

BARGE.

929,139.

Patented July 27, 1909.

3 SHEETS--SHEET 1.



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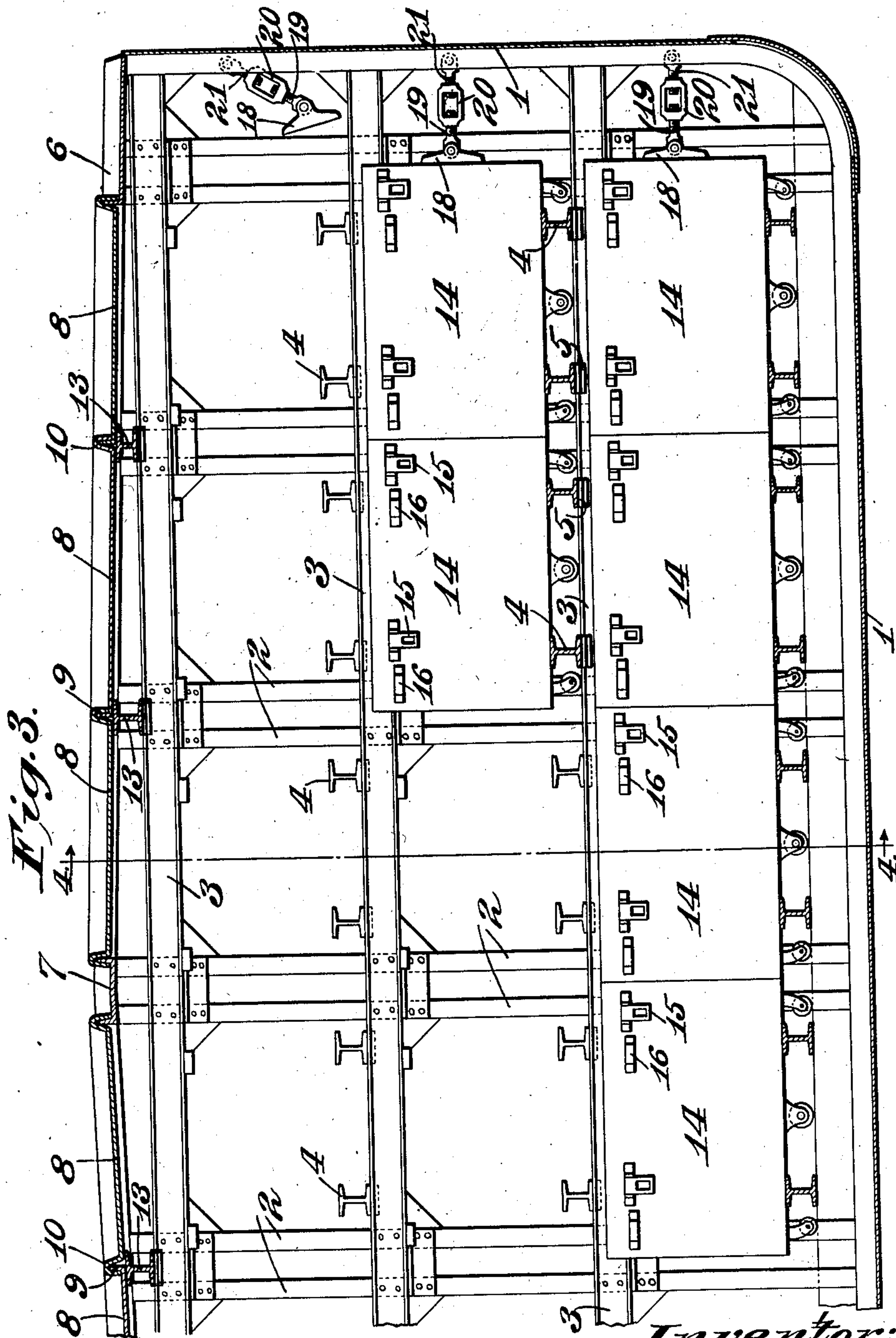


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BARGE.  
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3 SHEETS—SHEET 2.

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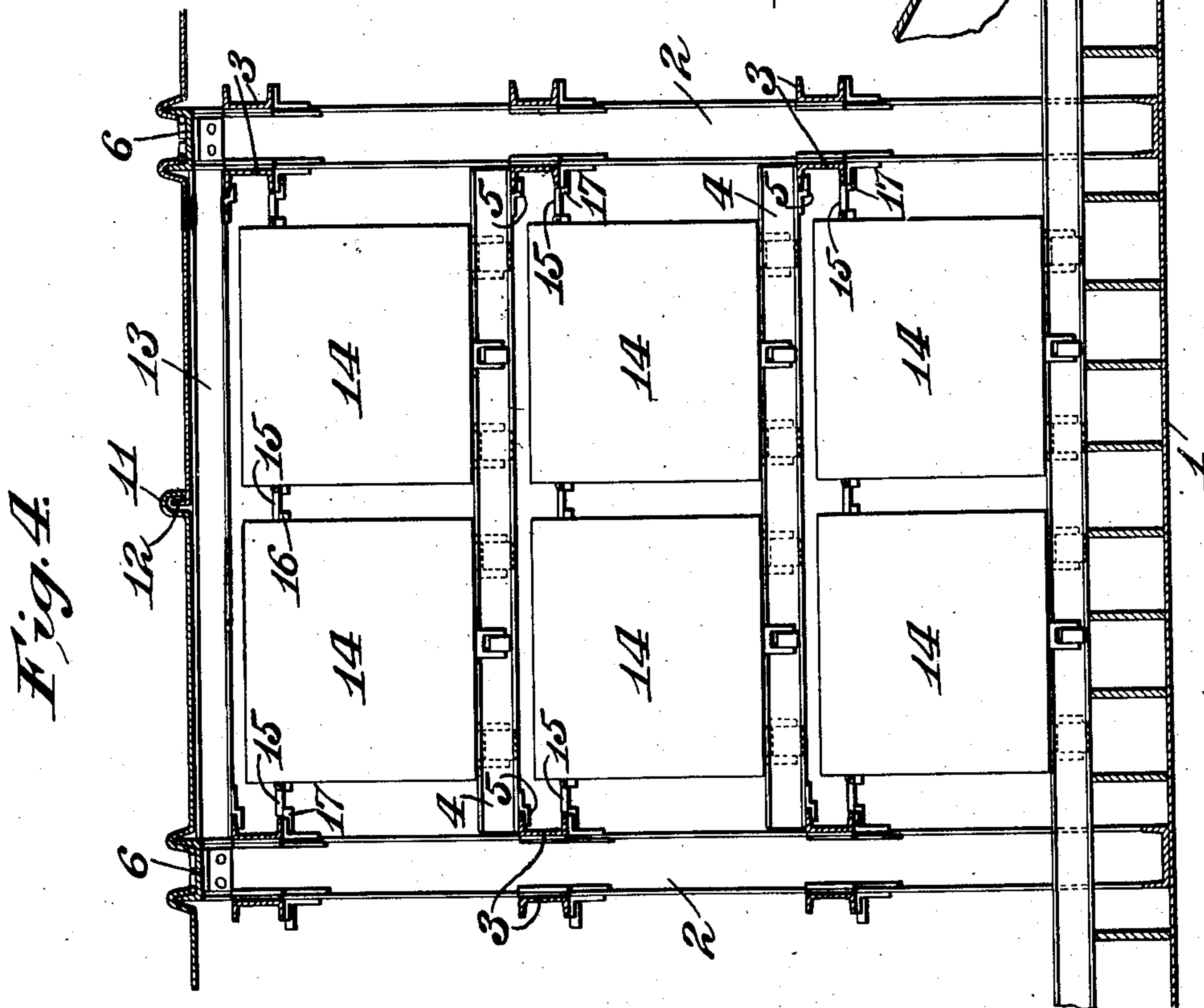
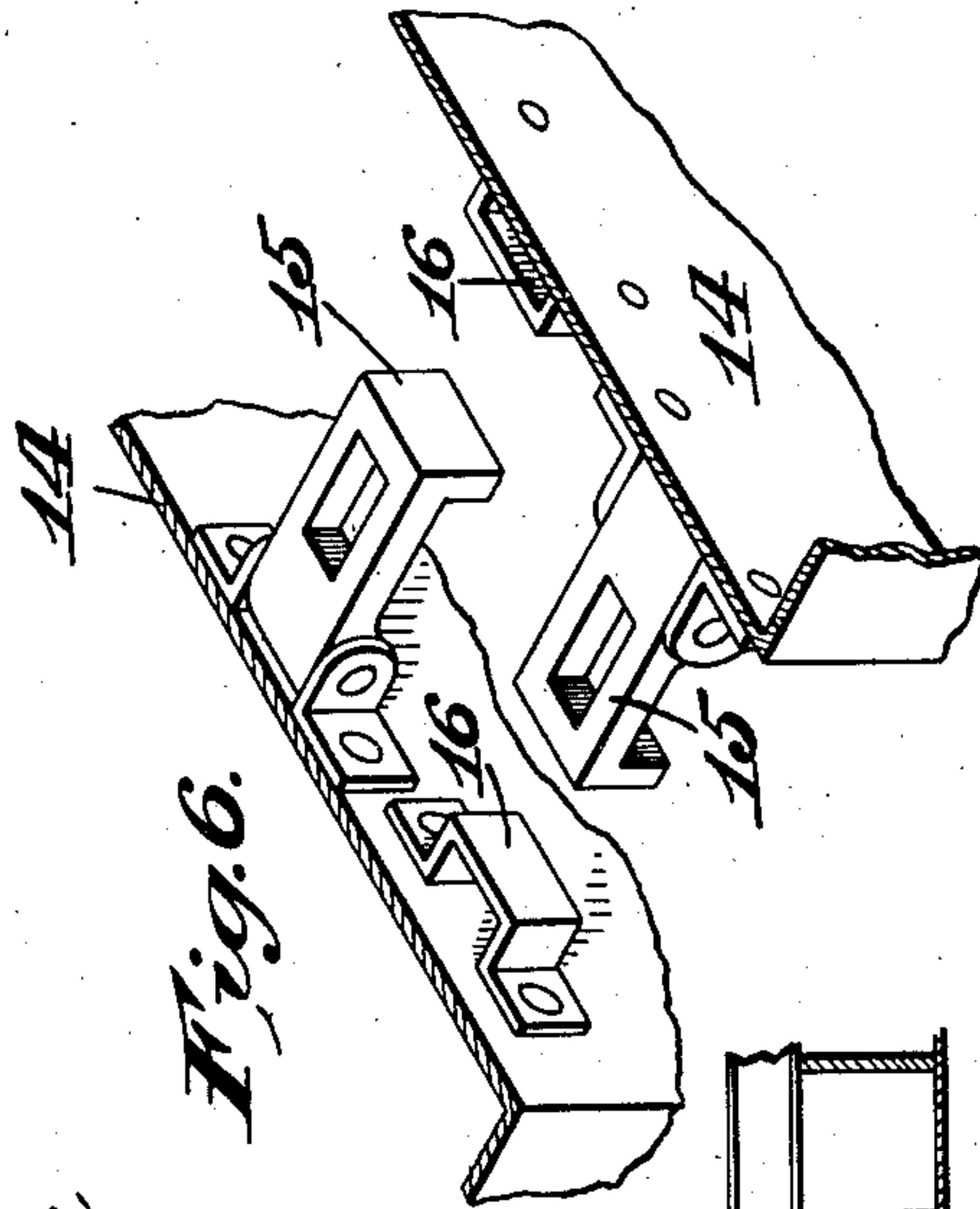
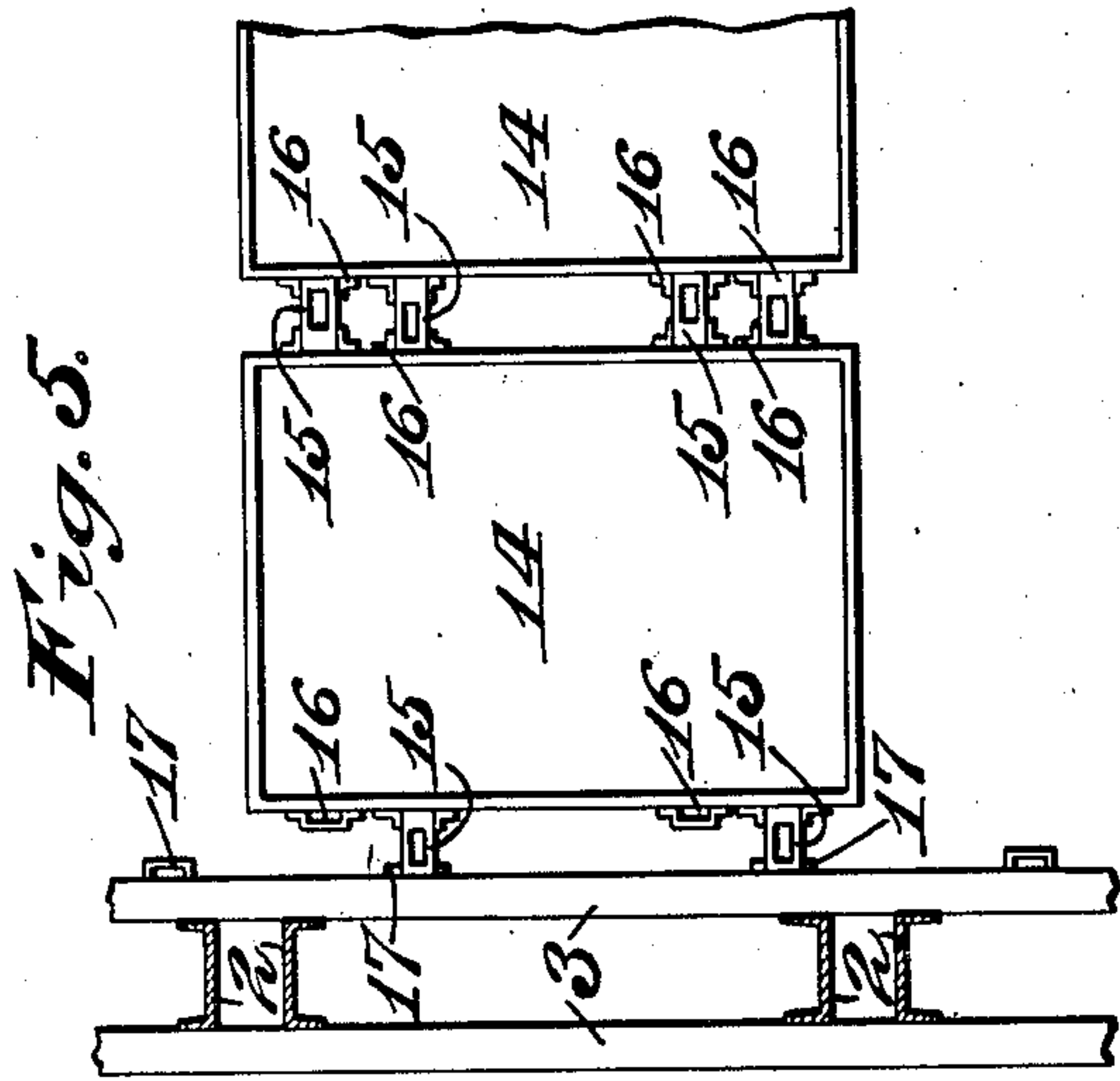


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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## BARGE.

No. 929,139.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed April 15, 1907. Serial No. 368,261.

*To all whom it may concern:*

Be it known that I, HENRY WILLIAM KIRCHNER, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Barges, of which the following is a specification.

My invention relates to barges, and has for its principal object to provide freight-holding compartments or unit-boxes which may be removably mounted in the barge and may be interchangeable with each other and with similar unit boxes of other barges and freight cars.

Other principal objects are to provide against the shifting of such removable boxes, to facilitate the loading of the boxes into the barge and their removal therefrom, to protect such boxes from the weather, and to secure other advantages hereinafter more fully appearing.

In the accompanying drawing, forming part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a plan view of a portion of a barge embodying my invention; Fig. 2 is a longitudinal vertical section thereof; Fig. 3 is a vertical cross section on an enlarged scale of a portion of the barge embodying my invention, the section being indicated by the dotted line 3—3 in Fig. 1; Fig. 4 is a longitudinal sectional view of a portion of said barge on the line 4—4 of Fig. 3; Fig. 5 is a detail plan view of one of the removable boxes or compartments showing the fastening devices by which it is connected to the framework of the barge and to an adjacent compartment, respectively; and, Fig. 6 is a detail view illustrating the means for fastening removable compartments together.

The main shell 1 of the barge is of any suitable structure and material. The shell is provided with a series of transverse frames which serve to stiffen and strengthen the barge. These frames consist preferably of a series of uprights or columns 2 and a series of horizontal channel irons 3 fixed to said columns. The width of each division of the barge, that is, the distance between the transverse frames is preferably uniform throughout the length of the barge; or, when such distances are unequal, they should be multiples of the common unit, which is the space required for a single re-

movable box of the kind hereinafter described. Each transverse frame has horizontal channel-irons 3 on each side thereof, and the corresponding channel-irons of the several frames are mounted at equal heights whereby the channel-irons of adjacent frames constitute supports or tracks for horizontal I-beams 4. These I-beams 4 are provided on their under side at each end with cleats 5 which project underneath the upper flange of the horizontal channel-irons 3. Said cleats thereby prevent any upward movement of the I-beam relative to the channel, while they permit horizontal movement of said I-beams lengthwise of the channel. Each transverse frame is highest at the middle portion thereof and thence inclines downwardly toward the side of the barge in order to secure the proper pitch. Preferably, the top member 6 of each transverse frame is a channel-iron with upstanding flanges. Extending longitudinally of the barge is another channel iron 7 with upstanding flanges which is secured to the transverse frames at the uppermost portions thereof.

The deck consists preferably of a series of heavy flanged plates 8 of metal which are hinged to the transverse frames and arranged to overlap each other in such a way as to constitute a water-tight covering. For this purpose, the plates are preferably provided along the hinge edge with a rebent flange which overlaps the upstanding flange of the top channel-iron 6 of the transverse frame, said edge being pivotally fastened to the top of said channel. The other three sides of the plate are also flanged, the flange being either a simple upstanding flange, as illustrated at 9 in Fig. 3, or a rebent flange, as illustrated at 10 in Fig. 3. The side flanges of the several sheets which are hinged to the same channel are so arranged that the side flange of each of said sheets will overlap the side flange of the sheet adjacent to it toward the side of the barge, and the innermost sheet has a rebent flange which overlaps the flange of the longitudinal channel-iron. The flanges of the outer or free end of the several sheets are so arranged that a rebent flange 11 on the sheet hinged to one transverse frame will overlap a flange 12 on the outer end of a sheet hinged to the next adjacent frame, as illustrated in Fig. 4. Preferably, the standing seam thus formed is supported by



means of an I-beam or other suitable reinforcing piece 13 removably secured to the framework by any suitable means.

By the arrangement hereinbefore described, the shell of the barge is divided by the transverse skeleton frames into divisions of equal width or multiples of a common width, and each division is accessible by means of the hinged deck sections or hatches. Into these divisions are set tiers of removable box-units or compartments 14, which are interchangeable with each other. These box-units rest upon the I beams or skids 4 provided therefor. The divisions of the barge are preferably designed to accommodate two rows of units, the units being connected to each other and to the transverse frames, respectively. For this purpose, each unit is provided with locking members which are preferably arranged in two sets on each of two opposite sides of the box (that is, four sets in all) one member of each set being a latch or a hook 15 and the other member being a keeper 16. For the sake of interchangeability, the distance between the latch and the keeper of each set is uniform and the latches of the several sets bear a uniform relation and position to the keepers of their respective sets. The length of the latches is likewise uniform, so that said latches constitute spacing or distance pieces as well as fastening devices. The transverse frames are also provided with loops or latch keepers 17 arranged to cooperate with the latches on the boxes or units. In practice, the division of the barges should be of such width that, when two boxes or units are fastened together, the latches on said boxes will engage with the keepers on the transverse frames. In order to allow for variation of this width, the keeper may be adjustably mounted with respect to the transverse frame. The several boxes or units are arranged in rows extending crosswise of the barge, with their ends abutting. At the end of each row, the frame of the barge is provided with an adjustable abutment designed to prevent lateral movement of the boxes or units. A suitable type of adjustable abutment is illustrated in Fig. 3 and consists of a wide block 18 pivotally mounted on one end of a member 19 whose other end is screw-threaded and connected by a turn-buckle 20 to a second member 21 which is pivotally mounted on the frame of the barge, the turn-buckle being provided with suitable means whereby it may be manipulated to extend or contract the device. One of these abutments is provided at each end of each row of units or boxes, and by tightening said abutments against the end boxes the entire row is made to act as a single rigid member.

The operation of the device is as follows:

Assuming that the barge is loaded and it

is desired to unload it, the deck plates or hatches of a division are raised, whereby the boxes or units in the uppermost tier of that division are accessible. The adjustable abutments are loosened and the derrick hangers are connected to the holes provided therefor in the latches of a box or unit, whereupon the box may be lifted bodily out of the barge and set wherever desired. When the upper tier of boxes or units is removed, the skids or I-beams 4 which constitute the supports for the upper tier are slid lengthwise of the transverse frames to give free access to the next lower tier whose boxes or units are removed in like manner and the same is true of each lower tier. In loading the barge, the operation is reversed.

The more important advantages of my invention are that the cargo is handled in comparatively small lots and is not liable to shift during transportation; that the boxes or units are interchangeable with each other and with the boxes or units of other barges of like construction and may be used interchangeably upon freight cars designed to accommodate them, so that the disadvantages of unpacking and reloading a cargo are avoided; that the boxes or units may be provided with wheels and thus constitute trucks to facilitate the handling of them at receiving and delivering points; and that the boxes or units may be furnished to a shipper to be packed and sealed by him and delivered with the shipper's seal affixed to the consignee.

Obviously, my invention is not restricted to the construction hereinbefore described, which admits of considerable variation without departing from said invention. For instance, although the barge is illustrated in the drawing with divisions adapted to receive two rows of units, it is obvious that the divisions may be made to accommodate a single row or a greater number of rows than two. When the divisions are made to accommodate a single row, the skids may be eliminated and the frames spaced close enough together to make the fastening devices overlap the trackways and act as hangers by engaging therewith. So, too, it is obvious that the frames may be disposed longitudinally instead of transversely.

What I claim is:

1. A barge comprising a shell, parallel frames therein, movable load-supporting members spanning from frame to frame and boxes removably supported on said members, the distance between adjacent frames being multiples of the space required by a single box.

2. A barge comprising a shell, frames arranged transversely therein and constituting braces for said shell, movable load-supporting members spanning from frame to frame,



and boxes removably supported on said frames, the distance between adjacent frames being multiples of the space required by a single box.

5 3. A barge comprising a shell and parallel frames arranged transversely therein and constituting braces for said shell, said frames having transversely arranged horizontal load sustaining members constituting  
10 tracks, and movable members on said tracks.

4. A barge comprising a shell and parallel frames therein, said frames having horizontal members and the horizontal members of adjacent frames constituting supporting  
15 tracks, and skids slidably mounted upon said supporting tracks.

5. A barge comprising a shell and transverse frames therein, said frames having a plurality of horizontal members on each  
20 side thereof and skids slidably mounted on corresponding members of adjacent frames.

6. A barge comprising a shell and frames therein separating the same into divisions, and movably mounted deck plates for each  
25 division.

7. A barge comprising a shell and frames therein separating the same into divisions, and movably mounted deck plates for each division, said deck plates being hinged to  
30 the framework and arranged to overlap each other.

8. A barge comprising a shell and frames therein separating the same into divisions, and movably mounted deck plates for each division, said deck plates being provided  
35 with flanges arranged to overlap each other.

9. The combination with a barge of a plurality of interchangeable boxes each having fastening devices at its ends, said barge having divisions whose widths are multiples of  
40 the space required by a single box, and the partitions between the divisions of a barge being provided with means for cooperating with the locking devices on the boxes and with horizontal tracks, and skids on said  
45 tracks for supporting said boxes.

10. A barge comprising a shell, box-supporting frames arranged transversely therein and constituting braces therefor, horizontal members mounted on said frames trans-  
50 versely of said shell and constituting tracks, boxes slidably supported on said tracks, and adjustable abutments for the endmost boxes.

In testimony whereof I have hereunto signed my name in the presence of two sub-  
55 scribing witnesses this 12th day of April, 1907, at St. Louis, Missouri.

HENRY WILLIAM KIRCHNER.

Witnesses:

JAMES A. CANN,  
JULIA B. MEGOWN.