

## UNITED STATES PATENT OFFICE

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## HEAT REFLECTING TEMPORARY COATING MATERIAL

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## 1 Claim. (Cl. 106—14)

The object of the invention is to provide a heat reflecting, corrosion preventing coating material for metal surfaces which may readily be removed when its usefulness is at an end.

In such service as, for example, shipping aeroplanes or their parts by sea, it is necessary to cover the bright metal parts with a coating which will protect them from corrosion by salt spray, to which the alloys of aluminum are particularly subject.

The compounds heretofore used for that purpose have been dark colored and cause the absorption by the metal of excessive quantities of heat, causing abnormal expansion and undue stresses in riveted joints, particularly over large surfaces such as wings and bodies.

I propose for this purpose a compound consisting of an oil soluble resin, a solvent, and aluminum powder, brought to the consistency of a moderately thick paint to be applied with a brush or an air spray. A typical composite for this purpose may have the following formula:

|                        |                   |          |
|------------------------|-------------------|----------|
| Petroleum resin.....   | per cent.         | 15 to 50 |
| Petroleum solvent..... | do                | 85 to 50 |
| Aluminum powder.....   | pounds per gallon | 1/2      |

The petroleum resin may be a water-insoluble naphthenate of one of the metals, as for example of zinc, copper, calcium, or magnesium, or it may be the residue resulting from the treatment of petroleum acids with formaldehyde and consisting of the formaldehyde condensation products of phenols, cresols, etc., naturally occurring in the crude, or it may be the residue resulting from the distillation of acid-treated pressure distillate from a petroleum cracking operation, and which consists of condensation products of the unsaturated bodies occurring in such distillate. Some of the naphthenates of the above metals produce a somewhat sticky coating, while the other resins described, when distilled down to a hard solid consistency, yield strongly adherent, hard coatings which are strongly resistant to weathering and to penetration by salt or other corrosive agents.

The petroleum solvent should be a distillate

having a boiling range from 300° to 400° F., and is preferably prepared from a naphthenic crude. Such solvent is miscible with any of the above resins when molten and gives a clear solution which dries rapidly at atmospheric temperature but not too rapidly for application by brushing.

The solutions above are dark in color and those of the second and third resins leave a blackish film on application and when dry. However, when aluminum powder is added to the solution the leafing action of the aluminum powder causes it to rise to the surface and give a bright aluminum surface irrespective of the dark color of the vehicle. Experiment has shown that aluminum alloy surfaces coated with the finished product and placed in the noonday sun reached a temperature averaging 25° Fahr. below that reached by similarly treated surfaces which had been coated with a transparent, dark colored corrosion-resisting compound.

All of the above compounds are readily soluble in kerosene or gasoline after application and drying and may be removed when their usefulness is at an end by sponging or brushing with any light petroleum product. The resins described are characterized by this petroleum solubility and also by being nonoxidizable, that is to say, they are not altered by exposure to sun and air in any manner which reduces their solubility or the readiness with which they may be removed. In this they differ from all the drying oils which on exposure in thin films lose their solubility in petroleum distillates and can be removed only with considerable difficulty.

I claim as my invention:

A composition for forming a heat-reflecting, corrosion-resisting, easily removable coating, comprising: a suspension of aluminum powder in a solution consisting of 15% to 50% naphthenate of a metal selected from the group comprising zinc, copper, calcium, and magnesium and 85% to 50% of a volatile petroleum solvent, said suspension being compounded in the proportions of approximately 1/2 pound of aluminum powder per gallon of said solution.

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