

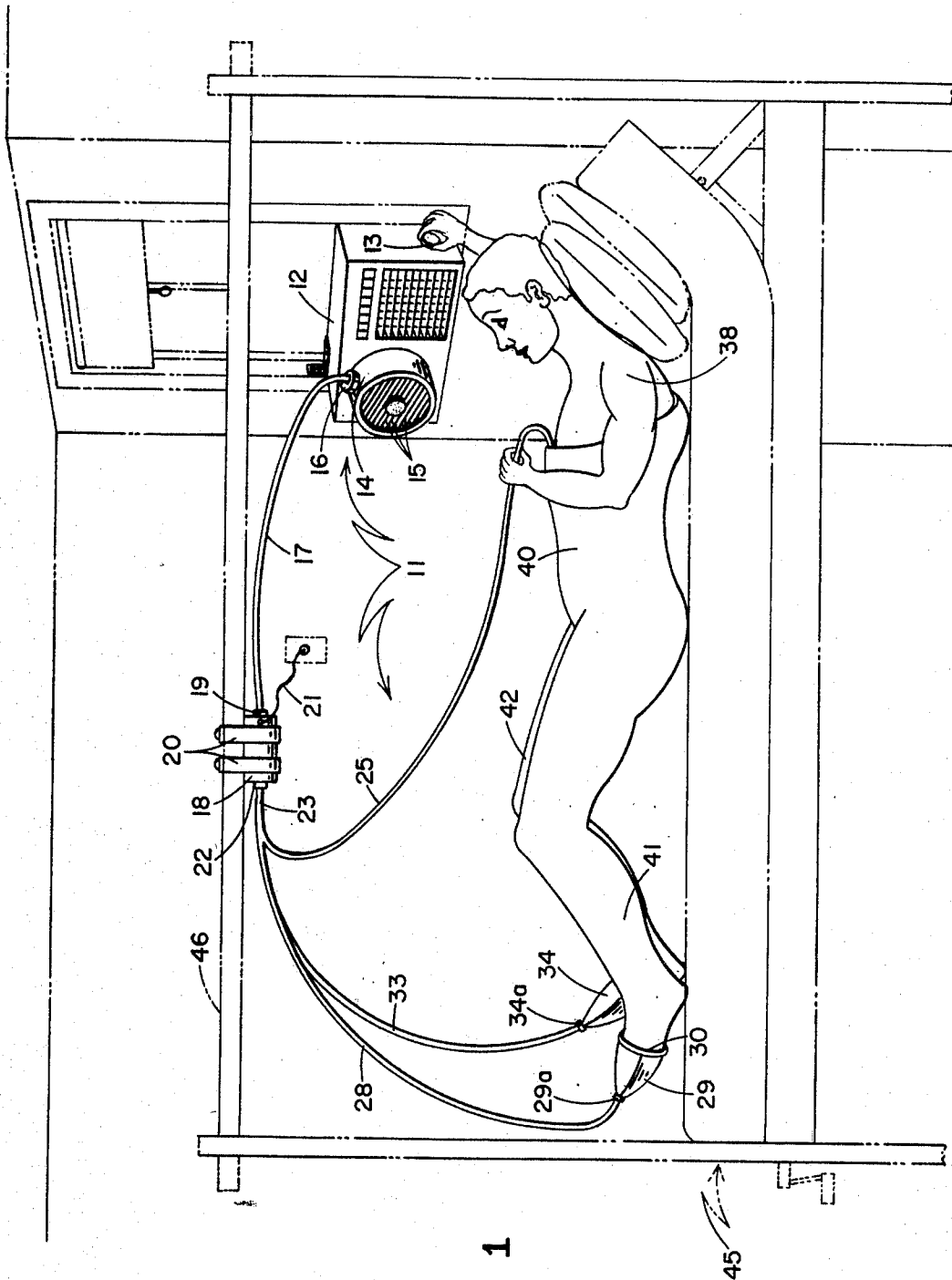
Nov. 11, 1969

R. LAPIDUS
CAST COOLER

3,477,427

Filed Sept. 27, 1967

2 Sheets-Sheet 1



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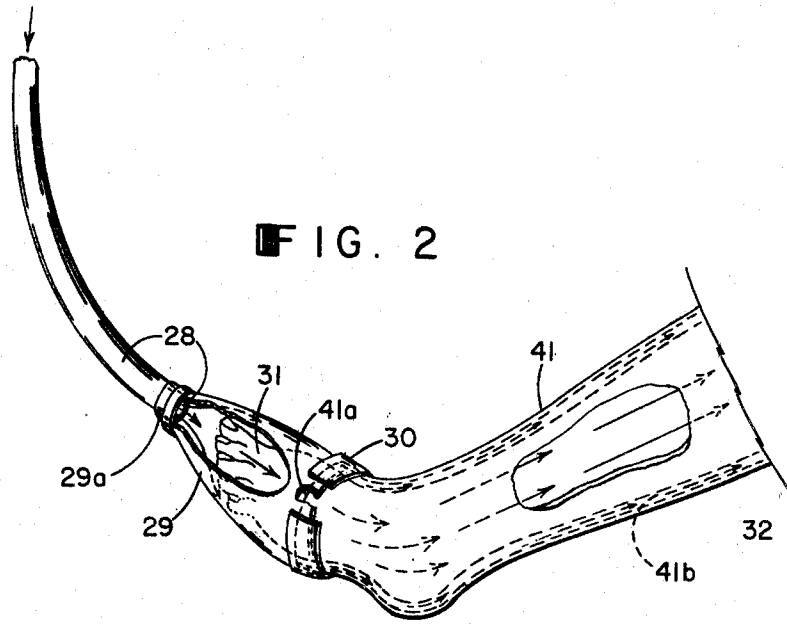
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CAST COOLER

Roy Lapidus, 18 Dorr Road,
Newton, Mass. 02158Filed Sept. 27, 1967, Ser. No. 670,864
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U.S. Cl. 128—82.1

7 Claims

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ABSTRACT OF THE DISCLOSURE

A method and apparatus for preventing skin shriveling and infection among patients having casts on portions of their body, comprising forcing a current of cool, low-humidity air between the cast and the body area enclosed by it.

BACKGROUND OF INVENTION

A person who has been injured in an accident must often wear a cast on a portion of his body for an extended period of time. Because of the weight and nature of the cast material, not only does the patient experience continuous discomfort in that body portion adjacent to the cast, but the skin shrivels and is subject to infection.

One object of the present invention is to provide a method and apparatus for preventing skin shriveling and infection of the body portion on which a cast is mounted.

Further objects and advantages of this invention will be apparent from the specification and drawings which follow.

SUMMARY OF INVENTION

The present invention comprises generally a method and apparatus wherein a current of cool, low-humidity air is forced between the cast and the body area which it encloses. The air supply can be readily obtained from a conventional window type air-conditioning unit by means of a tubular extension adapted to be mounted over the output. Conduit means are provided so that the air current is forced into the space between the cast and the body. With a conventional air-conditioning unit having an output in the range of 200–500 cubic feet a minute (c.f.m.), an auxiliary blower is used so as to provide up to 20 c.f.m. at an air pressure in the order of magnitude of about 50 to 75 inches of water.

When the cast is unusually wet or the weather unusually humid, water absorbents, such as silica gel, can be provided on the input side of the conduit to the cast. Normally, however, a conventional window type air-conditioner of suitable capacity will provide cool air of sufficiently low humidity to assure sufficient skin ventilation. Various adapters can be used to connect the air conduit with the cast. Thus, for example, a removable sleeve can be used for a leg or arm cast which can be made of rigid or flexible material, e.g. thin polyethylene tubing. With proper temperature control, the air can be supplied continuously over long periods of time without any ill effects on the patient and at the same time providing a maximum of comfort. In addition, the method and apparatus of this invention can be utilized to speed up the drying of a fresh cast.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a side elevation showing the invention being used by a bed patient with a Spika cast.

FIG. 2 is an enlargement and partial cutaway of a portion of FIG. 1 showing the tubular attachment of the conduit over the end of a foot cast.

SPECIFIC EXAMPLE OF INVENTION

The accompanying drawings illustrate a patient wearing a so-called Spika cast which extends from his chest

to his feet. The cast cooling apparatus 11 comprises a conventional window type air-conditioning unit having a control switch 13. On the normal output side of the air-conditioning unit 11 is positioned a tubular sleeve-like extension 14 having room output vanes 15. The extension 14 has a connector 16 in its side wall to accommodate an output conduit 17 which is connected by connector 19 to the input side of an electrically driven auxiliary blower 18. Blower 18 is shown in the drawings as being supported by brackets 20 which are illustratively attached to cross members 46 of a frame 45. The blower 18 can, however, of course, be positioned elsewhere, as for example, on the floor. In its illustrated location it also serves to position the cast supply conduits 25, 28, and 33 in a somewhat upright position.

The outlets of the several conduits 25, 28, and 33 are adapted so as to force the air into the area between the cast 40 and the body of the patient 38. In the foot portions, the conduits 28 and 33 terminate respectively in sleeves 29 and 34 which fit over the ends respectively of leg cast portions 41 and 42, thus providing an efficient supply of air to the leg areas of the cast. Tape 30 can be used to secure the sleeves to the leg portions. The sleeves are generally made sufficiently large so as to permit freedom of movement of the toes 31.

The auxiliary blower 18 may be a fan-type such as in a vacuum cleaner, a motor-driven bellows pump or other suitable means for accelerating air flow. By use of a solenoid motor with a bellows pump, variable speed control is easily achieved.

Where a cast is wet or the room air somewhat humid, a supply or de-humidifying material such as silica gel can be inserted in line 17. This invention is not only useful in preventing skin shriveling and infection and aiding in drying a fresh cast, but in some cases it actually aids in tissue healing. Thus, an open-reduction wound of the bones leaves a fresh scar which must immediately be covered with a cast. With this invention, it is possible for the first time to provide the fresh air needed for proper healing of such scar tissue.

Although only one specific example of this invention has been described and illustrated herein, it is obvious that there are many other possible variations within the spirit and scope of this invention as defined in the appended claims.

I claim:

1. A method for preventing skin shriveling and infection among patients wearing casts comprising: forcing a current of cool, low-humidity air between the cast and body area enclosed by the cast.

2. The method of claim 1, wherein said body area includes scar tissue.

3. A device for preventing skin shriveling and infection among patients wearing casts comprising:

(a) a conduit,

(b) means for connecting one end of said conduit to the output of a conventional window type air-conditioning unit, and

(c) means for connecting the other end of said conduit so as to feed air into the space between the cast and the body area enclosed by the cast.

4. The device of claim 3, wherein an auxiliary blower is provided for the conduit.

5. The device of claim 3, wherein a tubular extension is provided which is adapted to be mounted over the output of the air-conditioning unit and is connected to the conduit through its side wall.

6. The device of claim 3, wherein the cast is on a patient's limb and the conduit is connected to the cast by a removable sleeve which goes over the limb and over the end of the cast.

7. A device for preventing skin shriveling and infection among patients wearing casts comprising:

- (a) a conduit,
- (b) means for connecting one end of said conduit to a source of cool, low-humidity air,
- (c) an auxiliary blower for said conduit, and
- (d) means for connecting the other end of said conduit so as to feed air into the space between the cast and the body area enclosed by the cast.

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