

Sept. 2, 1924.

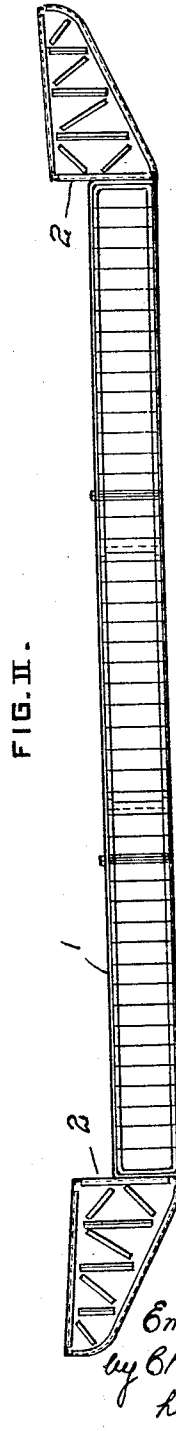
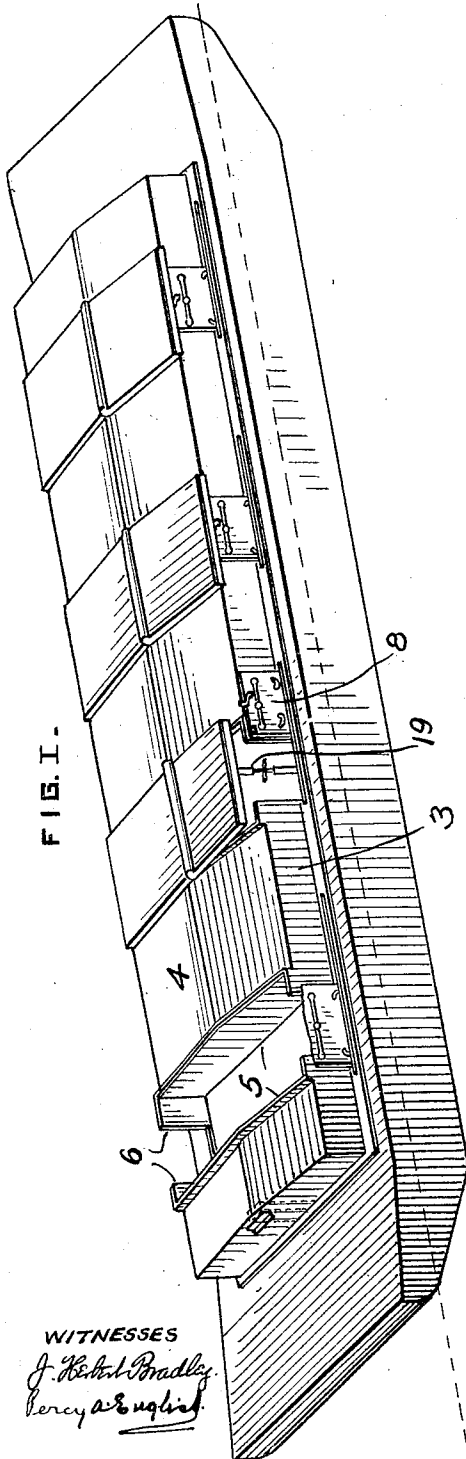
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E. HENSEN

CARGO BOX FOR BARGES

Filed June 9, 1923

3 Sheets-Sheet 1

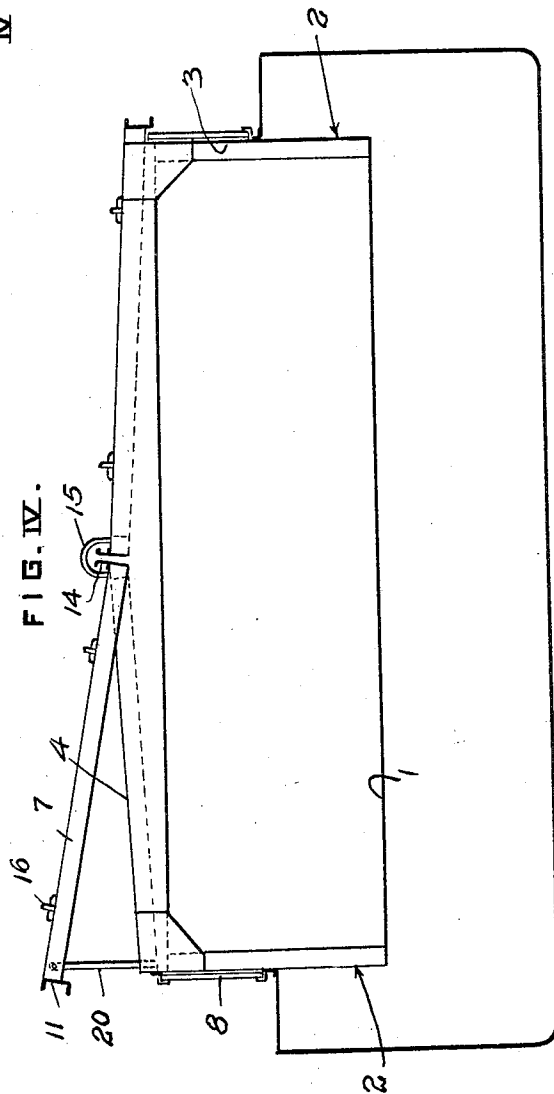
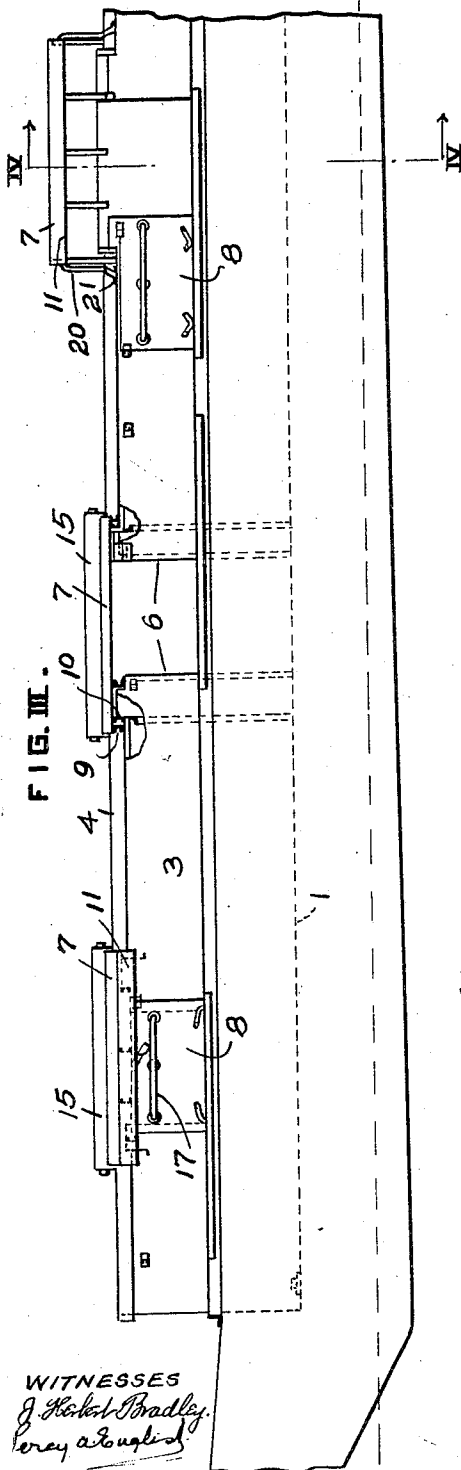


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3 Sheets-Sheet 2



INVENTOR

Emil Hensen
by Christy and Christy
his attorneys

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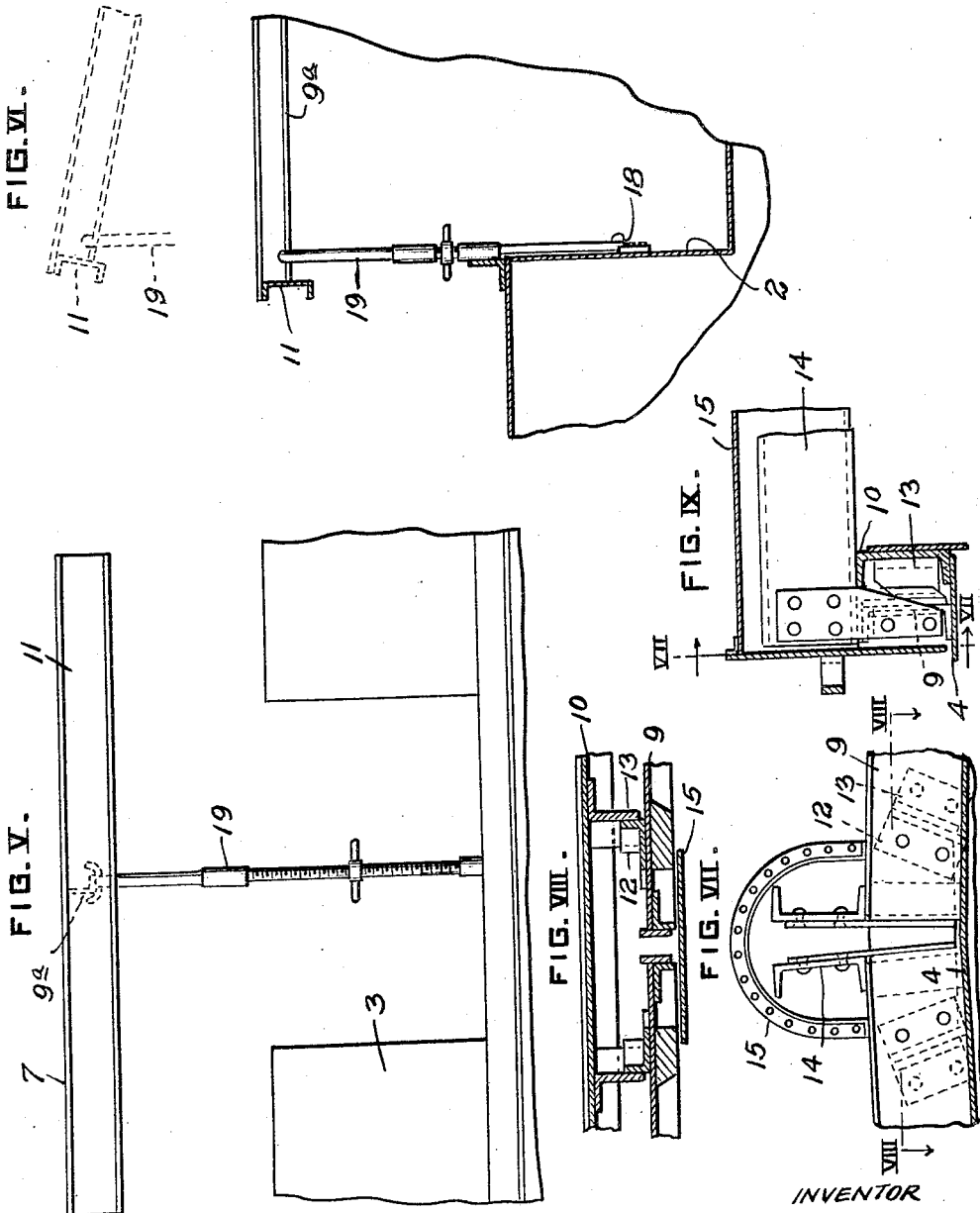
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CARGO BOX FOR BARGES

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3 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE.

EMIL HENSEN, OF CORAOPOLIS, PENNSYLVANIA.

CARGO BOX FOR BARGES.

Application filed June 9, 1923. Serial No. 644,359.

To all whom it may concern:

Be it known that I, EMIL HENSEN, residing at Coraopolis, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Cargo Boxes for Barges, of which improvements the following is a specification.

My invention relates to improvements in the structure of barges for carrying freight by water, and particularly in the structure of the cargo box which constitutes part of such a barge. The object in view is a barge structure meeting well all conditions of service, and at the same time presenting relatively small areas to the sweep of wind.

The navigation of the Mississippi River, for instance, is, because of shallowness, accomplished in the use of light-draft stern-wheeled steamboats. These stern-wheelers convey freight barges, not by towing them by a rope astern, but by pushing them ahead. The barges are made up into groups, lashed together, and lashed to the steamer at the bow, and the whole moves as a single block or unit. When the group is as much as three or four barges long, as often is the case (the barges themselves being commonly two hundred feet long, more or less), the whole group or "tow" lashed to the steamer may extend forwardly as much as eight hundred feet or more. All this with the steamer itself constitutes an assembly a thousand feet long or more, propelled by a paddle wheel at the extreme rear end of the whole.

It is manifest that such a travelling assembly afloat, being exposed to the sweep of winds, should lie as low on the water as possible. The cargo boxes of the barges should be low walled. Indeed the blowing of a "tow" from the channel not infrequently results in running aground and loss of barges.

With these preliminary comments I turn to the invention. It is illustrated in the accompanying drawings. Fig. I is a view in perspective, showing a barge embodying my invention in its structure; Fig. II is a view in medial longitudinal section of the barge, lacking the cargo box; Fig. III is a fragmentary view in side elevation, drawn to larger scale; Fig. IV is an outline view in cross section, on the plane indicated by the line IV—IV, Fig. III. Figs. V and VI show diagrammatically, and to still larger

scale the hatchway and hatch, in side elevation and in vertical and transverse section. Figs. VII, VIII, and IX illustrate details of interconnection between cargo box roof and hatch. Fig. VII is a view in vertical section, on a plane transverse to the length of the barge; Fig. VIII is a view in horizontal section, on the plane indicated by the line VIII—VIII, Fig. VII; and Fig. IX is a view in vertical section on a plane at right angles to that of Fig. VII.

Referring, first, to Fig. II the structure of the barge is indicated, and, comparing Figs. II and IV, the space within, the "hold", will be seen, and its shape, dimensions and disposition understood. The hold is defined by the floor 1 and walls 2, and is of course the load carrying chamber.

The "box" is the superstructure, built above the hold to protect the cargo. I build it of the usual general form, with vertical walls 3 and double sloping roof 4.

It is usual to form hatchways in the roof of the cargo box, through which by the use of cranes the cargo may be loaded and unloaded. But in river traffic such as that on the Mississippi, for example, not all ports are equipped with cranes for the purpose indicated, but, instead, barges are loaded and unloaded through doors in the side walls of the cargo box. Accordingly, it has been necessary, and, but for my invention, it still is necessary, in building the cargo box to build it high enough to afford doors with head room for loading and unloading. That means a cargo box whose walls rise at least six feet and a half from the deck of the barge.

My invention involves the forming of a hatchway through the roof of the cargo box and a door-way through the side wall, as a continuous opening, indicated at 5, 6, Fig. I, and in forming as closure for such opening, hatches 7 and doors 8.

The doors 8 are conveniently mounted on rollers and slide to and from position of closure upon the door openings 6, as clearly indicated in Fig. III. The door to the left in that figure is shown in closed position; the door to the right, in open position.

The hatches 7 are made in pairs and when assembled and closed conform to the structure of the double sloping roof 4. Referring particularly to Fig. III, the first hatch 7 on the left is shown in closed position. The second also is shown in closed position;

but here the door is for purposes of illustration omitted from the drawing, and the wall 3 is broken away sufficiently to indicate (in vertical section) that the hatch itself is formed of a framework of channel bars 9 and a plate of sheet metal, to which the numeral 7 is particularly applied. And here also it appears that the hatchway is provided with a combing, in the form of a channel bar 10. The framework of the hatch includes at its outer margin a channel bar 11, which has from the second hatch of Fig. III, for purposes of illustration, been removed (but see the other hatches of the same figure, and compare Figs. IV, V, and VI). With this minute explanation it will be understood that the hatch closes down with the marginal members of its framework overlapping on either side the combing of the hatchway and overlapping at its outer end or "eaves" the upper edge of the door.

The hatch at its inner end, that is at the ridge pole of the roof of the cargo box rests with its lateral channel bars 9 bearing upon the roof adjacent the combing 10. The hatch is not secured to the roof, but rests by weight upon it, and when the outer edge of the hatch is raised the hatch swings on its inner edge so resting upon the roof.

Figures VII, VIII, and IX, as has been said, illustrate in detail the interengagement and the interlocking of the hatches with the rims of the hatchways. Figure IX is a vertical section in the plane of the ridge of the roof. Figure VII is a vertical section on a plane at right angles to that of Figure IX, indicated by the line VII-VII, Fig. IX. Figure VIII is a view in horizontal section, on the plane indicated at VIII-VIII, Fig. VII.

The hatchway is rimmed along either edge by channel bars 10 which stand as best shown in Figure IX. The hatches are edged on either side with correspondingly depending channel bars 9. When the hatch is down, these channel bars 9 and 10 extend in parallelism, the pair of channel bars 9 which are carried by the hatches outside and the pair of channel bars 10 which rim the hatchway inside. The vertical webs of these channel-bars 9 and 10 are provided with co-operating obliquely set angle irons 12 and 13.

The angle irons 13 which the rims of the hatchways carry face toward the ridge. The angle irons 12 which the hatches carry face toward the eaves of the roof. These pairs of angle irons meet face to face, as is best seen in Figs. VII and VIII. They serve to guide the hatch to position when being applied, and to prevent it from sliding outward when it has been applied, as well as when being raised and lowered.

The hatches are further provided at

their inner ends with channel bars 14 which rise on the outside of and extend along the inner edges of the hatches. Arched covers 15 are applicable to and rest by gravity upon the hatches and overarch and protect the joint where the pair of hatches meet, and being applied interlock with the channel bars 14.

The hatches are provided with shackles 16, by which they may be engaged and lifted by a crane, and the doors are provided with hand rails 17, by which they may be manually shifted.

Near the outer end of each hatch and on either side are carried hinged legs 20 and in the roof of the cargo box near the eaves and near the hatchways are formed sockets 21 for receiving the lower ends of these legs when the hatch is raised and the legs extended.

On the inner walls 2 of the hold, medially beneath the door openings are secured brackets 18, and between bracket 18 and a frame member 9^a of the hatch above, a jack such as the hand-operated jack 19 of the drawings, may be introduced. Fig. VI of the drawings shows in full lines the hatch in lowered position and the jack applied for raising, and, in dotted lines, the hatch in elevated position.

The side walls 3 of my cargo box, as I have designed it, rise three feet and ten inches from the deck of the barge.

The manner of using the barge to which my invention has been applied will readily be understood. If the barge is to be loaded or unloaded by means of cranes, the hatchway is opened in the following manner. First the ridge cap 15 is lifted and removed. As shown, this ridge cap is provided at its ends with handles by which two men may lift and remove it. It might instead be provided with shackles by which it might be engaged and lifted mechanically. When the ridge cap has been removed, the hatches are lifted bodily and set aside (ordinarily on the adjacent roof surface), and so the hatchway is opened from side to side. Additionally, the doors may be slid to open the doorways 6 also.

In case the barge is to be loaded or unloaded from a wharf by carrying the load over a gang-plank or upon some other laterally moving conveyor, the door 8 is slid aside, opening the doorway 6. The jack 19 is then put in place and operated to raise the hatch 7 as shown in Fig. V. When the hatch has so been raised the hinged legs 20 on either side are swung down and, the hatch being slightly lowered again, come to place in sockets 21 prepared for them in the roof of the box. The jack 19 is then removed. A doorway with head room of seven feet is thus afforded through which loading and unloading may be conducted.

And it will be observed that the hatch so swung to the position indicated on the left, Fig. IV, and on the right, Fig. III, and in perspective, Fig. I, still serves as a roof, 5 protecting workmen and cargo from rain during loading and unloading. It is to be remarked that when a hatch 7 is so swung upward to open a doorway with sufficient head room, the cap piece 15 while allowing 10 the hatch to swing still performs its function of protecting the seam where the pair of hatches meet.

Thus all the benefit and advantage of a high cargo box is gained, and without the attendant disadvantage of large wall areas 15 exposed to the sweep of wind.

I claim as my invention:

1. A cargo box for barges including opposite side walls and double sloping roof, a 20 hatchway in the roof extending from wall to wall, opposite doorways in the side walls continuous with the hatchway, and a double hatch for said hatchway the opposite halves of the hatch adapted to swing vertically on 25 the ridge of the roof as an axis and, when raised, while still overhanging the hatchway, affording increased head-room in the doorway.

2. A cargo box for a barge having formed 30 in its roof a hatchway with a combing at its margin, a stop extending from the combing on either side and having an upwardly and

rearwardly facing bearing surface, a hatch adapted to be applied to said roof and to rest thereon by gravity and to cover said 35 hatchway, said hatch formed with lateral bars adapted when the hatch is in place to extend adjacent said combing, stops extending from said bars and having downwardly and forwardly facing bearing surfaces 40 adapted when the hatch is in place to extend opposite the stops extending from said combing.

3. A cargo box for a barge having side walls 3 and double sloping roof 4 and hav- 45 ing a continuous opening constituting a hatchway through said roof and doorways through said side walls, sliding doors 8 in said side walls, double hatches 7 for said hatchways, said hatchways being provided 50 with lateral combings 10, said hatches being provided with lateral bars 9, stops 12 and 13 extending from combings 10 and bars 9, bars 14 extending from said hatches, and a ridge cap 15 adapted to rest by gravity 55 upon the adjacent edges of said hatches and to overarch the bars 14.

In testimony whereof I have hereunto set my hand.

EMIL HENSEN.

Witnesses:

FRIEDA E. WOLFF,
PERCY A. ENGLISH.