United States Patent [19]

Gordon

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[54] **FLOTATION BEAM FOR MATTING CONSTRUCTION**

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[52] **U.S. Cl.** **404/35,** 52/309, 52/586

[51] **Int. Cl.** **B64f 1/00**

[58] **Field of Search** 404/35, 36, 43; 52/486, 582, 586, 309

[56] **References Cited**

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Primary Examiner—Marion Parsons, Jr.
Attorney—Richard S. Sciascia

[57] **ABSTRACT**

Lightweight box beams filled with a plastic foam provide buoyancy for support matting in marshy or low bearing terrain. The beams have a substantially square or rectangular shaped cross section and connectors are placed on each beam to permit facile connection to other beams and to permit paneling to be attached thereto. Landing pads would be the most common use for the beams of this invention, but they can be used for a multitude of purposes.

2 Claims, 5 Drawing Figures

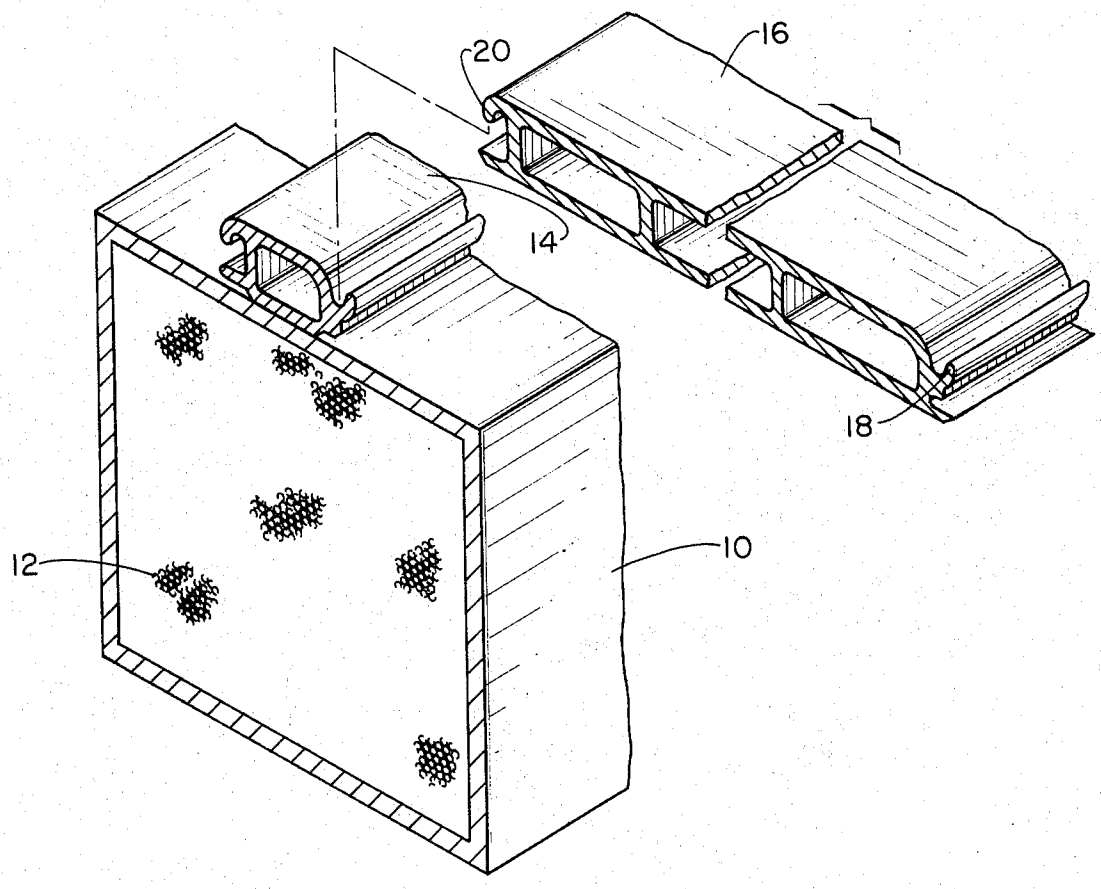


Fig. 1.

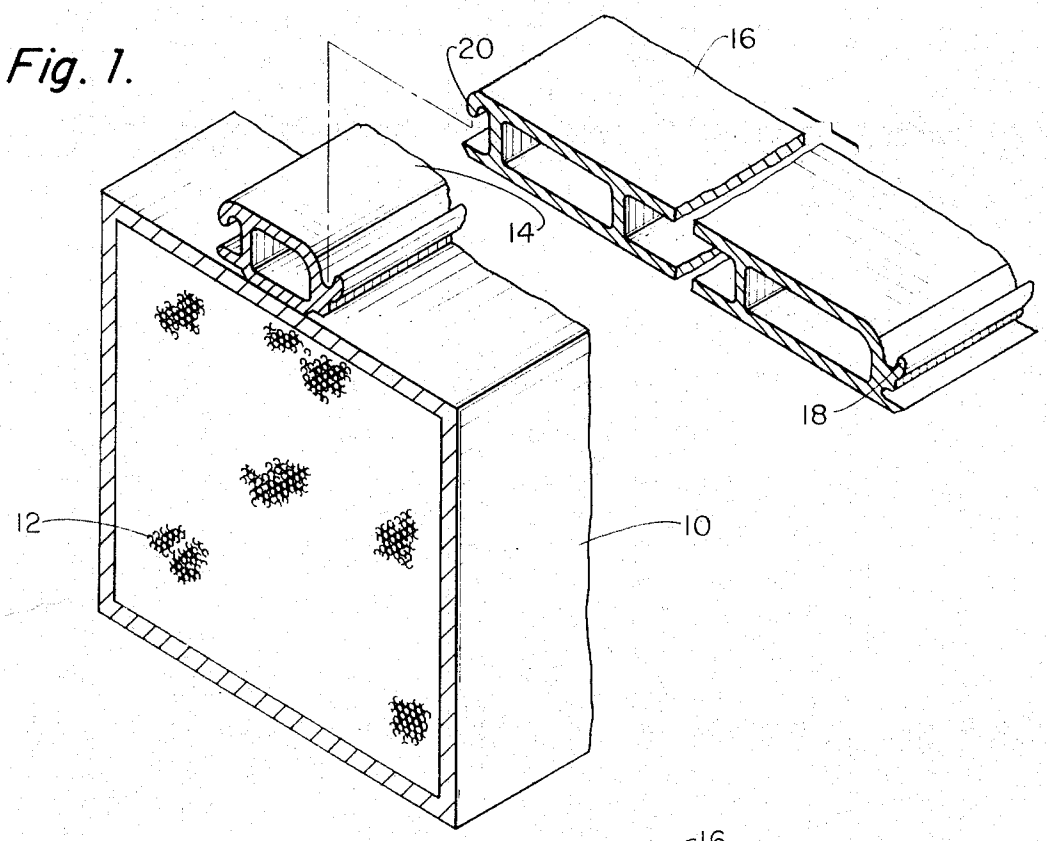


Fig. 2.

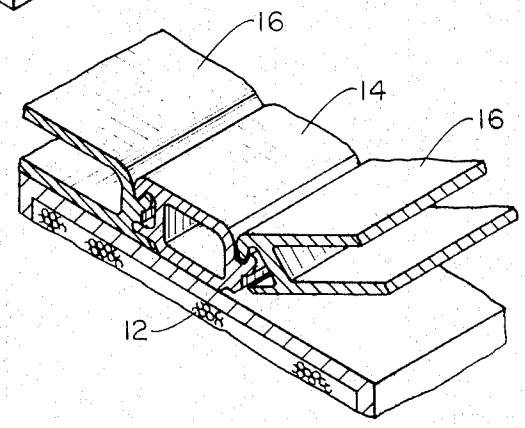


Fig. 5.

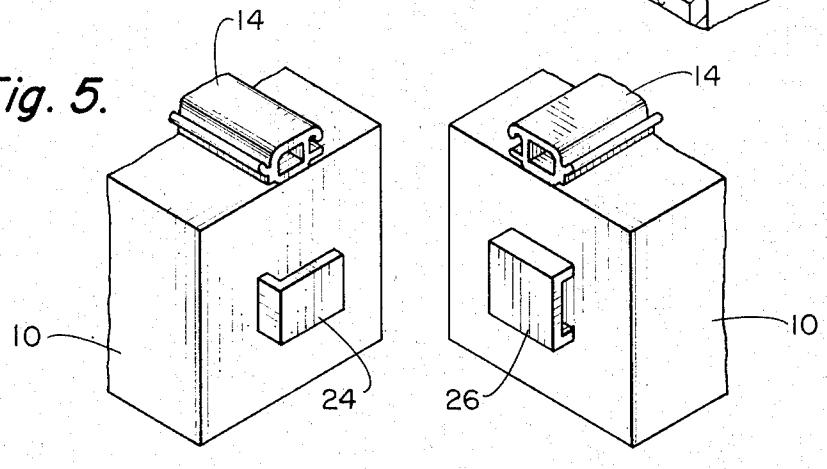


Fig. 3.

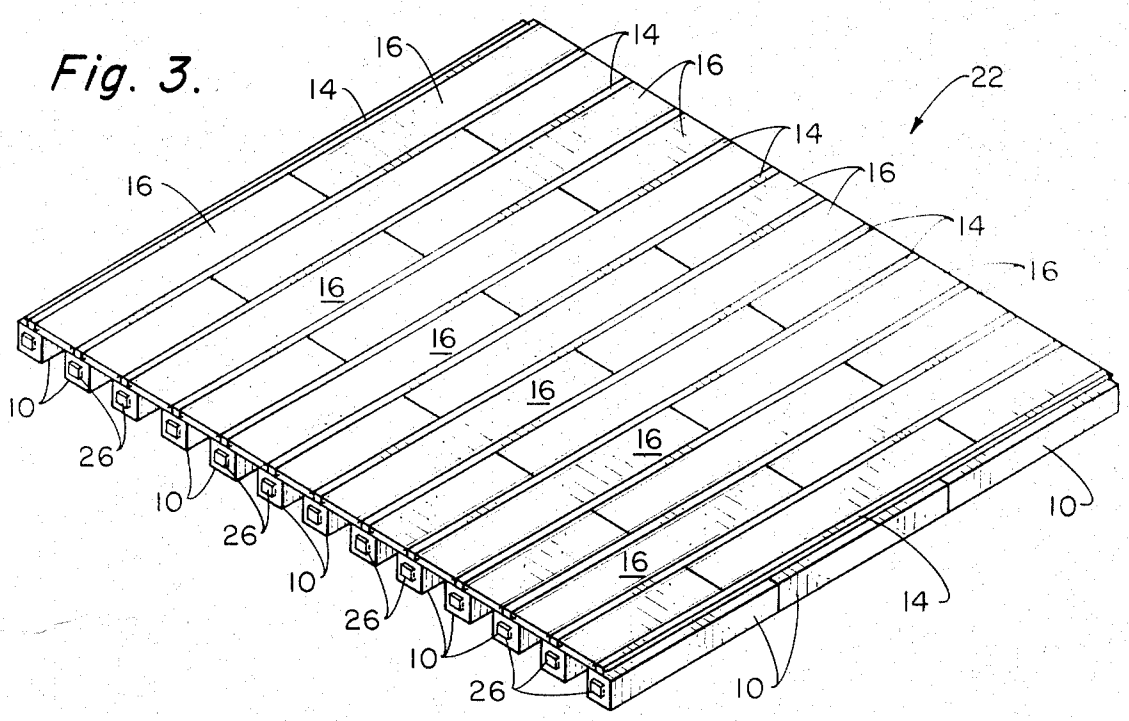
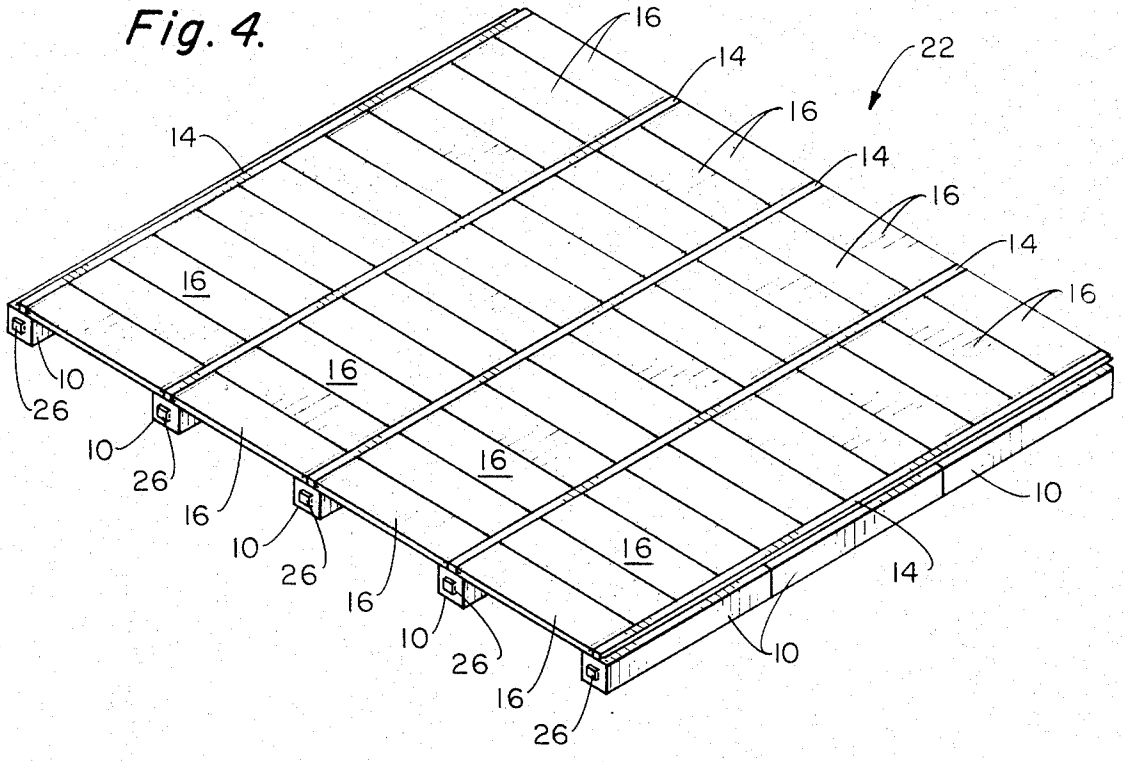

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Fig. 4.


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FLOTATION BEAM FOR MATTING CONSTRUCTION

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present inventon relates to construction flotation beams and more particularly to flotation beams used for matting construction.

2. Description of the Prior Art

In low bearing terrain including marshes, swamps and mud, buoyancy must be provided to support normal construction operations. One method of constructing in such low bearing terrain is to sink bearing poles into the soil and build platforms on top thereof. This method is frequently unacceptable due to the requirements for large, cumbersome pile driving equipment.

Another method in low bearing terrains used is to provide large, buoyant structures such as barges or flotation tanks upon which construction may occur. A drawback in this method is that panels which interconnect the barges or tanks are too cumbersome and the panel connecting means is inadequate to provide a base suitable for construction thereon.

SUMMARY OF THE INVENTION

The present invention comprises a lightweight box beam filled with a plastic foam to provide buoyancy for support paneling or matting in low bearing terrain. The beams have a substantially square or rectangular-shaped cross section and connectors are positioned on each beam to allow end-to-end connections and to allow paneling to be attached thereon. The invention may be used for a multitude of purposes, but most frequently it is used for aircraft landing platforms.

STATEMENT OF THE OBJECTS OF THE INVENTION

An object of the present invention is to provide a lightweight box beam having a plastic foam filler therein, said beam suitable to provide buoyancy for support paneling in low bearing terrain.

Another object is to provide such a beam which is economical in use and successful in application.

Other objects, advantages and novel features of the invention will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawings wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the invention with a panel about to be emplaced.

FIG. **2** is a side view showing in detail the manner of connecting a panel to the beam of the present invention.

FIG. **3** is a perspective view of the finished platform with different sizes of panels connected to the beams of this invention.

FIG. **4** is a perspective view of a finished platform with widely spaced beams.

FIG. **5** is a perspective view of the connectors on each end of the beam of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, it will be seen that the invention comprises a lightweight box beam **10** having a square or rectangular-shaped cross-section, each beam

10 is filled with a plastic foam **12** to provide enhanced buoyancy thereto. Connectors **24** and **26** are positioned on each end of beam **10** to allow end-to-end connections therebetween while connectors **14** allow panels **16** to be attached to the top thereof substantially, as shown in FIGS. **2** and **3.**

A variety of panel connectors **14** may be mounted on the top side of beam **10** but the preferred type, as illustrated in U. S. Pat. No. 3,385,183, involves a combination male-female keylock arrangement adapted to mate with either the male or female panel connectors **18** and **20** respectively, as shown in FIGS. **1** and **2.** The beams **10** are also connected at each end by mating male and female bayonet connectors **24** and **26** respectively, illustrated in FIG. **5.** Other types of beam connectors may also be used if required. The support panels **16** are laid parallel to the longitudinal axis of beams **10** and through their connectors **18** and **20,** the panels are attached to the top surface of the beams. The panels may be of varied length. As a specific example, beam **10** with a one foot square cross-section, a length of 8 feet, a ¼ inch wall thickness and with polyurethane foam filler would provide about 5 inches of bearing surface for the panels **16** which would provide a finished platform **22** for helicopter or VTOL aircraft. Because of the buoyancy of beams **10,** platform **22** would easily float and would be suitable for use in low bearing terrain.

For operations requiring lower strength, fewer beams **10** would be required and the panels **16** could be positioned with their longitudinal axis spanning the additional distance between beams **10.** In this arrangement, the panels **16** would be provided with connectors **18** and **20** on each end for attachment to the male-female connection **14** mounted on the top of beam **10.** Such a platform would be suitable for lower strength applications such as artillery emplacements and the like.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A landing mat for providing support in low bearing terrain comprising:

a plurality of cellular box beams filled with polyurethane foam to increase the buoyancy thereof positioned end-to-end and in a number of parallel rows; each beam having a male bayonet connector on one end and a female bayonet connector on the opposite end with the male bayonet connector of one beam engaging the female bayonet connector of the adjacent beam so that the beams are connected end-to-end;

a male-female keylock panel connector mounted on the top of each box beam;

a plurality of support panels positioned contiguously on top of the box beams; said panels having a female keylock engaging the male keylock of the panel connector on a beam in one row and a male keylock, on the opposite side of the support panel from the female keylock, engaging the female keylock of the panel connector on a beam in the next adjacent parallel row whereby the support panels form a continuous platform.

2. The landing mat as defined in claim **1** wherein:

the box beams are one foot in cross-section with a length of 8 feet, a one-quarter inch wall thickness and said beams filled with polyurethane foam filler.

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