April 3, 1951 N. J. POUX 2,547,886

THERAPEUTICAL DEVICE

Filed June 24, 1947

Fig. 1.

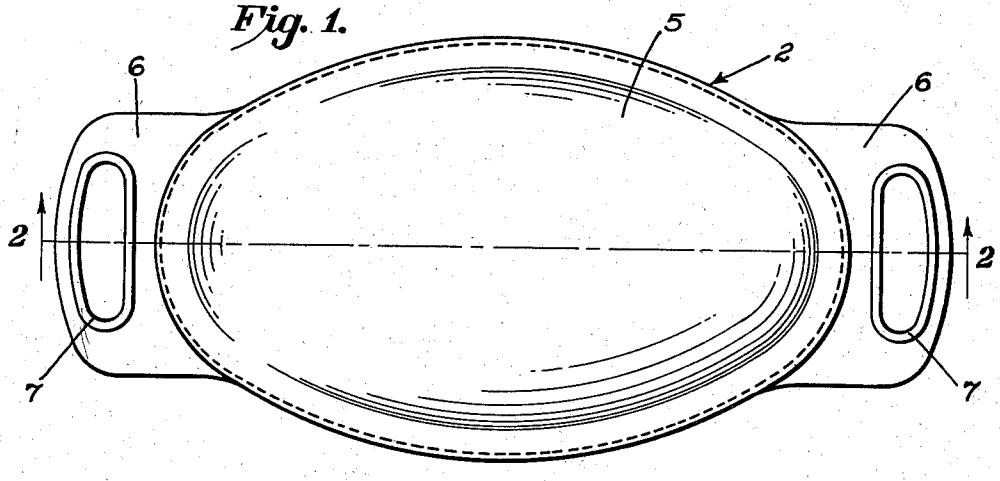
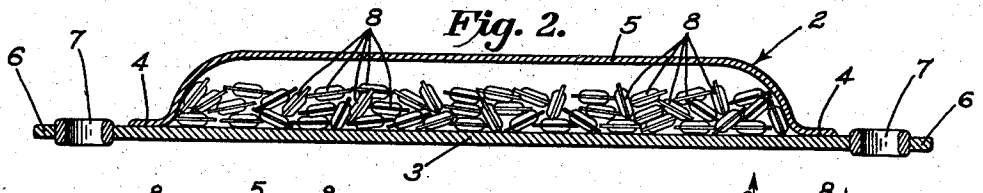


Fig. 2.



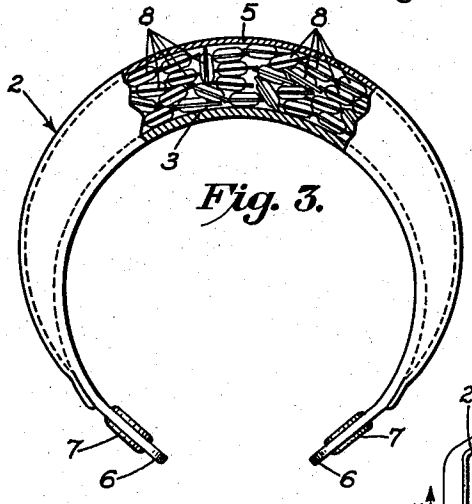


Fig. 3.

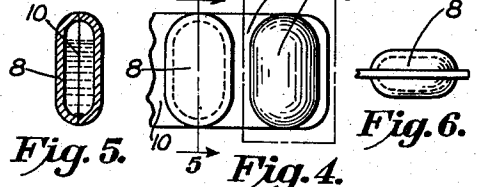


Fig. 5. Fig. 4. Fig. 6.



Fig. 7. Fig. 8. Fig. 9.

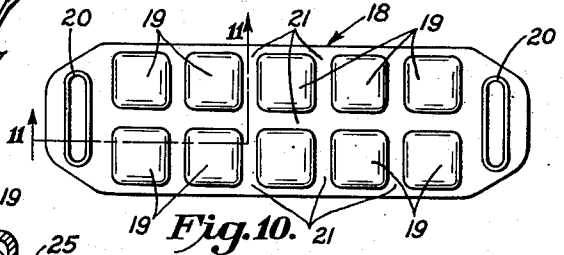


Fig. 10.

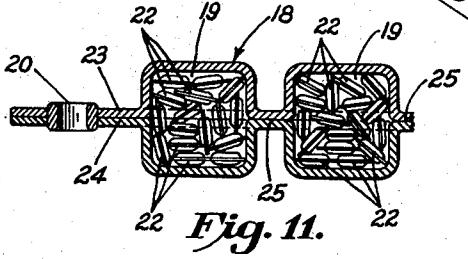


Fig. 11.

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THERAPEUTICAL DEVICE

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7 Claims. (Cl. 62—1)

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This invention relates to therapeutical devices, or to ice and hot packs as they are more commonly called, for heating parts of the human body or for withdrawing heat therefrom.

Heretofore, it has been the customary practice to use hot water bottles for application of heat to the body, or if it were desired to withdraw heat therefrom, a hot water bottle or ice bag was filled with cracked ice or ice cubes and applied to the part of the body to be treated. Such practice is not only inconvenient and laborious, but, in addition, there is always danger of leakage of the bottle or bag at the cap or plug. The use of such bottles or bags is especially inconvenient to hospitals and sanitariums, especially at the present time with a minimum amount of help available, as a considerable amount of time is consumed filling, emptying, and refilling the bottles or bags.

According to the present invention, there is provided a combination ice and hot water bag or pack containing a loose mass of liquid-containing permanently sealed capsule-like members which are permanently sealed therein making the bag or pack ready for use.

It is one of the objects of the present invention to provide an improved combination ice and hot pack which has a liquid permanently sealed therein whereby the pack can be used either as a hot or ice pack.

It is another object of the invention to provide an improved pack or article which is extremely flexible so that it can be bent or curved so as to conform to the part of the human body to be treated.

It is a further object of this invention to provide an improved combination ice and hot pack which is simple and inexpensive in its construction and, at the same time, efficient and effective in its use.

Various other objects and advantages of this invention will be more apparent in the course of the following specification, and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown for the purpose of illustration, several embodiments which my invention may assume in practice.

In these drawings:

Fig. 1 is a plan view of my improved combination hot and cold pack;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a side view, partly in section, of my improved device showing how it can be curved to fit a portion of the human body;

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Fig. 4 is a plan view of a series of capsule-like members disposed in the device, showing how they are made;

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4;

Fig. 6 is a side view of one of the capsule-like members;

Fig. 7 is a cross sectional view of another method by which the capsule-like members may be made;

Fig. 8 is a cross sectional view showing another method by which the capsule-like members may be made;

Fig. 9 is still another cross sectional view, similar to Fig. 8, showing how the capsule-like members may be made;

Fig. 10 is a plan view of a modification of the device of my invention; and

Fig. 11 is an enlarged sectional view taken on line 11—11 of Fig. 10.

Referring more particularly to the drawings, there is shown in Figs. 1, 2, and 3 the preferred embodiment of my invention which comprises an elongated permanently sealed hollow body member 2 having a substantially flat bottom wall 3 so as to present a continuous smooth outer surface. There is secured to the bottom wall 3, as at 4, a top wall 5 so as to provide a hollow portion therebetween. Both the bottom wall 3 and top wall 5 may be rubber, but they are preferably made from an impervious plastic material, such as vinyl, polyvinyl, polyethylene, nylon, or acetate, either film or sheet stock. The two pieces of material are secured together by a suitable adhesive, or are vulcanized, or heat sealed, or preferably electronically sealed, which is characteristic of the vinyls and some of the other plastic materials. The bottom wall or piece 3 is preferably of a heavier material than the top wall or piece 5 so that it will hold its shape but yet flexible enough to be bent, as shown in Fig. 3. At each end of the body member 2, there is an extending portion 6 in each of which there is arranged a handle or enlarged eyelet portion 7 for attaching the device to the patient and for handling the device.

Within the hollow portion of the body member 2, there is disposed a quantity of cells or capsule-like members 8 so as to provide a loose mass of these capsule-like members therein. The capsule-like members preferably do not fill entirely this hollow portion but just a sufficient quantity are disposed therein to partially fill it so as to leave the upper portion thereof hollow or empty, as shown in Fig. 2, so as to permit the device to be bent or curved, as shown in Fig. 3. When

the device is so curved or bent, it will be seen that the mass of capsule-like members 8 fill entirely the hollow portion, as shown in Fig. 3.

Each of the cells or capsule-like members 8 is permanently sealed and contains a liquid, preferably water, which can either be heated or frozen depending for what purpose the device is to be used. These capsule-like members are made from an impervious flexible material, such as rubber, or preferably from vinyl, polyvinyl, polyethylene, nylon, or acetate, either film or sheet stock, and are made preferably as shown in Figs. 5 through 9 of the drawings.

In Figs. 4, 5, and 6, the capsule-like members 8 are shown as being made from a piece of flexible tubing made preferably from one of the materials hereinbefore described. The tubing is filled with the liquid to be used and at spaced-apart intervals the opposed sides of the tubing are secured together, as at 10, either by a suitable adhesive, heat sealing, or preferably electronically if the material is capable of such treatment, so as to provide a series of permanently sealed and individual cells or compartments 8 which are later separated from each other by cutting the tubing at the flat seated portions 10 so as to provide the individual cells or capsule-like members 8.

In Fig. 7, there is shown another method by which the capsule-like members may be made wherein an elongated piece of flat film or sheet stock 12 is folded upon itself with the edge portions secured together, as at 13, so as to provide an elongated tubular member. The capsule-like members are then formed therefrom in the same manner for the construction shown and described in Figs. 4, 5, and 6.

In Fig. 8, there is shown a slight modification of Fig. 7. In this construction, two pieces of material 14 and 15 are used and disposed on top of one another with both opposed edges secured together at 16 to form an elongated tubular member. The capsule-like members or cells are formed from this tubular member as before. The construction shown in Fig. 9 is substantially the same as that shown in Fig. 8, except there is provided a tubular member having substantially a rectangular-shaped cross section.

In Figs. 10 and 11, there is shown a modified form of my invention. In this construction, there is provided an elongated body member 18 having a series of compartments 19 formed therein which are permanently sealed and independent of each other. There is also provided handle portions 20 at each end thereof for ease in handling and using the device. The compartments 19 are separated from each other by a relatively flat, wide, and thin portion 21 so that the device is extremely flexible so as to conform to the part of the body to be treated.

As shown in Fig. 11, in each of the compartments 19 there is disposed a quantity of cells or capsule-like members 22, which are of the same construction as the cells 8 in the preferred form. The cells, as before, contain a liquid, preferably water, which is permanently sealed in the cells or capsule-like members.

The body member 18, as before, is made preferably of an impervious flexible material such as rubber, but made preferably from vinyl, polyvinyl, polyethylene, nylon, acetate, either film or sheet stock. It is constructed preferably from two pieces 23 and 24 of such material which are disposed on top of one another. The edges of the material are secured together and the two thicknesses of material are secured together at spaced-apart intervals, as at 25, to provide the relatively flat, wide portions 21 by a suitable adhesive, by heat sealing, or preferably electronically if the material is of such character. The cells or capsule-like members 22, of course, are placed in the compartments 19 at any suitable point during the fabrication of the body member before the compartments are permanently sealed. While the compartments 19 are shown substantially rectangular-shaped both in plan and cross section, it will be understood that they may be circular, oval, or any other desired shape.

It will be understood that my improved therapeutic device may be used either as a hot or cold pack. If used as a cold pack, it is placed in a deep freeze unit or other suitable refrigerating unit so that the liquid in the capsule-like members 8 and 22 is frozen. It is preferable that the device be kept in such a unit at all times so that it is ready for use. If the device is to be used as a hot pack, it is placed in boiling water, a steam chamber, or some other suitable heating device so as to heat the liquid in the capsule-like members 8 and 22.

As a result of my invention, it will be seen that there is provided a therapeutic device in which the liquid is permanently sealed and ready for use at all times, the liquid being placed in the device by the manufacturer. It will also be seen that my device is not only flexible in its construction so that it will conform to any irregular surfaces, but also is flexible in its use in that it can be used either as a device for supplying heat or for withdrawing heat, as desired.

While I have shown and described several embodiments which my invention may assume in practice, it will be understood that these embodiments are merely for the purpose of illustration and description, and that other forms may be devised within the scope of my invention as defined in the appended claims.

What I claim as my invention is:

1. A therapeutical device of the class described comprising a hollow body member made of flexible material and a plurality of capsule-like members loosely disposed in the hollow portion of said body member, each of said capsule-like members being permanently sealed and containing a liquid which is adapted to be either heated or frozen.

2. A therapeutical device of the class described, as defined in claim 1, wherein each of the capsule-like members is made from an impervious flexible material.

3. A therapeutical device of the class described comprising a permanently sealed hollow body member made of flexible material and a plurality of capsule-like members loosely disposed in the hollow portion sufficient to fill only a portion of the hollow portion thereof so as to leave a space between said mass of capsules and the inner top side of said body member so as to permit said device to conform to any curved portion of the body to which it is applied, each of said capsule-like members being permanently sealed and containing a liquid which is adapted to be either heated or frozen.

4. A therapeutical device of the class described comprising an elongated permanently sealed hollow body member made of flexible material and a plurality of capsule-like members disposed in the hollow portion thereof so as to provide a loose mass of capsule-like members therein, each of said capsule-like members made from an im-

pervious flexible material and being permanently sealed and containing a liquid which is adapted to be either heated or frozen.

5. A therapeutical device of the class described comprising a permanently sealed hollow body member made of flexible material, one side of said member having a flat continuous exterior surface having means arranged at each end thereof for attaching the device to the part of the body to be treated, and a plurality of capsule-like members disposed in the hollow portion of said body member so as to provide a loose mass of capsule-like members, each of said capsule-like members being permanently sealed and containing a liquid which is adapted to be heated or frozen.

6. A therapeutical device of the class described comprising a permanently sealed hollow body member made of flexible material and a plurality of relatively small capsule-like members loosely disposed en masse in the hollow portion of said body member, each of said capsule-like members made of an impervious flexible material selected from the group consisting of rubber, vinyl, polyvinyl, polyethylene, nylon, and acetate and containing a liquid which is permanently sealed therein.

7. A therapeutical device of the class described comprising a permanently sealed hollow body member made of flexible material selected from the group consisting of rubber, vinyl, polyvinyl, polyethylene, nylon, and acetate, and a plurality of relatively small capsule-like members loosely disposed en masse in the hollow portion of said body member, each of said capsule-like members made of an impervious flexible material selected from the group consisting of rubber, vinyl, polyvinyl, polyethylene, nylon, and acetate and containing a liquid which is permanently sealed therein.

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