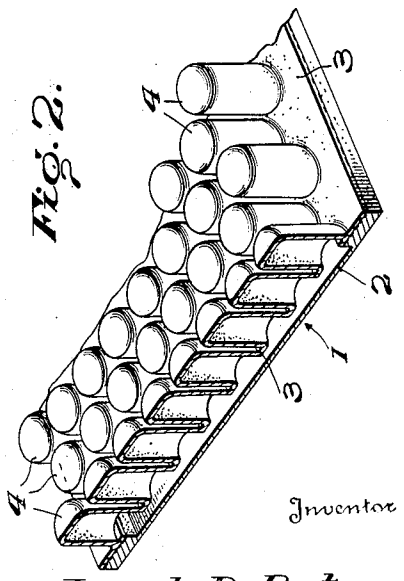


Fig. 2.

Inventor

Joseph D. Bates

By Samuel Schwiener Jr.

Attorney

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Joseph D. Bates, West Springfield, Mass.

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3 Claims. (Cl. 150—2.5)

This invention relates broadly to devices for use in heating or cooling any body member or article to which heat is to be applied or from which heat is to be removed. In the more usual use of the device forming the subject of the invention, the same is intended to be employed particularly in cooling parts of the body or any other article or member, and the construction of the devices formed according to this invention is particularly adapted for such use.

By the present invention, it is proposed to provide a hollow receptacle or container formed of impervious, flexible material and having a substantial quantity of a liquid sealed therein, which container may be placed in a refrigerator or other cooling apparatus in order to cause the liquid sealed therein to be frozen. In the use of the device, the container may then be applied to the part or article to be cooled and will effectively do so by absorption of heat from the part or article by the frozen liquid within the container.

It is a particular object of the present invention to provide a device of the character described which will be more flexible than devices of similar function formed according to the prior art teachings, in order that the devices formed according to the present invention may be more easily and readily adapted and fitted to the part or article to be cooled.

Another and further object is to provide a cooling device of the character described which will comprise a plurality of separated, articulated receptacles in which liquid may be received and frozen, to thereby form a plurality of small, separated masses of ice which are articulated and which therefore form an assembly which may be easily bent to any desired shape or to fit any member or part.

A further object is to provide a cooling device of the character described and which will comprise a sealed receptacle, at least one of the walls of which will be so formed as to provide a plurality of receptacles which open into the interior of the sealed container and which receptacles are adapted to receive a liquid to be frozen.

It is a further object of the invention to provide a cooling device of the type described which may be easily and cheaply manufactured and which will be strong and rugged in construction.

Other objects and features of novelty will be apparent from the following description and the annexed drawing, it being expressly understood, however, that the invention is not limited in any way by such description and drawing or otherwise than by the appended claims.

Referring to the drawing, in which similar reference numerals refer to like parts,

Fig. 1 is a plan view of an ice pack formed according to the invention;

Fig. 2 is a perspective view of a portion of the device illustrated in Fig. 1;

Fig. 3 is a side view of a portion of the device of Fig. 1, being partly in section and also showing the same in curved or bent position, and

Fig. 4 is a perspective view, similar to Fig. 2, and illustrating a modified form of the invention.

According to this invention, I propose to provide a sealed container which is preferably formed of some flexible, impervious material such as rubber, and in which is sealed a quantity of a liquid, such as water, which container may be placed in such an ordinarily-available cooling device as a refrigerator in order to freeze the liquid contained therein, to thereby provide a unitary, sealed, easily-handled device which may be applied to a body part or other article or member in order to cool the same. Further, I propose to so form this device as to provide a plurality of separated, articulated receptacles each of which opens into the interior of the container, and in which receptacles the liquid within the container is adapted to be received and to be frozen.

Such a device as is described is disclosed in the drawing and, referring to the drawing, it will be seen that the device comprises a sealed container denoted generally by reference numeral 1 and which is preferably rectangular and elongated in shape and the thickness of which is preferably small, thereby providing a flat, elongated device of such a shape as to be readily applicable to any member, part or article to be cooled.

The container 1 comprises a flat, preferably undeformed face or wall member 2 which extends over the entire surface area of the device 1, and a second face or wall member 3 which is joined, as by vulcanization, to the face member 2 about the marginal edges of the two wall members, to thereby form a hollow, sealed container, formed of a flexible, impervious material such as rubber, and in which a quantity of a liquid, such as water, is adapted to be sealed.

According to the present invention the sealed container is so formed as to provide a plurality of separated, articulated receptacles which open into the interior of the container and in which the liquid within the container 1 is adapted to be received and within which receptacles the liquid is adapted to be frozen. In the embodiment of the invention disclosed in the drawing,

the wall or side member 3 is so formed as to provide a plurality of cylindrical cup or receptacle members 4 which are spaced over substantially the entire area of the face 3 and which may be arranged regularly or irregularly. These cups or receptacles 4 extend in a direction away from the wall member 2 so that if the container 1 is placed in a horizontal position with the wall member 2 above the member 3, the cups or receptacles 4 will depend from the wall member 3, whereby the liquid which is sealed within the container will be distributed substantially equally among the several cups or receptacles. In this position, preferably, the container may be placed in any cooling apparatus, such as a refrigerator, in order to freeze the liquid contained in the receptacles.

The wall member 3, with the receptacles 4, is preferably formed as a single, integral member and may also, if desired, be formed integrally with the side member 2 by a core molding process. Regardless of the method of manufacture of the container 1, the same is preferably formed of rubber. It will be apparent that, due to the resilient nature of the entire device the same may be easily bent in order to adapt it to any article or part which it is desired to cool. It will also be apparent that the amount of liquid sealed within the container may be just sufficient to fill the several receptacles 4, in which case the flexibility of the entire device, after the liquid therein has been frozen, will depend only upon the flexibility of the material from which it is formed. If, on the other hand, the amount of liquid within the container is more than sufficient to fill the receptacles, the device may be bent, after freezing of the liquid, by merely breaking the thin sheet of ice which will be formed over the inner face of the side member 3.

If desired, the receptacle members may be made of any shape other than the cylindrical shape disclosed and described hereinbefore. For example, the receptacle members may be formed as hollow cubes or may be formed as elongated receptacles having a rectangular, oval or other cross-section, all without departing from the scope of the invention. Further, the ice pack may be so formed that the two faces of the pack are vulcanized together at points between the receptacles in order to hold the two faces together more firmly.

While I have illustrated and described only one embodiment of my invention, it will be apparent that various changes, modifications and improvements may be made therein without departing from the scope of the invention. For example, the number, shape and positioning of the receptacles may be varied and, if desired, similar receptacles may be added to both side faces of the device. Also, the entire device or any separate part thereof may be formed of any desired material. All such variations and many others may be practised without departing in any way from the spirit or scope of the invention, for the limits of which reference must be had to the appended claims.

What is claimed is:

1. A cooling device comprising a sealed container formed of flexible material and containing a liquid adapted to be frozen therein, said container having opposed walls, at least one of said walls being provided with a plurality of cylindrical receptacles the axes of which extend substantially at right angles from said wall and which open into the interior of said container and in which the liquid within said container is adapted to be received and frozen.

2. A cooling device comprising a sealed container having a quantity of a liquid sealed therein and adapted to be frozen therein, said container having a plurality of closely-adjacent cylindrical receptacle members extending axially at right angles from an exterior face thereof and opening into the interior thereof, said receptacle members forming cups in which the liquid within said container is adapted to be received and frozen.

3. A cooling device comprising a sealed container formed of flexible material and having a quantity of a liquid sealed therein, said container having a flat, rectangular, elongated wall member, and a second wall member co-extensive with the first wall member and joined thereto about the peripheries of the two wall members, at least one of said wall members being provided over substantially its entire area with a plurality of rows of separated receptacles which are free from any direct attachment to the opposite wall member and which extend outwardly from the wall to which they are directly attached and which open into the interior of the said container and within which the liquid within the container is adapted to be received and frozen.

JOSEPH D. BATES.