

[54] PERSONAL COOLING DEVICE

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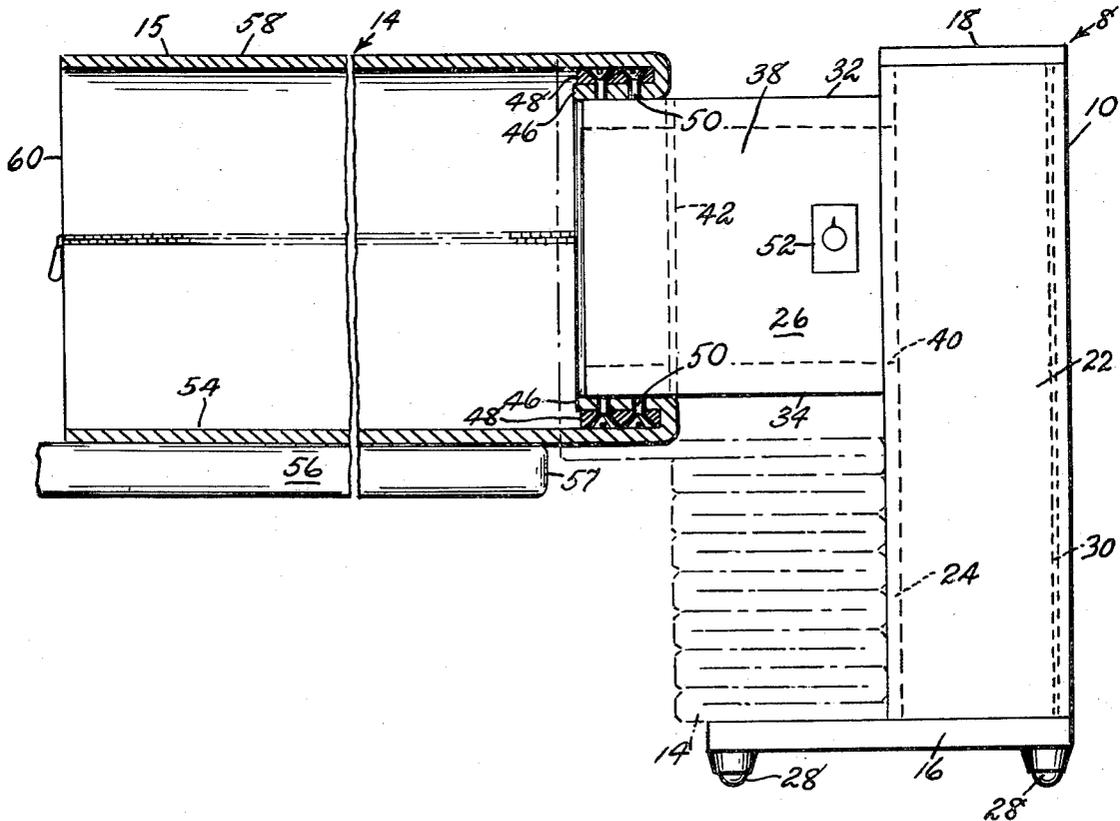
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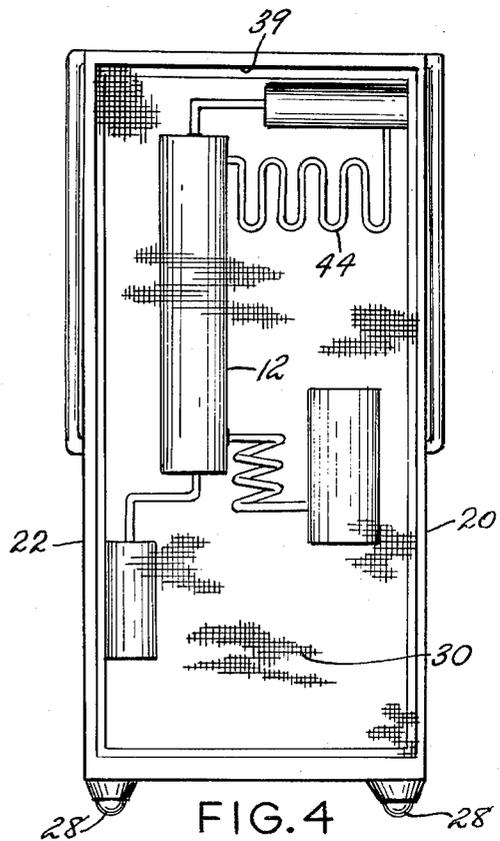
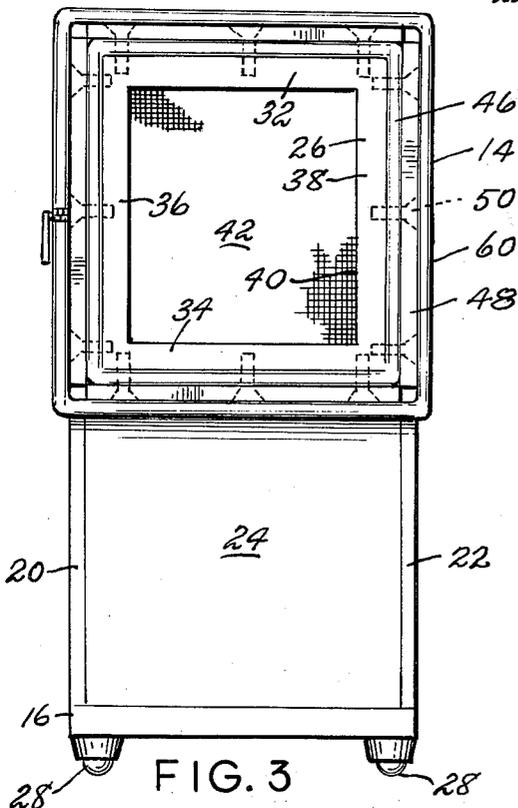
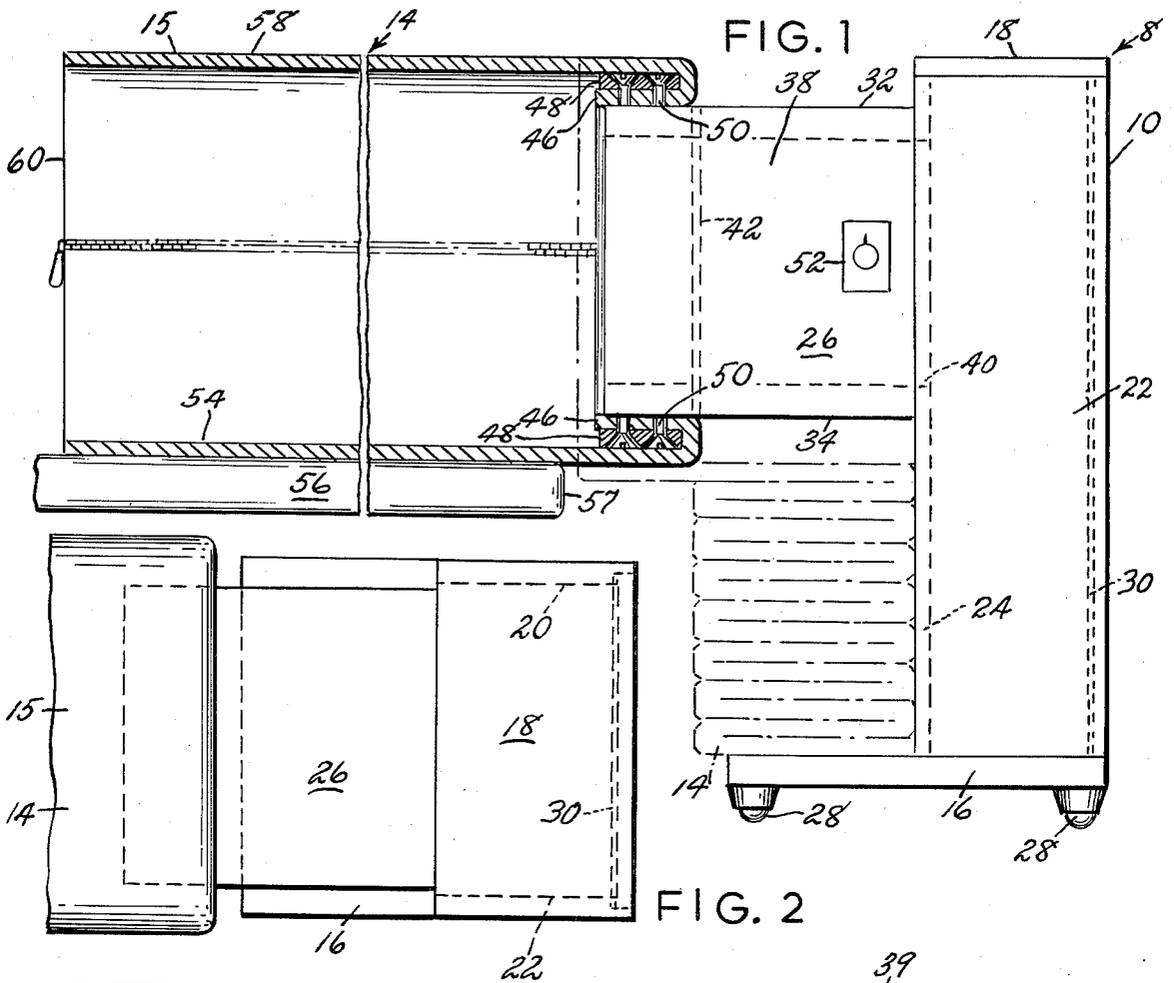
Primary Examiner—Lawrence W. Trapp

[57] ABSTRACT

A personal cooling device having a cabinet containing cooling means, the cabinet having a forwardly projecting port member and a base extending beneath the port member. An elongated flexible tube composed of air permeable resin coated textile material is connected to the port member and is of sufficient length to receive a person lying on a bed or the like. The tube forms conduit means for conducting cool air from the cooling means when the cabinet is at the foot of the bed.

1 Claim, 4 Drawing Figures





## PERSONAL COOLING DEVICE

## BACKGROUND OF THE INVENTION

The problem of providing individual cooling for a person without cooling a large area surrounding the person has had a number of attempts at the solution thereof. These have proposed elaborate and complicated structures such as those shown in U.S. Pat. No. 1,891,903 to Bang, and U.S. Pat. No. 2,093,834 to Gaugler. The present invention contemplates improvements thereover to provide a low cost, compact, low operating cost, convenient, effective, and highly portable unit.

## DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

In the drawings in which similar reference characters have been used to designate corresponding parts throughout the several views:

FIG. 1 is a fragmentary side elevational view, partly in section, of a preferred embodiment of the invention.

FIG. 2 is a fragmentary plan view of FIG. 1.

FIG. 3 is a front elevational view, as seen from the left of FIG. 1.

FIG. 4 is a rear elevational view as seen from the right of FIG. 1.

In accordance with the invention, the cooling device generally indicated by reference character 8, comprises broadly: a cabinet 10; cooling means 12; and conduit means 14.

The cabinet 10 includes a base 16, a top wall 18, side walls 20 and 22, a front wall 24, and an exit opening 40 surrounded by a port member 26. The cabinet parts 16, 18, 20, 22, 24, and 26 are composed of any suitable material as for example sheet metal, sheet synthetic resin, plywood, or the like, the outer surface being treated and colored to harmonize with the surrounding furnishings where the device 10 is used. In order to direct the cooling effect toward the user and to prevent dissipation thereof, insulation may be provided. The device 8 is light in weight and easily portable from place to place, and may be rolled from one location to another on the casters 28 which are secured to the undersurface of the base 16.

The top wall 18 is connected to the upper edges of the side walls 20 and 22 which are secured at the lower edges thereof to the rear portion of base 16, forming an entrance opening 39. The lower portion of the front wall 24 is connected to the base 16 and to the lower front edges of the side walls 20 and 22; while the upper portion of the front wall 24 is connected to the front edge of the top wall 18 and the upper front edges of the side walls 20 and 22. This structure forms the housing for the cooling means 12. An air permeable screen 30 closes the opening 39 at the rear of the cabinet 10.

The port member 26 projects forwardly from the front wall 24 and has a top plate 32, a bottom plate 34, and side plates 36 and 38. The rear edges of said plates are secured to the upper portion of the front wall 24 surrounding an exit opening 40. A screen 42 is mounted opposite exit opening 40, in port member 26.

In the embodiment shown, the cooling means 12 is, for example, of the absorption type well known in the art, in which an electrically powered heating coil produces refrigeration in the cooling coil 44. Operating temperature is controlled by a thermostat 52 in series with the power source (not shown). The cooling means

does not have a motor driven compressor, nor does it have an air circulating fan, circulation being obtained by convection air currents. The absence of a compressor and an air circulating fan makes the device absolutely noiseless. This quiet and absence of vibration aids in the use of the device as an adjunct to a bed or other accommodation for sleeping, by the user, in a home, hotel, or hospital.

The conduit means 14 is in the form of a long flexible tube preferably composed of an air permeable resin coated textile fabric 15. The permeability is of low order so that a substantial proportion of the cooled air reaches the forward edge 60. The material of which the conduit means is fabricated may be of a double lamination in which the textile surface is next to the user with the resin layer on the outside, or may be, for example, multi-layered in which the resin layer is sandwiched between two textile layers. The rear edge 46 of the conduit means is forwardly directed and is clamped in an air-tight manner by the pressure bars 48 which are attached to the outer surfaces of the plates 32, 34, 36, and 38 by means of screws 50. The tube is folded forward upon itself about the bars 48 and although shown as broken in FIG. 1, this is for purposes of scale in the drawing, the tube extending horizontally a distance sufficient to cover and enclose the body of a user lying on a bed or the like, with the user's head uncovered. Since the conduit means is detachably attached to the port member it may easily be removed for laundering and replacement. This also permits the substitution of different sized conduits to accommodate children, and so forth.

## OPERATION

In use, the occupant lies within the means 14, the lower portion 54 of which superposes the mattress 56. The upper portion 58 may rest upon the occupant, or support means (not shown) may serve to elevate portion 58 spaced above the occupant. With the cooling means 12 in operation, ambient air enters through the entrance opening and screen 30 and passes through the cooling coil 44, thence out through exit opening 40, screen 42, port member 26 and into the conduit means 14 where passing in contact with the occupant it affects body temperature, promoting user comfort and well being. As the air is heated by the occupant's body, it rises by convection through the air permeable textile fabric 15, and also passes out of the enclosure formed by the conduit, by traveling around the front edge 60. As the warmed air leaves the conduit, in a rising direction, cooled ambient air takes its place to complete the circulation, caused by the convection cycle.

When it is desired to move the device 8 away from the foot end 57 of a bed or mattress 56, or from a sofa, the conduit means 14 may be folded and placed upon the forward portion of the base 16 as indicated by the dot-dash lines on FIG. 1.

Because the area being cooled is of small size, the heat load on the device 10 is small, with corresponding low power consumption and cost of operation.

Also, as a result of its small size and light weight, the device can be rolled conveniently to a point of use indoors or outdoors, and plugged into the nearest electrical power outlet. When not in use, with the conduit means 14 folded and stowed on the base 16, the device can be stored in a closet.

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The present invention provides great utility in that it is very beneficial where it is desired to reduce body temperature at a controlled rate which is adjusted to accommodate to special requirements as for example, resuscitation due to excessive physical activity or other causes. The present device produces excellent results when used by athletes, firemen, and for heat prostration, and the like.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art to which the present invention relates.

I claim:

1. A personal cooling device for use by a sleeping user comprising: a generally vertically oriented cabinet having an entrance opening and an exit opening, ab-

4

sorptive type electrically powered cooling means disposed within said cabinet communicating with said entrance and exit openings, a flexible horizontally disposed elongated conduit means of a size and configuration adapted to surround a user, and be supported upon a bed, said conduit having a first distal opening disposed in the area of the head of a user, and a second proximal opening communicating with said outlet opening, and thermostatic means disposed in the area of said outlet opening controlling the operation of said absorptive cooling means; whereby during use, said cooling means provides solely by convection a continuous current of cooling air to said proximal opening of said conduit means which flows past said thermostatic means and exits through said distal opening.

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