Oct. 13, 1964 A. D. MAYER 3,152,568

PIER AND RAFT CONSTRUCTION

Filed Oct. 10, 1962 3 Sheets-Sheet 1

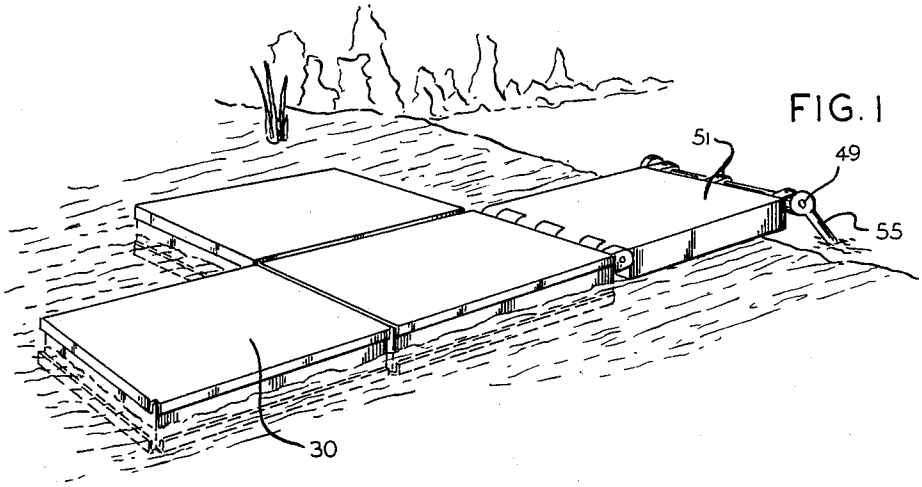

FIG. 1

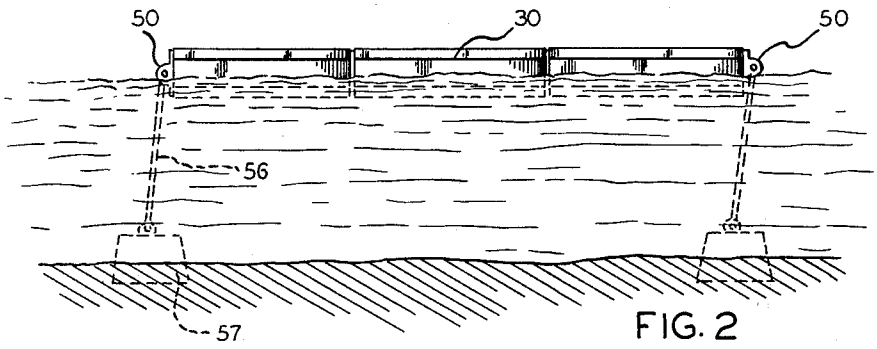

FIG. 2

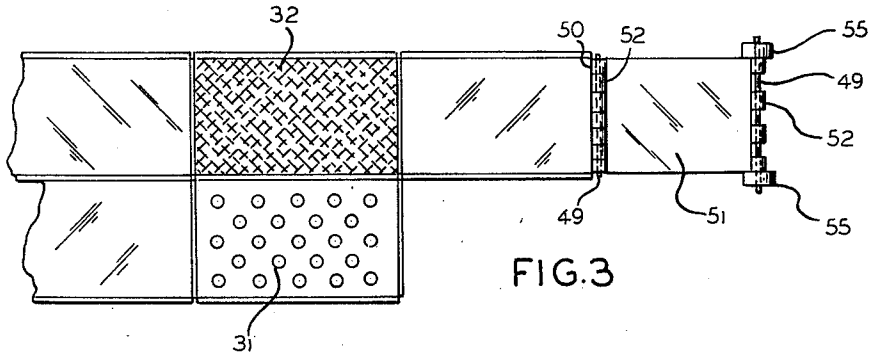

FIG. 3

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Oct. 13, 1964 A. D. MAYER 3,152,568

PIER AND RAFT CONSTRUCTION

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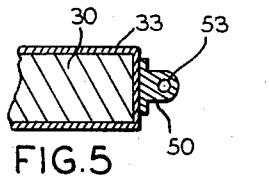

FIG.5

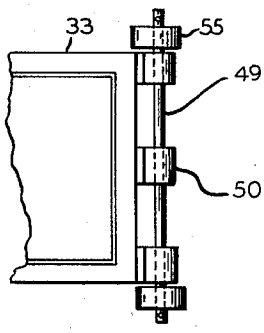

FIG.6

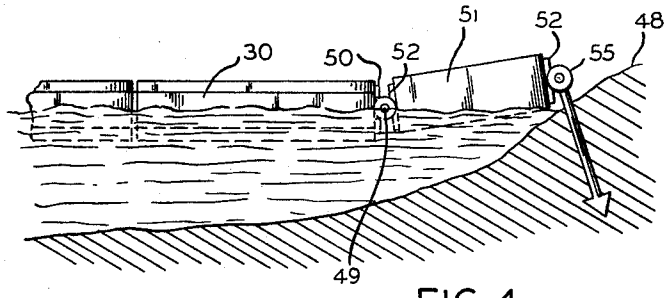

FIG.4

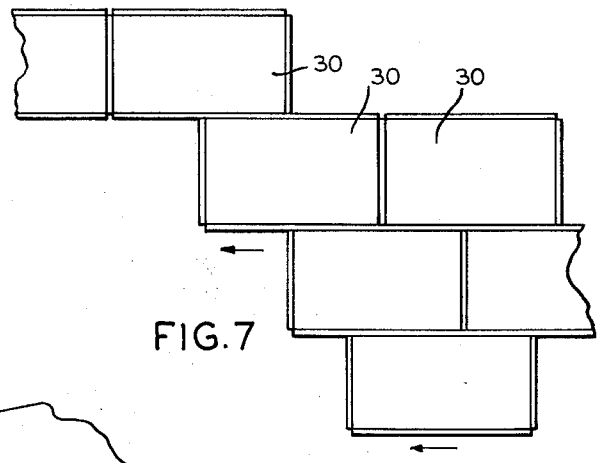

FIG.7

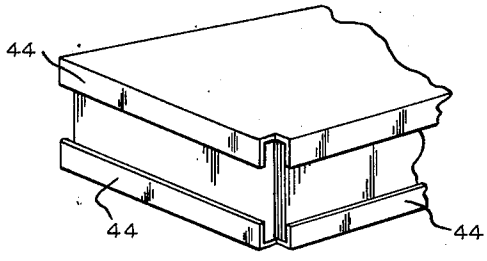

FIG.24

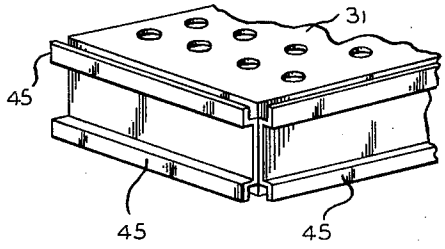

FIG.25

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Oct. 13, 1964 A. D. MAYER 3,152,568

PIER AND RAFT CONSTRUCTION

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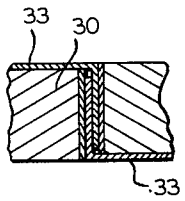

FIG.8

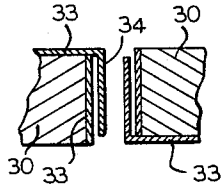

FIG.9

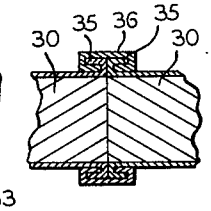

FIG.10

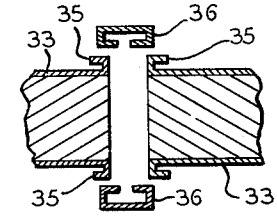

FIG.11

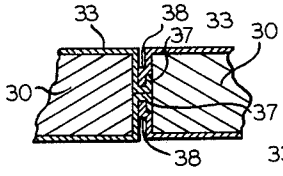

FIG.12

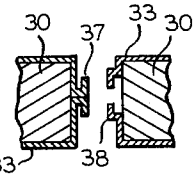

FIG.13

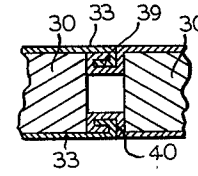

FIG.14

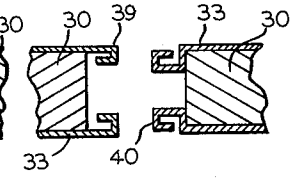

FIG.15

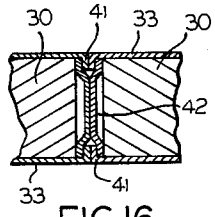

FIG.16

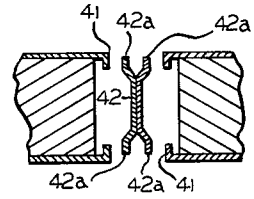

FIG.17

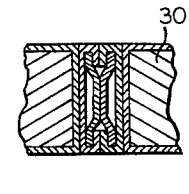

FIG.18

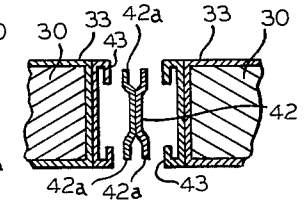

FIG.19

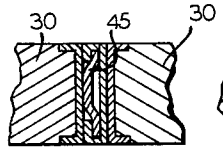

FIG.20

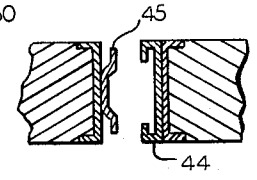

FIG.21

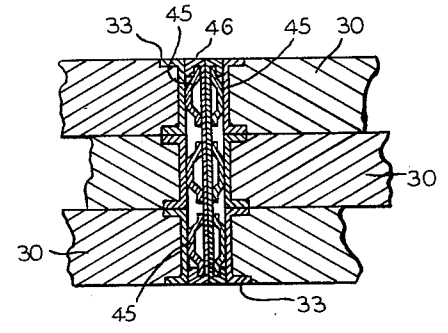

FIG.22

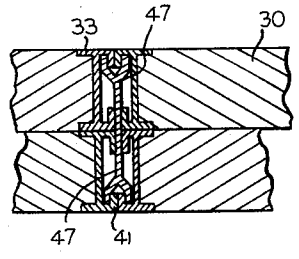

FIG.23

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United States Patent Office

3,152,568

Patented Oct. 13, 1964

3,152,568

PIER AND RAFT CONSTRUCTION

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Filed Oct. 10, 1962, Ser. No. 229,551

1 Claim. (Cl. 114—.5)

This invention relates to pier and raft construction, and more particularly to an assembly of a plurality of buoyant units for the construction of piers, rafts and docks.

A principal object of this invention is to provide structure for interlocking a plurality of individual buoyant units, and to provide a surface of any shape or size to float on the surface of the water.

Another object is to provide structure for hingedly connecting such interlocking buoyant units to a shore point, or to anchor such units, as desired.

Still another object is to construction the buoyant units in interlocking engagement, and to provide a locking structure whereby they can be connected by slidably fitting one unit to the other for rigidity.

A further object is to construct the units in a manner to eliminate wear, or the hazard of "skidding" when in use.

The device illustrated, described and claimed herein consists of a plurality of interlocked buoyant rectangular shaped sections or units arranged for slidable engagement with one another to form a floating platform of any desired shape or area, and structure for hingedly connecting such interlocked units to the shore, or anchored in a manner to take up the movement of the wave action.

Other and further objects of this invention will become more apparent as the description proceeds, when taken in conjunction with the drawings, in which:

FIG. 1 is a perspective view showing units according to the present invention connected as a floating deck surface, and hingedly attached to a shore unit adjacent to the water's edge;

FIG. 2 is a side elevational view of a floating pier consisting of buoyant units constructed according to the invention, and detachably connected, such pier being shown anchored at its ends;

FIG. 3 is a plan or top view of a floating pier, and the manner in which the same may be secured to a shore point;

FIG. 4 is a side elevation showing the pier unit of FIG. 3;

FIG. 5 is a fragmentary side elevation view showing the manner of construction of a shore unit for hingedly connecting the same to an adjacent unit;

FIG. 6 is a plan view of same;

FIG. 7 is a plan view showing the manner in which a plurality of floating units are slidably engaged with each other to form a floating dock area of varied shape;

FIGS. 8 to 21 illustrate a number of modified structures for securing the floating units to each other;

FIG. 22 is a fragmentary end view of a number of superimposed units as seen in FIGS. 20 and 21, showing how the same may be connected when additional buoyancy is required;

FIG. 23 is a similar view showing how the units seen in FIGS. 16 and 17 may be superimposed and connected for providing additional buoyancy;

FIG. 24 is a perspective view showing details of the unit shown in FIG. 21; and

FIG. 25 is a perspective view showing details of the unit complementary to the unit seen in FIG. 21.

Referring now to the drawings, the reference numeral **30** designates a block of buoyant material, such as cork, foam plastic or the like, which may be encased between thin sheets of metal or plastic sheet material, which may be perforated as seen at **31** in FIG. 3, or corrugated or embossed into a "non-skid" design as seen at **32**. The

blocks **30** may be of any thickness, depending on the degree of buoyancy desired.

The ends and sides of the block **30** are encased in a frame **33** providing structure for interlocking the buoyant blocks **30** into a floating raft or pier as seen in FIGS. 1 to 4 inclusive. Reference numeral **33** is intended to denote generically structure for such interlocking, and by reference to the several detail views, difference in details of such interlocking structure will be noted.

Referring to FIGS. 8 and 9, the frame **33** includes interlocking flange elements **34** parallel to and spaced from the ends and sides of contiguous block sections **30** and arranged to interlock as seen in FIG. 9.

Referring now to FIGS. 10 and 11, the frames **33** terminate in locking channels **35** which cooperate with a locking member **36** essentially C-shaped in cross section and adapted to move into sliding engagement with the locking channels **35** to lock the sections **30** together as seen in FIG. 10.

In FIGS. 12 and 13 one frame **33** is equipped with locking tangs **37** extending parallel to the ends and sides of such frame **33**, and the frame **33** of a contiguous section is provided with complementary locking tangs **38** for slidable engagement with one another as seen in FIG. 12.

In FIGS. 14 and 15 one frame member has locking channels **39** cooperating with locking channels **40** reversed in direction with respect to channels **39** for engagement with one another as shown in FIG. 14.

FIGS. 16 and 17 show locking flanges **41** extending parallel to the ends and sides of the block section **30**, and locking flanges **41** are held in engagement with each other by a locking member **42** having spaced arms **42A** adapted to engage the locking flanges **41** and hold the same in abutting relationship.

FIGS. 18 and 19 show the edges of the frames **33** being provided with locking members **43** which are essentially C-shaped in cross section. The locking members **43** cooperate with the same type of locking member **42** seen in FIGS. 16 and 17.

In FIGS. 20 and 21 one contiguous block section **30** is provided with a locking member **44** essentially C-shaped in cross section, and a complementary locking member **45** is secured to the contiguous block section **30**.

If desired, a plurality of blocks **30** may be assembled one above the other for additional buoyancy as shown in FIGS. 22 and 23. In FIG. 22 the frames **33** of each block section **30** are provided with locking members **45** similar to the one shown in FIGS. 20 and 21, and all the blocks **30** are held in engagement with one another by a slidable locking member **46** which engages the top and bottommost of the locking members **45**.

In FIG. 23 the frames **33** of block sections **30** are provided with locking flanges **41** similar to the locking flanges **41** shown in FIGS. 16 and 17. These are held in engagement with one another by a slidable insert **47** which locks together the remote contiguous flanges of the side by side block sections **30**.

When the entire pier consisting of the assembled blocks **30** is to be anchored to the shore seen in FIG. 1, one of the block sections **30**, see FIGS. 3 and 4, has the frame **33** thereof equipped along one of its edges with a hinge member **50**, and an anchor block **51** has a similar hinge member **52** attached to its frame **33**, the two contiguous hinge members **50** and **52** being secured together by a hinge pin **49** passing through apertures **53** in hinge members **50** and **52**, see also FIGS. 5 and 6, to take care of the rise and fall of the entire device by reason of the water level.

Shore anchor section **51**, see FIGS. 3 and 4, can be held in place by means of an imbedded anchor member **55** through which the hinge pin **49** passes.

In FIG. 2, the block units **30** are interconnected to provide a diving platform anchored by cables **56** and weights **57** resting on the bottom of the body of water.

It may be noted that the block sections **30** may be interlocked to form a floating pier of any length or width as desired. If the sections are joined by separable locking members such as are seen in FIGS. 10 and 11, 16 and 17 and 18 and 19, the sections are merely brought into abutting relationship and the separable locking means slid into place as has been described.

If the sections are joined by integral locking members as seen in FIGS. 8 and 9, 12 and 13, 14 and 15, and 20 and 21, a row of sections may first be joined by moving the block sections 30 with respect to each other along their contiguous edges to provide a locking connection. If, however, a double row or more rows are to be connected to a first row of sections, such subsequently to be connected row must first be connected as a row and then such row joined to the first row by sliding such row into engagement with the first row.

The above description, it is thought, clearly defines the purpose of this invention, namely a plurality of buoyant blocks or units slidably engaged with one another to form a pier or platform of any pre-determined area, and having a hinge arrangement to permit vertical raising and lowering of the assembled surface when one end thereof is anchored to the shore-line.

Although I have shown a specific arrangement for accomplishing my purpose, I am fully cognizant of the fact that many changes in the shape and contour and configuration of the parts may be made without effecting

their performance and efficiency, and I reserve the right to make such changes without departing from the spirit of my invention or the scope of the claim.

Having thus described my invention, what I claim and desire to secure by Letters Patent in the United States, is:

I claim:

A floating dock adapted to be assembled from a plurality of identical rectangular floating sections, each of said sections being enclosed by a frame having locking means integral with said frame and extending therealong for locking engagement with a contiguous floating section, each of said locking means comprising a flange element extending parallel to such frame and spaced from said frame and the side of said floating element by a distance at least equal to the thickness of said flange element, said flange element having a width substantially equal to but less than the thickness of said floating section, a first floating section of said floating dock having the flange elements thereof extending downward, and the floating sections contiguous to said first floating section having the identical flange elements thereof extending upward, the flange elements of said first floating section and said contiguous floating sections being thereby in locking engagement.

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