Jan. 22, 1963 E. W. MUSTARD 3,074,239

PORTABLE DOCK

Filed May 9, 1960 3 Sheets-Sheet 1

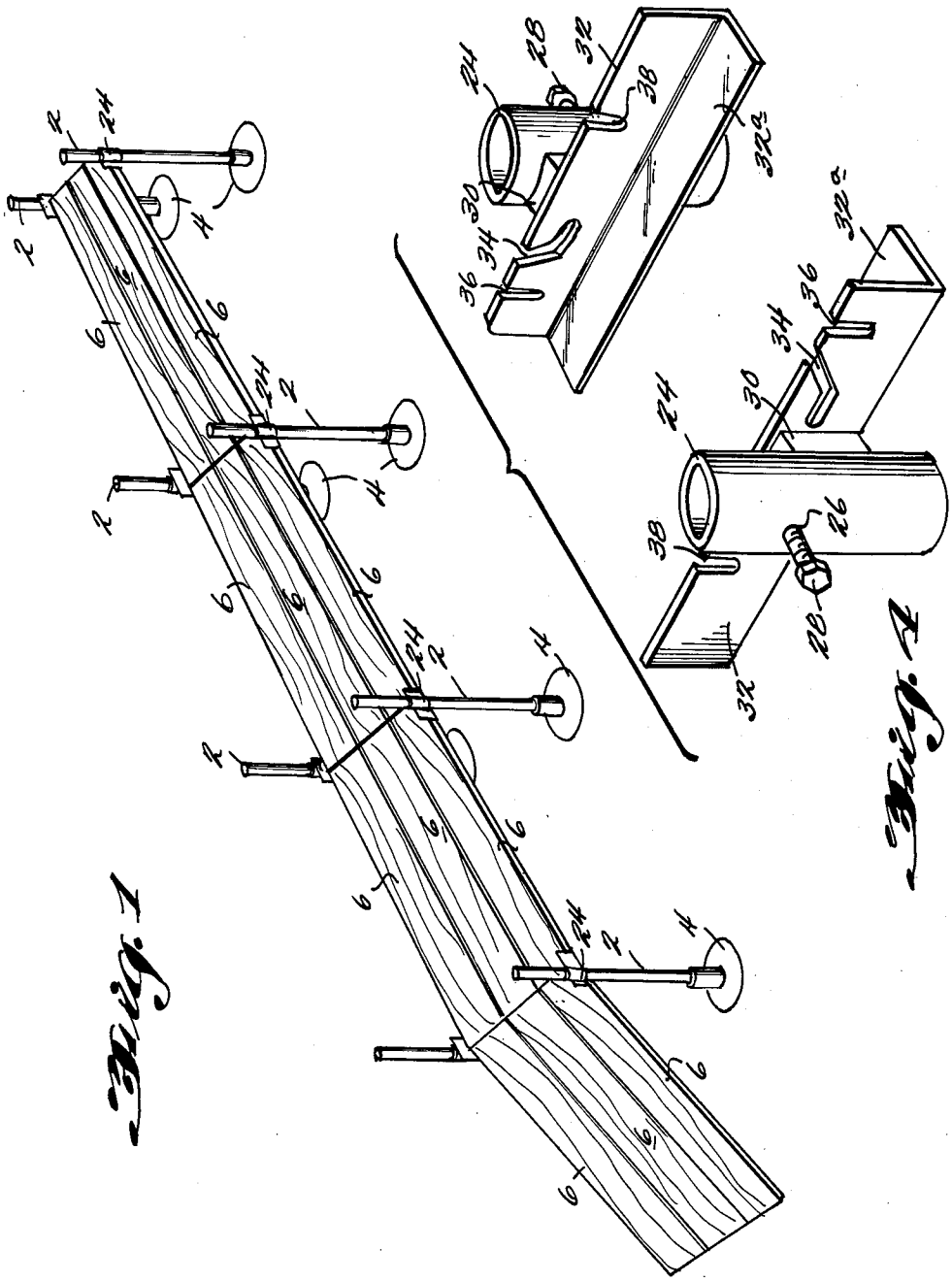


Fig. 1

Fig. 2

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PORTABLE DOCK

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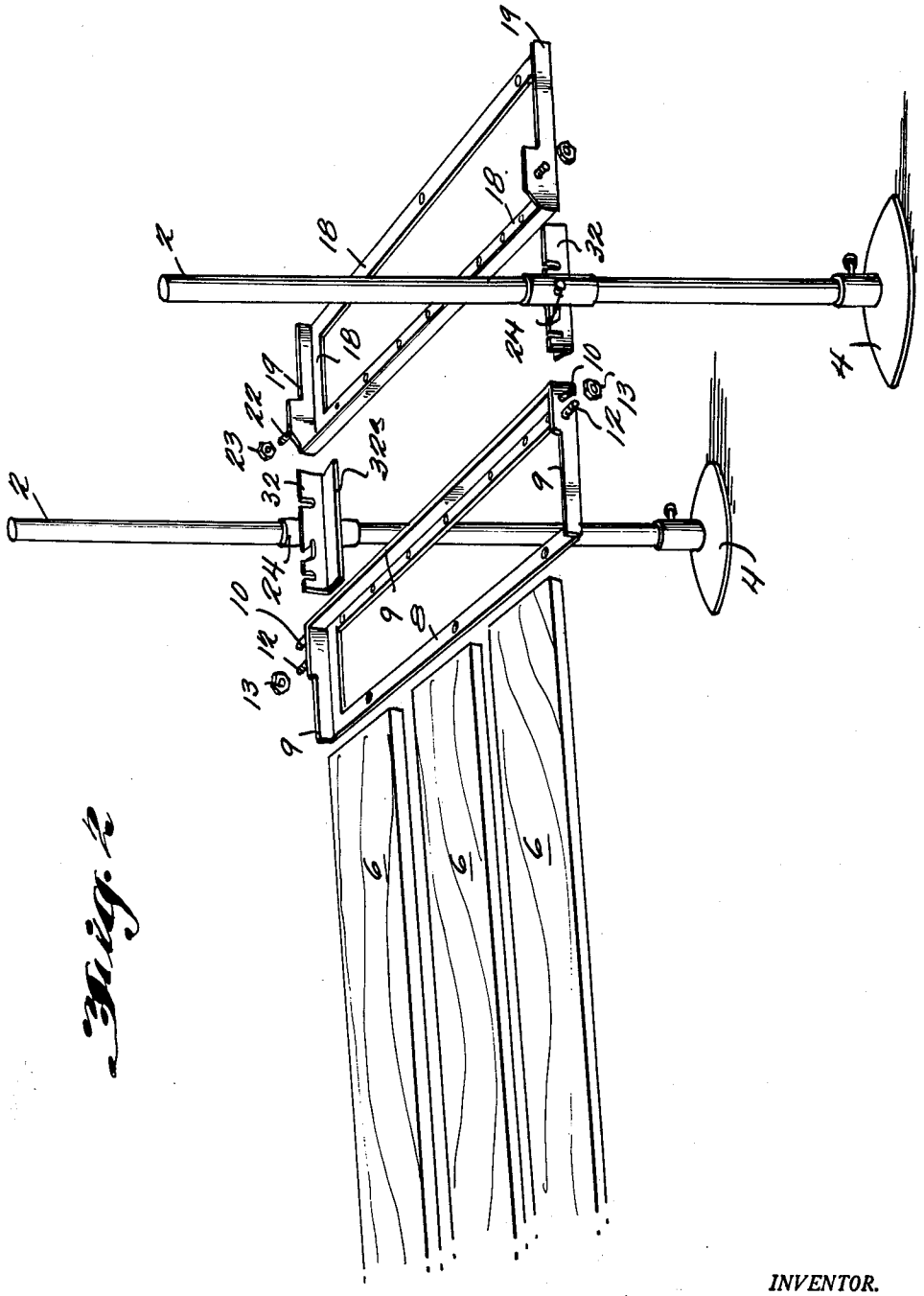


Fig. 2

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PORTABLE DOCK

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Fig. 5

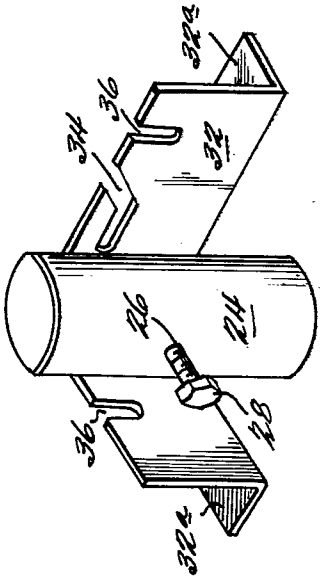
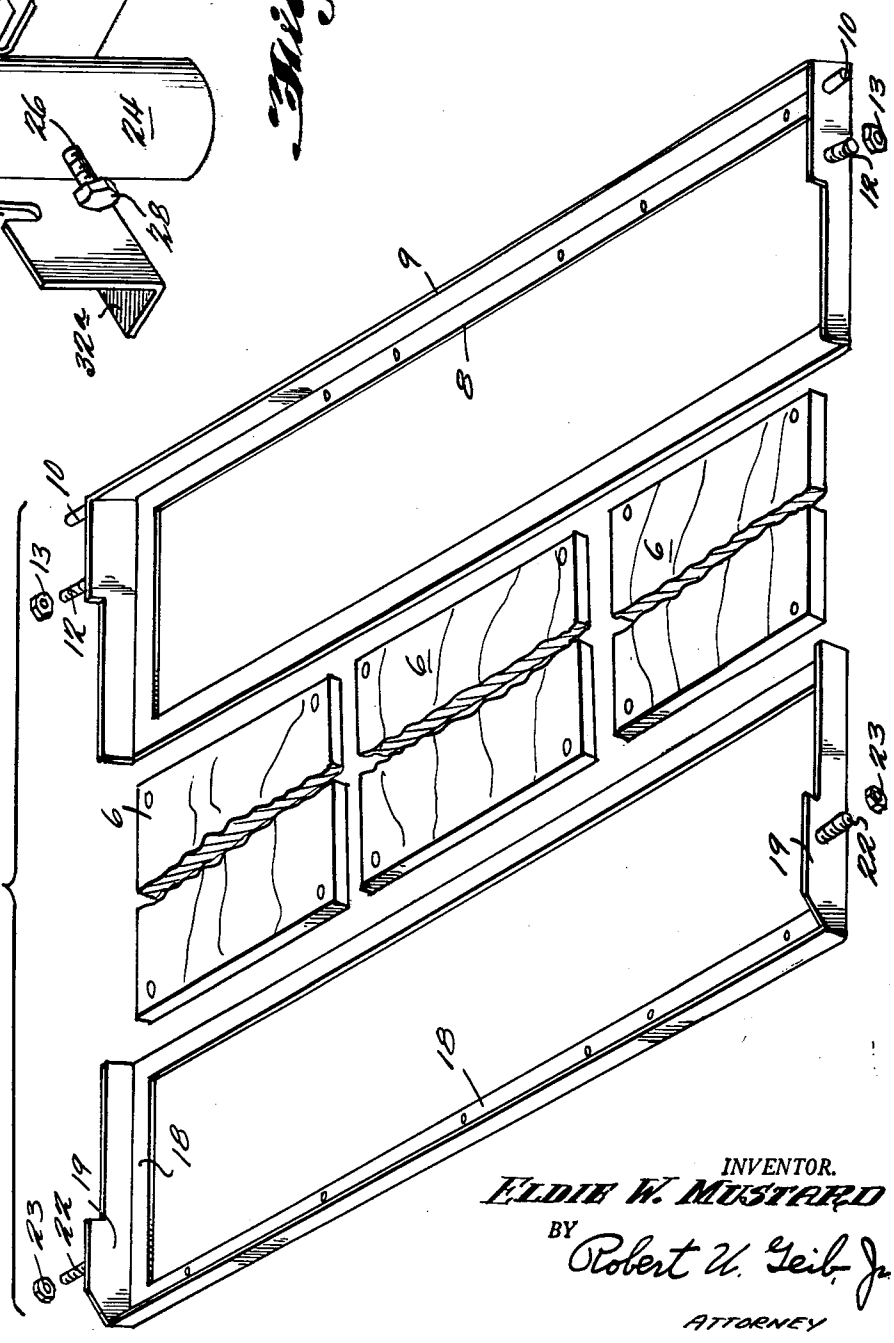


Fig. 3



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PORTABLE DOCK

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6 Claims. (Cl. 61—48)

The present invention relates to dock assemblies and more particularly to portable docks of a type which may readily be erected and dismantled, thus permitting them to be moved to different locations or simply stored during periods when they are not needed.

Small docks, or "foot wharves" as they are sometimes called, are quite frequently of makeshift construction embodying posts which are driven in place out into a body of water, with side rails nailed thereto. Sometimes a deck of crossboards is nailed to the top of the rails; but when a more readily removable dock is to be installed quite frequently it is formed in sections which are bolted either in end-to-end relationship and/or to the side rails. When the dock is to be either erected or dismantled the dock sections of the type referred to immediately hereinbefore have to be carried to or from the site and considerable bolting or unbolting is necessary. These are slow and uncomfortable operations particularly for at least one worker who is compelled to stand in the water for a considerable period of time. In addition, portable docks which are constructed and arranged in the manner just described are not readily adjustable to make the upper floor thereof substantially straight since settling frequently occurs at the dock joints.

It is among the objects of the present invention to eliminate the difficulties referred to hereinbefore and provide a portable dock of any desired length which may be easily and quickly erected and dismantled without the necessity of a worker standing in the water or other area wherein or whereat the dock is to be used. The portable dock contemplated by the present invention utilizes a series of deck or floor units which may be erected by positioning and anchoring the first or initial deck section, and thereafter erecting additional and successive sections, the dock sections as erected being used by the operator to walk back and forth until the dock has been completed to the extent desired.

Another object is to provide in a portable dock of the type described, a novel combination of deck or floor units with means for effectively connecting and supporting the same.

Still another object is the attainment of the immediately foregoing objectives in a manner which is both simple and inexpensive.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawings and the following description setting forth in detail certain means for carrying out the invention, such disclosed means illustrating, however, the several or various ways in which the principles of the invention may be used.

In the annexed drawings:

FIGURE 1 is a perspective illustrating a form of portable dock which utilizes the teachings of the present invention, including the novel combination of deck or floor units with connecting and supporting means therefor;

FIGURE 2 is an exploded view illustrating the deck or floor units which include novel framing devices at the opposite ends thereof, the said framing devices cooperating with the connecting and supporting members which will be more fully described hereinafter;

FIGURE 3 is a view similar to the showing of FIGURE 2 and illustrating the manner in which two deck or floor units in end-to-end alignment are connected to the

connecting and supporting members, the latter being in turn secured to the dock posts or piles;

FIGURE 4 is a perspective illustrating in detail the said connecting and supporting members; and

FIGURE 5 is a view similar to that of FIGURE 4 but illustrating a modification.

Referring more particularly to the drawings, the numeral 2 designates a series of cooperating pairs of dock posts or piles, the said pairs being disposed in parallelism and at distances suitably spaced from each other and from each succeeding pair. A shoe or ground plate 4 is secured to each of the vertical standards or dock posts 2, adjacent the lower end thereof, the same serving to prevent the excessive sinking of the dock posts into the ground. In FIGURE 1, each of the deck units is shown as comprising a series of parallel planks 6, preferably of wood. Referring particularly to FIGURES 2 and 3, each portable deck unit is provided at each end with a rectangular metallic frame which partially underlies the parallel planks 6 and which is suitably secured to them, as by nuts and bolts, etc.

The rectangular frame at one end of the deck unit is indicated at 8 and it comprises a series of three right-angularly disposed angle irons, the intermediate one extending along the ends of the planks 6 with the other two being somewhat shorter and extending in parallelism with the side edges of the deck unit. The height of the vertical or leg portions of the angle irons 8 is approximately the same as, but no greater than, the thickness of the planks.

Also among the features of the present invention is that each of the shorter (or side) angle irons carries a pair of laterally extending pin members 10 and 12 which are disposed relatively adjacent the end of the deck unit but in spaced relationship with respect to each other. The outermost of these four laterally extending pin members are, shown at 10, in the form of a plain stud, while the inner pin members 12 are screw-threaded and provided with cooperating nuts 13.

The rectangular frame at the other end of the deck unit is indicated at 18 and it too comprises a series of three right-angularly disposed angle irons, the same being identical in size, shape and disposition to those of the rectangular frame 8.

Another feature of the invention is that each of the shorter (or side) angle irons of the rectangular frame 18 carries a single laterally extending pin member 22 which is disposed relatively adjacent the end of the deck unit and which is screw-threaded to receive a cooperating nut 23. In FIGURE 4 there is more clearly illustrated the novel members for connecting and supporting the deck units in end-to-end alignment, the said members being adapted for attachment to one of the dock posts 2.

Each of these post-attachable members is in the form of a sleeve 24 which is of such size and shape as to permit it to telescope over the post 2 with which it is to cooperate. The sidewall of the sleeve 24 is provided with a screw-threaded aperture 26 which receives a machine screw 28 by means of which the sleeve may be suitably secured in position. The sleeve 24 is provided with a member 32 which carries certain instrumentalities for connecting and supporting the ends of the adjacent deck units as will be described more fully hereinafter. This last-mentioned member 32 extends at right-angles to the sleeve 24, forming wings which extend approximately equidistantly from each side of the sleeve, as shown. As in the case of the rectangular frames 8 and 18, the member 32 is in the form of an angle iron, the leg portion being vertically disposed with the foot portions extending inwardly and at right-angles.

The member 32 for connecting and supporting the deck units is further characterized by being provided on the

upper edge of its vertical or leg portion with a straight vertical slot **36** which is spaced outwardly with respect to the sleeve **24**. Between the straight vertical slot **36** and the sleeve **24**, the said vertical or leg portion of the angle iron **32** is provided with a slot **34** which has a straight vertical portion and a communicating portion which extends downwardly and angularly toward the said sleeve. In other words, the slot **34** is of dog-leg shape.

On the other side of the sleeve **24** the upper edge of the leg portion of the angle-iron **32** is provided with a single slot **38** which corresponds in size and shape to the aforementioned straight vertical slot **36**.

The innermost end wall of each of the slots **34**, **36** and **38** is rounded, as shown in FIGURES 2, 4 and 5.

The distance between the axes of the rounded (innermost) end walls of the companion slots **36** (straight) and **34** (dog-leg) is the same as the distance between the plain and screw-threaded pin members **10** and **12** respectively of the rectangular frame **8**.

For reasons which will be more readily understood as this description proceeds, the angle-irons **32** which form part of the deck unit connecting and supporting members are spaced outwardly from their respective sleeve members **24**, the distance being such as will more readily enable the placing of the deck units between the dock posts; for example, approximately ⅝ of an inch. The spacing elements may, as shown at **30**, simply comprise a metallic block or other structural form suitably secured in position.

It will be perceived that except for the planks **6** all of the elements referred to hereinbefore are readily and inexpensively obtainable commercial items formed of simple steel which permits certain of them to be readily secured by welding, thus contributing toward durability, etc.

As used on a pair of oppositely disposed dock posts **2** the deck unit connecting and supporting members comprising the sleeve **24**, angle-iron **32**, etc. will be made up of matching right-hand and left-hand members in order that the various slots may properly align in opposed relationship.

It will be understood that the angle-iron members **32**, etc. are used in matching pairs to support deck units which lie in a substantially straight alignment both horizontally and longitudinally, the same constituting, of course, the major portion of the portable dock. However, a modified form of deck unit connecting and supporting member **32** contemplates an angle-iron whose wings on either side of the sleeve **24** may be disposed at right-angles to each other.

Whether the linear type described earlier herein or the right-angular modification described immediately hereinbefore, the horizontal or foot portion of the angle-iron **32** actually supports the deck unit.

The right-angular modification referred to hereinbefore may be utilized to provide the portable dock of the invention with the first section of right-angular extension, utilizing thereafter the linear type of deck unit connecting and supporting member earlier described.

It will also be understood by those skilled in the art that the terminal extremities of the portable dock of the present invention, including ramps, etc., may be supported by other and more conventional elements and no claim for novelty therefor is made herein.

Due to the foregoing construction and arrangement the first, and each succeeding, deck unit may be placed with its rearward end between the matching angle-irons **32** on opposite posts **2** and with the plain, pin or stud **10** at each side thereof seating in the dog-leg slot **34**. From such position, each successive deck unit is lowered until the screw-threaded pin **22** on its forward end moves downwardly into the straight vetrical slot **36**. The nuts **13** and **23** are then applied to the screw-threaded pins **12** and **22**, respectively. It will be found that in the manner described, deck units of seven feet or more in length may be very satisfactorily formed into a portable dock by a single worker, in which case copes, pulleys, etc. may be found helpful.

The dismantling of the portable dock of the present invention is accomplished in precisely the reverse manner as that described.

Other modes of applying the teachings of the present invention may be employed in lieu of those described hereinbefore, provided the means stated by any of the following claims, or the equivalent thereof, be employed.

I claim:

1. In a portable dock, a substantially rectangular deck-forming unit provided on each of its side edges and adjacent one end thereof with a pair of spaced laterally extending pins; a pair of dock posts; and a vertically adjustable supporting element mounted on each of said dock posts; each of said supporting elements comprising a post-attaching member and a transverse plate-like member which projects from either side thereof and extends in adjacent parallelism with the adjacent side edge of said deck-forming unit, one side of said plate-like member having a pair of spaced downwardly extending slots in its upper edge, the slot of said pair which is nearest said vertically adjustable supporting element being angularly inclined toward the same and provided with a communicating portion which extends in substantial parallelism with the upper edge of said plate-like member, the other of said slots extending at substantial right-angles to the upper edge of said plate-like member, the aforementioned slots of each of said plate-like members receiving the pair of spaced laterally extending pins on the adjacent edge of said deck-forming unit when it is in substantially horizontal position with the pins nearest said posts seated in the communicating portions of the inclined slots.

2. In a portable dock, a substantially rectangular deck-forming unit provided on each of its side edges and adjacent one end thereof with a laterally extending pin and a parallel but more inwardly spaced laterally extending bolt, a pair of dock posts, a vertically adjustable supporting element mounted on each of said dock posts, each of said supporting elements comprising a post-attaching member and a transverse plate-like member which projects from either side thereof and extends in adjacent parallelism with the adjacent side edges of said deck-forming units, one side of said plate-like member having a pair of spaced downwardly extending slots in its upper edge, the slot of said pair which is nearest said vertically adjustable supporting element being angularly inclined toward the same and provided with a communicating portion which extends in substantial parallelism with the upper edge of said plate-like member, the other of said slots extending at substantial right-angles to the upper edge of said plate-forming member, the aforementioned slots of each of said plate-like members receiving the spaced laterally extending pin and bolt on the adjacent edge of said deck-forming unit when it is in substantially horizontal position with the pins nearest said posts seated in the communicating portions of the inclined slots.

3. In a portable dock, a substantially rectangular deck-forming unit provided on each of its side edges and adjacent one end thereof with a pair of spaced laterally extending pins; said deck-forming unit being provided adjacent its other end and along each of its side edges with a single laterally extending pin; a pair of dock posts; and a vertically adjustable supporting element on each of said dock posts; each of said supporting elements comprising a post-attaching member and a transverse plate-like member which projects from either side thereof and extends in adjacent parallelism with the adjacent side edge of said deck-forming unit, one side of said plate-like member having a pair of spaced downwardly extending slots in its upper edge, the slot of said pair which is nearest said post-attaching member being angularly inclined toward the same and provided with a communicating portion which extends in substantial parallelism with the upper edge of said plate-like member, the other of said afore-

mentioned pair of slots extending at substantial right-angles to the upper edge of said plate-like member, the aforementioned slots of each of said plate-like members receiving the pair of spaced laterally extending pins on the adjacent edge of said deck-forming unit when it is in horizontal position with the pins nearest said post seated in the communicating portions of the inclined slots, the other side of said plate-like member having a single slot extending at substantial right-angles to the upper edge of said plate-like member and receiving the aforementioned single pin on the side edge of the next adjacent deck-forming unit.

4. In a portable dock, a substantially rectangular deck-forming unit provided on each of its side edges and adjacent one end thereof with a laterally extending pin and a parallel but more inwardly spaced laterally extending bolt, said rectangular deck-forming unit being provided adjacent its other end and along its side edges with a single laterally extending bolt; a pair of dock posts; a vertically adjustable supporting element on each of said dock posts; each of said supporting elements comprising a post-attaching member and a transverse plate-like member which projects from either side thereof and extends in adjacent parallelism with the adjacent side edge of said deck-forming unit, one side of said transverse plate-like member having a pair of spaced downwardly extending slots in its upper edge, the slot of said pair which is nearest said post-attaching member being angularly inclined toward the same and provided with a communicating portion which extends in substantial parallelism with the upper edge of said plate-like member, the other of said aforementioned pair of slots extending at substantial right-angles to the upper edge of said plate-like member, the aforementioned slots of each of said plate-like members receiving the laterally extending pin and bolt on the adjacent edge of said deck-forming unit when it is in horizontal position with the pins nearest said post seated in the communicating portions of the inclined slots, the other side of the transverse plate-like member having a single slot extending at substantial right-angles to the upper edge of said plate-like member and receiving the aforementioned single bolt on the side edge of the next adjacent deck-forming unit, and a nut for each of said bolts.

5. In a portable dock, a substantially rectangular deck unit including a plurality of parallel deck panels with their respective ends unitarily secured in a transversely extending, substantially rectangular frame, one of said frames being provided on each of its side edges and adjacent one of its ends with a pair of spaced laterally extending pins, the other and oppositely disposed rectangular frame being provided on each of its side edges and adjacent one end thereof with a single laterally extending pin, a pair of dock posts, a vertically adjustable supporting element mounted on each of said dock posts, each of said supporting elements comprising a post-attaching member and a transverse plate-like member which projects from either side thereof and extends in adjacent parallelism with the adjacent side edge of said substantially rectangular deck unit, one side of said transversely extending plate-like member having a pair of spaced downwardly extending slots in its upper edge, the slot of said pair which is nearest said post-attaching member being angularly inclined toward the same and provided with a communicating portion which extends in substantial parallelism with the upper edge of said plate-like member, the other of said aforementioned pair of slots extending in substantial right-angles to the upper edge of said plate-like member, the aforementioned slots of each of said plate-like members receiving the pair of spaced laterally extending pins on the adjacent edge of said first-named rectangular frame when it is in horizontal position with the pins nearest said post seated in the communicating portions of the inclined slots, the other side of said plate-like member having a single slot extending at substantial right-angles to the upper edge of said plate-like member and receiving the aforementioned laterally extending single pin on the side of the second-named frame of a next adjacent substantially rectangular deck unit.

6. In a portable dock, a substantially rectangular deck unit including a plurality of parallel deck panels with their respective ends unitarily secured in a transversely extending, substantially rectangular frame, one of said frames being provided on each of its side edges and adjacent one of its ends with a laterally extending pin and a more inwardly spaced but parallel laterally extending bolt, the other and oppositely disposed rectangular frame being provided on each of its side edges and adjacent one end thereof with a single laterally extending bolt, a pair of dock posts, a vertically adjustable supporting element mounted on each of said dock posts, each of said supporting elements comprising a post-attaching member and a transverse plate-like member which projects from either side thereof and extends in adjacent parallelism with the adjacent side edges of said substantially rectangular deck unit, one side of said transversely extending plate-like member having a pair of spaced downwardly extending slots in its upper edge, the slot of said pair which is nearest said post-attaching member being angularly inclined toward the same and provided with a communicating portion which extends in substantial parallelism with the upper edge of said plate-like member, the other of said aforementioned pair of slots extending at substantial right-angles to the upper edge of said plate-like member, the aforementioned slots of each of said plate-like members receiving the spaced laterally extending pin and bolt on the adjacent edge of said first-named rectangular frame when it is in horizontal position with the pins nearest said post seated in the communicating portions of the inclined slots, the other side of said plate-like member having a single slot extending at substantial right-angles to the upper edge of said plate-like member and receiving the aforementioned laterally extending single bolt on the side edge of the second-named frame of a next adjacent substantially rectangular deck unit.

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