March 19, 1963 A. E. FENTIMAN 3,081,601

DEMOUNTABLE DOCK

Filed Oct. 7, 1959 2 Sheets-Sheet 1

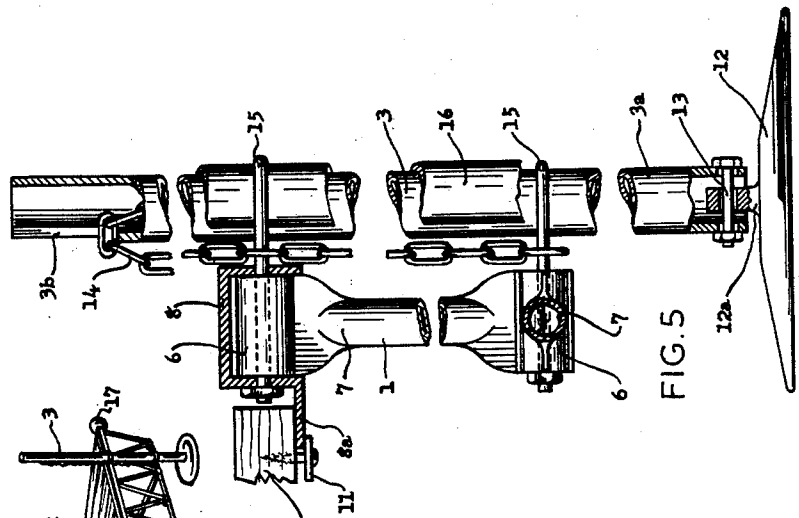


FIG. 5

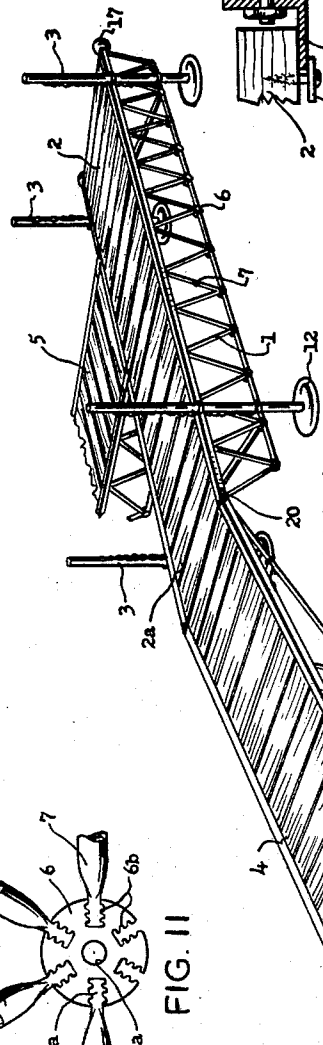


FIG. 1

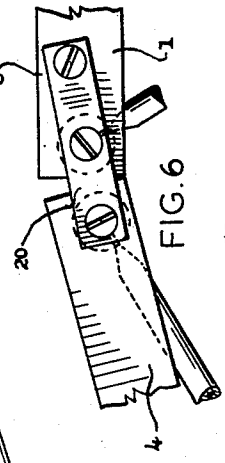


FIG. 6

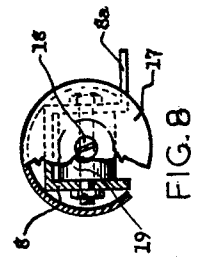


FIG. 8

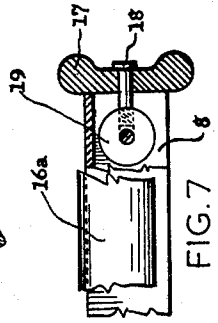


FIG. 7

FIG. 11

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DEMOUNTABLE DOCK

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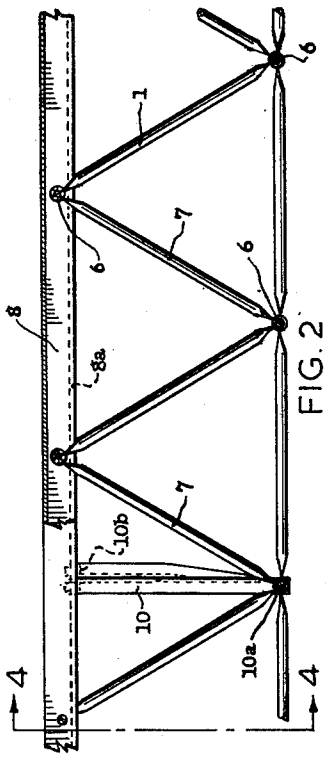


FIG. 2

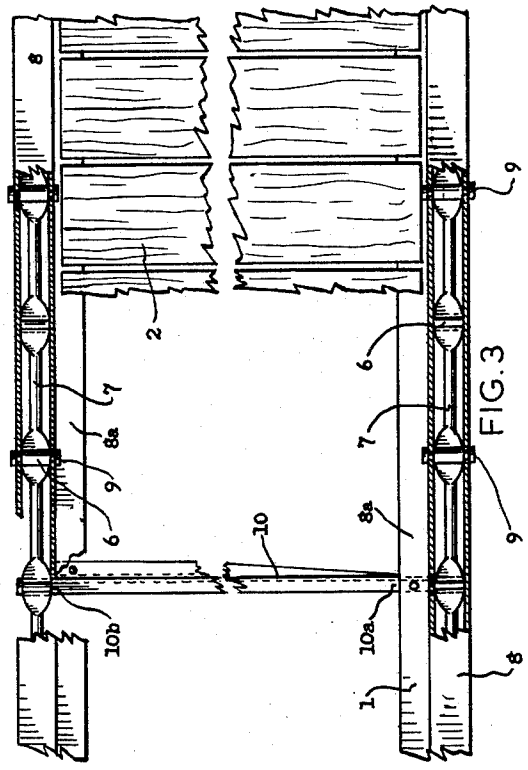


FIG. 3

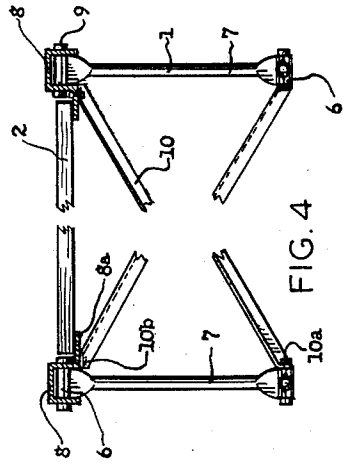


FIG. 4

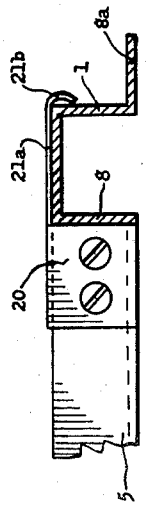


FIG. 9

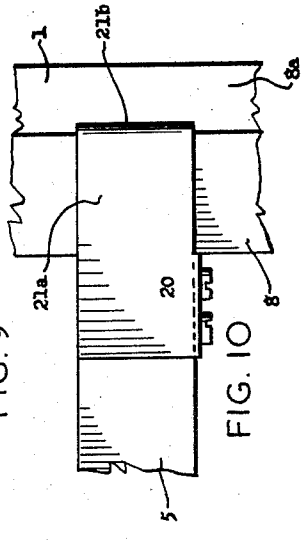


FIG. 10

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3,081,601
DEMOUNTABLE DOCK

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Filed Oct. 7, 1959, Ser. No. 844,910
2 Claims. (Cl. 61—48)

This invention relates to improvements in a dock and appertains particularly to a demountable dock structure suitable for small water craft, swimming and sun bathing, that may be transported with ease and assembled, set up and disassembled by one man.

Various demountable docks have been devised with separate legs and platforms but these have usually followed or been developed from the old wooden horse and a deck composed of a pair of parallel beams or side stringers with cross planking permanently nailed thereto. The legs have been made extendible or provision made for vertically adjusting the platform thereon to care for deeper water at the outer end of the dock or variations in the water level after the dock has been set up. In all these endeavours the structure has remained heavy, cumbersome and expensive, meeting the problem adequately only in occasional rather than most cases, and has employed materials subject to rapid deterioration by rot and rust.

It is an object of this invention to provide a demountable or portable type dock of truly lightweight and easily assembled sections capable of being assembled and set up or disassembled and stored by one person and requiring no other equipment than a wrench or a wrench and screw driver.

A further object of the invention is to provide a soundly engineered, safe and handsome piece of waterfront equipment composed of interchangeable standard parts that allows of economical replacement or addition.

A still further object of the invention is to provide a demountable small boat dock with self-adjusting posts and the platform is securely and positively suspended therefrom in novel sway resisting yet free sliding relation.

A still further object of the invention is to provide a demountable dock that, excepting for the replaceable small decking sections, is composed of factory pre-fabricated lifetime aluminum components assembled in a strong and sturdy design to provide a high degree of rigidity and steadiness under an unusually favorable weight-load ratio.

To the accomplishment of these and related objects as shall become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts as shall be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

The invention will be best understood and can be more clearly described when reference is had to the drawings forming a part of this disclosure wherein like characters indicate like parts throughout the several views.

In the drawings:

FIGURE 1 is a perspective view of an assembled dock, constructed in accordance with this invention;

FIGURE 2 is an enlarged side elevational detail, partly in section, of one of the side girders of the frame;

FIGURE 3 is a plan view thereof, with parts in section;

FIGURE 4 is a transverse sectional detail, as taken on line 4—4 of FIGURE 2;

FIGURE 5 is a further enlarged sectional elevation of the post and contiguous parts of the frame and the suspending chain;

FIGURE 6 is an elevational detail of the ramp connections;

FIGURES 7 and 8 are side and end sectional elevations of the frame end cushion bumpers;

FIGURES 9 and 10 are side and plan views respectively of the hook-on connection for attaching cross or lateral dock sections to an adjacent one; and

FIGURE 11 is an enlarged detail elevation of the connector hub and radial arm assembly utilized in the girder structure.

The instant demountable dock for small water craft, as seen assembled in FIGURE 1, comprises essentially a rigid, all-metal frame **1** carrying removable sections of decking **2**, the frame being supported in vertically adjustable relation by posts **3** located one near each corner of the frame **1**. An inclined lead-on ramp is shown on the land end of the main frame **1** and a second section of dock **5** extending at right angles to the main frame is attached thereto in readily disconnectible hook-on relation.

The frame **1** is made up of a pair of side girders formed of readily separable lightweight components such as the extruded hub parts **6** with an axial bore **6***a* and paralleling keyway **6***b* disposed radially and tubular arms **7** with flattened ribbed ends **7***a* engaged in said keyways, as clearly shown in FIGURE 11, and which type of structure is disclosed in Patent No. 2,895,753 and/or pending applications Serial Nos. 450,717, now Patent No. 2,931,467, and 487,514, now Patent No. 2,964,147. The girders formed of these components with the tubular arms arranged in equilateral triangular form as shown in FIGURE 2 are of substantial height but thin and open, the lower edge being defined by a hub-connected row of aligned tubular members **7** while the upper edge consisting of a series of hub topped triangle apices is finished with an elongated, downwardly facing channel member **8** that straddles the hubs **6** and is fastened thereto by bolts **9** that pass through the axial bores **6***a* of the hubs and extend through the opposite spaced sides of the channel **8**. The channel extends the full length of the girder and is provided with an inturned horizontally disposed flange **8***a* along the bottom edge of the inner side thereof.

A pair of these girders, that form the opposite parallel sides of dock frame **1**, are rigidly braced in spaced relation by a number of vertically disposed, transversely arranged, cruciform, angle stock bridges **10**, with the lower ends **10***a* of the crossed arms bolted to appropriate axially bored hubs **6** and the upper ends **10***b* of such arms bolted to the underside of the channel flanges **8***a*.

The decking **2** preferably consists of a plurality of easily handled, removable sections **2***a* of transversely disposed wooden planks that are supported on the confronting, recessed girder flanges **8***a*; each section being individually attached to the frame as by the releasable screw-held keepers **11** on the underside, as seen in FIGURE 5, that engage the lower side of the girder flange.

The posts **3** that support the dock frame **1** are located outside the frame and near opposite ends thereof and are designed to rest on a river (or lake) bottom of uneven contour yet stand in substantially vertical position at all times, each having a loosely connected self-adjusting base. The dock frame is connected to the posts in vertically sliding relation to allow of easily adjusting the dock level at each corner. In the form illustrated herein, each post **3** consists of a length of pipe **3***a* with an enlarged disk-like base **12** connected to allow a measure of swivel by means of a central upstanding horizontally apertured lug **12***a* through which a transversely extending pin **13** carried by the pipe near its lower end passes loosely so that the pipe and disk-like base have considerable freedom to rock relative to each other. The upper end of each pipe has a narrow slot **3***b* that is arranged to face inward toward the dock frame for adjustably holding a suspending chain **14**. Each post **3** is engaged by the dock frame **1** at two vertically spaced

points for which purpose I employ a pair of vertically aligned eyelets **15** at top and bottom of the frame girder and projecting outwardly therefrom in which the pipe is slidably embraced. Thus without regard to the lie of the river bottom or the slope of the disk-like base resting thereon, the post is slidably engaged at two vertically aligned and substantially spaced points with respect to the frame and so must stand upright. The chain **14** is secured by spaced links at or near its lower end to each eye **15** on the frame thus having double connection therewith and has its upper end dropped inside the pipe with the selected link fitted in anchoring relation in the slot **3***b* to hold the dock at the desired elevation.

A snap-on bumper **16**, in the form of a rubber cylinder slit longitudinally may be applied to the posts **3** and a similar type bumper **16***a* may be used on the dock side girder part **8** if desired. Small disk-like cushions **17** are mounted on the outer ends of the side girder channels **8** by an axial bolt **18** screwed into a transverse member **19** in the channel.

The approach or lead-on ramp **4** has a relatively short frame including side channel members **8** and with decking sections **2***a*, of the type already described. The ramp may be easily attached to the main dock frame **1** by side straps **20** bolted to the adjoining ends of the corresponding side channels **8** of the main dock and ramp respectively, as seen in FIGURE 6.

A single dock section may be added to, if occasion requires, by extra lengths in line therewith or by sections at right angles thereto to provide any of a wide variety of arrangements, such as L, T, U, or H designs and the like. A very simple connector for tieing one dock section to another at right angles thereto is shown in FIGURES 9 and 10 in which a hook-on bracket **21** will be seen secured on the end of the frame channel of the second or additional dock section **5**, and having a horizontal portion **21***a* with a downturned terminal hook part **21***b* that spans and grips the inverted channel part **8** of the main dock section **1**.

In use, it will be seen how easily this factory prefabricated dock may be assembled and installed, and the platform vertically adjusted on the posts as the changing water level may require—and with what ease and in how short a time this dock may be demounted and stored away by one person, yet it provides unusual safety and stability for its very light weight and will be found durable as it is versatile in sectional arrangement.

From the foregoing description taken in connection with the accompanying drawings, it will be manifest that a demountable dock is provided that will fulfill all the necessary requirements of such a device, but as many changes could be made in the above description and many apparently widely different embodiments of the invention may be constructed within the scope of the appended claims, without departing from the spirit or scope thereof, it is intended that all matters contained in the said accompanying specification and drawings shall be interpreted as illustrative and not in a limitative or restrictive sense.

What I claim as new and desire to secure by Letters Patent is:

1. A demountable dock for small water craft comprising an elongated frame including knockdown girders of substantial depth along opposite sides that are rigidly braced in spaced parallel relation by crossed arms and

all constructed of readily separable light-weight components; posts arranged along opposite sides of said frame; a large disk-like base loosely pivoted to the lower end of each post; pairs of aligned eyelets projecting from top and bottom respectively of the side girders of said frame spaced apart vertically a substantial distance that encircle said posts, positioning and maintaining said posts in upright position irrespective of the lie of their loosely pivoted bases; means to adjustably suspend said frame from said posts; and decking removably supported on the girders of said frame; the deep side girders of said frame being composed of tubular arms arranged in equilateral triangular form with their ends engaged in hub-like connectors at the apices, and each side girder being topped with an inverted channel running the full length thereof, said channel having an inwardly projecting flange along the lower edge of its inner side on which said removable decking is nested.

2. A demountable dock for small water craft comprising an elongated frame including knockdown girders of substantial depth along opposite sides that are rigidly braced in spaced parallel relation by crossed arms and all constructed of readily separable light-weight components; posts arranged along opposite sides of said frame; a large disk-like base loosely pivoted to the lower end of each post; pairs of aligned eyelets projecting from top and bottom respectively of the side girders of said frame spaced apart vertically a substantial distance that encircle said posts positioning and maintaining said posts in upright position irrespective of the lie of their loosely pivoted bases; means to adjustably suspend said frame from said posts; and decking demovably supported on the girders of said frame; each of said posts being of tubular form with a slot running down from the open upper end and said disk-like base has a narrow apertured lug extending into the lower end of the post and pivotally secured thereto by a loose transverse pin passing through the post and lug; said frame suspending means comprises chains running from the frame to the posts, each chain being connected at its lower end to each of a vertically aligned pair of eyelets and releasably locking by any selected link near its opposite end in the vertical slot running down from the top end of the tubular post.

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