

[54] **LOAD-CARRYING BODIES**

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[22] Filed: **June 27, 1969**

[21] Appl. No.: **870,156**

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[30] **Foreign Application Priority Data**

Aug. 2, 1968 Great Britain.....36,891/68

[52] U.S. Cl.....108/53

[51] Int. Cl.....B65d 19/18

[58] Field of Search.....108/51-58;
211/149, 178, 177; 248/119; 296/28; 105/243

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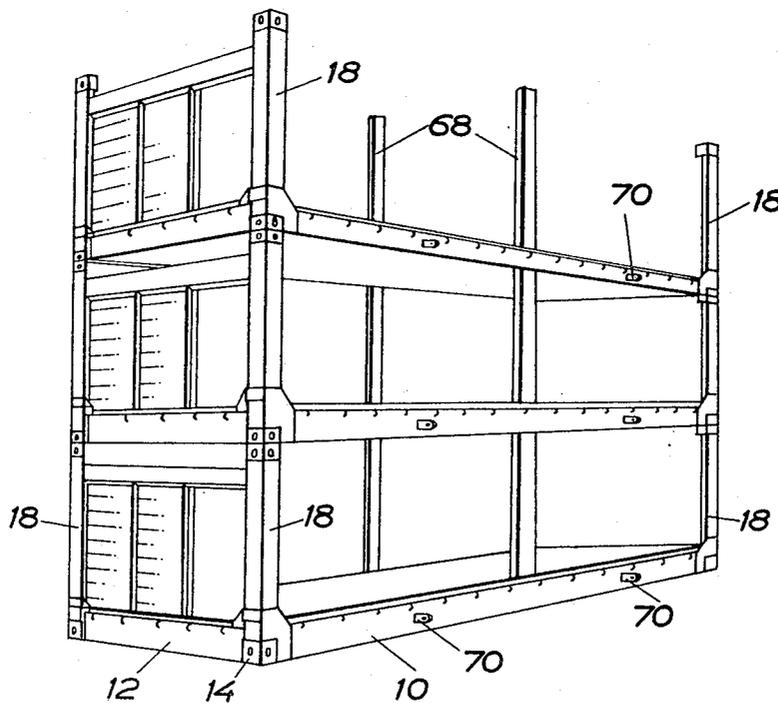
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[57] **ABSTRACT**

A load carrying body having foldable corner posts has a bottom platform with a longitudinally extending trough for transporting coils of wire and rod, and a plurality of support members are pivoted at opposite sides along the trough for movement between positions where they form continuations of the inclined sides of the trough and positions within the trough to form part of the platform top surface.

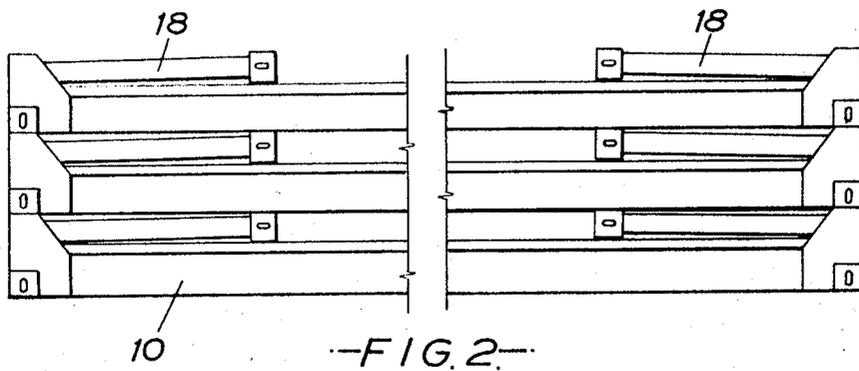
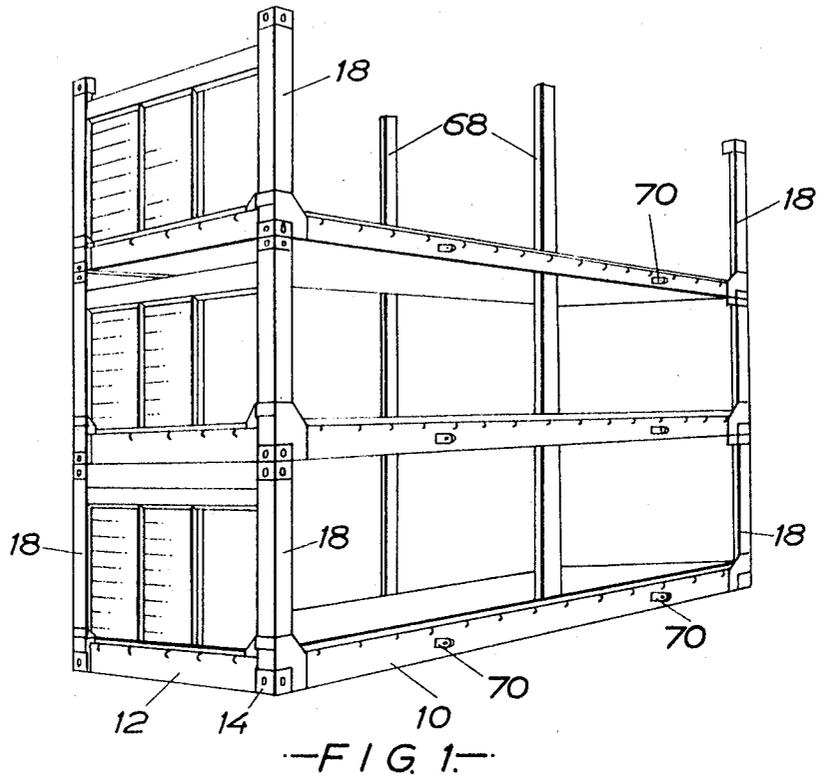
9 Claims, 6 Drawing Figures



Patented May 30, 1972

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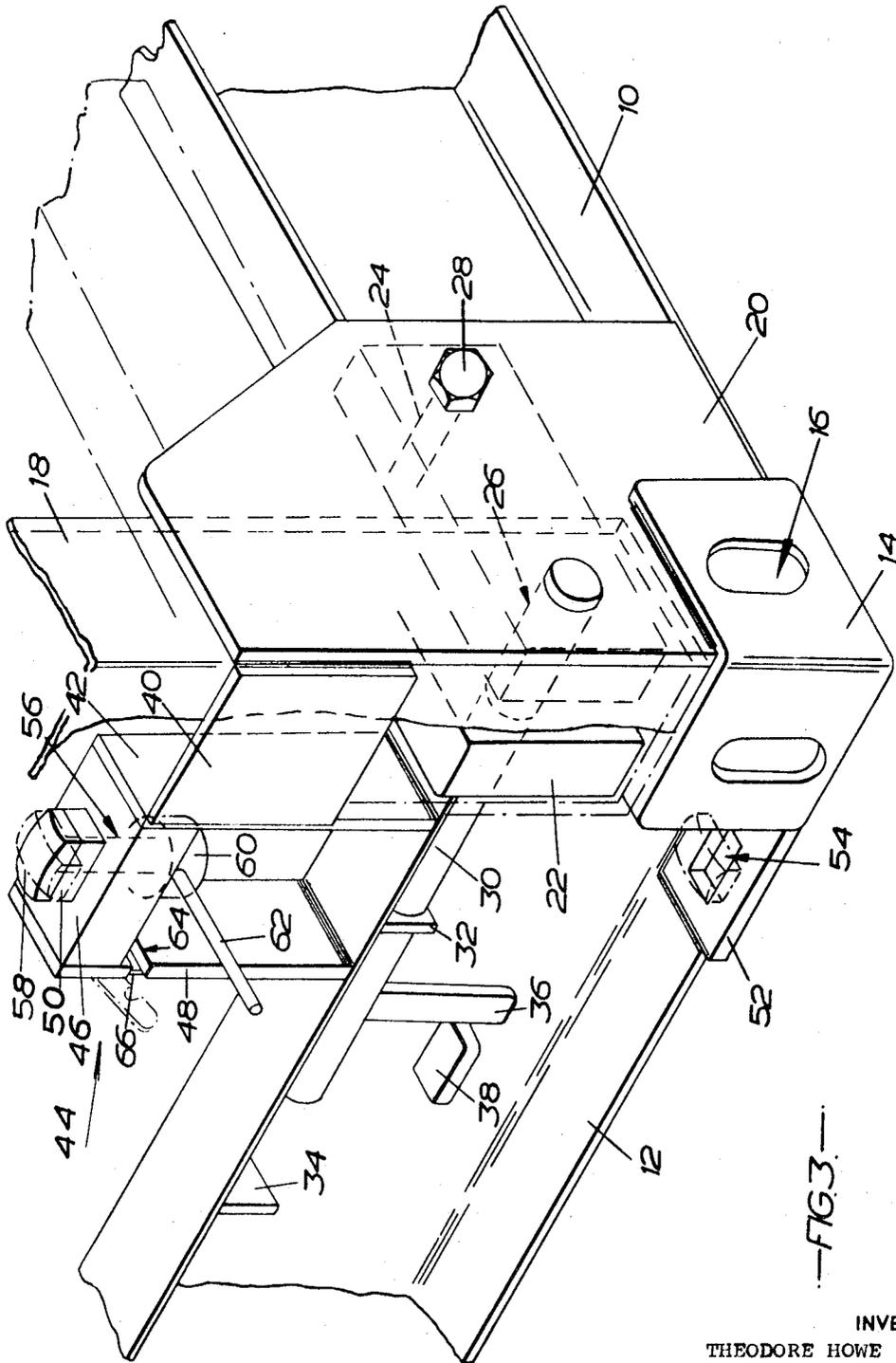


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—FIG. 3—

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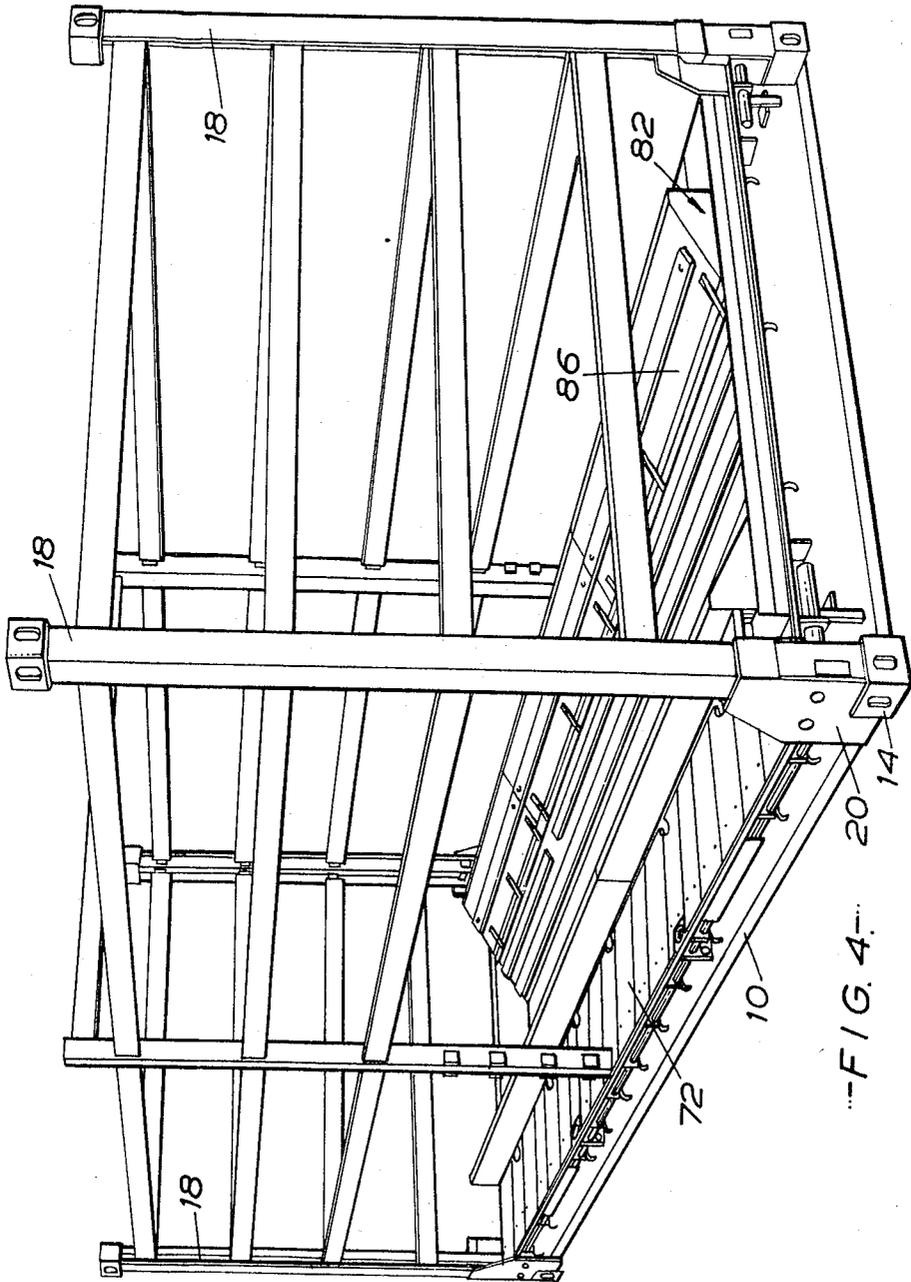
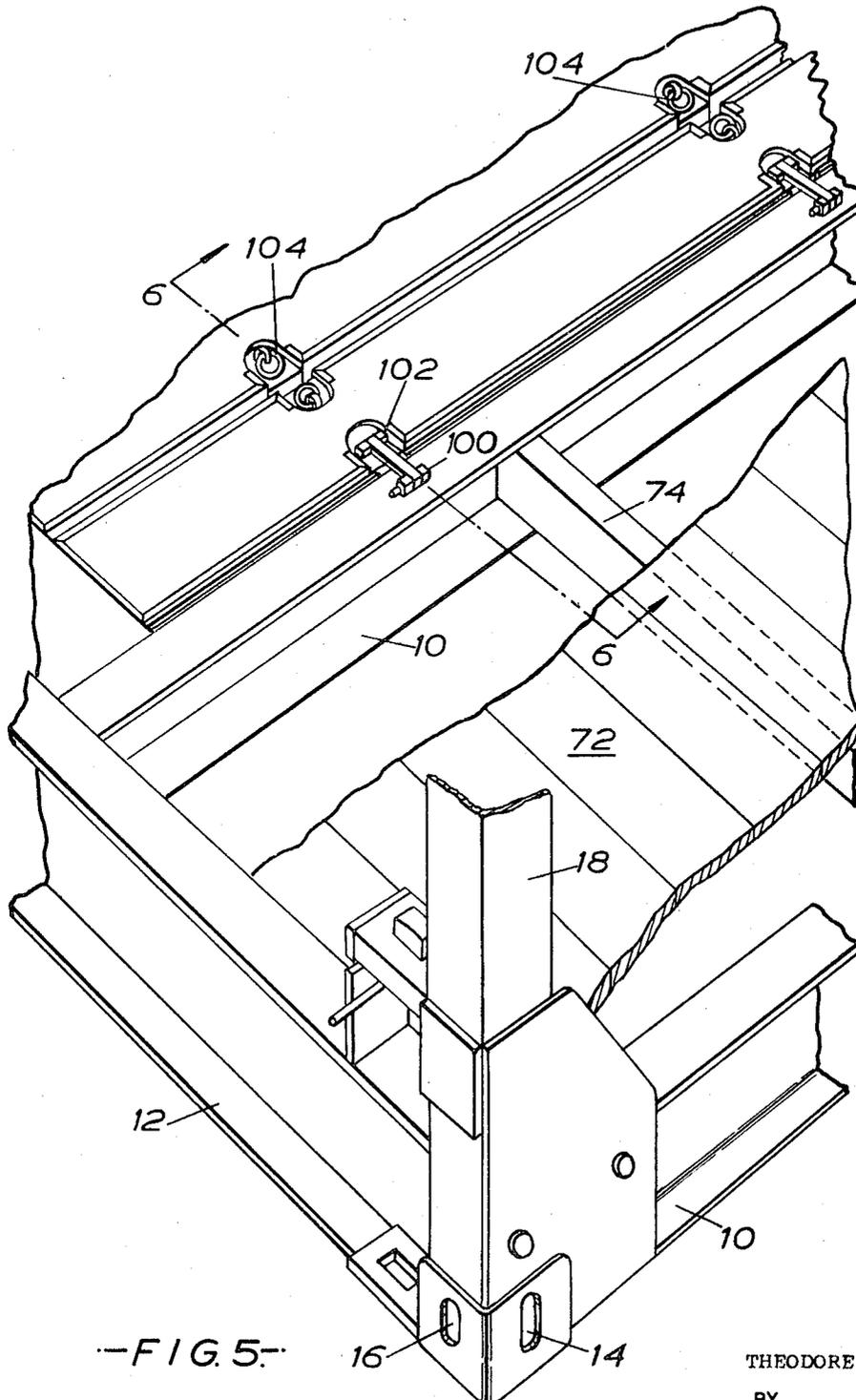


FIG. 4

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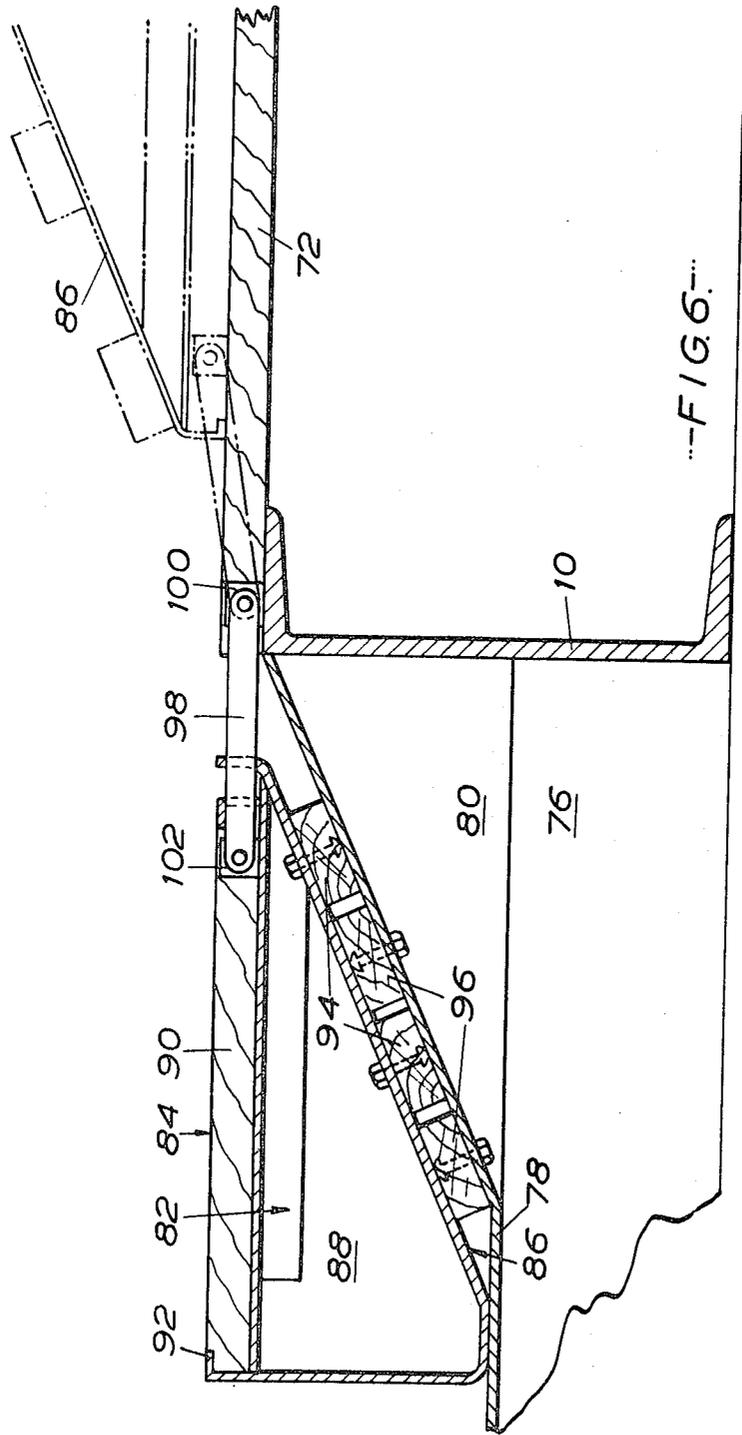


-FIG. 5-

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LOAD-CARRYING BODIES

The invention relates to load-carrying bodies, particularly so-called stackable "flats" or pallets.

Stackable "flats" are now commonly used to transport goods on lorries or trailers and in ships. Such load-carrying bodies comprise a bottom platform on which the goods can be placed and upright corner posts to support a second platform spaced above the first platform. This type of stackable "flat" is often used stacked 3 high on a quayside or 6 high in ships. The object of the invention is to provide a stackable "flat" of the type referred to which is specially adapted for carrying coils of wire or rod but which can nevertheless be used for carrying other goods also.

According to the invention, a load-carrying body is provided with a load-carrying platform having a longitudinally extending trough and with a plurality of support members arranged in oppositely disposed pairs which can be positioned either in said trough to form part of a flat top surface of the platform or to either side of said trough to form continuations of side surfaces of the trough so that coils of wire or rod can be carried on edge within said trough to be laterally supported in part by said support members. Said support members are preferably pivotally mounted.

In order that the invention may be fully understood and readily carried into effect, a preferred embodiment thereof will now be described, by way of example only, with reference to the accompanying drawings of which;

FIG. 1 is a perspective view of the three stacking platforms or "flats" arranged one upon another,

FIG. 2 is a side view of the platforms in a collapsed condition,

FIG. 3 is a perspective view on one corner of one of the stacking platforms illustrating a detail thereof,

FIG. 4 is a further perspective view of a stacking platform embodying the present invention,

FIG. 5 is a perspective view illustrating some details of construction of the load-carrying platform illustrated in FIG. 4, and

FIG. 6 is a transversed cross-section through the platform on the line VI—VI in FIG. 5,

Referring now to the drawings, a stackable "flat" is provided with a load-carrying body of rectangular shape including four longitudinally extending channel members 10 and transversely extending end members 12 also of channel section. The outermost pair of members 10 meet the end members 12 at respective corner castings 14 to which they are welded. Each corner casting is of a standard size (arrived at by International agreement) and the lateral and longitudinal spacing of the castings also conforms to a standard so that in this way a standard platform of any make can be stacked on a quayside or in the hold of a ship, upon any other standard platform of the same nominal size. The corner castings are provided with apertures 16 through which chains or hooks can extend for lifting the "flat."

Respective corner posts 18 are provided at the corners of the body and are pivotally mounted as described in Patent Application Ser. No. 751,820 filed Aug. 12, 1968 for APPARATUS FOR TRANSPORT OF GOODS now U.S. Pat. No. 3,568 issued Mar. 9, 1971 so that they can either be arranged in upstanding condition (whereby as shown in FIG. 1 a number of such loaded "flats" can be stacked one upon another on a quayside or in a ship) or in a collapsed condition whereby, as shown in FIG. 2, a number of such unloaded "flats" can be stacked one upon another for a return journey. Mountings for the corner posts at the four corners of the load-carrying body include respective plates 20, which are welded at the extreme ends of the outermost pair of members 10, and blocks 22 which are welded in parallel with said plates. Portions of the outermost pair of channel section members 10 and of the end members 12 are cut away to accommodate the blocks 22.

Aligned pairs of holes 24 and 26 are drilled and reamed in the lower ends of the corner posts the plates 20 and blocks 22,

the holes 24 accommodating fitted bolts 28 about which the corner posts can be pivoted between upstanding and collapsed positions and holes 26 being provided to accommodate locking pins 30 which can be slid axially to retain the corner posts in their upstanding positions. The locking pins are slidably mounted in respective brackets 32 within the channel members 12, and stops 34 are provided to prevent them being withdrawn completely from the blocks when the corner posts are being released. The locking pins are provided with respective levers 36 to facilitate sliding of said pins and respective stops 38 are provided for the abutment of said levers to prevent accidental withdrawal of the pins when the corner posts are in their upstanding positions. It will be seen in FIG. 3 that a lower part of each corner post has a projecting block secured to it so that it is of L shape configuration, an extremity of the foot of the L being pivotally connected to the basal part of the platform whereby in its collapsed condition the corner post can lie flat or substantially flat upon the basal part of the platform as shown in chain-dotted lines in FIG. 3. The plates 20 then extend above the corner posts so that the corner castings 14 of a similar stacking platform can rest upon their upper edges and upon the upper edges of abutment plates 40 and 42. A number of stacking platforms can be stacked one upon another with their corner posts collapsed as shown in FIG. 2.

As described in my application for U.S. Pat. Ser. No. 876,798 filed Nov. 14, 1969 for LOAD CARRYING STACKING PLATFORMS, means are provided whereby a number of such platforms, stacked one upon another with their corner posts collapsed, can be releasably connected together so that when the uppermost platform is lifted by a crane the remainder are suspended beneath it. These means include respective locking devices generally indicated 44 positioned adjacent the four corners of the platform. Each locking device includes a stout metal block 46 welded between the upper ends of the plate 42 and a further plate 48. A fixed key piece 50 of rectangular shape projects upwardly from said block, above the level of the upper edges of the plates 20, 40 and 42 on which a corner casting of another platform can rest. (A metal plate 52 has been inserted at each corner of the platform, in the lower flange of the channel member 12, and has a rectangular aperture 54 complementary to the key piece 50 and it will be seen that when two such load-carrying bodies are mounted one upon the other with their corner posts collapsed, the key pieces 50 of the lower one will extend through the apertures 54 of the upper one).

A locking pin 56 extends rotatably through a vertical clearance hole in the block centrally of the key piece 50, and is provided with an integral head 58 of the same rectangular shape as said key piece. A collar 60 is securely fixed on the lower end of the locking pin and is provided with a projecting lever 62 by means of which the pin can be turned. The plate 48 is provided with a slot 64 to allow the lever to be pivoted through substantially a right angle from the position in which it is shown in full lines in FIG. 3. A slotted retaining catch 66 is pivoted above the slot 64 and is arranged to engage the lever when the head 58 of the locking pin has been moved to an operative position, that is to say, displaced through a right angle from the inoperative position in which it is shown in full lines in FIG. 3.

The arrangement is such that when a load-carrying body of this kind has been brought into overlying relation with another such load-carrying body so that the key pieces 50 of the lower one extend through the apertures 54 of the upper one, the locking pins can be turned so that their heads extend across the apertures as indicated in chain dotted lines in FIG. 3. The two load-carrying bodies are thus connected together so that they can be lifted together by chains or the like attached only to the uppermost body. Several such bodies can of course be connected together one upon another in this way.

Referring now in particular to FIGS. 4 to 6, the longitudinally extending channel members 10 are spaced apart transversely of the platform so that they form three adjoining zones

the outer ones of which are planked over. In FIG. 5 the planking 72 is shown broken away so that the details of construction can be seen. A plurality of equally spaced reinforcement channels 74 extend across the outer zones. The innermost zone constitutes a longitudinally extending trough section of approximately half the depth of the body, that is to say, approximately 5 inches deep. Transversely extending cross pieces 76 of channel section which extend between the innermost longitudinal members are of relatively shallow depth (approximately 5 inches deep when set on edge) to form supports for the bottom of the trough section which is sheeted with steel plate 78 so formed that it has a relatively narrow central strip which rests on said transversely extending cross pieces 76, and inclined side surfaces. Gusset plates 80 of wedge shape are spaced apart beneath said side surfaces to reinforce the steel plate surface of the trough section.

A plurality of support members indicated generally at 82 are provided which can be positioned within the trough section of the platform to form a central surface 84 continuous with the planked over outer zone. Alternatively, said support members can be positioned in inverted condition (as shown in full lines in FIG. 4 and in chain-dotted lines in FIG. 6) upon said outer zones of the platform so that their then uppermost surfaces 86 form continuations of the inclined side surfaces of the trough section. Consequently, said support members are of a cross section generally complementary to that of the trough, that is to say when the support members are positioned within the trough (as shown in full lines in FIG. 6) a pair of oppositely positioned support members abut together at the center of the platform and substantially fill the trough.

The support members 82 are of a mainly fabricated steel plate construction with internal reinforcing gussets 88. However, the surface of each support member which is uppermost when said member is positioned within the trough is boarded over as shown in FIG. 6, the single piece of board 90 of each support member being retained in position by means of a light angle iron frame 92 welded to the fabricated sheeting. The surface 86 of the support members are provided with longitudinally extending timber strips 94 and, when said members are positioned within the trough, said timber strips alternate with similar timber strips 96 which extend along the inclined surfaces of said trough.

The support members are pivotally mounted to facilitate their movement from the operative to inoperative positions and vice versa. For the same reason they are arranged in two rows of three members and individually mounted so that they can be re-positioned in turn without excessive effort.

The pivotal mounting of said members is effected by links 98 each of which is pivotally connected at one end to an upstanding lug 100 welded to the adjacent channel member 10 and at its other end to a lug 102 welded to its support member. Lifting rings 104 are fixed to the support members by means of which they can be moved from their operative to their inoperative positions and vice versa.

In use, when the support members are in their operative positions, coils of wire cable, sheet steel or the like can be carried on edge and end within the trough section of the "flat" (as shown in chain-dotted lines in FIG. 6) the support members extending its effective depth to give substantial lateral support to the coils. The corner posts will, of course, be of a standard height greater than the height of the coils above the surface of the platform so that the loaded "flats" can be stacked one upon another. Other means will, of course, be provided to secure the coils upon the flats. For example, upstanding rods may be placed between adjacent coils and inserted in holes (not shown) in the platform to prevent the coils rocking over. Ropes or metal bands may be passed over the coils and secured to hooks or continuous rods extending along the longitudinal edges of the platforms. When the coils have reached their destination, and have been unloaded from the "flat," the support members can be moved to their inoperative positions so that the top surface of the platform is flat and can be used for stacking packing cases and the like. Consequently,

while the "flat" may be used for exporting coils of wire cable, steel sheets or the like, it can be used for importing foreign products, for example crates of foodstuffs and the like, on its return journey.

Various modifications may be made without departing from the scope of the invention. For example, the length of each individual support member is not important provided each one can be lifted (preferably by one man but possibly by two men working together) without undue physical effort. They could be formed in very short lengths so that a man merely had to walk along the platform turning them over in turn with very little effort. However, it has been found that in a "flat" of about 20 feet in length it is sufficient to provide the support members in only 6 separate members of equal length, that is to say, 2 rows of 3 members each. Each support member is then able to be inverted without excessive effort by one man, and in fact it has been found that the support members do not need to be lifted bodily but merely require to be inverted about the ends of the links to which they are pivotally connected and then dragged laterally into the required position (the edge of each support member adjacent the links is the tapered and therefore the lightest edge of the member and this facilitates the dragging of the member into the required position). Means could be provided for chocking up the individual support members in their operative positions to conform more closely to the curvature of relatively small coils. Such means could be constituted by separate wedge pieces of flat packing pieces which could be inserted beneath the support members.

The load carrying bodies illustrated in FIG. 1 are shown to be provided with upstanding posts 68 midway along their longitudinal sides, but these are merely slotted into apertures formed in the load-carrying platforms and are simply laid flat upon the platforms when the corner posts have been collapsed. The load-carrying bodies illustrated are also provided with lifting lugs 70 which are slidably mounted whereby when not in use they can be retracted so that they do not protrude further than the flanges of the outermost side members 10. Means are, of course, provided to ensure that they cannot be withdrawn completely from the apertures in which they slide. Furthermore, the load carrying bodies illustrated in FIG. 1 are shown to be provided with removable end panels made of wood or metal. Similar side panels could also be provided. However, the bodies could alternatively be enclosed by waterproof fabric sheets after loading in normal manner if preferred.

The invention could, of course, be applied to other load carrying-bodies and not only stackable "flats." For example, it could be applied to railway rolling stock and road vehicles, that is to say, both lorries and trailers. It would not be outside the scope of the invention for a stackable "flat" or other load-carrying body to be provided with two or more trough sections and an appropriate number of sets of support members for carrying coils of relatively small diameter.

What is claimed is:

1. A load carrying body having a bottom platform formed with an elongated trough having inclined side surfaces and adapted for transporting articles such as coils of wire, movable support members disposed along opposite sides of said trough, said support members being movable between a position wherein they lie within the trough and present upper surfaces that are at platform level and another position wherein they are out of the trough in overlying relation to the adjacent platform and present upper surfaces serving as effective continuations of the adjacent sides of the trough, the surfaces of the support members which are uppermost when said members are positioned in overlying relation to the platform to either side of the trough, and the inclined side surfaces of said trough being provided with longitudinally extending fixed strips, the strips of the support members being arranged to alternate with and be disposed between those of the trough when the support members are positioned within the trough.

2. A load carrying body according to claim 1, wherein the support members are provided with lifting rings.

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3. A load carrying body as defined in claim 1, said support members being pivotally mounted for movement between said positions.

4. A load carrying body as defined in claim 3, said pivotal mounting comprising links pivoted at opposite ends to said members and said platform respectively.

5. A load carrying body as defined in claim 3, wherein a plurality of aligned support members are pivoted on parallel axes at each side of said trough.

6. A load carrying body as defined in claim 1, said strips being made of timber.

7. A load carrying body according to claim 1, wherein the platform is provided with corner posts whereby a plurality of such loaded bodies can be stacked one upon another, characterized by the fact that said corner posts are pivotally mounted

on said platform whereby when said support members are positioned within the trough and said corner posts are folded down onto the platform a plurality of such platforms can be stacked one upon another in a minimum of height.

8. A load carrying body according to claim 7, wherein a lower part of each corner post is of L-shape configuration, an extremity of the foot of the L being pivotally connected to the body whereby in its collapsed condition the corner post can lie flat upon the body, means being provided for locking the corner post in its erected condition.

9. A load carrying body as defined in claim 8, wherein the means provided for locking each corner post in its erected condition comprise a locking pin slidably mounted in a bracket secured to the body.

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