Aug. 24, 1943. L. E. DICKSON 2,327,625

HEAT PROTECTIVE APPAREL

Filed Dec. 15, 1941

Fig. 1.

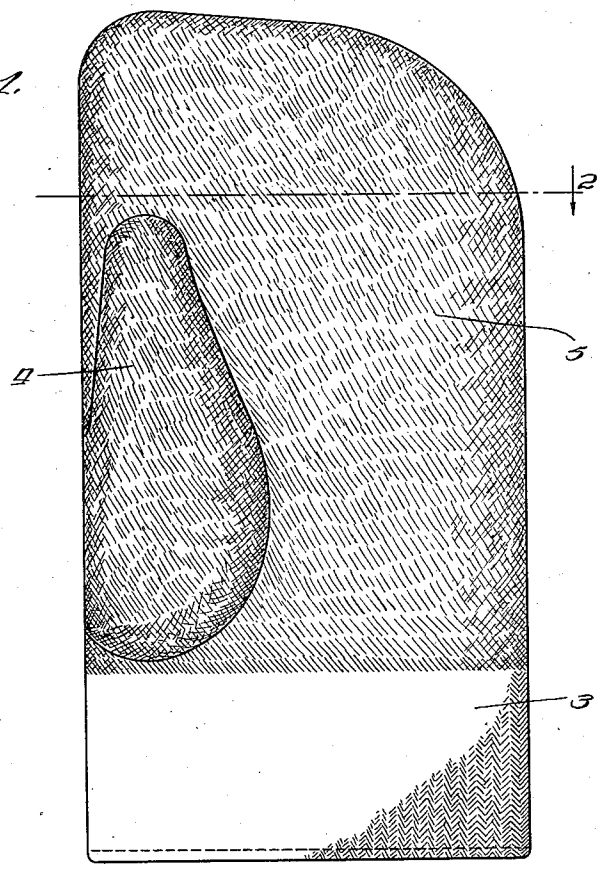
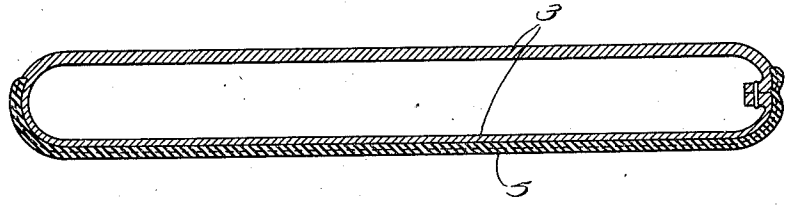


Fig. 2.



Inventor:
Lawrence E. Dickson.
By Chritton, Wiles, Davies & Hirschl.
Attys.

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HEAT PROTECTIVE APPAREL

Lawrence E. Dickson, Chicago, Ill.

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2 Claims. (Cl. 2—168)

This invention relates to heat insulating, non-combustible fabrics, and more particularly to wearing apparel made from such material, such as mitts, gloves, aprons, shoes, and the like.

The primary object of the invention is to provide a body of soft woven inorganic heat insulating material which is superficially coated with non-combustible elastic organic material to improve its strength, protection, and wearing life.

The invention is of particular value in forming mitts, and the like, for use in handling hot objects such as machine gun barrels and in fire fighting work in connection with airplane crashes, oil well fires, and the like.

It has long been known that inorganic materials such as asbestos have excellent heat insulating properties and may readily be woven or formed into fabrics or sheets that can be used in making wearing apparel. However, these materials which are excellent heat insulators are often very weak in tensile strength and have very poor wearing qualities.

The principal object of the present invention is to strengthen the inorganic insulating material with a superficial coating or skin of an organic material, such as a synthetic rubber, which has many of the natural properties of rubber but is not such a good heat insulator and will not support combustion. Such materials are now well known and available on the market as a butadiene polymer. Neoprene is a suitable commercial organic material and its use will be described more in detail.

The invention is illustrated in connection with a protective mitt, in the accompanying drawing, in which—

Figure 1 is an elevational view of a mitt made of woven asbestos and having its finger and palm face treated with neoprene; and Figure 2 is a sectional view, taken as indicated at line 2 of Figure 1.

In the embodiment illustrated, the body of the mitt 3 is formed of woven asbestos and has a soft flexible body with very minute openings through which air may pass. The thumb or finger portion 4 is made of the same material and may be stitched in position to form a mitt.

Neoprene is available on the market in the form of a latex and may be brushed onto the areas of the glove which are subjected to the most wear, as indicated at 5. The liquid neoprene is so thick that it will not permeate the fabric to its inner side, but firmly adheres thereto by superficially filling the interstices in the fabric and forming a substantial waterproof skin. After the neoprene has been applied, it is placed in the oven and cured for a short period at a temperature of about 250° F.

The cured neoprene, when so applied, is found to be quite elastic, like natural rubber, is not affected by oil, and will not support combustion. Also, it is chemically resistant and forms a good protection for the wearer from hot steam or water. The inner face of the mitt being formed of unimpregnated asbestos fabric forms a soft lining that does not readily conduct heat and of course will not burn.

Mitts of this character are particularly useful in handling hot objects, such as barrels of machine guns, which sometimes must be changed while hot, and it is found that the hot barrel may be gripped by the mitt and the neoprene will not become slimy or slippery as in the case of materials such as natural rubber.

It will be understood that the neoprene may also be used in coating helments, boots, or other objects which have surfaces subjected to wear and tear.

In using the term "non-combustible," it will be understood to mean that the material will not support combustion, although it has been found that when subjected to a temperature of say 900° F. for a period of about five minutes, the surface will carbonize and the carbonization will gradually extend through the depth of the coating. While it is preferred in making objects such as mitts, to apply the material with a brush, to avoid waste, it will be understood that the material can be sprayed on, or the objects even dipped in a bath of the synthetic rubber.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom for some modifications will be obvious to those skilled in the art.

I claim:

1. A heat insulating mitt, for use in handling hot articles, comprising a soft body and finger portion of woven asbestos having interstices in the fabric through which air may circulate, the palm and inside finger portions of said mitt being superficially coated with cured "neoprene" which forms a substantially moisture-proof elastic skin and adheres to the fabric by its partial admission into said interstices.

2. Wearing apparel for gripping hot surfaces, having a body of soft woven inorganic heat insulating material, such as asbestos, the outer gripping portions of said body being provided with a thin superficial coating of a cured chlorinated olefinic polymer, said coating being elastic and chemically resistant.

LAWRENCE E. DICKSON.