

Jan. 8, 1946.

M. WATTER

2,392,789

SKID FLOOR

Filed Nov. 15, 1944

2 Sheets-Sheet 1

FIG. 1

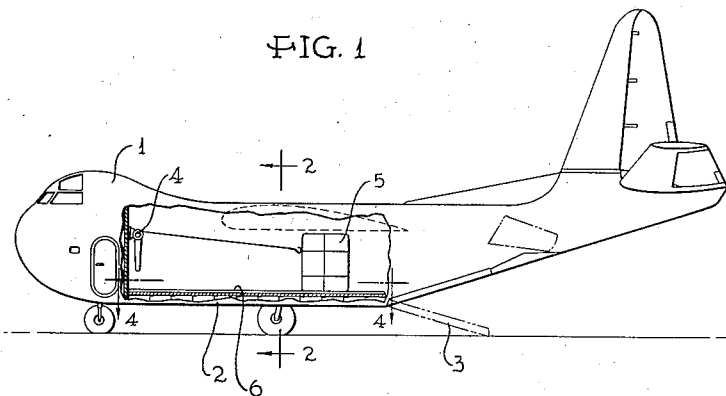


FIG. 2

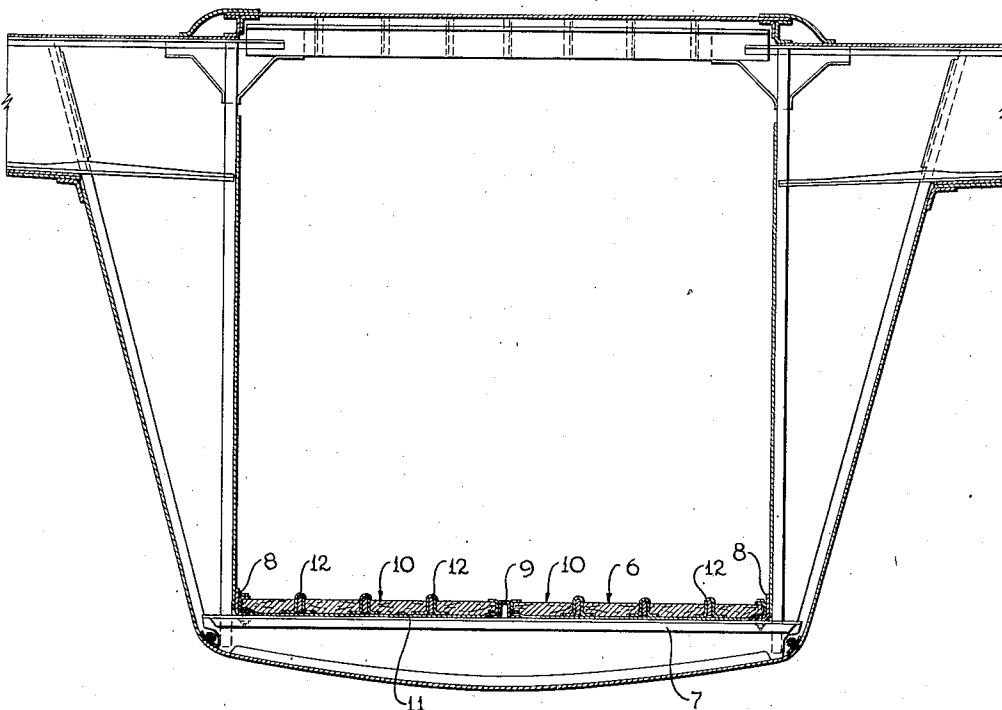
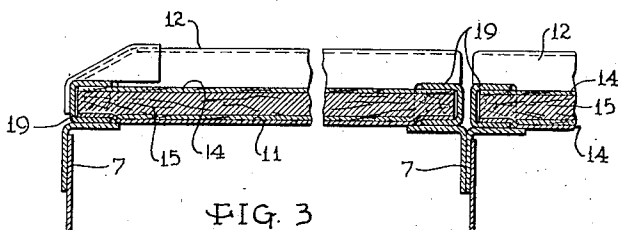


FIG. 3



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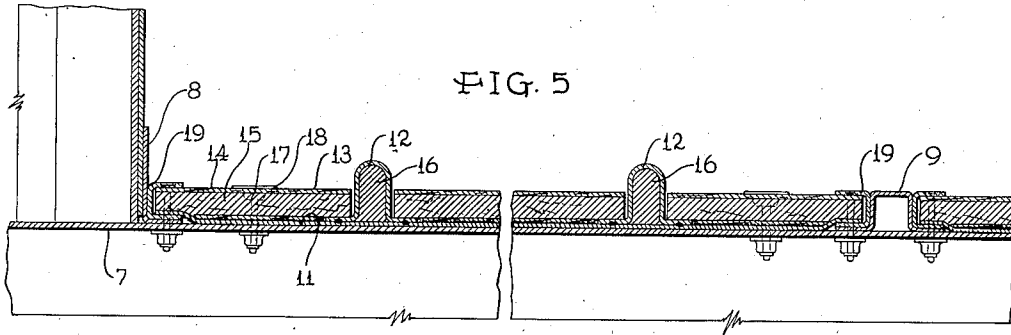
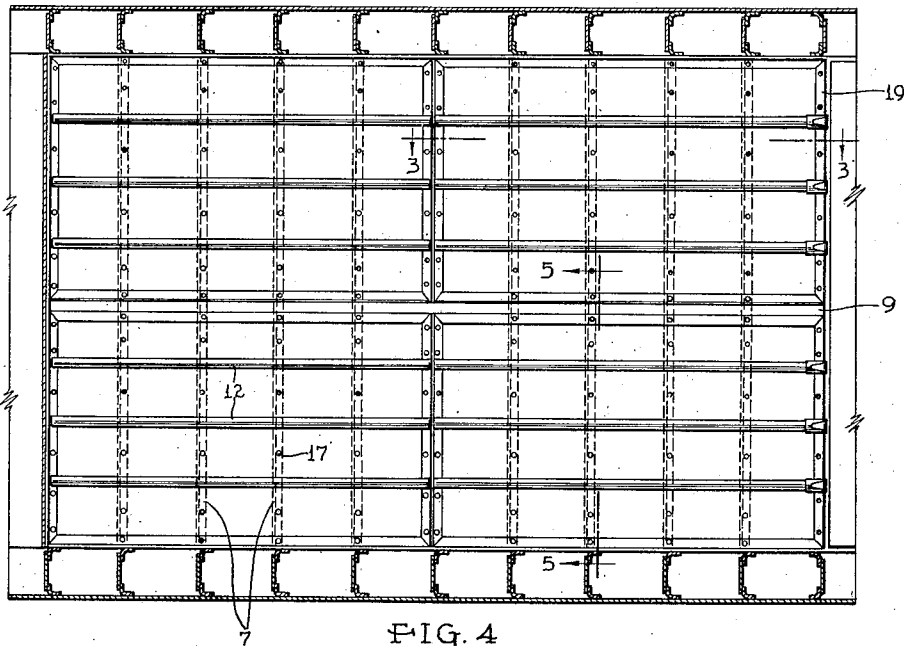
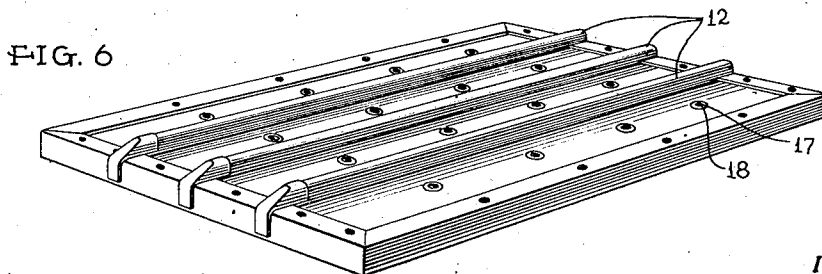
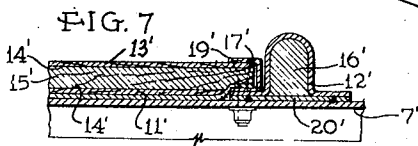
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2 Sheets-Sheet 2



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SKID FLOOR

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Application November 15, 1944, Serial No. 563,605

3 Claims. (Cl. 193—41)

This invention relates to floors and has for an object the provision of improvements in this art.

One of the objects of the invention is to provide a very strong, light floor particularly suited for aircraft.

Another object is to provide a floor which is not too smooth for good footing but which provides a very smooth sliding support for large objects.

Another object is to provide a floor wherein the heads of the securing means, such as screws, are concealed below the wear surface.

Another object is to provide a floor with smooth skid strips which are disposed in the direction to assist loading from a given direction.

The above and other objects of the invention will be apparent from the following description of certain exemplary embodiments thereof, reference being made to the accompanying drawings, wherein:

Fig. 1 is a vertical chordwise section through the cargo compartment of an airplane embodying the present invention;

Fig. 2 is an enlarged spanwise vertical section through the cargo compartment;

Fig. 3 is an enlarged spanwise vertical cross section of a portion of the floor, the view being taken on the line 3—3 of Fig. 4;

Fig. 4 is a further enlarged plan view of the floor;

Fig. 5 is an enlarged vertical section taken on the line 5—5 of Fig. 4;

Fig. 6 is a top perspective view of a portion of the floor; and

Fig. 7 is a sectional view of a modification.

As a setting for one use of a floor embodying the present invention, there is shown an airplane 1 having a cargo compartment 2 which is loaded from one end, as up a ramp 3 by a winch 4. A large box 5 is moving along the floor 6 of the compartment.

The floor is supported by a plurality of transverse beams 7, here of channel section set on edge. As shown in Fig. 2, the frame of the airplane includes side plates 8 and one or more side flanged intermediate rails 9 for supporting the side edges of the floor panels 10. Four panels are shown herein but the number is not limited.

Each floor panel comprises a metal bottom sheet 11, spaced metal skid rails 12, and a wood board 13. The rails are higher than the top of the wooden board so that large objects such as boxes may slide on the rails while small objects may rest on the wood surface.

The boards may be formed of plywood panels,

for example, birch facings 14 on a light strong wood 15.

The metal sheet 11 and the skid rails 12 are preferably made of a strong durable material such as cold-rolled 18-8 stainless steel and may be welded together. The rails are preferably made of hollow flanged sections such as the sombrero sections illustrated and are filled to prevent crushing by a solid material 16 such, for example, as a wood strip or plastic filler.

The boards 13 are set between the rails 12 and preferably are strongly bonded by known materials and methods to the metal sheets 11.

The panels are anchored to the frame of the airplane by screws or bolts 17, the heads being preferably countersunk into the wood boards. Part of the washers 18 (if used) also may be countersunk. The exposed edges of the boards may be protected and strengthened for bolting by channel or angle section edging strips 19. If desired, the edging strips may also be used alongside the rails 12; or the rails may be secured on the edges as well as between boards.

Such a panel is extremely strong for its weight because the high-tensile metal sheet 11 is placed at the bottom of the panel where it effectively receives the maximum tensile loading caused by vertical loads on the floor; and also because the wood boards thereabove are placed in compression, for which they are best suited. In addition to this, the filled, deep, high-tensile rail sections are adapted to take large bending loads. The wooden boards, being easily worked and relatively thick, provide a convenient means for placing and receiving the heads of the screws 17.

In the modification shown in Fig. 7, the metal sheets 11' are placed above instead of below the side flanges of the rails 12'; and instead of being welded to these flanges, the sheets are secured thereto, along with the wood board 13', by bolts 17'. This construction permits the metal and wood panel sections to be pre-formed in a flat-board press. They may, for example, be formed in large pieces which are later sawed to the desired size. It also permits the rails 12' together with a bottom plate 20' to be welded to the beams 7', if that is desired.

In any form and for any use, whether for a floor or other purpose, the panel is well adapted to take heavy loads applied against the wood-faced side.

And while certain embodiments of the invention have been described for purposes of illustration, it will be understood that there may be

various embodiments within the limits of the prior art and the scope of the subjoined claims.

What is claimed is:

1. A floor comprising in combination, a plurality of transverse metal beams, a plurality of parallel metal skid rails provided with base flanges which are secured to the beams, and an integrally bonded laminated wood and metal sheet board secured between adjacent skid rails and having the edges of the panel resting on the flanges of the skid rails, the metal sheet being disposed on the bottom of the board and secured to said skid rails and beams where it will take heavy tension loads and impose compression loads on the integrally bonded wood portion of the board when loads are placed on the board.

2. A floor comprising in combination, a plu-

8 rality of metal beams having lateral top flanges, a plurality of hat-shaped skid rails having their bottom flanges welded to the flanges of said beams, and an integrally bonded laminated wood and metal sheet board secured between adjacent skid rails and having the edges of the panel resting on the flanges of the skid rails, the metal sheet being disposed on the bottom of the board and secured to the flanges of the skid rails and beams where it will take heavy tension loads and imposed compression loads on the integrally bonded wood portion of the board when loads are placed on the board.

10 3. A floor as set forth in claim 2 in which said
15 skid rails are formed of thin metal and filled with compression-taking material.

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