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ROOF DECK COVERING

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Fig. 1

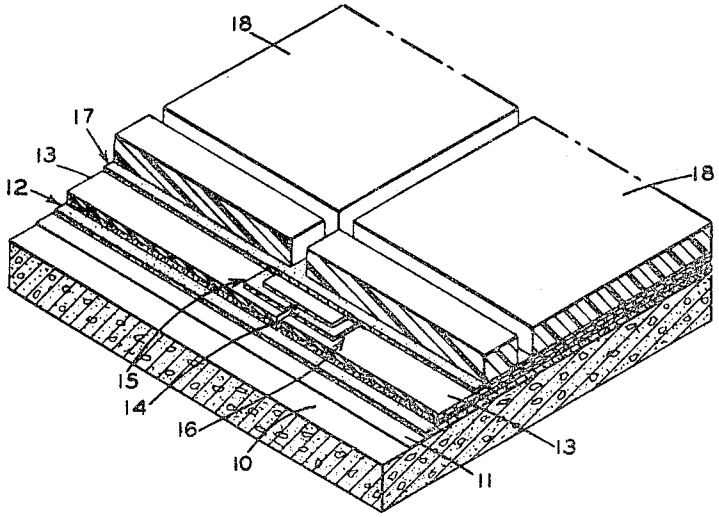
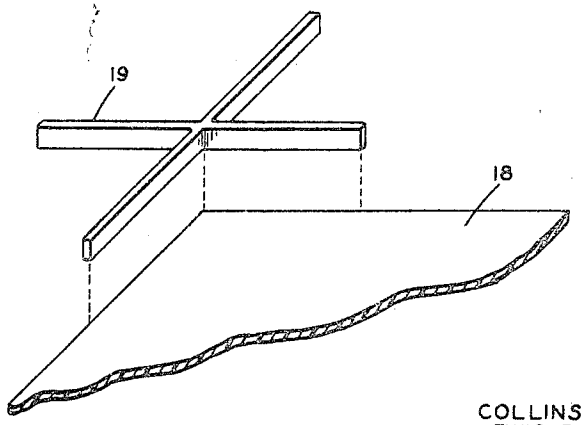


Fig. 2



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ROOF DECK COVERING

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ABSTRACT OF THE DISCLOSURE

A roof deck covering designed to provide a weather and wear-resistant surface. A laminated base sheet with a bottom layer of felted rubber-bound asbestos fibers and an upper layer of neoprene is secured to a subsurface. An adhesive coating is placed over the base sheet and fastened thereto is a plurality of grout-free panels composed of a vinyl-rubber-asbestos material. The panels provide an attractive wear-resistant surface overlying a weather-resistant base structure. If the base sheet is composed of a plurality of sections with abutting edges, a sealing strip is placed over the abutting edges.

The present invention is an improvement over the protective surface covering disclosed in U.S. application Ser. No. 244,616, filed Dec. 13, 1962 and issued as Patent No. 3,328,232 on June 27, 1967. The surface covering disclosed in this earlier application comprises a two-ply laminated base sheet which is adhesively secured to a surface to be covered. The base sheet comprises a bottom layer of felted, rubber bonded asbestos fibers and an upper layer of neoprene secured to said lower or bottom layer. Further, a weather and wear resistant layer of asphalt, neoprene, or other types of known roof covering may be adhesively or otherwise secured to the upper surface of the base sheet to provide a complete and durable surface covering for a roof, for example. Such weather and wear resistant covering may take the form of sheets, liquid coatings, shingles, etc. which are applied at the job site. In each case, a good deal of skill and labor are required to obtain a serviceable installation. Such labor and skill are especially important in the application of surface coverings such as roof decks, for example, which are to serve as traffic areas.

The structure of the present invention reduces the skill and labor required in the application of the weather and wear resistant covering. Further, a smooth or embossed, attractive, weather and wear resistant surface covering is obtained.

Accordingly, an object of the present invention is to provide an improved surface covering which is weather and wear resistant.

Another object of the present invention is to provide a surface covering which may be quickly and easily installed.

Another object of the present invention is to provide a surface covering having a wear and weather resistant, outer layer of spaced panels.

Other objects of the present invention will be readily apparent from the detailed description hereafter with reference to the drawings wherein

FIGURE 1 is a view in perspective of a surface covering according to the present invention; and

FIGURE 2 is a view in perspective of a spacing jig which may be utilized in the application of the surface covering according to the present invention.

Referring now to FIGURE 1, there is shown a surface **10** such as a roof deck, for example, to be covered with weather and wear resistant material. If surface **10** is concrete in nature, better results are obtained if said surface

10 is initially coated with a sealing primer **11**. However, if the surface to be covered is plywood in nature, the primer may be omitted. In any event, a layer of contact adhesive **12** then may be placed on the surface to be covered. The lower surface of an elastic base sheet **13** may be provided with a layer of contact adhesive such that when such base layer or sheet **13** is placed over the adhesive layer **12**, said base sheet **13** will be secured to surface **10**. The contact adhesive may be of a conventional type such as a neoprene contact adhesive.

Base sheet **13** is laminate in nature having a lower layer of rubber bonded, asbestos felt and an upper layer of neoprene rubber secured thereto. As set forth in U.S. application 244,616, filed Dec. 14, 1962, the felt layer is such that it will give and/or tear upon movement of the surface thereunder due to expansion or contraction without tearing the neoprene rubber layer which will expand and contract with the movements of the under surface. This action of the base sheet prevents leaks from developing in the covering material. Thus, the base sheet is a waterproof membrane.

The base sheet **13** may be configured as desired, but such material is usually marketed in rolls of standard width such as 3', for example. Thus, if the surface to be covered has a width greater than 3', joints between adjacent sheets of base material will occur. Such adjacent base sheets may be butted as shown at **14**, for example.

A layer of contact adhesive may be placed on each base sheet **13** in the area on either side of the joint **14**. It has been found that good results are obtained by laying a strip of woven, glass-fiber tape over the joint while the adhesive is still wet. This tape **16** is pressed into contact with the adhesive **15**. Such a joint has been found to maintain the waterproof integrity of the base sheet without unduly increasing the thickness thereof adjacent the joints. The thickness of the tape and adhesive may be on the order of about .010" with the tape having a thickness of .007" approximately.

Once the base sheet has been adhesively secured in place, and any joints between adjacent sheets have been covered with tape and adhesive as indicated above, a layer of contact adhesive **17** may be placed over the entire exposed surface of the structure. A plurality of spaced, wear and weather resistant panels **18** may be provided on their under surfaces with contact adhesive such that when they are pressed into contact with the adhesive layer **17**, said panels **18** will be adhesively secured to the structure thereunder. Panels **18** may be of a polyvinyl chloride, rubber, asbestos composition and may be embossed with a desired design or pattern such as natural slate, for example. Such panels may be formed through conventional molding techniques.

Panels **18** may be of the following composition:

	Percent by weight
Polyvinyl chloride resin	15.0
Nitrile butadiene rubber	3.2
Plasticizer	12.8
Stabilizer	.4
Asbestos	48.6
Pigments and fillers	20.0
	100.0

The above composition is prepared, mixed, calendered under heat and pressure, and molded into final panel form. The shape or shapes of the panels may be varied. However, panels of ⅛" x 18" x 18" have been found to provide satisfactory results with regard to wear and weather resistance and ease of installation. tI is apparent that these panels may be mass produced under factory conditions and shipped to the job site.

At the job site, the installer adhesively prepares the undersurface of the individual panels. The placement jig **19** shown in FIGURE 2 may be used to aid in the installation of the panels. The installer accurately and carefully positions the first panel **18** at a desired starting point on the contact adhesive-covered surface. Thereafter, the installer merely places the jig **19** so that one of its quadrants is in contact with the outer edges of two intersecting sides of the initially laid panel **18**. Once the installer has performed this operation, the remaining legs of the jig **19** serve as guide surfaces for intersecting edges and corners of panels to be placed in the remaining three quadrants. Thereafter, it will be apparent that the jig **19** may be placed in similar guiding position with respect to other panels **18** until such time as the entire adhesively prepared surface has been covered with panels **18**. Although a specific jig has been shown and described, it is to be understood that the panels may be installed with other types of aids. If desired, the panels may be positioned without any jigs or other fixtures.

It is noted that the panels **18** are spaced from each other. This spacing is to provide expansion room for said panels during periods of contraction and expansion caused by temperature variation of as much as 100° F. or more during a given day. If the tiles were butted together initially, there is a possibility that upon expansion thereof peaking or buckling of the edges of said tiles would occur. Such peaked edges may separate from the adhesive thereunder, thereby resulting in a permanently curled installation. Such an installation is unattractive, collects dirt, and is a hazard to persons walking thereon. Thus, the initially spaced installation of the panels provides a substantially buckle or peak-free job. It has been found that spacing approximately in the range of 1/16"–1/4", for example, between adjacent panels provides an attractive and functionally effective installation. Such an installation does not require but may have grout between adjacent panels. The space between panels has been found to be small enough in cases where the grout has been omitted to prevent most traffic problems with regard to the catching of heels or other objects. However, the channel or space between adjacent tiles is sufficient to accommodate normal contraction and expansion. It has been found that these channels are somewhat self-cleaning in nature in that during flooded conditions the liquid therein will run through said channels toward the lowest point of the surface if such surface is inclined slightly in the manner of a typical promenade deck, for example.

It is seen that the individual panel concept as set forth in the present invention is relatively easy to install, provides a wear and weather resistant surface, and is attractive in nature. Should any panels become damaged, they may be replaced without resurfacing the entire deck. An individual panel may be cut from its position. Thereafter, the base material under the removed panel may be properly repaired, sealed, and coated with adhesive. Then, a replacement panel may be set into position in the same manner that the initial panel was installed.

It will be apparent that the surface covering according to the present invention is simplified in nature. Such a covering may have an installed weight of approximately 1.5 pounds per square foot which is much lower than many surface coverings including the roof coverings of the prior art which may range up to and in excess of 10 pounds per square foot.

It is to be understood that the panel installation heretofore described may be made on substrates other than the disclosed base sheet. Further, the panel-base sheet structure disclosed herein may be applied to various substrates other than those specifically set forth.

It is to be understood that the device of the present invention is not to be limited to the specific embodiment shown and described. For example, the particular size, arrangement, dimensions, composition, etc. may be varied. Although contact adhesive has been disclosed, other water resistant adhesives may be used. Similarly, the particular composition of the elements may be varied as long as an over-all weather and wear resistant surface covering is obtained.

We claim:

1. A surface covering for a roof structure comprising a base sheet adhesively secured to said roof structure, said base sheet comprising a plurality of laminated sections with a lower layer of rubber bonded asbestos felt and secured thereto an upper layer of neoprene rubber, said sections being butted together at their edges and a sealing strip being placed over the butted edges to make the joint abutted edges waterproof, one layer of adhesive on at least a portion of the upper surface of said base sheet, and a plurality of spaced, wear and weather-resistant, integral composition vinyl-rubber-asbestos panels secured to said layer of adhesive, with a space between adjacent panels to allow for thermal expansion.

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