June 9, 1942. P. M. SNYDER 2,286,120

BUILDING MATERIAL

Filed June 26, 1940

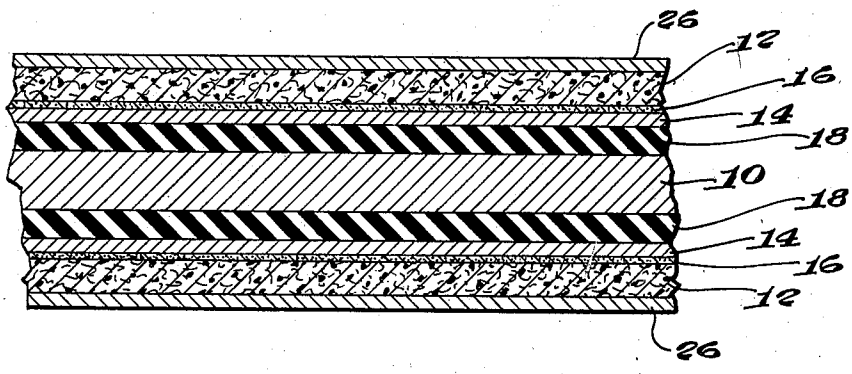


Fig. 1

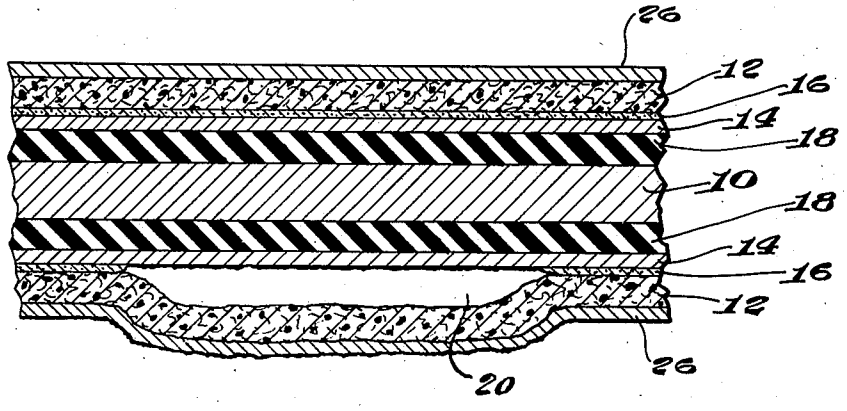


Fig. 2

INVENTOR.
Purdum M. Snyder
BY
J. Stanley Churchill
atty.

Published by AsbestosClaims.Law
asbestosclaims.law/library/21978/1

Patented June 9, 1942

2,286,120

UNITED STATES PATENT OFFICE

2,286,120

BUILDING MATERIAL

Purdum M. Snyder, Sewickley, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa., a corporation of Pennsylvania

Application June 26, 1940, Serial No. 342,404

2 Claims. (Cl. 154—45.9)

This invention relates to building material and particularly to a protected metal sheet for roofing and siding purposes.

The invention has for an object to provide a novel and improved building material of the character specified wherein a plurality of protective layers, some of which comprise combustible material such as bituminous material, are utilized to afford protection to a foundation member against weather and other conditions, which may be economically manufactured and which, when subjected to fire conditions, is of a construction such as to reduce the liability of the combustible material to soften and run, thereby reducing the fire hazard.

With this general object in view, the invention consists in the building material, in the protected metal sheet, and in the various structures, arrangements and combinations of parts hereinafter described and particularly defined in the claims at the end of this specification.

In the drawing illustrating the preferred embodiment of the invention, Fig. 1 is a sectional view of the preferred form of the present protected material; and Fig. 2 is a sectional view illustrating more or less diagrammatically the action of the component parts of the protected material when subjected to fire conditions.

Prior to the present invention, roofing and siding sheets have been manufactured in large quantities embodying a steel sheet protected by a sealing envelope of asphalt or similar bituminous material, and by fibrous layers such as saturated asbestos felt bonded to opposite surfaces of the sheet by the asphalt, such protected building sheets having been manufactured under Letters Patent of the United States No. 1,277,755. While such protected building sheets possess long life under varying conditions of use, when subjected to severe fire conditions for extended periods of time, a possibility exists for the asphalt or other bituminous coating material to soften, even to the running or dripping point, and in some instances, increasing the fire hazard. In order to reduce the combustibility of the roofing and siding sheets heretofore manufactured under Letters Patent No. 1,277,755 fire-resisting or retarding chemicals have been embodied in the outer bituminous weather proofing coatings, such for example, as is disclosed in United States Letters Patent No. 1,432,512.

The present invention, in its more specific aspect, seeks to provide a structure of roofing or siding material of the character disclosed in the foregoing Letters Patent which may be manufactured without substantially increasing the cost thereof and in a simple and practical manner, and upon existing types of manufacturing machines and which, at the same time, is of such structure as to reduce to a minimum the liability of the softening of the bituminous coating materials, when the sheet is exposed to severe fire conditions, and accordingly, to reduce to a minimum any tendency of such materials to run or drip and to increase the fire.

Referring now to the drawing, the present protected material comprises a foundation member 10 which preferably comprises a metal sheet, but which, in the broader aspects of the invention, may comprise a non-metallic sheet such as wall board, Masonite, plywood, Celotex and the like. The foundation member 10 is protected by a plurality of superposed layers of protecting material including a fire-resisting web 12 as asbestos to which is laminated a relatively thin fibrous web 14 such as kraft or other thin paper by a bituminous or other adhesive material 16, and the laminated asbestos fibrous web is itself secured to the foundation member by a protective layer of asphalt or similar bituminous material 18. The adhesive 16 is selected with respect to melting or softening characteristics so that under fire conditions, such adhesive releases the asbestos layer before the underlying protective bituminous layer softens to the point of running, and permits the asbestos layer to bulge outwardly a substantial distance from the remainder of the protected material, as shown in Fig. 2, with the formation of a body of entrapped air 20 between the asbestos layer and the remainder of the structure which serves to efficiently insulate the underlying asphalt or bituminous material from the heat of the fire and enables it to remain in place, reducing to a minimum any tendency to drip or run, and thus increasing the fire-resisting characteristics of the entire composite sheet. Under fire conditions, the thin fibrous layer of the fibrous-asbestos laminated sheet adhesively secured to the underlying bituminous or asphalt layer assists in the retention of such bituminous layer, minimizing the running and dripping thereof.

In practice, I prefer to utilize an asphalt or similar protective material for the protective layer 18 of a character which melts at 235–245 degrees F. (240 degrees F. average), and an adhesive for the layer 16 for laminating together the asbestos and thin fibrous layers of a character having a melting or softening point in the neighborhood of 215–225 degrees F. (220 de-

Published by AsbestosClaims.Law
asbestosclaims.law/library/21978/2

grees F. average), and as a result, when the sheet is subjected to severe fire conditions, the adhesive layer becomes softened releasing the asbestos layer and permitting it to bulge outwardly, as above described, and as more or less diagrammatically illustrated in Fig. 2, while the higher melting point asphalt of the layer 18 remains adhesively secured to the paper layer and remains bonded to the metal sheet 10.

Tests of the present building sheet have demonstrated it to have fire-resisting characteristics substantially equal to those which have heretofore been contained only in the higher priced protected metal sheets embodying fire-retarding chemicals in the weather-proofing coatings thereof.

The present protected metal sheet embodying the laminated asbestos-fibrous layers possesses improved weather resisting characteristics because of the additional layers of protected material as compared with the structure of the prior protected metal sheets which have heretofore been manufactured, and in addition, the laminated asbestos kraft paper material itself possesses substantially greater strength both in tension across the grain and also with the grain of the paper, and the bursting strength, as determined by the Mullen test, is substantially increased. As a result, economies in the weights of asbestos felt employed, and the cost thereof, may be effected.

In the preferred embodiment of the invention, the protected metal sheet produced as above described, may be additionally protected by an outer coating 26 of weather-proofing material preferably comprising the material forming the outer coating of the protected metal sheet disclosed in United States Letters Patent No. 1,277,755, above referred to.

While the preferred embodiment of the invention has been herein 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 possessing superior weather and fire resistance comprising a metal sheet provided on both surfaces thereof with a bituminous protective adhesive layer, a thin fibrous retaining layer bonded to each side of the metal sheet by said bituminous adhesive protective layers and covering the opposite surfaces of the same, a fire resisting sheet secured to each thin fibrous retaining layer by an interposed layer of thermo responsive adhesive, and an outer weatherproofing coating enveloping said fire resisting layers, the layers of thermo responsive adhesive having melting points lower than that of the aforesaid bituminous protective adhesive layers whereby when the sheet is exposed to fire conditions the fire resisting layer is released from the fibrous retaining layer to permit the fire resisting layer to bulge and form insulating air pockets between it and the fibrous layer.

2. A building material possessing superior weather and fire resistance comprising a metal sheet provided on both surfaces thereof with a bituminous protective adhesive layer, a thin fibrous retaining layer bonded to each side of the metal sheet by said bituminous adhesive protective layers and covering the opposite surfaces of the same, a fire resisting sheet secured to each thin fibrous retaining layer by an interposed layer of thermo responsive adhesive, the layers of thermo responsive adhesive having melting points lower than that of the aforesaid bituminous protective adhesive layers whereby when the sheet is exposed to fire conditions the fire resisting layer is released from the fibrous retaining layer to permit the fire resisting layer to bulge and form insulating air pockets between it and the fibrous layer.

PURDUM M. SNYDER.

Published by AsbestosClaims.Law
asbestosclaims.law/library/21978/3