

PATENT SPECIFICATION

(11) 1272 249

1272 249

DRAWINGS ATTACHED

- (21) Application No. 59779/69 (22) Filed 8 Dec. 1969
 (23) Complete Specification filed 3 Dec. 1970
 (45) Complete Specification published 26 April 1972
 (51) International Classification B32B 5/06 3/28 27/12 27/32
 (52) Index at acceptance

B5N 177 17Y 191 22X 22Y 252Y 280Y 282Y 344 348
 349 436 55Y 57X 595 625 629 635 63X 641 653
 656 658 682 685 690 715 71X 793

(72) Inventor JAMES JACK HORN



(54) LINING MATERIAL

(71) We, FREEMAN-HORN COMPANY LIMITED, a British Company, of Alpha House, The Hyde, Edgware Road, Colindale, London, N.W.9., do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a lining material and has for its object the provision of such a material which has exceptional insulation properties, is permeable to air and moisture, is light in weight and reflects heat and cold.

To this end in accordance with this invention there is provided a lining material which comprises a layer of soft natural or artificial fibres needled to a layer of flexible material having a reflective heat insulating surface. A woven or knitted fabric is preferably secured to at least one surface of the lining material.

The flexible material having a reflective insulating surface may conveniently take the form of a metallised sheet or film of polyethylene. The woven or knitted fabric may be formed from natural or synthetic fibres.

The lining material and the woven or knitted fabric may be secured together by quilting or in any other suitable way.

A lining material in accordance with one embodiment of this invention will now be described in some detail, but this is purely by way of example. In the accompanying drawings:

Figure 1 shows a piece of this lining material with one corner thereof broken away, and

Figure 2 is a section, drawn on an enlarged scale, on the line II—II in Figure 1.

The lining material shown consists of a layer 1 of soft natural or artificial fibres, such as acrylic fibres. The fibres may be of any

desired weight but $2\frac{1}{2}$ ozs. to the square yard has been found suitable. The fibre layer 1 is needled to a flexible layer or sheet 2 of polyethylene the surface of the latter which faces the fibre layer having been metallised and varnished to impart to it a reflective heat insulating property. The polyethylene sheet has a density of 0.92 and weighs 39 gms per square metre. There are approximately 25.6 square metres in one kg.

A woven or knitted fabric 3 is applied to the non-metallised surface of the sheet 2. The fabric 3, the sheet 2 and the fibre layer 1 are all secured together by quilting stitches 4. Any other suitable method or means may be employed, however, for example welding, adhesive bonding or flame bonding.

Lining materials in accordance with the present invention are especially suitable for use in the lining of footwear, that is shoes and boots, other items of clothing, for example gloves, and articles such as sleeping bags. The materials provide the required insulation properties, and are permeable to air and moisture. They are very light in weight and soft, having no tendency to "crackle" like most metallised films. Heat and cold are reflected thereby ensuring the maintenance of a very high proportion of body temperature.

WHAT WE CLAIM IS:—

1. A lining material which comprises a layer of soft natural or artificial fibres needled to a layer of flexible material having a reflective heat insulating surface.

2. A lining material as claimed in Claim 1 having secured to at least one surface thereof a woven or knitted fabric.

3. A lining material as claimed in claim 1 or 2 wherein the said flexible material con-

[Price 25p]

PATENT SPECIFICATION

(11) 1272 249

DRAWINGS ATTACHED

- (21) Application No. 59779/69 (22) Filed 8 Dec. 1969
 (23) Complete Specification filed 3 Dec. 1970
 (45) Complete Specification published 26 April 1972
 (51) International Classification B32B 5/06 3/28 27/12 27/32
 (52) Index at acceptance

B5N 177 17Y 191 22X 22Y 252Y 280Y 282Y 344 348
 349 436 55Y 57X 595 625 629 635 63X 641 653
 656 658 682 685 690 715 71X 793

(72) Inventor JAMES JACK HORN



(54) LINING MATERIAL

(71) We, FREEMAN-HORN COMPANY LIMITED, a British Company, of Alpha House, The Hyde, Edgware Road, Colindale, London, N.W.9., do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a lining material and has for its object the provision of such a material which has exceptional insulation properties, is permeable to air and moisture, is light in weight and reflects heat and cold.

To this end in accordance with this invention there is provided a lining material which comprises a layer of soft natural or artificial fibres needled to a layer of flexible material having a reflective heat insulating surface. A woven or knitted fabric is preferably secured to at least one surface of the lining material.

The flexible material having a reflective insulating surface may conveniently take the form of a metallised sheet or film of polyethylene. The woven or knitted fabric may be formed from natural or synthetic fibres.

The lining material and the woven or knitted fabric may be secured together by quilting or in any other suitable way.

A lining material in accordance with one embodiment of this invention will now be described in some detail, but this is purely by way of example. In the accompanying drawings:

Figure 1 shows a piece of this lining material with one corner thereof broken away, and

Figure 2 is a section, drawn on an enlarged scale, on the line II—II in Figure 1.

The lining material shown consists of a layer 1 of soft natural or artificial fibres, such as acrylic fibres. The fibres may be of any

desired weight but $2\frac{1}{2}$ ozs. to the square yard has been found suitable. The fibre layer 1 is needled to a flexible layer or sheet 2 of polyethylene the surface of the latter which faces the fibre layer having been metallised and varnished to impart to it a reflective heat insulating property. The polyethylene sheet has a density of 0.92 and weighs 39 gms per square metre. There are approximately 25.6 square metres in one kg.

A woven or knitted fabric 3 is applied to the non-metallized surface of the sheet 2. The fabric 3, the sheet 2 and the fibre layer 1 are all secured together by quilting stitches 4. Any other suitable method or means may be employed, however, for example welding, adhesive bonding or flame bonding.

Lining materials in accordance with the present invention are especially suitable for use in the lining of footwear, that is shoes and boots, other items of clothing, for example gloves, and articles such as sleeping bags. The materials provide the required insulation properties, and are permeable to air and moisture. They are very light in weight and soft, having no tendency to "crackle" like most metallised films. Heat and cold are reflected thereby ensuring the maintenance of a very high proportion of body temperature.

WHAT WE CLAIM IS:—

1. A lining material which comprises a layer of soft natural or artificial fibres needled to a layer of flexible material having a reflective heat insulating surface.

2. A lining material as claimed in Claim 1 having secured to at least one surface thereof a woven or knitted fabric.

3. A lining material as claimed in claim 1 or 2 wherein the said flexible material con-

[Price 25p]



sists of a metallised sheet or film of polyethylene.

4. A lining material as claimed in Claim 2 and 3 with the woven or knitted fabric secured to it by quilting.
- 5

5. A lining material formed substantially as herein described with reference to and as shown in the accompanying drawings.

FORRESTER, KETLEY & CO.,
Chartered Patent Agents,
Jessel Chambers, 88/90, Chancery Lane,
London, WC2A 1HB and
Rutland House, 148, Edmund Street,
Birmingham 3.
Agents for the Applicants.

Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1972.
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from
which copies may be obtained.

