April 27, 1948. J. H. YOUNG ET AL 2,440,626

ANTISTICK BITUMEN SURFACED BUILDING MATERIAL

Filed April 22, 1942

Fig. 1

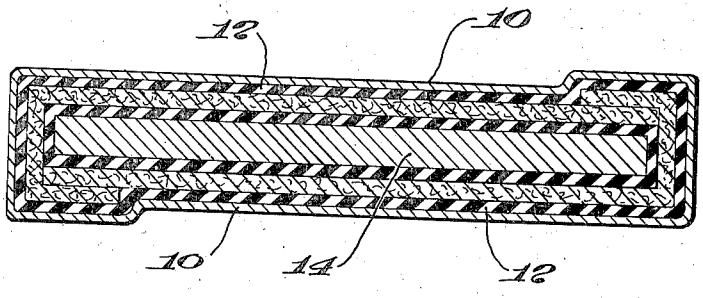
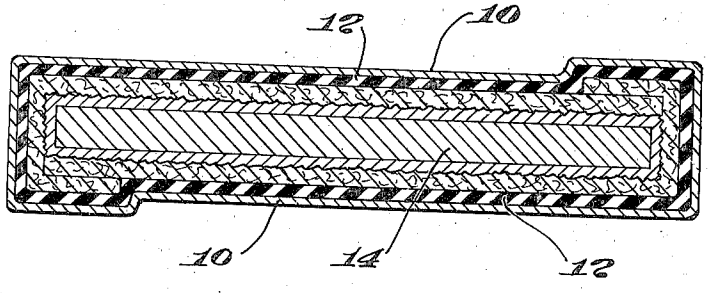


Fig. 2



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2,440,626

ANTISTICK BITUMEN SURFACED BUILDING MATERIAL

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3 Claims. (Cl. 117—85)

1

This invention relates to building material and more particularly to building material of the type having a bituminous or similar surface which is normally characterized by some degree of tackiness and by a tendency to adhere to similar surfaces placed in contact therewith.

One object of the invention is to provide a building material of the character specified which is provided with a novel and highly efficient anti-stick coacting covering the normally tacky surface of the building material.

More specifically, an object of the invention is to provide a protected metal article of the type illustrated in the United States Patents to Robertson and Coffman, Nos. 1,277,755 and 2,073,334, having an anti-stick coating material possessing novel and superior characteristics which render such protected metal articles more suitable for their intended purposes than prior commercial forms of such articles.

With these general objects in view and such others as may hereinafter appear the invention consists in the building material and in the protected metal articles hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings Figs. 1 and 2 are sectional views illustrating two forms of building materials embodying the invention.

The protected metal sheets forming the subject matter of both the Robertson and the Coffman patents above referred to are particularly useful as roofing and siding sheets for general building purposes. In most instances the sheets are sold in corrugated form and in lengths varying from six to ten feet. In order to provide maximum protection for the steel core sheet of such products it is and has been the practice to provide the sheets with a bituminous weather-proofing coating. While this bituminous weather-proofing coating affords the desired weather protection, it does nevertheless present a problem during handling and shipment of these sheets. It will be appreciated that when corrugated sheets provided with the bituminous weather-proofing coating are nested during shipment and particularly during warm weather, a tendency exists for the bituminous surfaces to adhere together.

It has heretofore been proposed to provide such sheets with an external anti-stick coating and of the various coating compositions which have been used, the coating composition forming the subject matter of the United States Letters Patent 1,904,341 has been the most successful. Such prior coating compositions have comprised soluble

2

alginates having incorporated therein soap to reduce the surface tension of the solution and glycerine to impart flexibility to the resulting alginate film. The commercially obtainable alginates are contaminated with variable amounts of insoluble and partially soluble material so that when the prior anti-stick coating was applied over the surface of the protected metal article as above described, a film was produced which was of varying clarity and continuity. The viscosity characteristics of the alginate varied to a substantial extent because of variations in viscosity of the commercial alginate and the aqueous solutions of the alginates were found to have a distinct and unsavory fish odor and to be subject to decomposition upon storage.

In accordance with the present invention the building material, having a bituminous or other tacky surface such as the protected metal sheets illustrated in the Robertson and Coffman patents, has applied to it an anti-stick coating having a plasticized water soluble cellulose ether as its base. The water soluble cellulose ether may include one or more of the known classes of material of which the water soluble methyl, ethyl, and hydroxy ethyl cellulose are examples. Such anti-stick films produced over the bituminous or equivalent surfaces of the building material are characterized particularly by the stability of the film which may be deposited from a water solution of such cellulose ethers and the characteristics of the film. Among these characteristics may be mentioned the fact that the films produced are clear, bright, non-tacky, and flexible, that they possess stability, low sensitivity to heat and pressure, and are easily removed by washing after their anti-stick function has been fulfilled or, in other words, after the building material has been erected and subjected to weathering for any appreciable length of time. By plasticizing the water soluble cellulose with glycerine or equivalent, the flexibility of the films deposited from a solution thereof is increased sufficiently and the yield point and tensile strength of the film are reduced to a point, so as to minimize the tendency of the film to induce strains in the bituminous surface to which it is applied. This, for example, diminishes the tendency of the underlying bituminous surface to crack, check, or assume an alligator appearance, all of which detract from the protective characteristics of the bituminous weather-proofing coating.

As an example of an anti-stick coating composition embodying this invention that has been found to be effective when applied in aqueous

solution diluted to the order of 3% solids content:

	Parts
Low viscosity methyl cellulose	2
Glycerine	1
Sodium salt of sulphated heptadecanol	¼

The film 10 deposited from such solution imparts a clear, high gloss finish to the surface of the weather-proofing coating 12 of the metal cored protected metal building sheet 14. The film 10 serves effectively as an anti-stick permitting shipment of the material under various conditions of temperature and humidity. It weathers off the exposed surface after erection of the building sheet without the development of unsightly discoloration in the process and possesses enough flexibility and distensibility to reduce to a minimum the effects of differential movement of the film and the underlying bituminous coating under varying temperature and humidity changes.

While for some purposes soap may be used to lower the surface tension in the production of the present anti-stick composition having the water soluble cellulose ethers as its base, nevertheless experience has demonstrated that soap imparts sufficient opacity to the film to give a whitish color to the underlying bituminous weather proofing surface, particularly whenever more than a minimum thickness of anti-stick coating is applied. The presence of the soap in the film makes the surfaces of the building material extremely slippery when wet, a condition which has been found to constitute a severe hazard to construction men when erecting roofing sheets during unfavorable weather. It has been found that wetting agents of the type represented by such materials as a sodium salt of sulphated heptadecanol are effective in amounts too small to have any appreciable influence on characteristics of the dried film. In such formulation, the superior film characteristics of methyl cellulose as compared with the alginates is particularly noticeable, permitting of the development of more flexible and distensible coatings by addition of plasticizers without sacrifice of anti-stick qualities. We have employed glycerine as the plasticizer in our tests, and also other polyhydric alcohols as glycol, diethylene glycol, and the like.

While the preferred embodiment of the invention has been illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. A building material having a normally tacky bituminous surface and an anti-stick coating film covering the normally tacky surface, said coating film comprising

	Parts
Methyl cellulose	2
Glycerine	1
Sodium salt of sulphated heptadecanol	¼

2. As a new article of manufacture a protected metal building sheet having a metal core sheet and an outer weather-proofing bituminous coating and an anti-stick film covering said bituminous coating comprising

	Parts
Methyl cellulose	2
Glycerine	1
Sodium salt of sulphated heptadecanol	¼

3. As a new article of manufacture, a protected metal building sheet for roofing and siding purposes having a metal core sheet and an outer weather-proofing bituminous coating, and an anti-stick film covering said bituminous coating and consisting of a major proportion of a water soluble cellulose ether, a minor proportion of a water soluble polyhydric alcohol plasticizer therefor, and a very small proportion of a wetting agent consisting of a sodium salt of sulphated heptadecanol.

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PAUL W. JENKINS.

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