United States Patent

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[73] Assignee **The United States of America as represented by the Secretary of the Air Force**

[54] **REHABILITATION OF OLD ASPHALT AIRFIELDS AND PAVEMENTS**
2 Claims, 1 Drawing Fig.

[52] **U.S. Cl.** **94/22**
[51] **Int. Cl.** **E01c 21/00**
[50] **Field of Search** 94/22, 7, 8

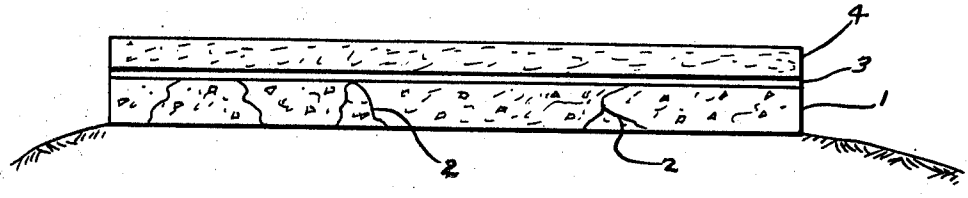
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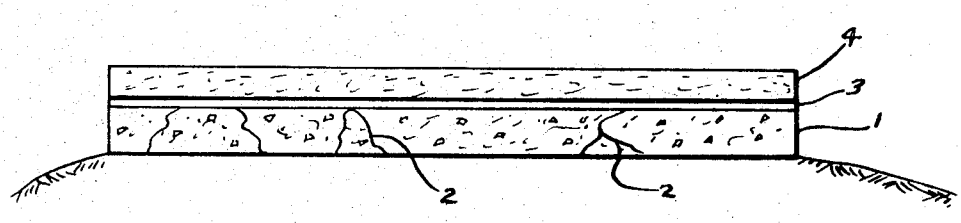
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ABSTRACT: A method for repairing cracked runways and pavements. A mat of fiberglass is placed over the cracked runway or pavement, the mat is rigidized by spraying or painting with a plastic material, and a new layer of asphalt is laid over the rigidized mat. This method permits a saving of asphalt on the order of 50 percent and overcomes the hazard of reflective cracking.



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3,557,671



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REHABILITATION OF OLD ASPHALT AIRFIELDS AND PAVEMENTS

BACKGROUND OF THE INVENTION

1. Field of the Invention.

This invention is in the field of runway and pavement repair.

2. Description of the Prior Art.

In the prior art, when runways or pavements have developed cracks and become depleted or otherwise deteriorated, new layers of asphalt having thicknesses in the range of from 4 to 8 inches have been put down over the old layers. Such thicknesses are expensive and do not always prevent reflective cracking.

SUMMARY OF THE INVENTION

It is now possible to repair cracked and deteriorated runways and pavements without resorting to the laying down of thick layers of asphalt thereover as has been previously required. It has been found that if a rigidized mat of woven fiberglass is placed over the old runway or pavement a relatively thin layer (less than 4 inches) of asphalt may be laid down over the mat and reflective cracks will not appear. This method results in savings of asphalt up to 50 percent and in the improved quality of repaired runways and pavements.

BRIEF DESCRIPTION OF THE DRAWING

The single FIG. is a cross section of a cracked pavement showing the overlaying layers of rigidized fiberglass and asphalt of this invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The preferred embodiment of this invention may be easily understood by those skilled in the art by reference to the drawing. The single FIG. of the drawing shows a cross section of a deteriorated pavement **1** having cracks **2** therein. A thin layer of resin rigidized fiberglass **3** as been placed over the deteriorated pavement **1**. A new layer of asphalt **4** has been placed over the resin rigidized fiberglass **3**.

In practicing this invention a coat of polyester resin is first sprayed or brushed on to the surface to be repaired. The resin should be one which will cure or rigidize in about 1 to 5 hours. There are many such polyester resins available commercially which are suitable. Immediately after the application of the resin a mat of fiberglass is placed over the resin. As much wetting of the fiberglass mat as is possible should be obtained. After the placing of the fiberglass mat another coat of resin is applied. The resin is then allowed to set and rigidize the fiberglass mat. After rigidization, a mat alone, having no asphalt layer over it and having a thickness of about one-half inch, is capable of supporting aircraft landings and takeoffs involving aircraft weighing between 40,000 and 50,000 pounds. After rigidization, an asphalt layer having any desired thickness may be laid down in a conventional manner over the mat. An asphalt layer of up to about four inches in thickness is sufficient to support landings and takeoffs of any aircraft presently in use by the United States Air Force when the layer is supported by a rigidized fiber mat.

The fiberglass mats of this invention may also be placed on the surface of the ground and will aid in the strengthening of asphalt layers placed thereover. Also, the fiberglass mats of this invention are useful by themselves as landing pads for helicopters and the like. When used alone, the mats should have a thickness of about one-half inch. When used in conjunction with an asphalt layer, thicknesses of from about one-eighth to about one-fourth of an inch are sufficient.

There are many well-known polyester resins which will appropriately rigidize fiberglass for the purposes of this invention. Urethane resins may also be used. The only necessary characteristics of the resin are that the uncured resin be sprayable or paintable and capable of curing in a few hours. The fiberglass mat imparts the necessary strength to the composite which is formed upon curing of the resin.

I claim:

1. The method of repairing cracked pavement, said method comprising the steps of:
   a. applying to said cracked pavement a coat of uncured polyester resin;
   b. laying a layer of fiberglass mat over said uncured resin;
   c. applying to said fiberglass mat another coat of uncured polyester resin;
   d. allowing said coats of uncured resin to cure and rigidize said fiberglass mat; and
   e. laying a layer of asphalt over the rigidized fiberglass mat.

2. The method of forming a helicopter pad, said method comprising the steps of:
   a. applying a coat of uncured polyester resin to the area where said helicopter pad is desired;
   b. laying down a layer of fiberglass mat over said coat of uncured polyester resin;
   c. applying a second coat of said uncured polyester resin to said fiberglass mat; and
   d. allowing said coats of uncured resin to cure and rigidize said fiberglass mat.