Nov. 21, 1967 P. G. ANDERSON 3,353,867

BENCH AND PLANK COVER

Filed June 27, 1966

FIG. 1.

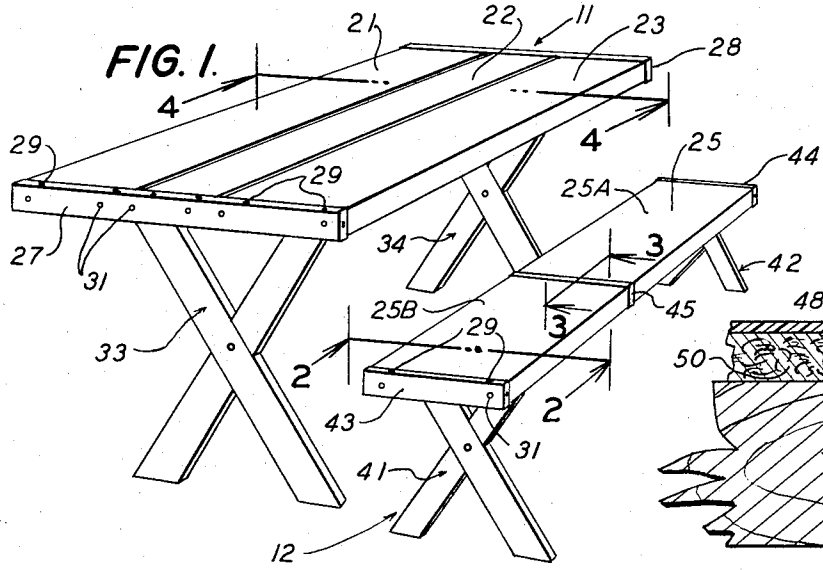


FIG. 3.

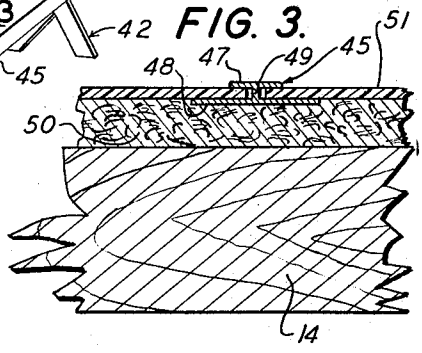


FIG. 2.

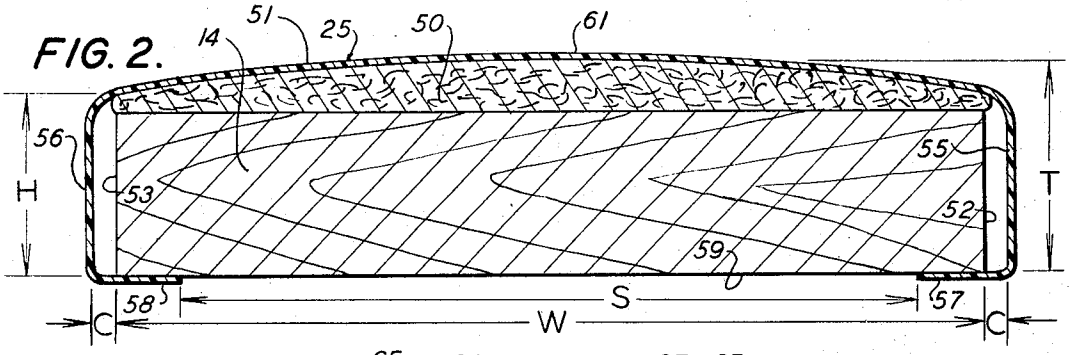


FIG. 4.

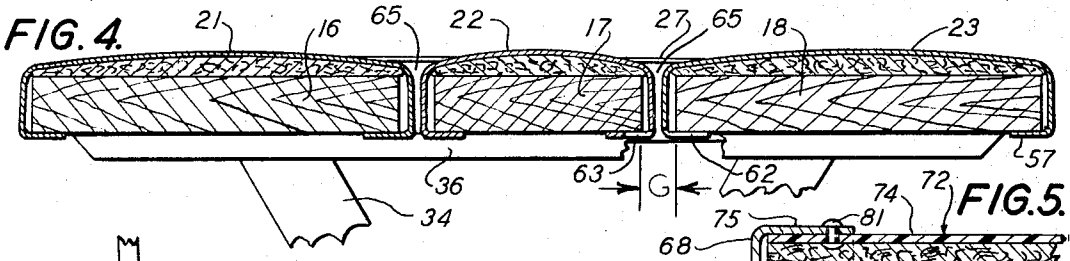


FIG. 5.

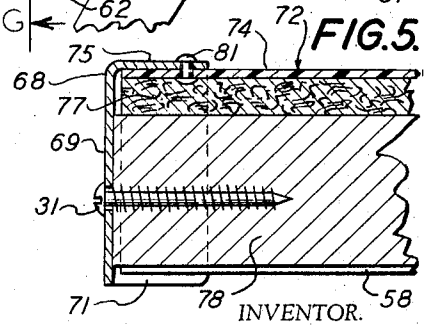
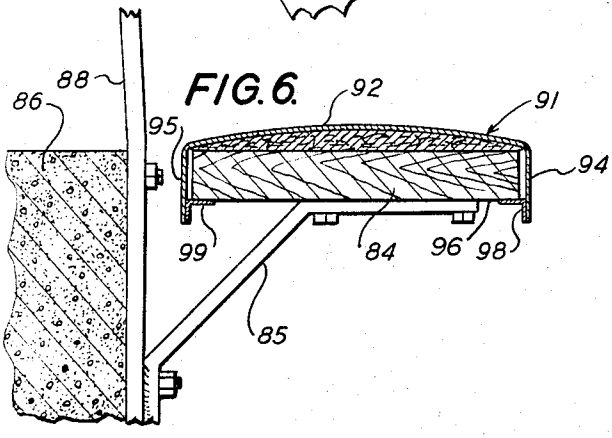


FIG. 6.



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BENCH AND PLANK COVER

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ABSTRACT OF THE DISCLOSURE

A weatherproof cover for sheathing the stringers or planks of outdoor furniture and having a cover top over a resilient pad and cover sides extending downwardly and terminating in inwardly projecting side flanges to define a normally channel-shaped member, with the heights of the cover sides and the spacing of the sides and flanges with respect to the stringer being such that the cover top is convex and the stringer has freedom to expand and contract under changes in humidity.

This application is a continuation in part of my copending application Ser. No. 403,193 entitled "Cover for Outdoor Seats" filed Oct. 12, 1964, now Patent No. 3,298,045.

Like the copending application, the present invention overcomes the problem of sheathing the load-bearing wooden planks or stringers of seats, benches and tabletops such that the wood of these furniture pieces is weather-protected but still free to "breathe" to adjust to ambient humidity changes accompanying changes in weather. A nominally 2" x 10" wooden plank, for instance, undergoes sufficient moisture content change from a wet period to a dry period to cause ½" variation in width. The present invention affords apparatus in which a weatherproof cover or sheath and an enclosed resilient pad are securely attached to the plank or stringer by means which compensates for changing dimension due to the change in humidity of ambient air.

Planks and stringers of wood which are completely covered by paint or other nominally protective coatings destroy such coatings through surface cracking and peeling due to the interchange of moisture to and from the interior of the wooden member. The present invention leaves exposed the under surfaces of the wooden members of seats, benches and tabletops such that moisture exchange can take place without deterioration of the furniture surface upon which the load is placed.

The invention contemplates a weatherproof cover for load-contacted seat and table stringers that comprises a resilient pad extending the expanse of the stringer and a weatherproof sheath top covering the pad. Sheath sides integral with the sheath top extend downwardly adjacent the sides of the stringer. A sheath side flange extends from the sheath side under the stringer bottom to retain the sheath about the stringer and the resilient pad. Preferably the flanges are integrally formed with the sheath sides but need not be so.

End caps secured to the cover and to the stringer may be combined with the cover and the pad to deter vandalism and unauthorized removal of the weatherproof cover. Joint strips may also be used to join the ends of adjacent cover sections so that they abut in water-shedding fashion.

Preferably the cover of the invention has sheath sides with a height less than the sum of the thicknesses of the stringer and the relaxed resilient pad. When combined with the stringer and pad the cover attains a convex upper surface which sheds water along each edge of the covered plank.

The cover, in its preferred embodiment, exceeds the width of the stringer at average humidity. The space between opposed sheath side flanges in this embodiment is also less than the width of the stringer at zero humidity. Thus the cover is adapted to compensate for dimension increases due to moisture absorption by the wooden stringer without loss of its retentive grip upon the wooden stringer.

These and other advantages of the invention are apparent from the following detailed description and drawing in which:

FIG. 1 is a perspective view of a table and bench covered with weatherproof covers in accordance with the invention;

FIG. 2 is a transverse sectional elevation of the bench taken along line 2—2 of FIG. 1;

FIG. 3 is a fragmentary longitudinal sectional elevation of the bench taken along line 3—3 of FIG. 1;

FIG. 4 is a transverse sectional elevation of the tabletop taken along line 4—4 of FIG. 1;

FIG. 5 is a fragmentary sectional elevation taken through an end cap of the invention; and

FIG. 6 is a transverse sectional elevation of an alternate embodiment of the invention.

A table **11** and a bench **12** of FIG. 1 both have load-bearing tops made of wooden stringers. As can be seen from FIG. 2, bench **12** has a seat stringer **14**. FIG. 4 shows in cross-section three tabletop stringers **16, 17** and **18**. The tabletop stringers have, respectively, weatherproof covers **21, 22, 23**. Seat stringer **14** has a weatherproof cover **25**.

Referring again to FIG. 1, weatherproof covers **21, 22, 23** terminate in shared end caps **27, 28**. Each end cap overlaps all three of the weatherproof covers. A plurality of rivets **29** or other like fasteners secures each end cap to the weatherproof covers. A plurality of drive screws **31** secures each end cap to the ends of the stringers.

The table itself may be a conventional picnic table in which the wooden stringers are supported upon a pair of X-shaped legs **33, 34**. The three stringers are joined together by two or more splice boards, such as the board **36** shown in FIG. 4.

Likewise, bench **12** has its seat stringer **14** supported by a pair of X-shaped legs **41, 42**. Weatherproof cover **25** of the bench terminate in end caps **43, 44** secured to the cover and the stringers, respectively, by rivets **29** and drive screws **31**.

Cover **25** is shown as made up of two segments **25A, 25B** which are joined by a metallic joint strip **45**. The joint strip has a narrow upper flange **47** and a wide lower flange **48**. A web **49** of the joint strip intervenes between the ends of the two cover segments. Normally a bench such as that shown is made from a single length of cover, but joint strips such as that shown may be used when the bench lengths exceed the available lengths of the cover material.

As can be seen from FIGS. 2 and 3, a resilient pad **50** resides on top of the seat stringer and beneath the weatherproof cover. The pad may be of any one of several resilient materials conventionally used for padding. In the preferred embodiment of the invention the resilient pad comprises a cotton bat which has been dipped in liquid latex to give it good resiliency. The pad resides beneath a sheath top **51** which extends transversely of the bench outwardly beyond side edges **52, 53** of the seat stringer. Sheath sides **55, 56** extend downwardly from sheath top **51** and terminate in inwardly projecting flanges **57, 58** which extend beneath a bottom surface **59** of the seat stringer. The transverse distance between sheath sides **55** and **56** exceeds the width W of the wooden seat stringer by a horizontal increment C on each side of the bench. The increments provide clearance for expansion of the stringer during periods of high ambient humidity.

The sheath flanges extend toward each other along the length of the bench, preferably in contact with the bottom of the seat stringer. A span S between the flange edges preferably is less than the minimum dimension W attained by the stringer at lowest humidity. The side flanges are thus always in contact with a portion of the under side of the stringer, restraining upward motion of the sheath.

The height H of the sheath sides is preferably less than the combined thicknesses T of the relaxed pad and the stringer or plank. The pad is therefore compressed more at its edges than at its center, creating a sheath crown **61**. The slope of the sheath or cover from crown to edge aids water runoff in wet weather and when the furniture is hosed for cleaning.

The weatherproof cover of the invention affords a comfortable seat resistant to surface damage from dampness. It resists damage from blows, since any contact force is cushioned. The resilient pad also adjusts to surface irregularities which the plank may have, such as indentations, protruding bolt heads, etc.

Preferably the sheath top and sides are of reinforced fiberglass. The material preferably has a high glass to resin ratio. To prevent reinforcing threads from coming through the surface, the exterior planes of the cover are given an acrylic-modified coat applied at 325° F. The coating is between .007 and .010 inch thick. The cover itself is preferably .090 to .110 inch thick. This material has been found to resist track and baseball spikes effectively while having sufficient give to prevent shattering under most blows.

The resilient pad adds to shatter resistance by its own cushioning effect.

In FIG. 4 the tabletop stringers are each covered by a weatherproof cover similar to the cover **25** described above. However, the covers **21** and **23** are wider than the center cover **22** about stringer **17**. This relationship varies with the particular top being covered.

Splice board **36** fixed the gap G between stringers or planks of table **11**. In order for the covers to be applied it may be necessary in some instances to increase the gap in order to insert the sheath side flanges between adjacent stringers and under the bottom surface thereof.

The side flanges may be notched, as at **62** and **63**, to fit about the splice boards that extend in conventional fashion transversely of the tabletop.

The slight interval **65** between adjacent covered stringers of the table provides for water runoff from the crowns of the covers.

In FIG. 5 an end cap **68** has a front face **69** and side faces **71** that overlap the sheath sides (not shown) of a weatherproof cover **72**. A sheath top **74** is overlapped by an end cap top face **75**. A resilient pad **77** lies between sheath top **74** and a wooden stringer **78**. A drive screw **31** of conventional design secures the end cap to the stringer. An explosive or pull rivet **81**, which may be one of a plurality, fixes the end cap to the sheath top. The rivet may be applied through a hole drilled through cover and cap after they have been positioned in the orientation shown.

The end caps not only give a finished appearance to the covered stringers, but deter vandalism and prevent abrasion of the cover ends.

FIG. 6 shows a bench **83** such as is conventional in gymnasiums and stadiums. A wooden bench stringer **84** is fixed to a stanchion **85** that is in turn bolted to a concrete riser **86** of the stadium. A bench back support **88** rises from the stanchion to hold a brackrest (not shown).

The wooden stringer is covered by a weatherproof cover **91**, preferably of fiberglass of the type previously described. The cover has a sheath top **92**. A resilient pad lies between the top and the stringer. Sheath sides **94**, **95** depend from the top. The space between the sheath sides is greater than the width of the stringer. The sides extend below a bottom surface **96** of the stringer. Longitudinal angle strips **98**, **99** are fixed respectively to sides **94**, **95** so that one flange of each angle overlaps surface **96**. The angle strips inhibit upward motion of the cover with respect to the stringer.

As in the previously described embodiments, the sheath sides terminate above the stringer an increment less than the relaxed thickness of the pad so that the sheath top is deformed into a convex configuration.

Like the other embodiments, the embodiment of FIG. 6 presents a weatherproof cover under which a plank may expand or contract without damage to the weatherproofing material, which is resistant to damage, does not collect water and is economical to fabricate.

Other embodiments and changes within the scope of the invention will occur to those skilled in this art. Therefore, I desire the disclosed embodiments to be regarded as illustrative only, with the invention being measured by the appended claims.

I claim:

1. A weatherproof cover for the load-contacted stringers of seats and tables comprising a resilient pad extending the expanse of the stringer, a weatherproof sheath top covering the pad, a sheath side integral with the sheath top and extending downwardly from the top adjacent the stringer sides, the sheath top and the sheath sides defining a normally channel-shaped member, and a sheath side flange fixed to the sheath side and extending under the stringer bottom to retain the sheath about the stringer and resilient pad, each sheath side having a height less than the sum of the thicknesses of the stringer and the relaxed resilient pad such that the sheath top is transversely convex when in place on the stringer, the width of the sheath exceeding the width of the stringer at average ambient air humidity and the space between opposed sheath side flanges being less than the width of the stringer at zero humidity, and said stringer being free to move transversely with respect to the sheath side flanges.

2. A weatherproof cover in accordance with claim **1** further comprising an end cap overlapping the upper surface of the sheath top and the other surfaces of the sides at the end of the stringer, means securing the cap to the sheath, and means securing the cap to the stringer.

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