

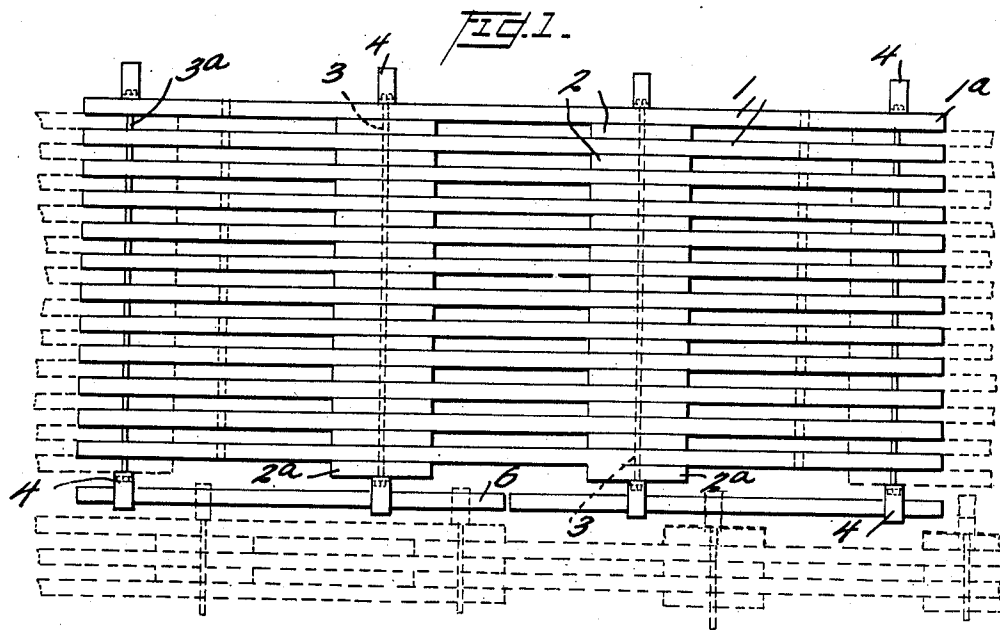
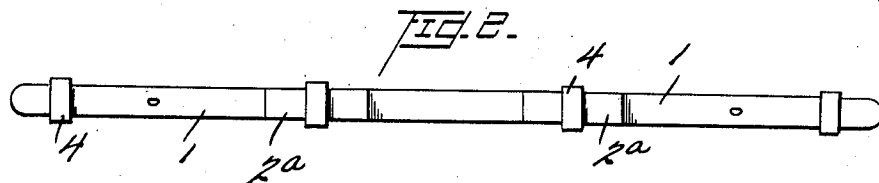
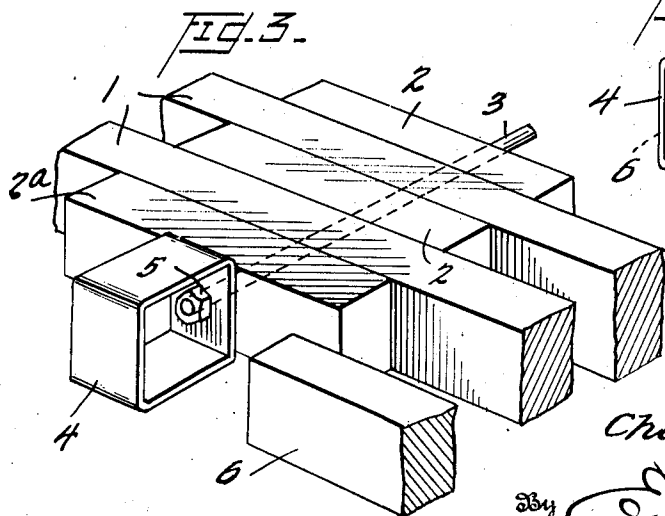
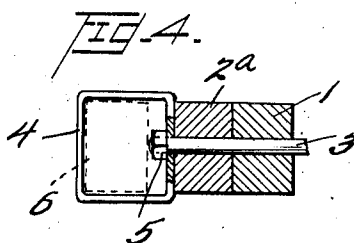
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C. N. WILSON

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INTERLOCKING DECKING PANEL

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Inventor

Charles N. Wilson

By *Eugene A. Turner*
Attorney

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INTERLOCKING DECKING PANEL

Charles N. Wilson, Washington, D. C.

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5 Claims. (Cl. 94-13)

This invention relates to interlocking panels of the type intended for forming decking for use as airfield runways, taxiways, roadways, ramps, bridge surfacing, garage flooring, etc.

An important object of my invention is to provide a decking panel of the above character that is adapted to be made in major part of wood, as opposed to metal according to usual practice, and which at the same time is sufficiently strong and rigid as to successfully withstand the severe wear and tear to which it is subjected in service. Some of the advantages of my decking panel are its lightness of weight, capability of being transported in compact knock-down condition and the cheapness and availability of the material, wood, of which the panel is composed.

Another object of my invention is to provide a panel of the above character which, in laying a decking, is adapted to be quickly assembled with similar panels end-to-end in interdigitated relation, and also having coupling means adapted to be interlocked with complementary coupling means on laterally adjacent panels for retaining the panels in assembly.

Still another object of my invention is to provide a decking panel which is comparatively simple and inexpensive in construction and which is capable of being rapidly and conveniently assembled with companion panels in forming a traction surface.

Other objects and advantages will be apparent from the following detailed description of a preferred embodiment of the invention, reference being had to the annexed drawing, in which:

Figure 1 is a plan view of an interlocking decking panel assembled with companion panels, indicated in broken lines;

Figure 2 is a side view of the panel;

Figure 3 is an enlarged detail perspective view of one side of the panel, showing the means for laterally coupling the panels together; and

Figure 4 is a side view, with parts broken away, of a coupling ring.

The decking panel of generally rectangular outline illustrated in full lines in Fig. 1 is adapted to be assembled with identical units to form a runway for airplanes. The panel comprises a series of straight rectangular wooden rails 1 held in spaced-apart parallel relation by means of intermediate spacer blocks 2 corresponding in cross-section to the rails 1 but being of substantially shorter length. The spacer blocks are arranged in rows (in the present embodiment shown as two in number) extending crosswise of the panel and spaced roughly about one-third of the

length of the panel inwardly of its ends so as to leave the ends of the rails projecting as laterally spaced fingers 1a from opposite ends of the panel. Along one side only of the panel and in line with the rows of blocks 2 are spacer blocks 2a, which I term panel spacer blocks, these panel spacer blocks corresponding in all respects to the spacer blocks between adjacent rails 1. The rails and spacer blocks are held in rigid association by means of a pair of metal tie rods 3 having threaded ends extending transversely of the panel through aligned openings in the rails and blocks. The fingers 1a are likewise bored so as to receive supplemental tie rods 3a corresponding to and extending parallel with the tie rods 3.

For assembling the panels side-by-side, rectangular-shaped coupling rings 4 are associated with the ends of the tie rods 3 and 3a, as best shown in Fig. 3. Each ring has one of its side walls provided with a threaded end for screwing onto the projecting threaded end of a tie rod, the coupling rings thus serving as nuts for clamping the parts of the panel together in flat laterally abutting relation. Lock nuts 5 may be provided for preventing accidental unscrewing of the rings. As will be seen from Fig. 1, the rings are provided upon opposite sides of the panel, the rings on one side flatly engaging a side rail 1 and the rings on the other side flatly engaging the panel spacer blocks 2a lying against the other side rail of the panel. The size of the eyes presented by the coupling rings is such to allow sliding a wooden locking bar 6 therethrough so as to occupy the space between the nuts 5 and the outer sides of the coupling rings without too loose a fit. The length of the locking bar is about one-half that of the panel, or at least of a length such as to extend between at least two coupling rings of each panel.

The mode of assembling the panels just described is as follows: The panels may be transported to the locality where they are to be laid in fully knock-down condition—that is, with the rails 1, spacer blocks 2 and 2a, and tie rods 3 gathered together in separate bundles. This is especially desirable in order to conserve space.

In laying the runway, the rails 1 are arranged in parallel relation and the spacer blocks 2 and 2a inserted between adjacent rails and abutting the outside face of one of the side rails. Next the tie rods 3 are inserted through the registering openings in the rails and blocks and the coupling rings 4 screwed onto the screw-threaded projecting ends of the rods, after which the clamping nuts 5 are screwed onto the ends of the rods

projecting into the eyes of the rings to draw all the parts of the panel together into tight engagement. I have found that a panel of a width corresponding to twelve rails, (the rails being 1 in. by 2 in. or 2 in. by 4 in. and about 9 feet in length) and including a corresponding number of shorter spacer blocks, as shown in Fig. 1, is satisfactory for ordinary purposes, although the size of the panel and the number of tie rods 3 employed for fastening together the rails and blocks may be varied as desired, or as may be necessary to meet special conditions.

The individual panels having been made ready, they next are assembled end-to-end and side-by-side to form the decking for the runway. In assembling the panels end-to-end, the projecting fingers 1a of the rails of one panel are slipped between the spaces separating the mating fingers of a longitudinally contiguous panel, which causes the panels to be offset laterally by a distance corresponding to the width of one rail (see Fig. 1). Locking tie rods 3a are passed through the registering openings in the fingers 1a and coupling rings 4 are associated with the projecting ends of the tie rods and held by lock nuts 5, in a manner which already has been described. A row of panels secured end-to-end is thus built up for the full width of the runway, the rails 1 preferably extending in the direction of the width of the runway. The panels constituting a row will be turned in alternate reverse order, so that the panel spacer blocks 2a of one panel will lie on the opposite side from those on an adjacent panel, it being only necessary to bodily turn the panels over or shift them through 180 degrees in a horizontal plane to reverse the arrangement of the panel spacer blocks.

In a similar manner another row of panels will be laid adjacent and parallel to the first row, the panels of the two rows being staggered relative to each other so that the ends of the panels of one row fall at about midlength of the panels of the adjacent row. In building up a row of panels, the panels are shoved up against the sides of the panels of the previously laid row, which automatically lines up the eyes of the coupling rings 4 carried by laterally adjacent panels and permits the locking bars 6 to be thrust endwise through the eyes to lock the panels together.

The panels will be assembled in the manner described above until the entire area constituting the runway is covered by the decking with the panels held together in rigid assembly. It will be apparent that the ends of the locking bars 6 of each row of panels will substantially abut each other, so that by fastening the terminal locking bars in place by any suitable means these bars are precluded from accidentally working out of engagement with the eyes of the coupling rings when the runway is in service and releasing the connection between adjacent panels. When the runway is to be taken up—as when it is to be moved to another location—this may be readily accomplished by withdrawing the locking bars 6 and the locking tie rods 3a and stripping down the individual panels by reversing the order of the steps just described.

The locking nuts 5, while desirable for more positively retaining the coupling rings 4 against accidental release, are not absolutely essential and may be omitted. Likewise the coupling rings need not serve the function of nuts but if desired the apertures therein may be made sufficiently large to slip over the ends of the tie bars and the nuts 5 may serve to clamp the parts to-

gether. For facilitating the assembly of the panels, and especially to allow for a certain amount of unavoidable swelling of the wood in wet weather, the spacer blocks 2 and 2a may be made slightly wider than the rails 1 so as to provide a slight excess of space between rails for interdigitating the fingers 1a of adjacent panels. Also the ends of the fingers 1a may have their corners rounded to insure smooth joints between panels, especially when the terrain over which the decking is laid is not absolutely flat. The openings in the rails for passing the tie rods 3 and 3a are preferably made elongated in the direction of the length of the panel to insure registry of these openings regardless of variable changes in length of the individual rails under different weather conditions.

The panel can be made in various sizes and the rails may also be made of various sizes and lengths. Two tie rods per panel can be used to make an articulated panel or additional rods may be employed for rigidity and strength. Instead of being screw threaded, the ends of the tie rods may have keys, bends or other means to secure the panel. Also the coupling rings can be of various forms and made from flats, rounds, or other structural shapes and attached to the rods or to the side rails.

It will be apparent from the foregoing description that my invention provides an interlocking decking panel which is strong and rigid in construction, capable of cheap manufacture for the reason that it is composed almost entirely of wood cut to the same cross-sectional size and, for the same reason, very light in weight. Furthermore, because the panels are adapted to be shipped in compact knock-down condition and assembled on the job the large numbers of the units required to form a decking may be transported in a relatively small space which is an especially important factor in the case of air transportation. However, the panels need not be shipped in knock-down condition where space is not a vital factor, but they may be handled as individual units in which case all the elements of the panels are pre-assembled and the loss of parts is avoided.

It is to be understood that the invention is not to be limited to the exact details of construction herein shown and described in connection with my preferred embodiment, for obvious modifications within the scope of the following claims may occur to persons skilled in the art.

I claim:

1. An interlocking decking panel comprising a series of rails extending longitudinally of the panel in parallel relation, spacer blocks located intermediate the rails for maintaining the rails separated by a distance corresponding approximately to their width to permit end-to-end assembly of the rails of adjacent panels in interdigitated relation, a plurality of tie rods extending transversely of the panel through registering openings in the rails and spacer blocks, the ends of said tie rods projecting beyond the sides of the panel, and securing means detachably connected to the ends of said tie rods for clamping the rails and spacer blocks together, said securing means including a recess so constructed and arranged to receive a locking bar disposed parallel to the rails.

2. An interlocking decking panel comprising a series of rails extending longitudinally of the panel in parallel relation, spacer blocks located intermediate the rails for maintaining the rails separated by a distance corresponding approxi-

mately to their width to permit end-to-end assembly of the rails of adjacent panels in interdigitated relation, a plurality of tie rods extending transversely of the panel through registering openings in the rails and spacer blocks, the ends of said tie rods projecting beyond the sides of the panel and being screw-threaded, and coupling rings threaded onto the projecting ends of said tie rods and serving as nuts for clamping said rails and spacer blocks together.

3. An interlocking decking panel comprising a series of wooden rails extending longitudinally of the panel in parallel relation, wooden spacer blocks located intermediate the rails and exteriorly of a side rail of the panel, said spacer blocks maintaining the rails separated by a distance corresponding approximately to their width so as to permit end-to-end assembly of the rails of adjacent panels in interdigitated relation, a plurality of tie rods extending transversely of the panel through registering openings in the rails and spacer blocks for retaining said rails and spacer blocks in association, openings provided in the rails adjacent their ends for receiving tie rods adapted to interlock with the rails of an adjacent panel, the ends of the tie rods projecting beyond the sides of the panel and being screw-threaded, and coupling rings mounted upon the projecting ends of the tie rods and providing eyes for receiving a locking bar for interlocking laterally adjacent panels.

5 4. An interlocking decking panel comprising a series of woden rails extending longitudinally of the panel in parallel relation, wooden spacer blocks located intermediate the rails and exteriorly of a side rail of the panel, said spacer blocks maintaining the rails separated by a distance corresponding approximately to their width so as to permit end-to-end assembly of the rails of adjacent panels in interdigitated relation, a plurality of tie rods extending transversely of the panel through registering openings in the rails and spacer blocks for retaining said rails and spacer blocks in association, openings provided in the rails adjacent their ends for receiving tie rods adapted to interlock with the rails of an adjacent panel, the ends of the tie rods projecting beyond the sides of the panel and being screw-threaded, and coupling rings threadedly mounted upon the projecting ends of the tie rods and serving as nuts for clamping the rails and spacing blocks together and providing eyes for receiving a locking bar for interlocking laterally adjacent panels.

5. An interlocking decking panel as set forth in claim 4 in which the spacing between the rails exceeds the width of the rails and in which the openings in the rails for passing the tie rods are elongated in the direction of the length of the panel to provide for changes in dimensions due to shrinking or swelling of the rails.

CHARLES N. WILSON.