July 16, 1929. W. L. STEFFENS 1,721,096

HEAT INSULATING AND FIREPROOF MATERIAL

Filed March 3, 1922

Fig. 1.

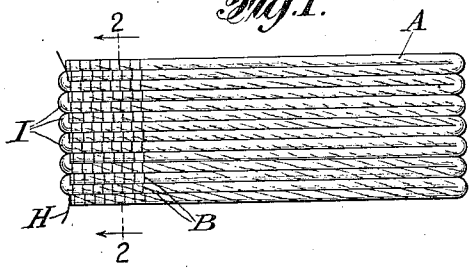


Fig. 2.

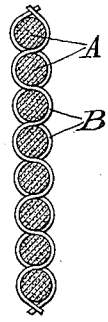


Fig. 3.

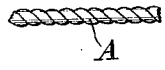


Fig. 4.

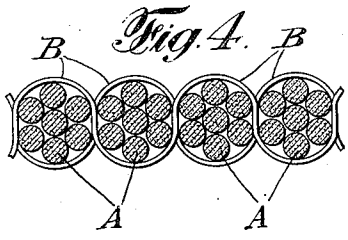


Fig. 5.

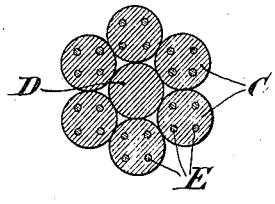


Fig. 6.

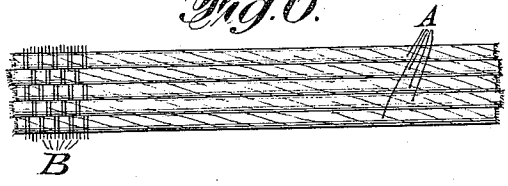
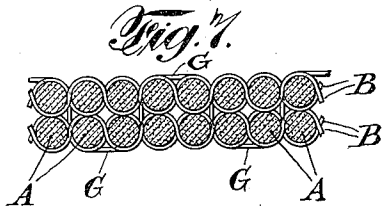


Fig. 7.



Walter L. Steffens Inventor

By his Attorney

Jno. W. Mills Jr.

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UNITED STATES PATENT OFFICE.

WALTER L. STEFFENS, OF WYOMING, OHIO.

HEAT INSULATING AND FIREPROOF MATERIAL.

Application filed March 3, 1922. Serial No. 540,896.

My invention relates to a flexible non-heat conducting and fireproof material. It is made preferably in form of a flexible blanket adapted for use wherever it is desirable to provide heat insulating or fireproof material. It can be used as an insulation on all irregular surfaces by reason of its flexibility. It is adapted for such uses as insulation for steel passenger cars, insulating blanket for tank cars, for portable boilers, insulation for laundry presses, etc., for use in electric welding, for temporary insulation for tank cars especially when being unloaded under steam heat, or other uses where a temporary insulation is desired, and many other purposes.

In the drawings

Fig. 1 is a plan view of my invention.

Fig. 2 is a cross section of Fig. 1 on line 2—2.

Fig. 3 is a view of one strand or cord used in making my blanket.

Fig. 4 is an enlarged section of a modification of my invention.

Fig. 5 is an enlarged section of a modification of a strand or cord.

Fig. 6 is a modification of Fig. 1.

Fig. 7 is a cross section of an insulating unit formed of two blankets.

In the drawings in which like letters relate to like parts A, A, are the weft cords or strands and B, B, the warp cords, rope or strands which form my insulating and fireproof blanket. The weft cords A are composed, preferably, of blue African asbestos fibre and cotton in the proportion by weight of substantially 90% of blue African fibre and 10% cotton. If desired the warp cords or strands B could be made of substantially the same proportions of blue African fibre and cotton but I prefer that they be substantially smaller in circumference than the weft cords so that they will permit of the weft cords being held close together as shown in Figures 1 and 6. Of course if desired the warp cords B could be of greater circumference than the weft cords A. The cords of the greater diameter are always made of the mineral fibre and the other cords or strands if made of a non-mineral or a non-fireproof fibre are treated either before, during or after cording with a fireproofing substance so that when the blanket is in contact with intense heat it will not be affected by, but will resist same. I prefer to form my blanket so that there will be no spaces or openings therein between the weft and warp cords or strands.

For some purposes and uses I may make the smaller cords of metal. I have also found that for some purposes it is advantageous to insert in either the warp or weft threads, or in both, strands E of wire to retain the blanket in a fixed position.

When the warp or weft cords or both are made of a number of strands twisted together as shown in Figures 4 and 5, I have found that by treating the core D with silicate of soda or some other suitable similar substance the blanket is stiffened. If the substance used is also an adhesive, as silicate of soda, it likewise causes the twisted strands to adhere together and to be more compact, while it will also give somewhat greater rigidity to the blanket.

In Fig. 7, I have shown an insulating unit formed of two blankets which are attached by stitching G.

Where the weft cords A, as shown in Fig. 1, are looped at I to return across the blanket I sometimes insert through the loops a cord preferably treated with fireproof substance or made of a fireproof material or a wire for the purpose of holding the insulating blanket in place when in use. When a plurality of blankets are used to form an insulating unit they may be held together by passing suitable cords H through the adjacent loops of adjacent blankets.

In some forms of my invention, especially where it may be necessary to cut the blanket shown in Fig. 1, I have found that by providing an adhesive to the warp cords B, B, or to the weft cords A, A, or to both, so as to cause the weft and warp cords to adhere to each other, the weft cords A, A, will not separate from each other or unravel.

In some forms of my invention it is not necessary to fireproof the warp cords B, B, as when the blanket is to be used merely for heat insulating purposes and is not to be exposed to high temperatures.

Claims—

1. A flexible heat insulating material in fabric form, comprising relatively large weft cords each composed of a major percent by weight of asbestos fiber and a minor percent of cotton fiber, and relatively fine non-mineral, non-metallic warp cords treated with fireproofing substance binding said weft cords together in contact of adjacent cords throughout their lengths, said weft cords being of such tensile strength, flexibility, firmness and texture as to present distinct flexi-

ble strands throughout the body of said fabric.

2. A heat insulating material in flexible blanket form comprising relatively large parallel closely adjacent but separately distinct cords each composed of a number of strands twisted together and having a major per cent by weight of asbestos fiber, and relatively fine non-mineral textile threads treated with a fireproofing substance intertwined transversely of said cords in a manner to bind said cords together in contact of adjacent cords substantially throughout their lengths, said cords and threads cooperating to impart pliability to said material along the length and transversely of said cords adapting said material for use as an insulating covering on irregular surfaces.

3. A heat insulating material as set forth in claim 2 and in which the asbestos fiber is of African blue asbestos.

In testimony whereof, I have signed my name to this specification.

WALTER L. STEFFENS.

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