

May 28, 1968

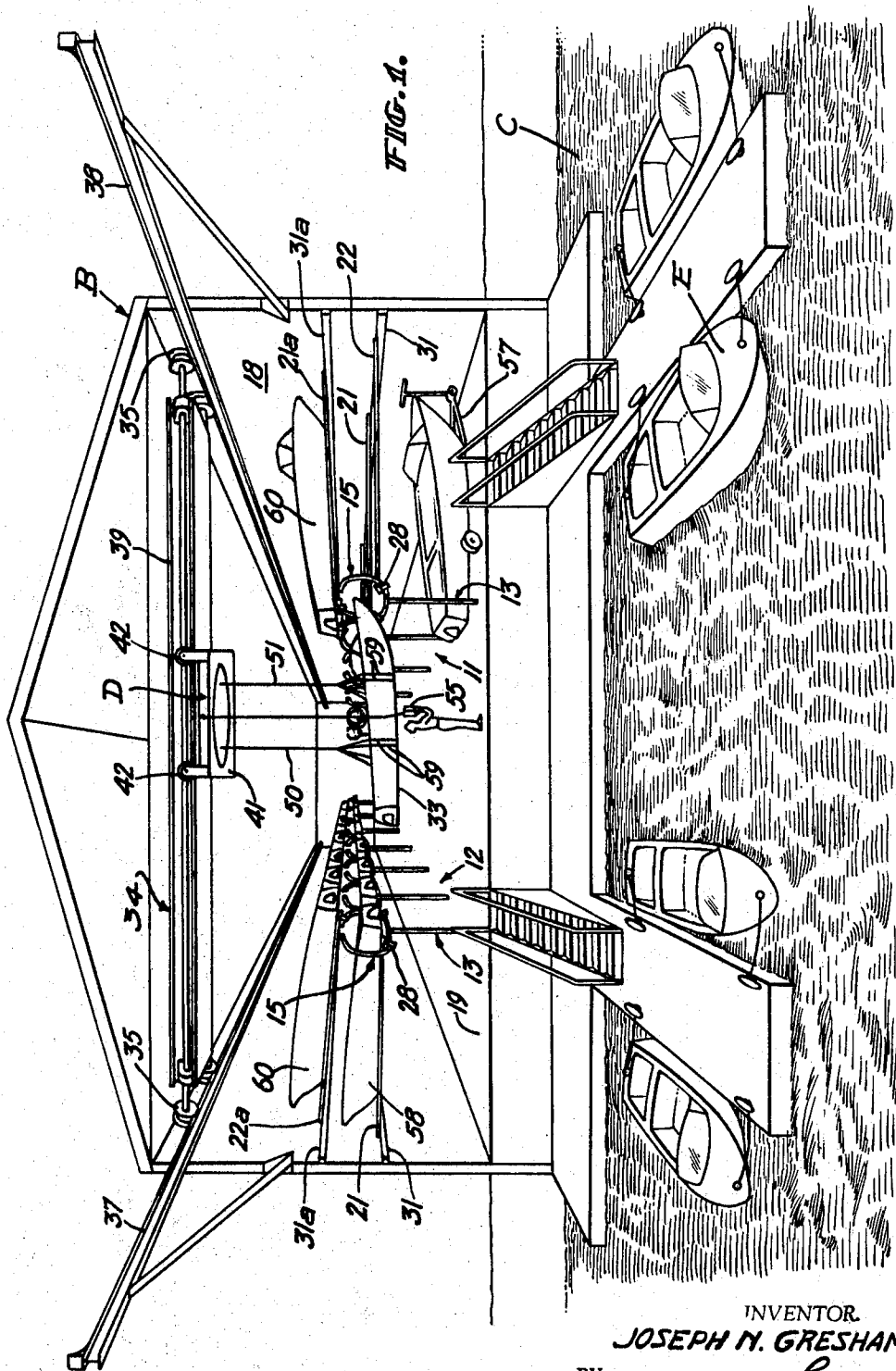
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3,385,458

BOAT STORAGE RACK

Filed Nov. 28, 1966

3 Sheets-Sheet 1



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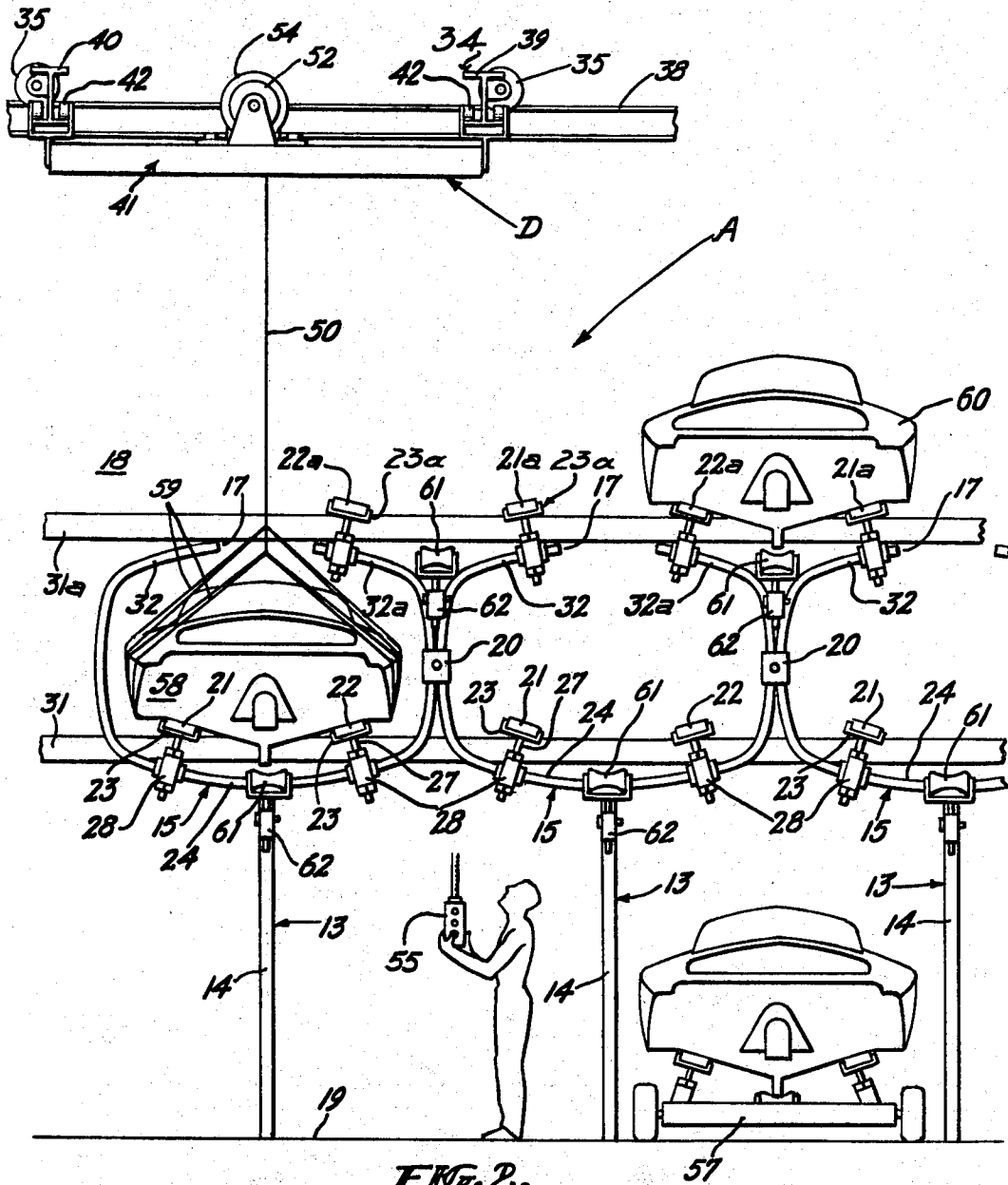


FIG. 2.

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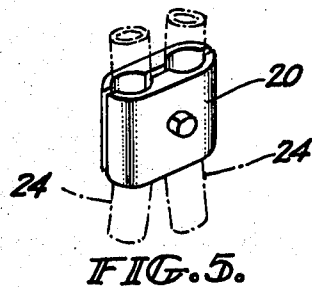
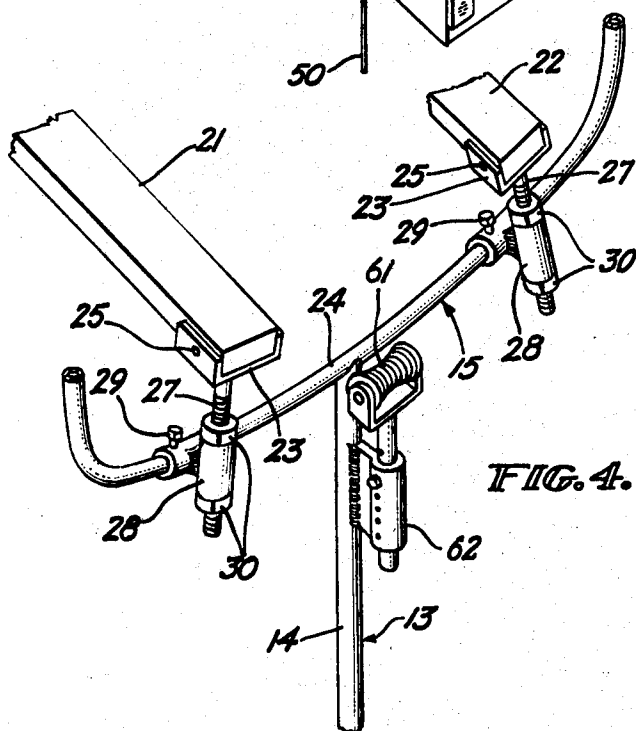
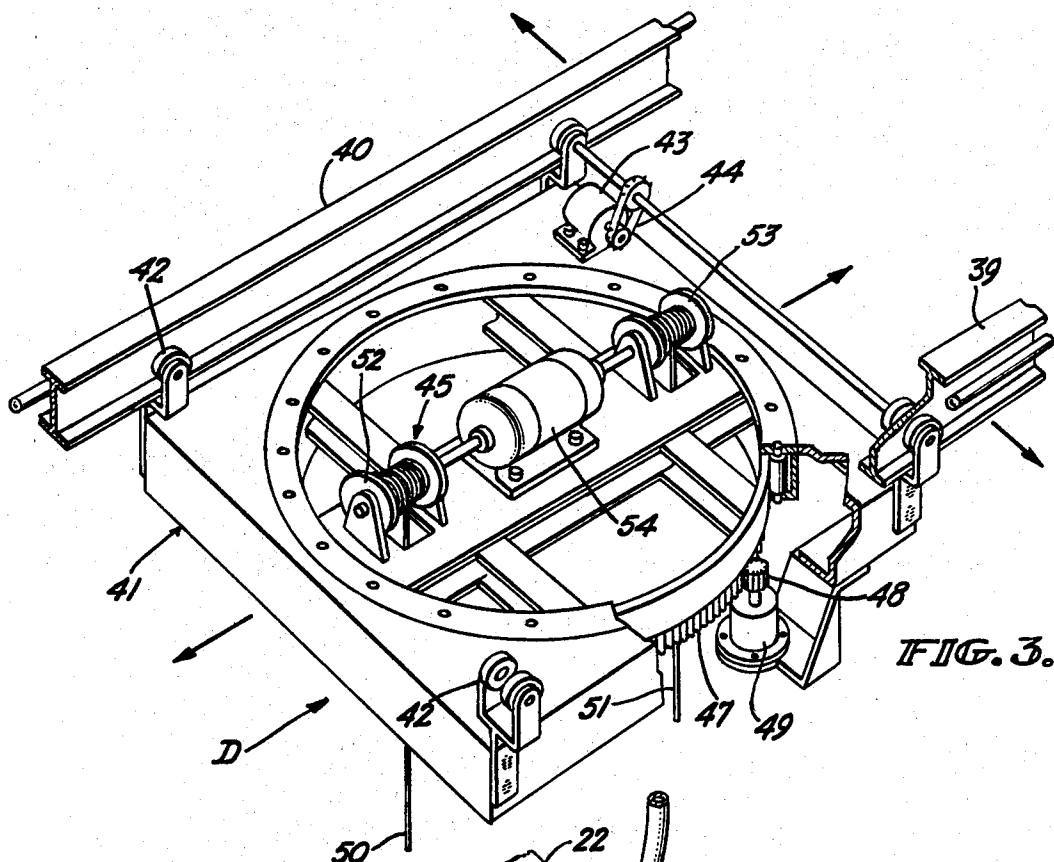
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3 Sheets-Sheet 3



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3,385,458
BOAT STORAGE RACK
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 Filed Nov. 28, 1966, Ser. No. 597,422
 7 Claims. (Cl. 214-16.4)

The present invention relates to a boat storage mechanism, and pertains more particularly to the novel storage rack structure wherein a plurality of small boats can be stored in individual stalls, and in a plurality of tiers, the two uppermost tiers of stalls being arranged so that all of the boats therein can be manipulated into and out of storage by overhead hoist mechanism.

In the past it has been common practice to store small boats, particularly power boats, in racks employing a rectangular framework usually made of crossed wooden two-by-fours or pipes. In these prior storage structures the boats are stored in superposed tiers, and are handled into and out of their respective stalls usually by means of a forklift truck having fork arms of sufficient length to extend lengthwise beyond the longitudinal center of gravity of a hull supported lengthwise thereon. Such a boat storage mechanism requires that the space between any two opposed racks be sufficient to permit manipulation of the forklift truck between the racks with a boat supported lengthwise on the fork arms for inserting or withdrawing the boat from its stall. This means that the space between such racks must be equal substantially to the length of the longest boat hull to be stored in the racks, plus the length of the forklift truck chassis. Furthermore, the handling of boats by means of a forklift truck is frequently less than entirely satisfactory due to the fact that the operator of the forklift does not always have full visibility of the entire length of a boat being handled, with the resultant possibility of striking and damaging either the storage rack or another boat with the boat which he is handling.

The present invention provides a boat storage mechanism wherein a storage rack is provided having a plurality of upright rack elements made of suitable material such as strong iron pipe, each rack element having a generally oblong, open top upper portion fixedly secured centrally of the bottom thereof to the upper end of an upright lower leg portion. The rack elements are fixedly mounted in upright side-by-side position in a common plane with the sides of adjacent upper oblong portions firmly interconnected. A pair of parallel boat support members, such as planks, are provided on the lower side of each oblong portion and also on the upper diverging end portions of each adjacent pair of oblong upper portions. Boats may then be stored one on each such pair of support members and also on the floor between adjacent lower leg portions.

An object of the present invention is to provide an improved boat storage mechanism wherein a plurality of small boats are stored in a succession of superposed tiers, with the boats in the upper two tiers exposed for storage and removal from their respective cells by cables depending from an overhead hoist mechanism.

Another object of the invention is to provide an improved and simplified boat storage mechanism.

Another object is to provide an improved storage rack element for a boat storage rack.

The foregoing objects and advantages of the invention will be apparent in the following description and the accompanying drawings wherein:

FIG. 1 is a perspective view showing a boat storage shed having a storage mechanism embodying the invention incorporated therein.

FIG. 2 is an enlarged, fragmentary, elevational view

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showing a portion of one side of the boat storage mechanism illustrated in FIG. 1, the boat in the second or intermediate tier being shown suspended further from the overhead hoist mechanism.

FIG. 3 is a further enlarged, perspective view showing a form of overhead hoist mechanism suitable for use in storing and removing boats from their stalls as shown in FIGS. 1 and 2.

FIG. 4 is an enlarged, perspective view showing a portion of one of the rack elements, a pair of boat support members and a keel roller being shown mounted thereon.

FIG. 5 is a perspective view of a clamp for connecting adjacent rack elements.

In the illustrative form of the invention a boat storage mechanism A is provided within a building B which opens at one end onto a body of boating water C. The boat storage mechanism A comprises two similar storage racks 11 and 12 extending lengthwise of the building B, only the right hand one 11 of which is described in detail herein.

The rack 11 is made up of a plurality of similar individual rack elements 13 (FIG. 2), each of which comprises a base leg lower portion 14 and a generally oblong upper portion 15 having a gap 17 in the top thereof. Each oblong upper rack element portion 15 is fixedly secured in coplanar relation to the upper end of its base leg portion 14. The base leg and upper portions 14 and 15 of each rack element 13 are of suitable strong, rigid and relatively inexpensive material such as for example, iron pipe. For storing boats in the 24-26 foot maximum length range two inch iron pipe has been found suitable for the base leg portion 14, and one and one-half inch iron pipe for the oblong upper portion 15.

The rack elements 13 are erected upright in side-by-side coplanar relation parallel to a wall 18, and are spaced from the latter by a suitable distance; for example, the length of the longest boat to be stored therein. The lower ends of the base leg portions 14 are suitably secured to the floor 19 upon which the storage racks are to be erected, for example, by being embedded therein if the floor is concrete.

The oblong upper portions 15 of adjacent rack elements (FIG. 2) are in closely juxtaposed side-by-side relation, and are strongly and rigidly interconnected by suitable means, such as well known pipe clamps 20 shown in FIGS. 2 and 5.

To support the boat stored in the rack 11 a pair of supports 21 and 22, which may be wooden planks of suitable length and strength, are mounted in horizontal parallel relation, and at right angles to the plane defined by the rack elements 13, one at each side of the center of the bottom of each oblong upper rack portion 15. These planks 21 and 22 preferably are supported at their outer ends one on each of a pair of cradles 23 mounted on the lower part 24 of each oblong rack portion 15 as best shown in FIG. 4.

Each plank cradle 23 is of a size to receive one of the planks 21 or 22 therein, and has a hole in a side thereof to receive an anchoring nail 25. Each plank cradle 23 has a threaded stem 27 which fits slidably in a bracket 28 mounted one on each side of the bottom 24 of each oblong rack portion 15 and secured in adjusted position thereon by a set screw 29. A pair of adjusting nuts 30 are threaded onto each cradle stem 27, one above and one below the bracket 28, for vertical adjustment of the cradle and for securing it in adjusted position.

The other end of each boat supporting plank 21 and 22 from that supported by a cradle 23 is supported by a stringer 31 secured to the wall 18. It will be obvious that if the rack were to be erected away from any convenient wall, or outdoors, that two similar rows of rack elements may be erected in parallel upright planes spaced apart

so that both ends of the boat supporting planks may be supported, one by each row of rack elements. Since such an arrangement will be obvious to any one familiar with boat storage structures and conversant with the present invention, it will be unnecessary to illustrate and describe such alternate arrangement herein.

The upper end portions 32 and 32a (FIG. 2) of each oblong upper rack element portion 15 extend inwardly toward a center line defined by the axis of the associated base leg lower portion 14 for a sufficient distance to provide required lateral separation between a pair of boat support members such as planks 21a and 22a mounted one on each of these upper end portions. As illustrated these boat support planks 21a and 22a are supported at their outer ends by cradles 23a similarly to cradles 23 described previously herein, and by a stringer 31a secured to the wall 18.

For moving boats, such as the boat 33 (FIG. 1) into and out of a selected stall in the racks, an overhead hoist mechanism D is provided. Any suitable overhead hoist mechanism suitable for this purpose may be used. The illustrated mechanism comprises a crane having a main carriage 34 mounted upon flanged wheels 35 for rolling movement along a pair of parallel overhead tracks 37 and 38.

The main carriage 34 has a pair of parallel tracks 39 and 40 thereon, and a hoist carriage 41 is mounted on wheels 42 for rolling movement therealong. A reversible electric motor 43 drives the hoist carriage 41 through a conventional chain and sprocket mechanism 44 to selected position along the main carriage tracks 39 and 40.

A rotatable twin-cable hoist mechanism 45 is mounted in the hoist carriage 41 and is rotated to selected position by means of a ring gear 47 and pinion 48, the pinion being driven by a reversible electric motor 49. Twin hoist cables 50 and 51 are wound on drums 52 and 53 and are raised and lowered as required by a motor 54. Control of the various motors is by means of a conventional suspended switch box 55.

Since the type of overhead hoist mechanism employed is not a feature of the invention, and since the structural details of the illustrated crane will be obvious to anyone having knowledge of this type of mechanism, it will be unnecessary to illustrate and describe it in greater detail herein.

In using the present invention it is intended that the largest boats be stored on trailers 57 on the floor, and for this use a smooth, level floor of suitable material such as concrete or wood is preferred. The upright base leg portions 14 of the rack elements 13 are of a height at least slightly greater than the sheer height of the highest boat to be stored in the lower tier of stalls when such boat is mounted on its trailer 57.

It will be noted, particularly in FIG. 2, that the converging bottom portions of the two oblong upper portions of the rack elements 13 on the two sides of each storage stall in the lowermost tier thereof provide increased vertical clearance as they approach the center of the stall. This is a desirable feature of the invention, since many boats have windshields, flag standards, radio antennae, masts, and other upwardly projecting members located at or near their longitudinal center lines.

The support planks 21 and 22 within each oblong upper rack portion 15 comprising the second or intermediate tier of stalls support a boat 58 as shown in FIG. 2. The gap 17 in the top of each oblong rack portion 15 not only provides clearance for the cables 50 and 51 of the hoist mechanism attached to the boat by slings 59 or conventional lifting eyes (not shown), but also provides clearance for any upwardly projecting members at or near the center line of the boat.

The smallest boats preferably are stored in the uppermost tier of stalls as shown by the boat 60 in FIG. 2, each pair of support planks 21a and 22a providing support for one boat. These boats in the uppermost tier of stalls

are also stored in and removed from their respective stalls by the overhead hoist mechanism D.

A keel roller 61 is mounted centrally of the lower portion at the entrance of each stall of the central and upper tiers thereof, and is adjusted to a height which will engage and guide the keel of a boat being stored in or removed from the stall so as to prevent accidental engagement of the hull with the outer ends of the support planks of the stall.

The keel roller 61 (FIG. 4) is journaled in a vertically adjustable bracket 62 secured centrally of the entrance to each stall of the intermediate and upper tiers thereof.

The invention provides a simple and inexpensive boat storage rack which can be easily erected from pre-fabricated rack elements and which provides for easy manipulation of boats into and out of their respective stalls. The boats in the two upper tiers of stalls are capable of being stored and removed from their stalls by overhead mechanism, while those in the lower tier are mounted on dollies or trailers. The arrangement provides for compact storage with the boats of adjacent tiers offset laterally from each other, the upward curvature in the bottoms of the oblong portions and the gaps in the tops of the oblong portions providing increased height centrally of each stall to accommodate upwardly projecting members on the boats in these tiers.

While I have illustrated and described a preferred embodiment of the present invention, it will be understood, however, that various changes and modifications may be made in the details thereof without departing from the scope of the invention as set forth in the appended claims.

I claim:

1. A boat storage rack comprising:

a plurality of lower leg portions mounted upright and in substantial alignment on a storage floor to define an upright plane and spaced apart to receive a boat of selected size mounted on a trailer of selected width between adjacent ones thereof,

a generally oblong frame portion of a size to receive a boat of a selected maximum size therethrough mounted upright on each lower leg portion in the plane defined by the lower leg portions, the bottom of each oblong frame portion being centered on its respective lower leg portion, adjacent oblong frame portions being laterally closely adjacent each other and firmly interconnected, the upper end of each oblong frame portion having a gap therein for free passage of a depending boat hoisting member there-through,

a pair of elongated, parallel, horizontal lower boat support members mounted at one end thereof on the bottom of each oblong frame portion and extending therefrom in a common direction at right angles to said plane, each pair of lower boat support members being spaced apart on opposite sides of the center of their respective frame bottom by a distance sufficient to support a boat having its hull resting in longitudinally centered relation on said support members,

a generally similar pair of upper boat support members mounted similarly to the lower boat support members but on the upper side of each oblong frame portion, one thereof being located on each side of the gap in their associated oblong frame portion, the upper support members between the gaps in adjacent frame portions being spaced apart sufficiently on opposite sides of a vertical line centered between adjacent oblong frame portions to support a boat having its hull resting in longitudinally centered relation on said upper support members, and means supporting the opposite ends of the upper and lower boat support members.

2. A boat storage rack as defined in claim 1 wherein each lower leg portion and the oblong frame portion mounted thereon comprises a separate rack element.

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3. A boat storage rack as claimed in claim 2 wherein clamp means are provided for firmly interconnecting the oblong frame portions of adjacent rack elements.

4. A boat storage rack as claimed in claim 1 wherein the bottom of the oblong frame portion on both sides of the lower leg portion slopes angularly upwardly and outwardly to thereby provide greater vertical clearance for the center portions of boats on trailers when the latter are rolled along the storage floor between adjacent lower leg portions.

5. A boat storage rack as claimed in claim 1 wherein an adjustable support is provided on the rack for each lower boat support member.

6. In combination with a boat storage building having a level floor and an overhead hoist mechanism mounted therein, said hoist mechanism having depending lifting means capable of lifting a boat of selected size and weight and traveling selectively lengthwise and transversely of the

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building, a boat storage rack as defined in claim 1 mounted to extend lengthwise within the building and beneath and within the range of travel of the hoist mechanism.

7. The combination defined in claim 6 wherein the depending lifting means are mounted on a turntable for rotation in a horizontal plane for turning a boat suspended from the hoist mechanism by the depending means.

References Cited

UNITED STATES PATENTS

3,082,887	3/1963	Brooks	214—16.4
3,189,198	6/1965	Filak	214—16.4

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