

No. 711,552.

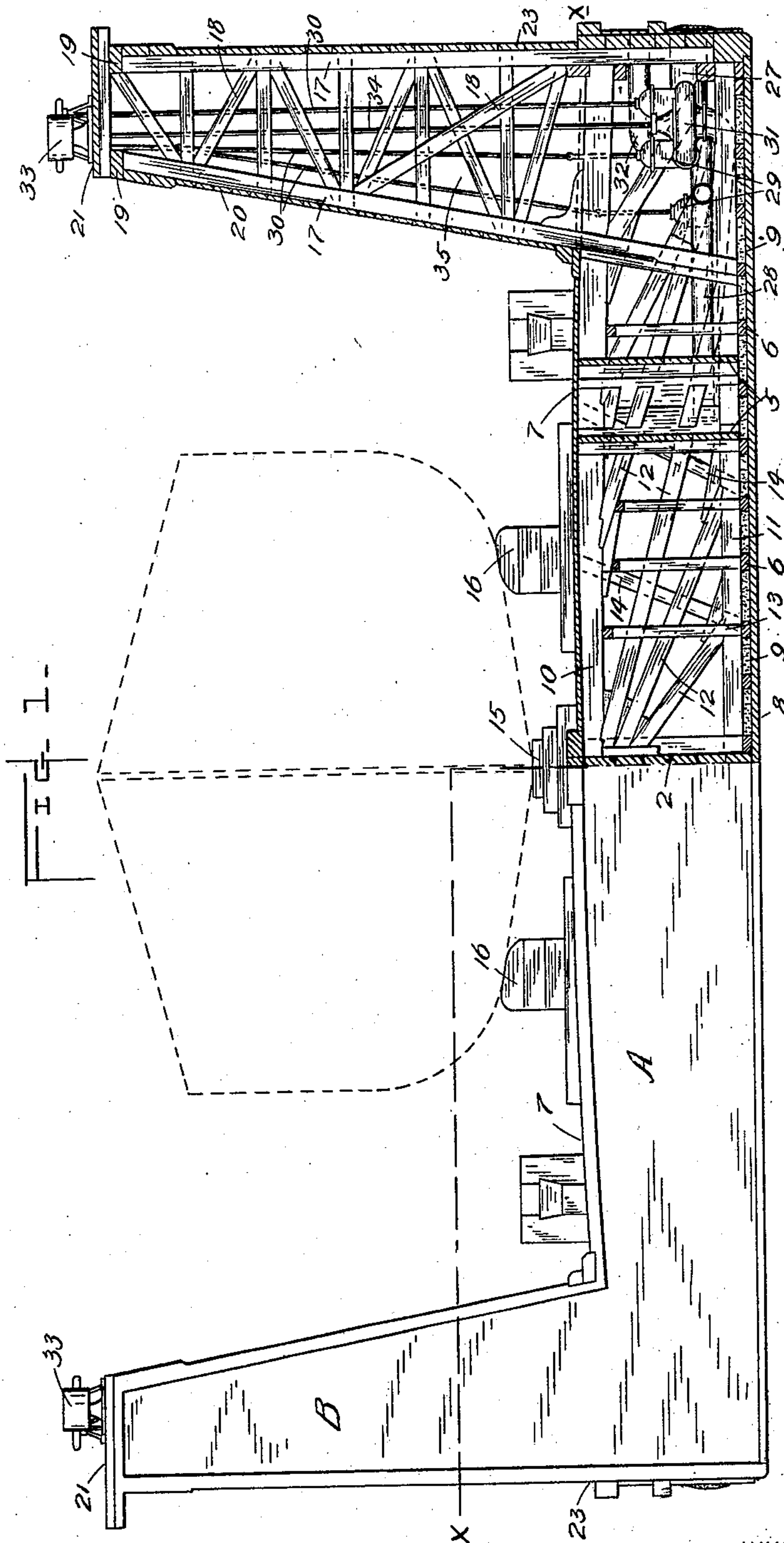
Patented Oct. 21, 1902.

J. E. BLACKWELL.
FLOATING DOCK.

(Application filed May 1, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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J. B. Lockwood

INVENTOR

James E. Blackwell
BY
Pierre Barnes.
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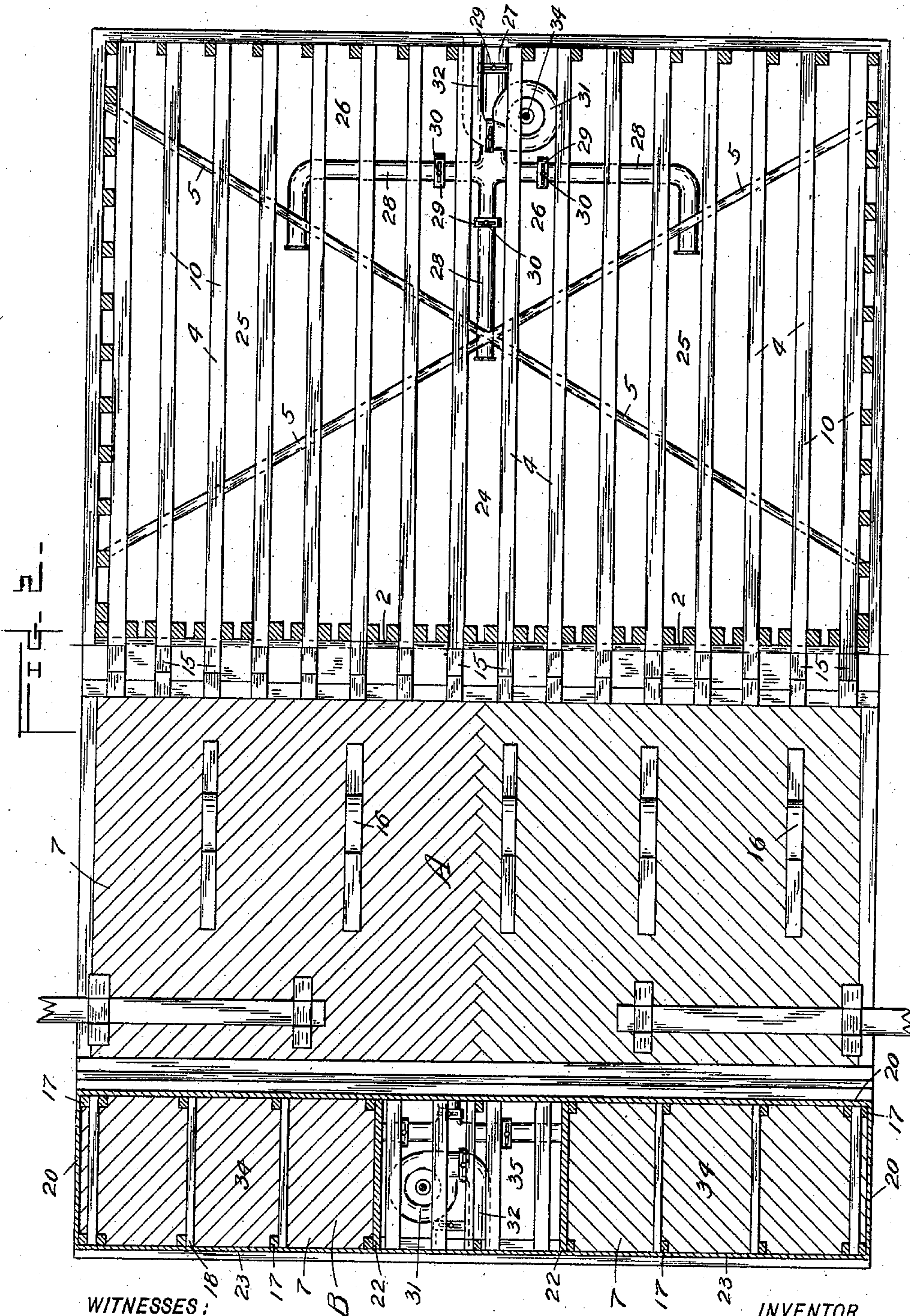
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UNITED STATES PATENT OFFICE.

JAMES E. BLACKWELL, OF SEATTLE, WASHINGTON.

FLOATING DOCK.

SPECIFICATION forming part of Letters Patent No. 711,552, dated October 21, 1902.

Application filed May 1, 1902. Serial No. 105,467. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. BLACKWELL, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Floating Docks, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to floating docks; and among the main objects in view are to utilize to the fullest extent the weight of the contained water to regulate the trim or balance of the dock and to increase the strength of
15 the dock structure, whereby it is enabled to raise and sustain heavy loads without danger of straining the dock or the vessel operated on.

To these ends my improved dock is comprised of one or more sections, the pontoons
20 of which are severally divided into compartments formed and arranged so as to more readily trim and preserve the equilibrium of strains than is possible in any other dock which has come to my notice. The provision
25 of suitable means to control from a working platform the inflow or ejection of the water from the various aforesaid compartments and the system of bracing the dock by a number of transverse trusses different from any heretofore in use for this purpose, and which, in
30 connection with the novel arrangement of longitudinal and diagonal water-tight bulkheads, furnishes a rigid structure capable of withstanding any strains to be put upon the
35 dock when being submerged or raised, either with or without a load.

In the accompanying drawings, which illustrate my invention, Figure 1 is an end elevation of a dock-section, partly in vertical section. Fig. 2 is a sectional plan view taken on line *xx* of Fig. 1.

Referring to the drawings, A and B represent in a general way the pontoon and wing portions, respectively, of a dock-section. A
45 pontoon is constructed with a central longitudinal water-tight bulkhead 2, crossed diagonal water-tight bulkheads 5 upon both sides thereof, transverse trusses 4, and floor-timbers 6. The deck 7 and bottom planking 8
50 are secured in the usual way to the top chord of trusses 4 and floor-timbers 6, respectively, and preferably laid diagonally thereto, but

in opposite directions. The spaces 9 between the floor-timbers are filled with concrete to provide a smooth drainage-surface and also
55 afford means for detecting at a glance the slightest strain on the pontoon-bottom, as any uneven strain will be apparent in small cracks in the cement.

The trusses 4, which are spaced forty inches
60 apart approximately, comprise top chords 10, bottom chords 11, diagonals 12, vertical stanchions 13, and inclined stanchions 14, all rigidly secured together and to the pontoon-hull by suitable fastenings. The said diagonal
65 truss members 12 are so disposed as to receive and distribute the strains directly from the keel-blocks 15 and bilge-blocks 16, while the said stanchions are positioned in proximity to and intermediate of the upper ends of said
70 diagonal members to retain the latter to their work and take themselves a portion of the strain.

The wings B are each constructed of upright timbers 17, diagonal braces 18, stringers 19, planking 20, and a working platform 21. Transverse water-tight vertical bulkheads 22 are provided in the wings from the said platform to the pontoon-deck 7, which
75 extends to the external skin 23, except through the middle division of the wings, thereby forming two water-compartments 34 and an air or operating shaft 35 in each wing. The arrangement of the diagonal pontoon-bulkheads provides wedge-shaped compartments
80 24 25 26, which are communicately connected to a flood-pipe 27 by conduits 28, each provided with a gate-valve 29, operated by rods or spindles 30 from the working platform 21, thus controlling therefrom the flooding of the
85 sundry compartments, and in like manner any one of the said compartments, separately or all of them coincidently, can be exhausted of water by means of a pump 31, interposed
90 between the said conduits, and a discharge-pipe 32, leading outboard, and the manipulation of the appropriate aforementioned valves.

It is to be understood that there are but two pumps to each dock-section—that is to say, one under the operating-shaft of each
100 wing and driven by suitable motors 33, positioned upon its working platform and respectively coupled thereto by a vertical spindle 34.

The wedge form and arrangement of the pontoon-compartments are advantageous for the ready trimming as well as sinking or raising of the dock-section. For instance, water
 5 flooded into or drained from compartment 24 adjacent to the longitudinal axis of the structure is primarily useful for submerging or buoying the dock-section, while in the other compartments, having their centers of grav-
 10 ity at greater distances from the longitudinal and transverse axes, act in trimming as well as in flotative capacities—i. e., 25 in a longitudinal and 26 in a transverse direction.

By first pumping the water or a portion
 15 thereof from the pontoon-compartments and retaining the water in the wing-compartments a counterweight is provided, acting against the weight of the vessel being docked, and consequently relieving the dock structure
 20 from the severe strains common to other floating docks. When the dock is raised, then the water may be drained from the said wing-compartments into those of the pontoon or outside the external skin by simply opening
 25 valves actuated from the working platform, and a consequent saving is effected in pumping.

Having described my invention, what I claim as new, and desire to secure by Letters
 30 Patent, is—

1. The floating-dock section herein described comprising a pontoon and wing portions, the said pontoon being divided by longitudinal and diagonally-arranged bulkheads
 35 into a plurality of wedge-shaped water-compartments and the said wing portions being divided by horizontal and vertical bulkheads into two water-compartments and an air-shaft, substantially as described.

40 2. The combination in a floating dock having a middle longitudinal bulkhead and crossed diagonal bulkheads; of the transverse trusses comprised of top chords, bottom chords, diagonals, inclined stanchions and
 45 vertical stanchions, substantially as herein described.

3. The combination in a floating dock having a middle longitudinal bulkhead and

crossed diagonal bulkheads; of the transverse trusses comprised of top chords, bottom
 50 chords, diagonals, inclined stanchions, vertical stanchions and concrete filling between the several floor-timbers of the hull, substantially as herein described.

4. The arrangement and combination in a
 55 floating-dock section with a middle longitudinal bulkhead, of crossed diagonal bulkheads, substantially as and for the purposes described.

5. The floating-dock section herein de-
 60 scribed comprising a pontoon and wing portions, the said pontoon being divided by longitudinal and diagonally-arranged bulkheads into a plurality of wedge-shaped water-compartments, the said wing portions being di-
 65 vided by horizontal and vertical bulkheads into two water-compartments and an air-shaft and means to flood or exhaust the water from any or all of said compartments, independ-
 70 ently or collectively from a single pump on each side of said pontoon, substantially as described.

6. A floating-dock section comprising a pontoon and wing portions, a middle longitudinal bulkhead and crossed diagonal bulkheads for
 75 the pontoon portion forming a series of compartments, vertical and horizontal bulkheads dividing the wing portions into two water-compartments and an air-shaft and means to flood or exhaust the water from said com-
 80 partments independently or collectively, substantially as described.

7. The combination in a floating sectional dock, of crossed diagonal bulkheads forming a series of wedge-shaped water-compartments,
 85 and means to flood or exhaust the water from any one compartment independently of the others or from a combination of any of the compartments or all of them collectively.

In testimony whereof I affix my signature
 90 in presence of two witnesses.

JAMES E. BLACKWELL.

Witnesses:

JOHN N. PERKINS,
 PIERRE BARNES.