Sept. 1, 1942. G. G. GREULICH 2,294,549

PORTABLE DECK

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FIG. 1.

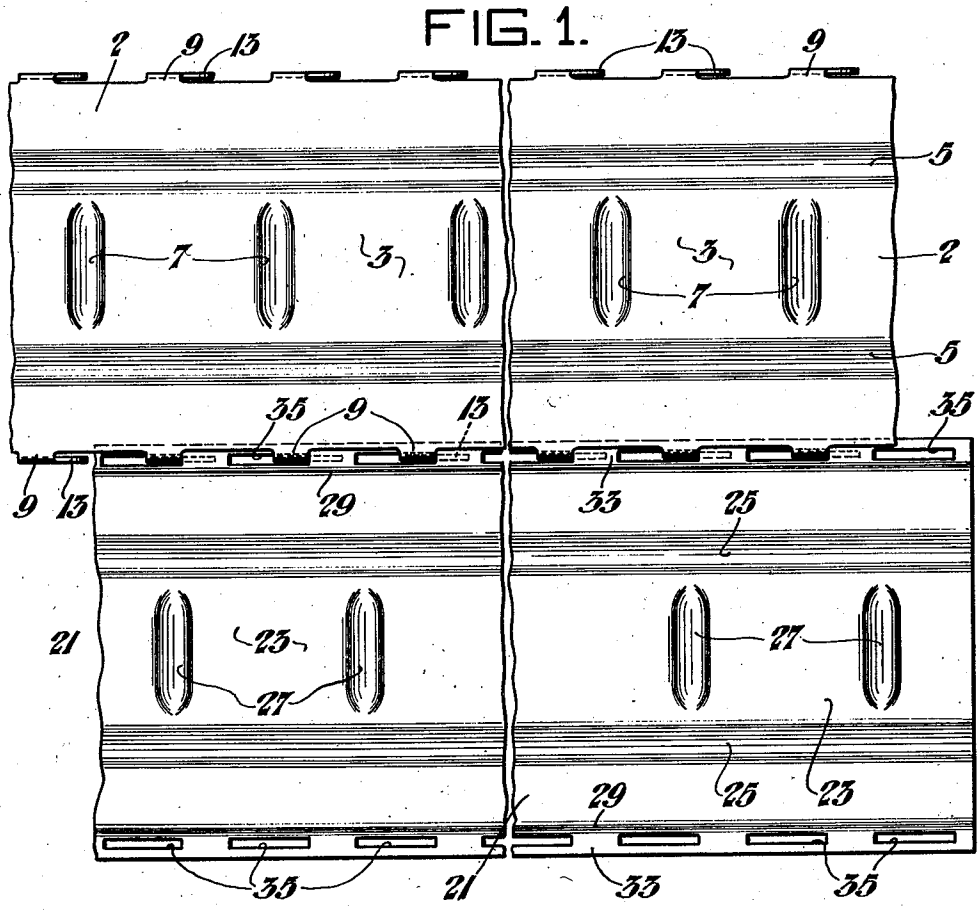


FIG. 2.



FIG. 3.



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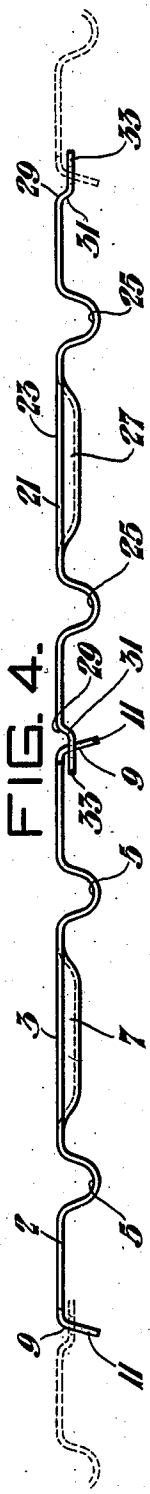


FIG. 4.

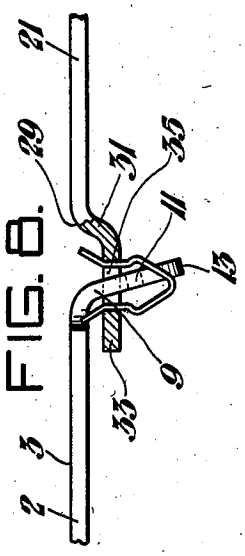


FIG. 8.

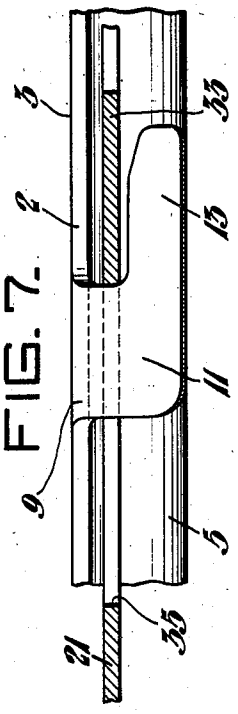


FIG. 7.

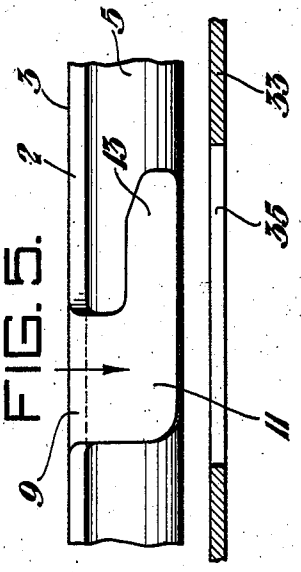


FIG. 5.

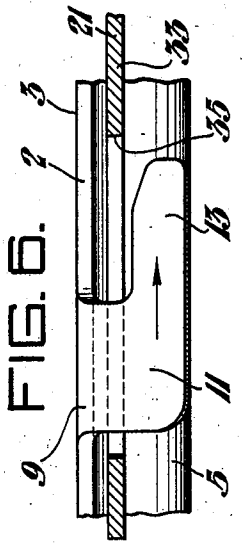


FIG. 6.

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Patented Sept. 1, 1942

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UNITED STATES PATENT OFFICE

2,294,549

PORTABLE DECK

Gerald G. Greulich, Mount Lebanon, Pa., assignor to Carnegie-Illinois Steel Corporation, Pittsburgh, Pa., a corporation of New Jersey

Application July 12, 1940, Serial No. 345,218

4 Claims. (Cl. 94—13)

This invention relates to portable decks, and more particularly to those which provided paved areas on unstable soil and the like, for airplane runways, storage and handling of materials and freight, paving for vehicle traffic, etc.

It is among the objects of the present invention to provide a portable deck which may be readily fabricated of simple metallic plates and provided with interlocking devices which enable ready erection and dismantling.

Another object is the provision of a device of the class described which eliminates bolts, rivets, welding, or other extraneous interlocking devices.

Other objects will be apparent after referring to the drawings, in which:

Figure 1 is a fragmentary plan of a pair of metallic plates assembled in accordance with the teachings of the invention.

Figure 2 is a fragmentary side elevation of one of the plates;

Figure 3 is a fragmentary side elevation of another plate;

Figure 4 is a side elevation of a pair of assembled plates;

Figures 5 through 7 are enlarged details illustrating the manner of interlocking; and

Figure 8 is an enlarged detail of a form of securing device for the interlocks.

Referring more particularly to the drawings, the numeral 2 designates one of a group of similar metallic plates which form the male members of the portable deck of the present invention. As shown in Figure 1, the numeral 3 designates a flat surface which forms the general plane of the metallic plate 2, while parallel longitudinal grooves 5 are formed therein by deforming the material out of the said general plane and into continuous U-shaped troughs. Between the parallel longitudinal grooves 5 and extending at right angles thereto is a series of discontinuous transverse grooves 7 which are shown as being substantially elliptical in plan.

Referring more particularly to Figures 1 and 2, the longitudinal edges 9 of the metallic plate 2 are provided with aligned spaced downwardly-projecting lugs the lower edges of which terminate at a point which is substantially the same as, or slightly less than, a plane across the bottoms of the deformed portions which constitute the longitudinal grooves 5. Each of these downwardly-projecting lugs comprises a shank 11 and a longitudinally-extending elongated prong portion 13. These elongated prong portions 13 are in alignment and all of them extend in the same direction.

The female plate of the portable deck of the invention is generally designated at 21, and is shown as comprising a flat surface 23, parallel longitudinal grooves 25, and discontinuous transverse grooves 27 between the longitudinal grooves 25, which correspond with the elements 3, 5 and 7 respectively of the male members 2. It will be noted, however, that the female members 21 are provided with very shallow downwardly curved edges 29, reversely curved portions 31, and flattened portions 33 which extend slightly below but substantially parallel to, the general plane or top surface of the plate. These flattened portions 33 on the edges of the female members 21 are provided with aligned spaced elongated openings 35 which are adapted to receive and interlock with the downwardly-projecting lugs on the metallic plates 2 which constitute the male members, the shanks 11 and prongs 13 being introduced into the openings 35 and sufficient relative movement given either the male member 2 or the female member 21 to permit the prongs to occupy positions beneath the female member beyond the edges of the openings 35 and thereby effect an interlocking relationship.

In assembling the portable deck of the invention, several methods may be employed. For example, a row of female members may first be laid down end to end. Adjacent to the female members 21 may be laid a row of male members. As each successive male member is laid, its prongs 13 are entered in the openings 35 in the female member, and the male member is then moved longitudinally of the female member a distance sufficient to secure full engagement of the prong 13 on the male member. Successive male members are laid and moved until the row is completed. A row of female members is then started adjacent to the edge of the male members. In this case, the female members are then shifted longitudinally so that the prongs 13 of the male members are fully engaged after they have entered the openings 35 in the female members. Another method is to lay two rows of female members, sufficiently spaced apart so that their openings 35 come directly under the prongs 13 on each side of a male member and then advance the male member a sufficient distance to interlock or secure full engagement of the prongs of the male members.

As shown more clearly in Figures 5 through 7, the space between the upper edges of the prongs 13 and the bottoms of the plates carrying them

is materially greater than the thickness of the flattened portions 33 in which the openings 35 are formed on the edges of the female members 21. This clearance permits the removal of any male member 2 from its assembled relationship by merely raising its end opposite that toward which the prongs 13 extend, and sliding the said male member in the direction of its raised end.

Referring to Figure 8, I have disclosed a form of locking element which may be used to secure the interlocked male and female members against displacement. The form shown in Figure 8 comprises a wire spring steel clip which fits down into one or more of the openings 35 in the female member 21, and prevents the relative movement of the male and/or female members sufficiently to permit the prongs 13 of the downwardly-projecting lugs on the former to be completely aligned with the said openings 35, whereby the plates might be displaced. In addition to the form shown, numerous other devices will suffice, including wooden wedges, etc., but as such these form no part of the present invention.

While I have shown and described one specific embodiment of my invention, it will be understood that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention, as defined by the following claims.

I claim:

1. A plurality of metallic plates adapted for rapid attachment and detachment to form a substantially horizontal portable deck capable of sustaining superposed loads, a group of said plates having a series of aligned spaced openings inwardly of an edge thereof, another group of said plates being provided along marginal portions thereof with a series of aligned spaced downwardly-projecting lugs adapted to align with and extend through the openings of the first-named group of plates, each of said lugs comprising a shank and an enlarged head portion, the openings in said first-named group of plates being substantially larger than the enlarged head portions of the lugs of said second-named group of plates whereby, upon disposing the said lugs in the said openings and subjecting the plates to relative longitudinal movement, the enlarged head portions of the said lugs are disposed beneath the bottoms of said first-named group of plates to thereby effect an interlock.

2. A plurality of metallic plates adapted for rapid attachment and detachment to form a substantially horizontal portable deck capable of sustaining superposed loads, a group of said plates having a series of aligned spaced openings inwardly of a pair of opposite edges thereof, another group of said plates being provided along opposite marginal portions thereof with a series of aligned spaced downwardly-projecting lugs, each series of said lugs being adapted to align with and extend through one of the series of openings of the first-named group of plates, each of said lugs comprising a shank and an enlarged head portion, the openings in said first-named group of plates being substantially larger than the enlarged head portions of the lugs of said second-named group of plates whereby, upon disposing a series of the said lugs in a series of the said openings and subjecting the plates to relative longitudinal movement, the enlarged head portions of the said lugs are disposed beneath the bottoms of said first-named group of plates to thereby effect an interlock.

3. A plurality of metallic plates adapted for rapid attachment and detachment to form a substantially horizontal portable deck capable of sustaining superposed loads, a group of said plates having a series of aligned spaced elongated openings inwardly of an edge thereof, another group of said plates being provided along marginal portions thereof with a series of aligned spaced downwardly-projecting lugs adapted to align with, and extend through, the elongated openings of the first-named group of plates, each of said lugs comprising a shank and an elongated prong portion, all of said elongated prong portions extending in the same direction, the elongated openings in said first-named group of plates being substantially longer than the elongated prong portions of the lugs of said second-named group of plates whereby, upon disposing the said lugs in the said elongated openings and subjecting the plates to relative longitudinal movement, the elongated prong portions of the said lugs are disposed beneath the bottoms of said first-named group of plates to thereby effect an interlock.

4. A plurality of metallic plates adapted for rapid attachment and detachment to form a substantially horizontal portable deck capable of sustaining superposed loads, a group of said plates having a series of aligned spaced elongated openings inwardly of a pair of opposite edges thereof, another group of said plates being provided along opposite marginal portions thereof with a series of aligned spaced downwardly-projecting lugs, each series of said lugs being adapted to align with and extend through one of the series of elongated openings of the first-named group of plates, each of said lugs comprising a shank and an elongated prong portion, all of said elongated prong portions extending in the same direction, the elongated openings in said first-named group of plates being substantially longer than the elongated prong portions of the lugs of said second-named group of plates whereby, upon disposing a series of the said lugs in a series of the said openings and subjecting the plates to relative longitudinal movement, the elongated prong portions of the said lugs are disposed beneath the bottoms of said first-named group of plates to thereby effect an interlock.

GERALD G. GREULICH.