Feb. 5, 1963 R. W. CUSTER 3,076,390

PORTABLE MATS

Filed Dec. 30, 1958 2 Sheets-Sheet 1

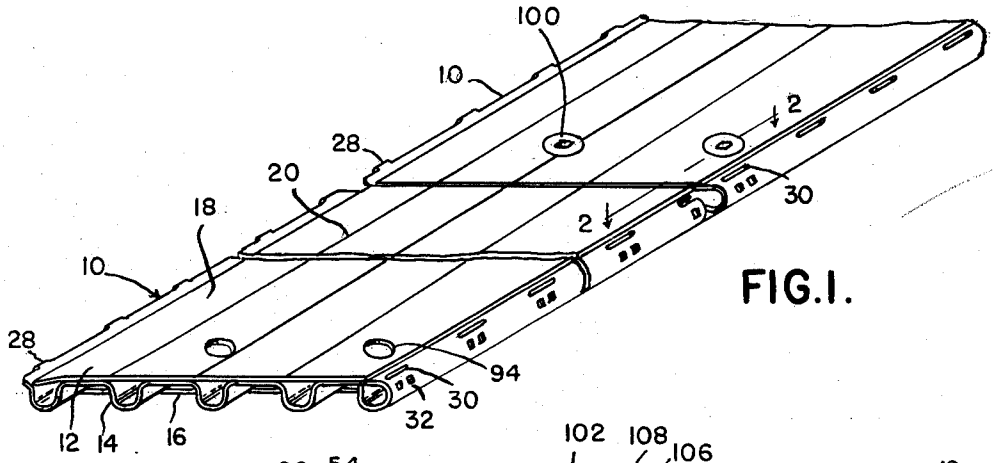


FIG.1.

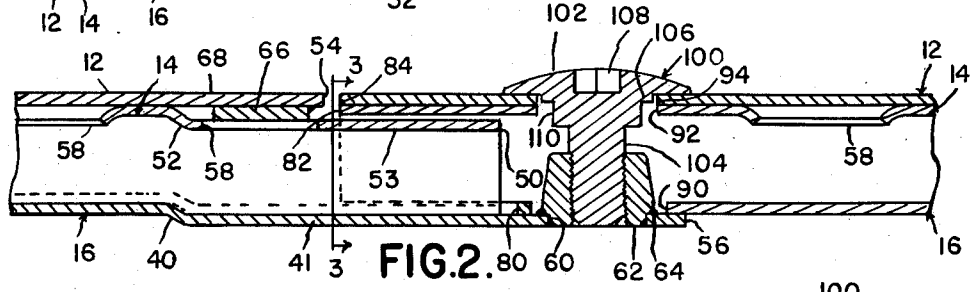


FIG.2.

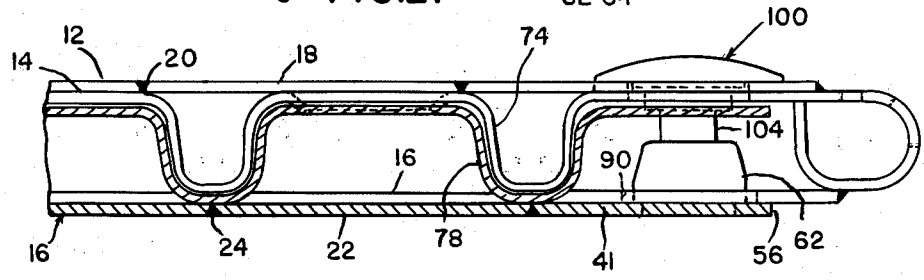


FIG.3.

INVENTOR.
RICHARD W. CUSTER
BY Whittemore, Hulbert & Belknap
ATTORNEYS

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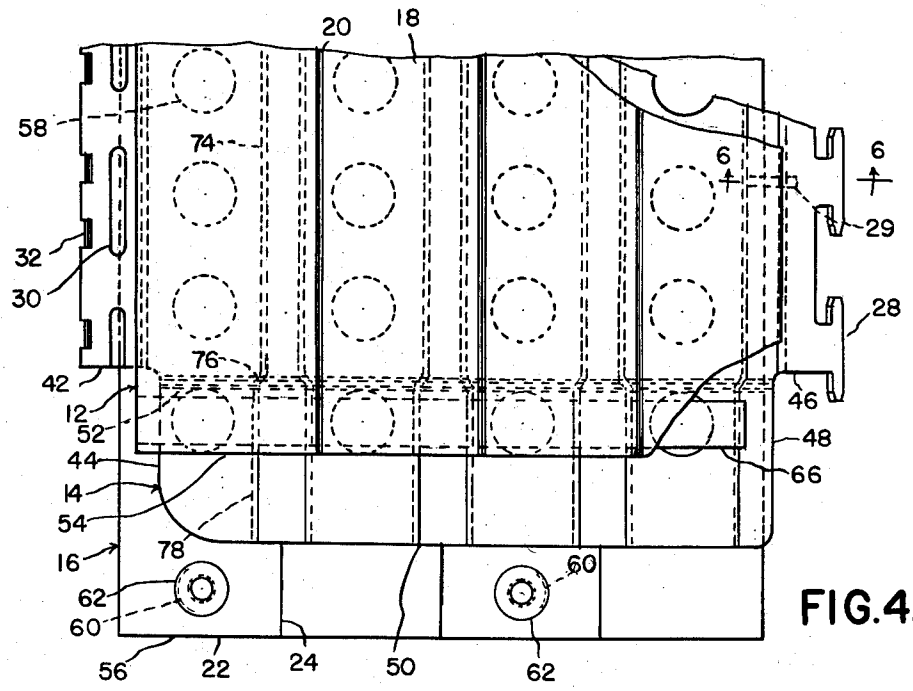


FIG.4.

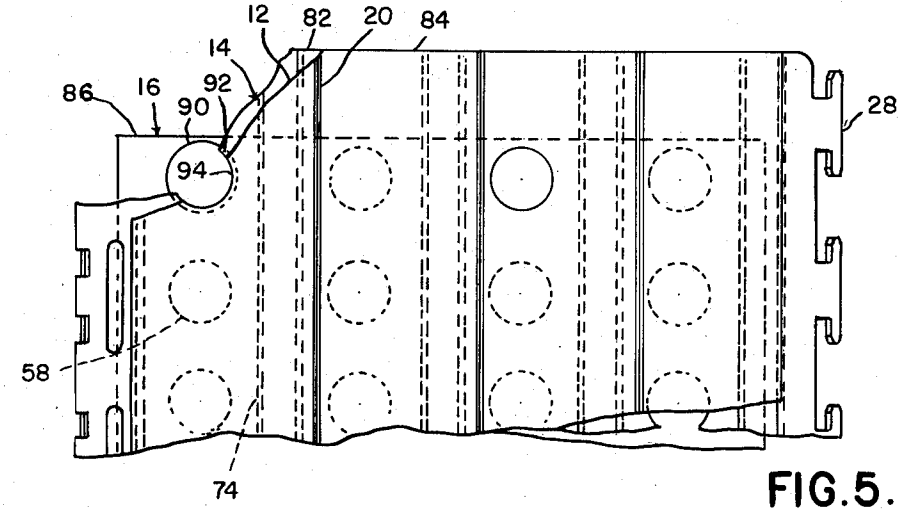


FIG.5.

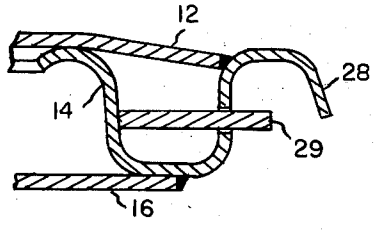


FIG.6.

INVENTOR.
RICHARD W. CUSTER
BY Whittemore, Hulbert & Belknap
ATTORNEYS

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PORTABLE MATS

Richard W. Custer, Philadelphia, Pa., assignor to Fenestra, Incorporated, Detroit, Mich., a corporation of Michigan

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3 Claims. (Cl. 94—13)

The present invention relates to portable mats, and particularly to mats which are connected side-by-side and end-to-end to form runways and parking areas for aircraft.

It is an object of the present invention to provide an end connection between identical portable mats which allows the mats to be easily assembled in end-to-end relationship.

It is a further object of the present invention to provide an end connection for portable mats each comprised of a flat top surface, an intermediate corrugated member, and a flat bottom surface which allows a plurality of the mats to be connected end-to-end and side-by-side to present a flat flush surface.

Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawings, illustrating a preferred embodiment of the invention, wherein:

FIGURE 1 is a perspective view showing the mat connected in end-to-end relationship.

FIGURE 2 is a sectional view taken through line 2—2, FIGURE 1.

FIGURE 3 is a sectional view taken through line 3—3, FIGURE 2.

FIGURE 4 is a plan view of one end of the mat.

FIGURE 5 is a plan view of the opposite end of the mat shown in FIGURE 4.

FIGURE 6 is a fragmentary section on the line 6—6, FIGURE 4.

Referring now to the drawings, there is illustrated at **10** a mat having an upper surface plate **12**, a corrugated intermediate member **14**, and a lower surface plate **16**. The mat may be fabricated from any suitable sheet material; aluminum gives excellent results and provides a mat of sufficient strength to withstand the usage to which it is subjected to and a mat light in weight to be easily handled.

The upper plate **12** is fabricated from a plurality of strips **18** which are welded together in side-by-side relationship and to member **14** by welding as at **20**. The lower plate **16** is also fabricated from strips **22** which are welded together in side-by-side relationship and to member **14** by welding as at **24**.

Along one lateral edge of the mat T-shaped projections **28** are formed by the intermediate corrugated member **14** and are spaced at equal intervals. In alignment with some or one of said projections are locking bars **29**. Along the opposite lateral edge slots **30** and notches **32** are equally spaced to match projections **28** and bars **29**. When connecting like mats together in side-by-side relationship, the heads of the projections **28** are inserted through the slots **30** by tilting the side opposite the projections upwardly. At this time bar **29** will be located between two notches **32**. With the projections through the slots, the mat is moved lengthwise until the bar **29** registers with a notch **32**. The mat is then laid flat with the bar inserted in the notch which holds the mats securely together.

To provide for an overlapping end connection of the mats, the bottom plate **16** of one end of the mat is offset downwardly as shown at **40** (FIGURE 2) to form offset portions **41**. Member **14** is cut back along one lateral edge as seen at **42** and **44** to form a notch, and along the opposite lateral edge, as seen at **46** and **48** to

form a notch. Member **14** terminates along end **50** and is offset downwardly at **52** as best seen in FIGURE 2 but also as indicated by the dotted lines in FIGURE 4. The downwardly offset portion is indicated at **53**. Top plate **12** terminates along edge **54** and bottom plate **16** terminates along edge **56**.

The corrugated intermediate member **14** is provided with a plurality of perforations **58** which reduce the weight of the member without sacrificing strength. The perforations are arranged in longitudinal and transverse rows. In longitudinal alignment with the perforations **58** adjacent one side edge of the mat are apertures **60** formed in the lower surface plate **16**. A similar aperture **60** is located intermediate the side edges of the mat. Threaded posts **62** are positioned in apertures **60** and are secured by welding as indicated at **64**. Member **62** is preferably fabricated from a harder material than the material of the mat, such as stainless steel or steel. A bar **66** is welded to the underside of top plate **12** adjacent the end thereof and supports the projecting portion **68** and holds the offset portion **53** of member **14** in position and spaced from the edge portion **68** of the top plate **12**. To provide for an overlapping connection between opposite ends of the mat channel-shaped corrugated portions **74** of member **14** are flared outwardly as at **76** (FIGURE 4) so that the offset portion **53** is widened as at **78**.

The opposite end of the mat **10** has the terminal edge **80** of bottom plate **16** offset inwardly from terminal edges **82** and **84** of member **14** and top plate **12** respectively. Apertures **90** in plate **16**, **92** in member **14**, and **94** in plate **12** are located adjacent the ends **80**, **82** and **84** and are in longitudinal and transverse alignment with perforations **58**. Apertures **90**, **92** and **94** are in vertical axial alignment with each other.

To connect the mats in end-to-end relationship, the end of one mat **10** is placed adjacent the end of a like mat **10** with the projections **28** at the same side of both mats. Apertures **90** are placed over threaded members **62** with channel-shaped portions **74** nesting inside flared out channel-shaped portions **78**. Sufficient clearance is provided between portions **74** and **78** so that the mats may be easily assembled and removed.

Socket head screw **100** has a rounded head portion **102** and a threaded screw portion **104**. Shoulder portion **106** centers the screw **100** in the aperture **94** with clearance for easy assemblage. Square shaped socket **108** is centered in the head with shoulder **110** providing extra material to strengthen the screw beneath the socket. Screw **100** is preferably made of harder material than the top plate **12** of the mat such as stainless steel or steel, and when tightened with a suitable wrench will seat itself against the top plate by cutting into the softer material of the top plate (such as aluminum), preventing the screw from coming loose from vibration.

The drawings and the foregoing specification constitute a description of the improved portable mat in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A pair of mats in end to end connection, each mat comprising an assembly of upper, intermediate and lower plates, the intermediate plate of one of said mats being corrugated and terminating at one end of said one mat in axially spaced relation to the ends of the upper and lower plate of said one mat, said lower plate at said one end of said one mat extending longitudinally beyond the corresponding end of the top plate thereof, the intermediate plate of the other of said mats being corrugated and the lower plate of the end of said other mat adjacent said one end of said one of said mats being ter-

minated short of the ends of the intermediate and upper plates thereof, an assembly post extending upwardly from the extended portion of the lower plate of said one mat, said lower plate of said other mat having an opening extending through the adjacent end thereof, the adjacent end of the lower plate of said other mat resting on said extended lower plate of said one mat with the assembly post extending through the opening in said lower plate of said other mat, said intermediate and upper plate of said other mats each having an opening extending therethrough aligned with the opening in the lower plate, and a fastener extending through the opening in the intermediate and upper plate engaging the assembly post of said one mat to lock the mats in end to end connection.

2. Structure as claimed in claim 1 wherein the one end of the bottom plate and intermediate plate of said one mat is offset downwardly and the corrugations of the intermediate plate are widened in the offset portion

and receive the end portion of the corrugated intermediate plate of the adjacent end of the other of said mats.

3. Structure as claimed in claim 2 wherein said assembly post has an internally threaded opening therethrough and wherein said fastening means comprises a headed bolt threadedly engaged with said assembly post.

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